

National Register of Historic Places Registration Form

JUN -5 2015

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, How to Complete the National Register of Historic Places Registration Form. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions.

1. Name of Property

Historic name Murphy Springs Farm

Other names/site number Hugh Murphy House

Name of related multiple property listing Historical and Architectural Resources in Knoxville and Knox County, Tennessee

2. Location

Street & Number: 4508 Murphy Rd

City or town: Knoxville State: Tennessee County: Knox

Not For Publication: ☐ N/A Vicinity: ☒ X

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this ☒ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property ☒ meets ☐ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

☐ national ☐ statewide ☒ local

Applicable National Register Criteria:

☒ A ☐ B ☒ C ☐ D

Claudia E. Steyer
Signature of certifying official/Title:

6/13/15
Date

☒ State Historic Preservation Officer, Tennessee Historical Commission

State or Federal agency/bureau or Tribal Government

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria.

Signature of Commenting Official:

Date

Title:

State or Federal agency/bureau or Tribal Government

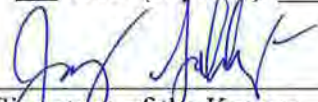
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4. National Park Service Certification

I hereby certify that this property is:

- ☒ entered in the National Register
☐ determined eligible for the National Register
☐ determined not eligible for the National Register
☐ removed from the National Register
☐ other (explain:)


Signature of the Keeper

7-14-2015
Date of Action

5. Classification

Ownership of Property

(Check as many boxes as apply.)

Private ☒
Public – Local ☐
Public – State ☐
Public – Federal ☐

Category of Property

(Check only **one** box.)

Building(s) ☐
District ☒
Site ☐
Structure ☐
Object ☐

Number of Resources within Property

Contributing	Noncontributing	
7	2	buildings
3	0	sites
0	0	structures
0	0	objects
10	2	Total

Number of contributing resources previously listed in the National Register 0

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6. Function or Use

Historic Functions

DOMETSIC / Single Dwelling
DOMESTIC / Secondary Structure
AGRICULTURE / Agricultural Field
AGRICULTURE / Storage
AGRICULTURE / Agricultural Outbuilding
AGRICULTURE / Animal Facility
SUBSISTENCE / Processing
RELIGION / Religious Facility
FUNERARY / Cemetery
TRANSPORTATION / Railroad
TRANSPORTATION / Road

Current Functions

DOMESTIC / Single Dwelling
DOMESTIC / Secondary Structure
AGRICULTURE / Agricultural Field
AGRICULTURE / Storage
AGRICULTURE / Agricultural outbuilding
FUNARARY / Cemetery

7. Description

Architectural Classification

MID 19th CENTURY/ Gothic Revival

Materials:

Principal exterior materials of the property:

WOOD: Weatherboard, Log; Metal

Narrative Description

Summary Paragraph

The Murphy Springs Farm district is a historic family farm that includes approximately 176 acres in northeastern Knox County, Tennessee, just outside the city limits of Knoxville. The core domestic complex of the farm is comprised of one primary contributing dwelling, a c. 1841 Gothic Revival house, a c. 1841 smokehouse, and a collection of outbuildings from the late 19th and early 20th century – spring house, dairy house, barn/corncrib, chicken coop, wood shed - supporting buildings associated with a period of rural reform and agriculture. The domestic complex is set back from Murphy Road, and surrounded on all sides by an agricultural landscape of pastures and fields. Mature tree lines separate the pastures and fields, and sections of the farm remain wooded. Also included are a family cemetery and a church cemetery.

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The main house in the domestic complex, referred to as the Hugh Murphy House, is an excellent surviving example of the Early Gothic Revival style and wood-frame construction in east Tennessee. The house was constructed with lumber from the farm and brick fired on-site. A renovation in 1925 resulted in several changes to the house while leaving a majority of the original materials and woodwork intact and retaining a high degree of integrity. A sensitive rehabilitation in 2009 relied on historic photographs to rebuild the front porch to its original design.

The Hugh Murphy House and adjacent domestic and agricultural outbuildings are situated about 500 feet to the east of Murphy Road on a knoll that rises above Murphy Creek to the south. Located in the vicinity of the Hugh Murphy House (resource #1) are a c. 1841 log smokehouse (resource #2), a wood shed (resource #7), a chicken coop (resource #6), spring house (resource #3), dairy house (resource #4), two-bay barn-turned-garage (resource #5), and a non-contributing one-bay garage (resource #8). Most of the supporting agricultural-related resources date from the late 1880s – early 1900s, the rural reform era. Across Murphy Creek to the south is the original Murphy family cemetery (resource #10), where the original settlers Robert and Martha Murphy are buried along with two of their children and spouses. At the northeast corner of the farm sits Murphy Chapel Cemetery (resource #11) with the first burials in the 1890s, and which was associated with a Methodist chapel that was razed in the 1950s.

Access to the farm is along Washington Pike, Murphy Road, and Luttrell Road in northeast Knox County. The agricultural land was used primarily for subsistence crop production in the 19th century, and then transformed into pasture, hay, and corn fields for dairy stock in the early 1900s. By the mid-1940s, dairy operations ceased and the livestock was transitioned into a cow-calf operation, which continues to this day. The agricultural fields from the period of rural reform (1900-1945) are still extant. The landscape of the domestic complex and agricultural fields contribute to the historic character of the property (resource #12). Mature cedar trees have grown and clearly defined the fence lines between the fields and pastures, which in places are also separated by creeks, and roads. A Norfolk Southern railroad spur line, built in the 1880s by Powell Valley Railroad Company, bisects the farm, as does Washington Pike, which was put into service in the early 1800s.

Inventory

1. Hugh Murphy House (c. 1841, 1925, 2009, contributing building)

The Hugh Murphy House sits on a rolling portion of the farm in Grassy Valley, Knox County, Tennessee. It sits to the north of Murphy Creek, facing Murphy Road to the southwest and Washington Pike to the southeast. The two sides of the house facing the roads are characterized by a gentle, downward sloping site. A gravel driveway descends from Murphy Road down to a small spring-fed branch creek that runs perpendicular to the front of the house. The driveway then ascends up the hill towards the house, curving to the north to meet the garages, and extending past the house to the agricultural complex. A brick walkway connects the driveway to the side lean-to porch. The Norfolk Southern railroad line runs from southwest to northeast between the house and Murphy Creek, paralleling Washington Pike.

Character-defining elements of the Gothic Revival house include the steep pitch lines of the roof, a one-story bay porch with a hipped roof and square posts, a columned porch along the north and east sides of the house, and stained glass sidelights. Most of the windows are six-over-six, single-hung wood sash and original to the house. Interior features include tall (7 1/2 inch height) baseboards, wide window molding, original wood doors and banisters. A second story addition and gable was added to the south side of the house in 1925.

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BUILDING HISTORY

The house was built c. 1841. The family history by Robert M. Murphy Sr. states that it was built by Hugh Murphy, assisted by James Murphy, his brother-in-law Abraham Stoffle, Abner White and Hugh Crawford. Other accounts in the area indicate it was built by Edward Legg, a local builder. Hand hewn logs used in the foundation were felled on the property, and the bricks used in the chimneys were handmade on site¹.

Several projects have affected the house. In 1925 improvements and changes characteristic with the rural reform movement were made when Alvin R. Murphy Sr.'s new wife refused to live in a house without plumbing or electricity. A second story gable was added on the southeast side over the dining room, with a dressing room and a bathroom. Changes were made downstairs to remove an entry hall wall and create a larger front parlor for entertaining. The front porch was removed and a full-length shed-roof porch replaced it. A mud room was added to the rear of the kitchen, along with a small breakfast nook, and the wrap-around porch was enlarged slightly and screened in. A kitchen remodel was completed in 1950 with new cabinets, and plastering over of the fireplace and removal of the wood stove. In 1960, a portion of the shed-roofed c. 1925 front porch was enclosed to add a small bathroom for the downstairs bedroom. A sensitive rehabilitation in 2009 stabilized the foundation and cellar, used restoration techniques to stabilize the original windows, woodwork and trim, and restored the front porch to its 1890s appearance.

EXTERIOR

The two-story, Gothic Revival dwelling uses balloon frame construction with horizontal heart pine wood siding. Hand adzed and sawn timbers are used for the structural framing, with the white oak sills and southern yellow pine corner posts being hand-adzed with mortised joints. Windows are six feet in height, six over six, single hung wood. Window trim throughout the house exhibits dog-ear trim and is hand planed. A band of wood trim extends below the eaves of the house.

The house has a cross gable roof with seven distinct peaks. The foundation was originally brick and stone piers, but the 2009 restoration stabilized and augmented it. Poured concrete foundation walls and retaining walls were introduced into a six foot deep basement. The roof decking is made of wide slices of southern yellow pine with the outer bark layers still present. Evidence of the hand-split white pine wood shakes that were the original roof covering have been found in the attic and pictorial evidence documents the wood shake roof in 1890. A standing seam metal roof replaced an asphalt roof in 2009.

The facade of the house faces southwest and fronts Murphy Road. It is composed of three bays. The front entrance is located in the central bay and has three-light sidelights with one light each of cobalt, ruby, and etched glass. The entrance to the house is emphasized by a one bay front porch with a gable roof and square posts. On the second story, above the front entrance, is a front gable featuring a Gothic Revival style, pedimented wooden two-sash window with original sidelights of cobalt, ruby and etched glass. This second story window (installed in 2010) replaced a deteriorated metal window that was added c. 1925, and was a likely replacement for a door originally placed above the one-bay front porch that can be seen in a 1890 photo. An original round sawn wood attic vent is located above the window. The original front porch was removed in 1925 and replaced with a deeper porch running the full length of the house. By 2009 the foundations of this porch and wood floor had deteriorated, and porch was again replaced with a replica constructed from historic photographs.

¹ Faulkner, Dr. Charles H., email to Kevin Murphy, June 29, 2009

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On the northwest elevation, the western portion has one two-story gable with a window upstairs and another one downstairs. Further east, a one-story porch with wooden Doric columns is shed roofed and wraps around to the northeastern elevation. On the first floor, an original wooden door with stained glass sidelights matching the front entrance is located on the western side of the porch, with two original wooden windows to the east. Two dormers located above the shed-porch on the northwest elevation each have six-light hinged wooden windows with matching trim and vented pediments.

A two-story gable end is located to the right (northeast) of northwest elevation. The northeast gable end features a vented pediment and round, sawn-wood attic vent. The shed porch wraps around the northwest and northeast facades, joining a single story kitchen that continues the roof and dimensions of the porch to the southeastern corner of the house. The porch ceiling contains two different types of board, indicating that the porch depth was increased, most likely during the 1925 renovation. The 1925 renovation included several changes to the kitchen area: the addition of a small mudroom on the northeast elevation, a small refrigerator nook, breakfast nook, and the replacement of the kitchen door from the southeast elevation to the northeast mudroom. These additions were not structurally sound, and in 2009 the changes were rebuilt and reconfigured into a larger kitchen and mudroom, and the exterior door was changed to open northwest onto the wrap-around porch.

The southeast elevation faces the railroad track and Washington Pike. It features two, two-story gable ends, as well as a metal covered double hatch that provides access to the basement. The eastern gable was added in 1925 to provide a dressing room and bathroom upstairs above the dining room; prior to the addition, there was a shed roof that covered the first-floor dining room and kitchen. The current single-story roofline over the kitchen uses the same roofline of this original shed roof. The western gable end is original to the 1841 house, and features an original continuous brick foundation wall.

INTERIOR

The interior of the building was originally a central hall plan downstairs. The formal entry to the house, facing southeast to Murphy Road, was originally a central hall flanked by two rooms, each of which contained a fireplace. The original wall between the hallway and north room was removed, along with the fireplace and chimney, and resulted in a larger entertaining parlor. These alterations were probably completed in the 1925 renovation. After the 2009 restoration, this room is now the formal dining room, with the front entrance leading directly into it. This dining room has original six foot windows on the southwest and northwest walls. On the northeast wall, which opens to the side porch, is a four-foot wide, one-over-one, single-hung wood sash window added during the 1925 renovation.

Underneath the house, the southern yellow pine floor joists are flattened on the bearing sides, and notched on the ends to sit on the oak sills. The first floor rooms were modified in 1925 by the addition of four-inch red and white oak tongue and groove floors which use the original boards as a subfloor. The upstairs spaces still contain the original, exposed pine boards. Baseboards are hand planed and vary in height from six inches to one foot. All interior doors are two paneled wood. Where interior plaster exists, it is installed on handsplit lathe.

To the east of the dining room is a downstairs bedroom. The bedroom has two original windows on the southeast and southwest walls. An original brick chimney is on the northwest wall. A small closet is to the southwest of the chimney.

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Opposite the formal front entry is a stair hall. An exterior entrance with original door and sidelights, identical to the front entrance, leads into this hallway from the northwest porch.

On the northeast corner of the house, with access from the stair hall, is the living room. The fireplace and chimney in this room were deconstructed in 2009 brick-by-brick. A concrete foundation was built for the chimney, and a new core was constructed using modern brick, and then veneered with brick from the original chimney, slightly deeper and narrower than the original chimney. On the front of it is a mantel original to the house. The mantel was sized to the original wood burning hearth, with applied square cut pilasters on square cut plinth, supporting a deep square mantel shelf. The built-in bookshelves to the southwest of the fireplace are original, with detailed birds mouth shelf supports. Two single-hung windows on the northwest wall are original; the single window on the northeast wall replaced a door that was originally in that position.

Leading off to the southeast of the living room is an opening to the kitchen. There are two original windows on the southeast wall. A peninsula extends from the wall between the two windows, and has an oak countertop made with lumber from the old barn. On the northwest wall, a cutout in the counter backsplash provides visibility into the original plaster, lathe and vertical pine logs that frame the adjacent living room. On the northern corner of the kitchen is an entrance to a mud room.

The stairs, with original treads and trim, curve to the west as you climb up to the upstairs landing. The original bannister is still in place and has a steep, sharp curve in the hand rail at the top. Upstairs, an L-shaped landing and hallway connects the three bedrooms and hall bathroom. The rooms upstairs are notable due to the steep roofline that begins approximately four feet up each wall; the upstairs rooms all have the appearance of being smaller than they actually are.

One upstairs bedroom is directly above the downstairs bedroom on the southwest side of the house and contains a single six foot window on the southeastern wall facing the railroad tracks.

Another, larger upstairs bedroom is located on the western/northwest side of the house, sitting above the current dining room. The 1890 photograph shows evidence that a door leading to a small walk-out opening above the front porch was originally present, but it was converted into a casement window in the 1925 renovation. Original cobalt and etched glass stained glass sidelights matching the downstairs ones are on each side of the window, while the ruby sidelights were replaced with pink-ish colored sidelights in 1925. A single-hung window with six-light sashes is in the northwest gable-end of the room. Originally this room had a chimney and a fireplace in it; there is evidence of this in the ceiling joists and the exposed subfloor, but the 1925 rehabilitation made it unclear what the original configuration was.

The third bedroom on the northeast side is directly above the downstairs living room. A fireplace is on the southwest wall, and is part of the chimney that was rebuilt in the 2009 restoration. This chimney has another mantel that is original to the house, a simple mantel with wide board legs and mantel shelf, which was sized to a large wood burning hearth. Upon advice from Vic Hood, of Leatherwood Construction, the mantel has been left unpainted to showcase the original wood patterns. The northeast wall has a four foot wide wood single-hung sash window. In the northwest wall, a small dormer contains a single inward-opening casement window.

In the 1925 renovation, a seventh gable was added to the house above the then-dining room on the southeast side, which provided room for a dressing room and adjoining bathroom. In the 2009 restoration, the dressing

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room and bathroom were reconfigured to provide three spaces: a hallway bath, and a small master bath and walk-through closet that service the northeast bedroom.

2. Smokehouse (c. 1841, 2012, contributing building)

The smokehouse is log construction and has a front cantilever with gable end and hand-planed dovetail joints. Dendrochronologic dating of the logs was attempted, but unfortunately the results were inconclusive. It seems plausible that the smokehouse and Hugh Murphy House were built at the same time due to the similar lumber used to build each structure. The smokehouse suffered deterioration in the late 1900s, and was restored in 2012 with guidance provided by Vic Hood. The smokehouse was raised up, the lower sill beams replaced with period style reclaimed lumber, and a concrete foundation with limestone veneer was poured to prevent moisture from damaging the logs in the future. The roof, originally pine shake and later metal, was replaced with cedar shake in 2012. Where needed, replacement roof supports were fashioned from pine trees cut down on the farm, likely the exact procedure that was used when the original supports were installed.

3. Spring House (c. 1920, c. 1970, contributing building)

A large spring house that supported the dairy operation is north of the Hugh Murphy house, located down a slope where two springs emerge from the ground. It has a concrete foundation, added c. 1970. The building is constructed with vertical wood siding, a gable end roof, and contains four fixed wood windows with 6 lights. The windows are a combination of handmade windows and machine made windows. There are log beams and hand adzed joists present. On the east end of the spring house is an exterior patio of poured concrete, dug into the ground about two feet below surrounding grade. The spring has been piped into an open well in the floor of the exterior patio, and then the water is piped inside the house into another open well. Water then flows under the concrete foundation to an opening on the western side of the spring house.

4. Dairy House (c. 1920, contributing building)

The dairy house is just south of the spring house. One of the Murphy's recalls that churned cream was brought from the spring house up to the dairy house, where it was poured into molds. Later the molds were taken back down to the spring house for setting into butter.

The chimney is made of vitrified brick, which was manufactured later than 1890. The mortar is lime-based. Some of the nails were 1920s wire nails.² The structure was significantly deteriorated by 2012, and a recommendation was made by Vic Hood of Leatherwood Construction to document and disassemble the building, and reconstruct it using a combination of the original materials and period replacements. Fortunately, a large amount of replacement lumber was in storage above one of the garage bays on the property, and the dairy house was re-assembled, and the chimney mortar was re-pointed. The reconstructed building accurately conveys the historic use and character, is located in the same location as the original building, and has original windows, door, wood, and brick.

² Vic Hood [vhoo@leatherwoodinc.com], "notes from Murphy Farm – smoke house and spring houses", Message to Kevin Murphy, Jan 29, 2011. [This message states information about construction of the cook kitchen and spring house]

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The next three buildings do not have known dates of original construction. It is possible they were built before 1900. The earliest photographs of them are from approximately 1930, and by that time they appear to be aged by weather.

5. Garage with Corn Crib (c. late-1800s to early-1900s, rebuilt 1935, contributing building)

To the north of the house is a wood-framed two-bay garage with a storage room between the bays. Originally it was a two-bay barn for storing wagons, with a corn crib located between the two bays. It was substantially reconstructed in 1935, with horizontal wood siding replacing the original vertical wood siding. It has a tin gable end roof and concrete block foundation. The trim on the corn crib door features hand adzed supports; this trim and the door match the same elements used throughout the house and were probably left over from the house when the 1925 remodeling work was completed.

6. Chicken Coop (c. late-1800s to early-1900s, contributing structure)

East of the garage is a chicken coop. It is wood, has three bays and a shed roof. The floor was removed and the southern face was opened up in the 1980s to create an equipment storage shed, but the original wood board and batten entry door is still present on the west side, as is the small door for the chickens on the east side.

7. Wood shed c. late-1800s to early-1900s, moved 1935, contributing building)

Originally the wood shed was located north of the house where the current driveway is, but it was relocated to a location east of the chicken coop in 1935. It is wood frame with vertical wood siding. Round tree trunks are used for the corner posts. The floor is earthen.

8. Single Car Garage (1935, contributing building)

The single car garage to the north of the garage with corn crib is a single bay, concrete block building with shiplap siding. It has a metal, gable roof. This garage replaced a single bay barn with an attached shed roof bay that was built at the same time as the garage with corn crib (see Figure #3, #4, #5). It represents updated construction methods used towards the end of the progressive agricultural era.

9. Pole Barn (c. 1995, non-contributing building)

A large, two-bay pole barn with metal roof. Non-contributing due to age, but it does represent more modern agricultural building techniques.

10. Murphy Family Cemetery (1847, contributing site)

The original family cemetery is located on the farm on the south side of Washington Pike about halfway up the ridgeline to Edmondson Lane. The graves for the original settlers, Robert (died 1850) and Martha Murphy (died 1847), are here, along with the graves for the builder of the house, Hugh Murphy (died 1877), his wife Sarah, and several other Murphys. There are seven markers. Most of the markers are upright marble slabs with arched tops, engraved with the birth and death dates, and place of birth. One marker, for Hugh Murphy and his wife Sarah, is a double marker with a more elaborate cornice and arch at the top which sits on a stone base. There are several depressions where it is believed that a couple of family members were

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originally buried before they were re-interred in Murphy's Chapel Cemetery. The cemetery was used from 1847 through approximately 1880.

11. Murphy Chapel Cemetery (c. 1847, contributing site)

On the northeastern boundary of the property, on Luttrell Road, is Murphy Chapel Cemetery, associated with a Methodist chapel that stood nearby for nearly one hundred years. This cemetery has the gravesites of several Murphy family members, including Robert Fillmore Murphy and John Rush Murphy, as well as some Luttrell members from the adjacent farm and other members of local families and their relatives. The cemetery is actively maintained by a cemetery association with active burials occurring in the present day. Markers are a mix of granite and marble, of various styles typical of typical from 1880-through current times.

12. Agricultural and Rural Historic Landscape (1841-1965, contributing site)

The agricultural and rural landscape includes fields, pastures, tree lines, fences, gates, ponds and creek crossings throughout the property. Agricultural fields surround the primary domestic complex, and these elements of the agricultural landscape are integral to the operation of a working farm and complement the built components. The cedar trees that line the barbed-wire fence rows serve as wind breaks and clear demarcations of property boundaries between parcels. Some of these boundaries are the exterior boundaries from the original deeds and land grants; other represent subdivision of the family land into parcels in 1851, 1878, and 1926. Photographs from the early 1900s show board fences surrounding the barn for livestock pens. Fences on the farm are now barbed wire, and supplemented by single-strand electric fence on the exterior boundaries of livestock pastures. The configuration of the pastures and fields has not changed much since the early 1900s, with the exception of the livestock pens immediately surrounding the old barn site (location A below). Prior to the 1940s, there were several large livestock pens used to control the flow of dairy cattle through the milking operation. After 1940, some of the fences were removed and the areas combined with existing pastures.

One of the northern pastures, leading from the old barn site (location A) up to the Robert Murphy settler's cabin site (location B), contains several rows of rounded earthen berms as you proceed northward up the hill. These berms were an experiment for erosion control established sometime between 1930 and 1955. The easternmost hay field on Luttrell Road has a small pond to water cattle when they are occasionally grazed in that field, as does the field on the western side of Murphy Road; installation date for these ponds is unknown.

Wooded lots are located on the northern portion of the property, where the ground becomes rocky and is not arable. White's Creek runs underground just north of the farm, and this area has several sinkholes and rock outcroppings. Timber from this area may have been harvested by the first family members for their structures or for fires; few of the trees on the northern portion of the property appear to be old.

Washington Pike was an early settler's road that facilitated transportation and movement in northeastern Knox County. The road still passes on its original course through the farm. Murphy Road, which bisects the western portion of the farm, is evidence of how early farm lanes evolved as the movement patterns in the area changed and created a need to connect Washington Pike and Tazewell Pike to the north. A TVA high voltage transmission line runs north-south through the western field.

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Murphy Creek meanders along the southern portion of the farm. It enters the farm under Washington Pike on the southeastern side, and meanders through the lower pastures and hay fields in a westerly direction, between Washington Pike and the railroad track. Eventually it passes under Murphy Road. The creek then becomes the southern boundary line of the property as it flows southwest. It was the primary water source for livestock historically and to this day.

Other Locations

The locations below are mentioned in the narrative to describe the history of the farm and family, but are not resources that are counted in the district as they lie outside the period of significance, are outside of the nominated boundary, or are locations that don't contain enough integrity to be a non-contributing site. On advice from the staff of the Office of the Keeper, they are lettered to differentiate them from counted resources. They are explained and included to provide context for the Historical Narrative below.

A. Old Barn and Silo Site c. 1920-2008

A large dairy barn was located on this site from approximately 1930 until it was demolished in 2008. The barn had a milk parlor on the southern side, and several stables on the northern side. There are no ruins left on the site. A round silo was built at the same time as the barn, and demolished after 1945.

B. Robert Murphy Log Cabin Site c. 1797-1850?

North of the Hugh Murphy house, about one quarter mile at the top of a hill, is the site of the original settler's cabin that Robert Murphy and his family built when they settled in east Tennessee in 1797. A few foundation stones are left on the site. There is a spring to the east of the cabin, which used to have a reasonable flow, but today is no more than a muddy low spot.

C. Murphy Chapel Site, 1847-c.1945

The northeastern corner of the property is the site of the former Murphy Chapel, associated with the Methodist faith from approximately 1847 until demolition in the 1950s. At an undetermined time following the demolition, Luttrell Road was paved and now curves through this site, and the remainder of the site has reverted to a natural, forested state. As there is no visible site and nothing is revealed about the period or use, historical integrity of the site has been lost and it is not a countable resource. No archeological work has been performed on the site, although there may be potential to perform this in the future.

D. Ritta Community Building site, c. 1950-c. 1975

Just to the north of the Murphy Chapel Cemetery is a gravel circle drive. On the western side of this driveway was a community building, constructed about 1950 and torn down around 1975. There was a very active Ritta Community Club in the 1950s that held community fairs, constructed floats for the annual Knoxville Santa Claus parade, and performed variety fairs. A structure, of unknown construction, was built on this site to house local club meetings. After the club declined, the structure became an attractive nuisance for vagrants and was demolished. The site's history demonstrates how the farm and family remained an important gathering point for the Ritta community through the 1950s.

E. Chesney House Site, c. 1930-c. 1990

The Chesney House was built after Ann Koger and her husband moved back to Knoxville, displacing Tip Chesney and his family from their house. The house was used by the Chesneys until the late 1980s. It was demolished in the early 1990s, and there are no remains left on the site.

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F. Robert M. Murphy Sr. House, c. 1920

Colonial Revival, two story wood frame, wood shingled wall covering, end gable roof with asphalt shingle roof. Downstairs windows are double-hung windows nine over nine; upper story six over nine. There is a central entry with small paned sidelights and applied wooden fan pediment over the central entry door. Siding is a manufactured wood shake. Robert M. Murphy Sr. built this house on his parcel of the farm when he returned to Knoxville in the early 1920s, and later became the country's agricultural extension agent.

G. Robert M. Murphy Sr. Barn, c. 1930

Wood framed hay barn, with deterioration from significant water damage and growth from the surrounding woods.

H. Colonel Robert M. Murphy Jr. House, c. 1960

Split level two story wood frame, brick veneer, asphalt shingle roof. Windows are eight over eight wooden single hung with metal storm windows. Central entry door with a broken arch pediment and four light transoms. Concrete block foundation.

I. Washington Pike road, c. 1810

Washington Pike was an early wagon road running from west southwest to east northeast through the farm. It runs south of Murphy Creek on the western side of the farm, and then crosses over Murphy Creek about halfway through the property to run on the northern side of the creek as a driver heads east northeast. Written histories of the community record that neighbors willingly gave access through their property to better connect their settlement farms to nearby Knoxville, as well as settlements farther outfield and eventually to Emory Road, which led to Washington, DC. Today it is a two lane asphalt road.

J. Norfolk Southern Railroad Middlesboro Spur Line, 1888

The railroad was originally constructed in 1888 by Powell's Valley Railroad Company, then bought by the Knoxville, Cumberland Gap & Louisville Railroad. The railroad runs generally parallel to Washington Pike, remaining on the north side of Murphy Creek. An at-grade crossing at Murphy Road is present in the western half of the farm, and another at-grade crossing is present on the eastern side of the farm across Luttrell Road. A trestle just east of the Hugh Murphy House allows cattle to cross under the railroad track to water in Murphy Creek.

K. Chesney Cottage

Tip Chesney worked on the Murphy Farm in the late 1800s and early 1900s. He built a house for his family near the southwest corner of the farm. Ann Murphy Koger and her husband move back to Knoxville in the 1930s. The house was used by the Kogers until the 1980s, and then as a rental house until the early 2000s. It is in poor condition.

L. Isaac Anderson School Site

Located just outside the Murphy family property, the Isaac Anderson School site is a historic site located in the vicinity of the Murphy Springs Farm district, associated with Isaac Anderson's first school, Union Academy. This school later became Maryville College in Blount County. There are no remains of the school on the site, but there is a large stone marker placed by the Daughters of the American Revolution.

M. Murphy Road

Murphy Road began as a farm lane running north from Washington Pike to Tazewell Pike and provided access to four or five large family farms. Right-of-way for the road was acquired by the county in 1957. It

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was improved in 1998 and additional right-of-way was acquired to accommodate future expansion. There is a stoplight at the southern terminus of Murphy Road where it intersects with Washington Pike.

N. Railroad Depot, General Store & Ritta Post Office Site

In approximately 1885, a general store and post office were built on the eastern side of the farm. Within five years, the railroad was constructed and a small passenger station was built. These survived until the late 1930s.

O. William Alanzo Murphy House

This house of unknown date was probably built after the civil war. Green metal roof, white weatherboard siding.

P. Dixie Murphy Cottage Site

After her husband Fred's death, Dixie Murphy built a small cottage on this site for herself, but she only lived in it a couple of years before passing from cancer. Alvin R. Murphy Jr. and his wife used the cottage shortly after their marriage until 1948. The cottage was used as a rental property until 2010. Preservation experts evaluated the cottage and determined it was not a contributing structure due to deterioration, and with a high renovation cost, it was demolished to avoid being an attractive nuisance.

Conclusion of Narrative Description

The Murphy Springs Farm retains many buildings constructed in the 1800s and early 1900s to support an east Tennessee family farming operation where the family had been established on the land since just after statehood. It is an early example of rural domestic architecture with the Gothic Revival-style Hugh Murphy House, and the additions of domestic and agricultural outbuildings as well as the evolution of the house in the mid-1920s. The farm retains a high degree of integrity in location, setting, materials and association, and portrays the evolution of a self-sustaining family farm as it evolved from settlement through the late 20th century. The most prominent buildings on the farm convey a mid-19th century design aesthetic, enhanced by the craftsmanship of skilled builders and carpenters.

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8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- ☒ A Property is associated with events that have made a significant contribution to the broad patterns of our history.
- ☐ B Property is associated with the lives of persons significant in our past.
- ☒ C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- ☐ D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations N/A

(Mark "x" in all the boxes that apply.)

Property is:

- ☐ A Owned by a religious institution or used for religious purposes.
- ☐ B removed from its original location.
- ☐ C a birthplace or grave.
- ☐ D a cemetery.
- ☐ E a reconstructed building, object, or structure.
- ☐ F a commemorative property.
- ☐ G less than 50 years old or achieving significance within the past 50 years.

Areas of Significance

Agriculture

Architecture

Settlement

Period of Significance

1841 to 1965

Significant Dates

c. 1841 Hugh Murphy House constructed

c. 1900 additional agricultural outbuildings

1925 renovation to Hugh Murphy House

Significant Person

N/A

Cultural Affiliation

N/A

Architect/Builder

Unknown

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Statement of Significance Summary

Murphy Springs Farm, settled in 1797 and located in northeast Knox County, Tennessee, is nominated to the National Register under Criteria A and C for its local significance in settlement patterns, agriculture history, and local architecture of Knox County. The period of significance begins with the earliest known and extant resources that reflect the settlement and agricultural use of the district – the c. 1841 Hugh Murphy House and smokehouse – and continues until fifty years prior to this nomination - 1965.

Two separate multiple property nominations provide contexts for Murphy Springs Farm: 1) Historic and Architectural Resources of Knoxville and Knox County, Tennessee #64500608; and 2) Historic Family Farms in Middle Tennessee, #64500605. While the Historic Family Farms in Middle Tennessee MPN doesn't encompass the geographical area of Knox County in eastern Tennessee, it does provide themes, property types, significance and registration criteria that can be applied to historic family farms in eastern Tennessee, with consideration for differing agricultural practices and architectural styles.

The c. 1841 Hugh Murphy House, an early example of Gothic Revival style architecture, meets the registration requirements for Criterion C of the Historic and Architectural Resources in Knoxville and Knox County, Tennessee Multiple Property Nomination for Single Residential Buildings under the Early Settlement and the Frontier, 1785-1860 historical context. The house's balloon frame single cross gable Gothic front, steeply pitched roofs, window hood molding, and fascia boards all strongly identify with the Gothic style. Modernizations were made by the family in 1925 and in 2009, but the house retains integrity of materials, design, workmanship, massing, features, setting, location, feeling and association with the style. It is one of two examples of early Gothic Revival style in Knox County, and the only one that retains enough of its land to acknowledge its historic setting. It also historic outbuildings that retain integrity and illustrate the function of a self-supporting family farm and the evolution of the farm from the mid-19th to mid-20th century. Architecturally, the smokehouse and spring house an excellent examples of agricultural outbuildings eastern Tennessee rural family farms and therefore also are eligible under Criterion C.

The Murphy Springs Farm is significant under Criterion A for settlement and agriculture as defined in several periods of the two multiple property nominations, described in detail later in this section. Established in 1797, five years after Knox County was formed and the year after Tennessee became a state, Murphy Springs Farm is the second oldest continuously operating farm in Knox County that is still owned by the same family³. Robert Murphy probably planted his first crop that year to establish a productive subsistence agricultural environment. Murphy Springs Farm meets the description of a "historic family farm" with contributing resources in all four categories of buildings and structures: 1) dwellings, 2) outbuildings, 3) fences and fields, and 4) cemeteries⁴. The c. 1841 farmhouse portrays the prominence of the family to the early history of the area and represents the settlement and anti-bellum period of eastern Tennessee. Little is known about farm operations in the second half of the nineteenth century, but transition to dairy, tobacco, and later beef cattle reflect common trends of the early and mid-20th century agriculture in eastern Tennessee. The dairy outbuildings, chicken coop, modernization of the farmhouse and a family member who served for twenty-seven years as a county extension agent also reflect the Agriculture themes in the "Rural Reform and Agriculture" period.

³ According to Tennessee Century Farms Program, a listing of farms owned by the same family for more than 100 years.
<http://www.tncenturyfarms.org/knox-county/>, Accessed 2015 January 28

⁴ National Register of Historic Places, Historic Family Farms in Middle Tennessee, National Register # 64500605. p. F 41

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Narrative Statement of Significance

HISTORICAL NARRATIVE

The present Murphy Springs Farm originated from land acquired by an immigrant, Robert Murphy, who was born in Londonderry County, Ireland in 1757⁵. Conflicting information exists as to how Robert Murphy came to the United States. One family history states that Robert Murphy and his younger sister were shanghaied by sailors and brought to America in the hold of a ship. Oral history states that Murphy was pressed into service by the Royal Navy, and one night while anchored off the coast of Virginia, he decided to jump ship and swim ashore. Another history states that he was in the British Army and later captured as a prisoner of war⁶. Both histories agree that his name next appears in the records of the Revolutionary War listing of non-commissioned officers and privates of the Virginia Continental Line of Defenses (February-April, 1783), when Robert would have been aged 26.

In 1783 after the cessation of hostilities, Robert married Martha McNeil (1768-1847) in Max Meadows, Virginia⁷. Five of their children were born in Virginia before they journeyed southwest to Tennessee.

Early Settlement and the Frontier, 1797-1860 (Historic and Architectural Resources of Knoxville and Knox County, Tennessee Multiple Property Nomination)

Settlement and Subsistence Farming, 1780-1850 (Historic Middle Farms of Tennessee)

By 1797, Robert Murphy and his family had arrived in an area known as Grassy Valley, Tennessee. They were traveling in a covered wagon and camped near a spring overnight. The next morning they were approached by William Anderson, who was the original settler of the Beverly community and had purchased land from another neighbor, John Crawford. Anderson thought it might be agreeable to have some other neighbors in the area, and took Murphy to visit Crawford.⁸

The first deed to the Murphy Springs Farm was acquired on May 24, 1797 from John Crawford for 115 acres along White's Creek⁹ (now named Murphy Creek). Another 50 acres was acquired on July 1, 1797 from John Edmonson¹⁰. Grants from the State of Tennessee were acquired on March 12, 1819 for 15 acres and March 10, 1826 for 12.5 acres. Robert's son Hugh Murphy (1804-1877) acquired a 32 acre grant in 1825¹¹ and a 21 acre grant in 1836¹². The total land area of these deeds and grants represents approximately two hundred thirty-three acres, represented in Figure #8.

⁵ Murphy Family Cemetery (Knoxville, Knox County, Tennessee), Robert Murphy headstone, personally photographed, 19 May 2007

⁶ Luttrell, Elston. A Genealogy and Biography of the Family of Luttrell 1066-1893, 1893

⁷ Marriage Bond Between Robert Murphy and Hugh McNeil, 10 October 1783

⁸ Murphy, Robert M. Sr., "The Robert Murphy Family", page 3-4

⁹ Deed of Sale from John Crawford to Robert Murphy, 24 May 1797 (filed September 12, 1797), Knox County, Tennessee, Deed Book B21, page 204. Knox County Archives, Knoxville, Tennessee

¹⁰ Deed of Sale from John Edmondson to Robert Murphy, 1 July 1797 (filed September 19, 1797), Knox County, Tennessee, Deed Book B21, page 204-205. Knox County Archives, Knoxville, Tennessee

¹¹ Grant to Hugh Murphy, Grant # 10643, 1825, Book 10 page 174. Tennessee State Archives

¹² Grant to Hugh Murphy, Grant #20579, 1836, Book 20 page 343

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Robert Murphy, his wife and their (eventually) eleven children built their first residence, a settler's log cabin, on a level prominence near and above one of the springs, a site which is located on what is now on the highest point of the northern edge of the farm (location B). The original log cabin no longer exists; it is unclear when it was originally constructed, and when it was eventually taken down.¹³ Reminiscences by a family member contain a description that this home was a one and a half story dog trot log home, with sleeping quarters on the second floor.

A variety of crops and products were made on the early farm. Records from Robert Murphy's farm book, beginning in 1801, reveal that corn was the product marketable in the largest volume, which was also the dominant early crop of Middle Tennessee Century Farms¹⁴. Other items produced were potatoes, hay, flax seed, flour, butter, honey, and chickens, in additions to yards of cloth (woolen, cotton and linen). A written family history by Robert M. Murphy Sr. indicates that Robert Murphy had been apprenticed to a weaver and had learned the weaving trade, and brought into the valley a loom, spinning wheel, cords and hackle.¹⁵

The early Grassy Valley community had ties to several individuals with local significance. John Crawford was a Knox County delegate to the Tennessee constitutional convention that met in Knoxville in 1796¹⁶. William Anderson's son, Isaac, established a school, Union Academy, in 1802 just a few hundred yards north of the Murphy Farm on the Anderson property. Isaac Anderson was a well-known Presbyterian preacher who was the first pastor of Washington Presbyterian Church, which is still an active congregation located several miles northeast of the Murphy farm on Washington Pike. In 1812 he moved the school and his ministry to New Providence Presbyterian Church in Maryville, Blount County, where the school later became the present-day Maryville College.¹⁷ Union Academy is no longer standing, but its location is marked by a historic marker placed by the Daughters of the American Revolution (location L on the site map).

There is evidence that other schools existed in the area. The Murphy account book lists entries to neighbor Samuel Crawford for schooling in 1806 for \$35.00; in 1816 it lists nine pounds for two years tuition for the Murphy children.¹⁸ The Murphy's youngest son, Hugh, entered into a contract with thirteen community parents in 1836 for teaching five months of school at Fancy Hill School (no longer standing) on what is present-day McCampbell Drive¹⁹.

At some point after Washington Presbyterian Church was established (1802), an early road was constructed to connect the church to the nearby settlement of Knoxville. The route of the road generally followed

¹³ Murphy, Robert M. Sr., "The Robert Murphy Family", page 10

¹⁴ National Register of Historic Places, Historic Family Farms of Middle Tennessee, National Register # 64500605. p E 8

¹⁵ Murphy, Robert M. Sr., "The Robert Murphy Family", page 8-9

¹⁶ Rule, William (ed.) The Standard History of Knoxville, Tennessee;

¹⁷ As an interesting footnote, after moving the school to Blount County, Anderson provided some education for the future governor of Tennessee and later Texas, Sam Houston. Murphy, Robert M. Sr., "The Robert Murphy Family", written family history, c. 1950, page 24; Tumblin, John C., "Crawford-Harrill House", accessed July 13, 2013, <http://www.fountaincitytnhistory.info/Places33-CrawfordHarrillHouse.htm>; James, Marquis, *The Raven: A Biography of Sam Houston*. University of Texas Press, 1988, page 29

¹⁸ Murphy, Robert M. Sr., "The Robert Murphy Family", page 10

¹⁹ Murphy, Robert M. Sr., "The Robert Murphy Family", page 10

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White's Creek (now Murphy Creek), and it passed through the center of the Murphy Farm. No right-of-way or easements were recorded for the road, which is now known as Washington Pike (location I).

Several of Robert and Martha Murphy's children achieved prominence in the early Grassy Valley community. Daughter Elizabeth married Dutch immigrant Abraham Stoffell, who acquired a large farm adjacent to the Murphy farm on the eastern side. The Stoffell's great grandson, John. M. Stoffell, founded Stoffell's Dairy in 1929, which grew into a large operation that distributed dairy products from Johnson City to Athens, Tennessee.

Early church affiliations for the Robert Murphy family are not clear, but it seems likely that the family may have attended camp meetings held at nearby Fountain Head Springs, now known as Fountain City Lake, which was a Methodist site used for camp meetings. Early settler families were visited by Methodist circuit riders, who helped the families with their needs and often converted pockets of families into new congregations²⁰. It is documented that in 1847 Robert Murphy gave a square plot of land off the northeast corner of the farm for a church building site (location C), adjacent to the Crawford and Luttrell farms²¹. A small Methodist church, named Murphy's Chapel, was constructed, accepted by the Methodist Conference, and served by circuit riders.²² The chapel's location is confirmed in the Figure 10 map excerpt of Knox County in 1895. The creation of Methodist chapels by local families, and tending by circuit riders was a common religious theme in early Tennessee, and the establishment of Murphy's Chapel and later the adjoining Murphy's Chapel Cemetery (resource #11) reflect the prevailing patterns of the period. The chapel was an active member of the Knoxville Circuit for about eighty-five years.²³ When the chapel was abandoned in the 1940s, the property reverted back to the Murphy descendants. The chapel cemetery still remains on the northeast corner of the nominated property on Luttrell Road, with a few Murphy family members interred there. The cemetery serves as a reminder of the evolution of religion in the community.

Around 1841, Hugh Murphy built a Gothic Revival style house (resource #1) approximately one-fourth mile from his father's home, in the direction of Knoxville and in a line with the original log cabin. The date of construction is not clearly documented, but observations by local preservation officials and archeologists scatter around the period of 1820-1850, with c. 1841 being considered likely. Hugh Murphy married his first wife, Sarah White, in 1841, and the family history records that Robert Murphy and his wife were living in the Hugh Murphy house by the time of their deaths in 1850 and 1847.

The log smokehouse behind the house was likely built at the same time as the house. A smokehouse allowed the family to preserve meat and augment their grain and vegetable diets, and were common in early settlement areas of Knox County.

²⁰ Jordon Jr., N. Fred. "Into the wilderness: Circuit riders take religion to the people." *Tar Heel Junior Historian* (37, no. 2). Retrieved from <http://www.learnnc.org/lp/editions/nchist-newnation/4451> 2014 Oct 13.

²¹ Deed of Conveyance from Robert Murphy to John Murphy and others, trustees, January 26 1847, Knox County, Tennessee, Deed Book O-2, Page 45-46, Knox County Archives, Knoxville, TN

²² Murphy, Robert M. Sr., "The Robert Murphy Family", page 27

²³ Knox County Methodist Bodies, accessed July 13, 2013, http://knoxcotn.org/old_site/churches/wpa/methodist1.htm

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The first Murphy to pass away in Tennessee was Robert Murphy's wife, Martha, in 1847. The family picked out a site for the family graveyard, on a level elevation across Murphy Creek from the Hugh Murphy House (resource #10). Robert Murphy, Hugh Murphy and his first wife Sarah White, and two of their young children are also buried in this cemetery. Robert Murphy's daughter Polly, and her husband Abraham Stoffell, are interred here as well. The cemetery is located in a discontiguous area south of the rest of the district. Established just six years after the Hugh Murphy House was built, the Murphy Family Cemetery is the third oldest resource in the district and represents the typical small, family burial plots which contributes to the significance of a farmstead. The location, on high, well-drained land, is also indicative of many family burial plots in the American South²⁴. The cemetery is also significant in that it contains the grave of the original settlers and the builder of the district's most significant and oldest building, and that all graves date prior to 1880.

When Robert Murphy died in 1850, his will divided his holdings equally between Hugh Murphy and one of Hugh's brothers, William Murphy²⁵ who also resided on a portion of the farm. In 1851, William Murphy sold his half to Hugh for five hundred dollars²⁶, giving Hugh Murphy sole possession of the Murphy farm.

A description of Hugh Murphy by his great-nephew James Luttrell Murphy provides insight into Hugh Murphy's prominence in the community, as evidenced by the large Gothic Revival house he built:

And then there was the broad, blushing face of brusque and bashful Old Uncle Hugh, the finest looking and the most typical Irish-American I ever saw – who had the ready faculty of getting the “solid coins of the realm”, and the rare ability of holding on to them. He seemed to have an affinity for their metallic luster, and they a magnetic attraction for him. He never asked for anything but his own, and he never failed to give other his dues. While the ring of dollars was music to his pocket, the principals of honor were songs to honor and were songs to his soul. Honest to a penny, he was scrupulous to a cent, and did not believe in holding and hiding money where it could do him and nobody else any good, but in putting it out where it would be worth something to him and a greater benefit to his fellows. And so his friends and neighbors would come and get his money and call for and cover his paper with their signed manuel, and then go away sighing because there was no more room for them to sign. His word was as good his “John Hancock” and his bond was as current as a bank note. Many a poor farmer and laborer he has saved from bankruptcy and ruin, and many a humble house and home had he rescued to deserving wives and innocent. The good that such men do their lives after them, as the grand Old Roman said, and so will the generous deeds and helpful needs of Old Hugh Murphy, continue to live after him and rise up to bless him, and erect in the grateful heart of his beneficiaries a monument to his helping hand and loosening purse-strings. No better man lived in all that territory than broad, blunt old Uncle Hugh. All men are entitled to respect for getting money honestly, and deserving of honor for allowing others to have the use of it liberally. And so was Uncle Hugh. His friends and neighbors were always welcome, the “latch-string” of his house was ever hung out to the needy and deserving. I loved Uncle Hugh because he was such a splendid representative of my race and family and because he gave to the name and blood such strength and solidity.²⁷

²⁴ Potter, Elisabeth Walton and Boland, Beth M. “National Register of Historic Places: Guidelines for Evaluating and Registering Cemeteries and Burial Places Bulletin”. 1992. Part 5 – Burial Customs and Cemeteries in American History

²⁵ Last Will and Testament, Robert Murphy, dated Dec 27, 1842

²⁶ Deed of Sale from William Murphy to Hugh M. Murphy, August 29, 1851, Knox County, Tennessee, Deed Book T, Page 796. Knox County Archives, Knoxville, Tennessee

²⁷James Luttrell Murphy to James Madison Murphy, October 16, 1895. Letter. From “The Robert Murphy Family” family history

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Hugh Murphy's first wife, Sarah, died in 1858 leaving him with five children. That year appears to have been particularly hard on the Murphy family; two of the other young children – Joseph and Harriet – also died that year, and were interred in the family cemetery across the creek from the house.²⁸

The original founding of the farm, construction of the house, and death of the founder falls within the Early Settlement and Frontier Period of the Historic and Architectural Resources in Knoxville and Knox County Multiple Property Nomination. The farm exhibits settlement significance identified in the Knox County MPN where “widely scattered houses and barns still remain from the frontier period of history. In a few instances, some of these structures are clustered enough to form small groups of resources, with the earliest structures intermingled with buildings from a later historical eras. The remaining pre-1860s structures portray an important historical era; recording their history captures the settlement history of Knox County and Knoxville.”²⁹ Additionally, the farm represents how settlement patterns for the county, outside of Knoxville, didn't change much through 1860 – Murphy Springs Farm reflects the pattern that second and third generation descendants of the first settlers often took possession of a portion of the original landholding and constructed new houses there.³⁰

The farm is also associated with early patterns of both settlement and agriculture described within the “Settlement and Subsistence Farming” period of the Historic Family Farms of Middle Tennessee Nomination and reflect settlement themes in Knox County. Established in 1797, five years after Knox County was formed and the year after Tennessee became a state, Murphy Springs Farm is the second oldest continuously operating farm in Knox County that is still owned by the same family³¹. The first deed to the farm was acquired from John Crawford, an original land-grant holder and settler of Grassy Valley who was a delegate to the 1796 Tennessee constitutional convention. Without evidence of large outbuildings from this period, it appears the farm's production was oriented toward subsistence agriculture and less towards market-based agriculture; this is supported by the information from Robert Murphy's farm book about the crops produced on the farm. The Murphy family never held slaves, which reflects agricultural practices in eastern Tennessee, and differs from practices in middle and western Tennessee. The establishment of Washington Pike, with a portion running through the farm represents development in transportation for early settlers and communities. While no extent resources remain of community buildings, Murphy's Chapel church was the first Methodist church in the area and it's founding in 1847 typified early settler's activities of building their community.

Expansion and the Market Economy, 1850-1900, Historic Family Farms of Middle Tennessee

The Murphy's were Union sympathizers during the Civil War. Very little is directly known about the farm's use and involvement in the Civil War. The family history reports that the Murphy farm was stripped of everything that was movable, although it is not known if it was Union or Confederate forces that did this.

²⁸ Murphy Family Cemetery (Knoxville, Knox County, Tennessee), Joseph C. B. Murphy and Harriet Murphy headstones, personally photographed, Oct 25, 2009

²⁹ National Register of Historic Places, Historical and Architectural Resources of Knoxville and Knox County, TN, National Register #64500608. Page E 16

³⁰ National Register of Historic Places, Historical and Architectural Resources of Knoxville and Knox County, TN, National Register #64500608. Page E 16

³¹ According to Tennessee Century Farms Program, a listing of farms owned by the same family for more than 100 years in Knox County. <http://www.tncenturyfarms.org/knox-county/>, Accessed 2015 January 28

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This account may very well be correct, since today there are no family antiques or heirlooms remaining in the Murphy house, except for Hugh Murphy's Bible and some books and hymnals. It is not known what other troop activity occurred in this area.³²

Hugh Murphy's oldest son, Leon, was sent to Kentucky to avoid conscription and capture, and entered the Union service as a civilian. His detachment was responsible for getting food and other supplies across the mountains to Knoxville. On one trip, Leon Murphy and his good friend Edward J. Kinzel drove some hogs from Kentucky to Knoxville, and then Leon brought Kinzel to the Murphy home in Grassy Valley. Kinzel met and later married Leon's sister, Martha J. Murphy.³³ Martha passed away before Kinzel founded a mountain retreat in 1894 near Townsend, Tennessee known as "Kinzel Springs".³⁴

The only other incident recounted in the family history relating to the Civil War recalls a time when Union soldiers marched through the Murphy farm, and two of the young Murphy boys slipped away and visited the soldier's camp. One of the soldiers called them over to the wagon and filled one of their felt hats with brown sugar.³⁵

After the war, in 1866, sixty-one year old Hugh remarried to thirty year old Dicey Malinda LaRue.³⁶ Hugh began taking things easier with an energetic young wife to look after his remaining children, and he kept busy primarily tending to mortgage loans at the rate of ten percent.³⁷ Several deeds in the Knox County Archives confirm this, as does the almost \$4,500 of outstanding notes owed to Hugh at the time of his death.³⁸

After the war, tensions remained in the neighborhood church, and in 1874 the congregation of Murphy's Chapel was split when the Union sympathizers withdrew and decided to build a new church about two miles away. Corinth Methodist Episcopal North was established on (Old) Tazewell Pike on two acres of land from S. K. Harris, and the Murphy family shifted their support to this new church. Early trustees included substantial citizens living near the church: Hugh M. Murphy, nephew James Madison Murphy, Hugh's brother-in-law S. V. R. Stoffell (husband of Elizabeth Murphy), S. N. Bell, J. J. Crawford, B. F. Kenner, and S. K. Harris. The new church was served by monthly Methodist circuit riders. After some of the initial tensions that created the split subsided, family members began attending services at both Corinth Church and Murphy's Chapel, often going to one on Sunday morning and the other on the same afternoon. While the Corinth Church enjoyed membership and support of many area families, Murphy's Chapel was supported primarily by the neighboring Lewis Luttrell family and their descendants.

³² Murphy, Robert M. Sr., "The Robert Murphy Family", page 36

³³ Murphy, Robert M. Sr., "The Robert Murphy Family", page 36

³⁴ Kinzel Springs – A Little History. Accessed July 14, 2013. <http://www.kinzelsprings.com/history.htm>

³⁵ Murphy, Robert M. Sr., "The Robert Murphy Family", page 36

³⁶ Ancestry.com. *Tennessee State Marriages, 1780-2002* [database on-line]. Provo, UT, USA: Ancestry.com Operations Inc, 2008.

³⁷ Murphy, Robert M. Sr., "The Robert Murphy Family", page 32

³⁸ Deed of Sale from James M. Murphy to Hugh M. Murphy, dated April 8, 1875, Knox County, Tennessee, Deed Book N3, Page 411-412. Knox County Archives, Knoxville, Tennessee; Deed of Sale from Robert A. Sterling to Hugh M. Murphy, dated January 4, 1843, Deed Book G-2, Page 315-317. Knox County Archives, Knoxville, Tennessee; Probate Record of Hugh M. Murphy, Knox County, Tennessee, Will Book 19 p. 161-163. Knox County Archives, Knoxville, Tennessee

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In 1877, Hugh Murphy passed away and left his holdings to his surviving children and widow. Several transactions were conducted amongst the family members, and some members were bought out. In 1878, 213 acres of the Murphy Springs Farm were consolidated amongst Hugh's three sons (Robert Fillmore, William Alonzo, and John Rush) and his widow Dicey.³⁹ On March 6, 1880, deeds were filed dividing the farm into three 46 acre tracts for Dicey, Robert and John Rush, with William Alonzo receiving a separate 70 acre tract⁴⁰. William Alonzo "Lonsdale" Murphy built a house for his family on Washington Pike near the eastern edge of the farm (location O). The house, still located at 6015 Washington Pike, is on a parcel that was sold out of the family and is not included in the district's boundary.

Robert Fillmore Murphy continued to reside in the Hugh Murphy House, along with his brother John Rush and his step-mother, Dicey. Robert Fillmore married Sarah Ann French in 1884, and subsequently they had three children – Alvin R. Murphy (Sr.), Robert M. Murphy (Sr.), and Mary Ann Murphy (later Koger).

Powell's Valley Railroad Company acquired right-of-way easements across the Murphy farm to operate a railroad in 1887⁴¹, marking the second transportation right-of-way to impact the farm (the first was the establishment of Washington Pike). The railroad (location J) ran from Knoxville to Middlesboro, Kentucky, connecting a new industrial town and its coal mines to a growing city. Powell's Valley Railroad was acquired in 1888 by the Knoxville, Cumberland Gap, and Louisville Railroad Company. The first train was a special excursion train with a number of prominent Knoxvilleans, which wrecked on August 22, 1889 at a trestle crossing at Flat Rock Creek about 15 miles past Murphy Farm, killing five and wounding several others⁴². Later the line was bought by Southern Railroad, which later became Norfolk Southern, which presently operates the line.⁴³ The length of the railroad through the farm is not sufficient to be evaluated as a resource for the purposes of this nomination, but it is located and the impact explained below.

Around time of the railroad construction, this section of the Grassy Valley community received a new name – Ritta. According to local historian David Babelay's history of the area, William Alonzo Murphy (also known as "Lonzo") operated a general merchandise store and small post office (location N) near their house on the eastern side of the Murphy Springs farm, at the intersection of Luttrell Road and the railroad line. The railroad put a station in for passengers to catch the train their and receive their mail. Lonzo's wife, Zula, named the community "Rita", but the railroad added another "t" when they posted the sign there, and the community adopted the name and identity "Ritta".⁴⁴ Interestingly, maps of that time label the area "Rita" without the extra "t", and a 1971 historical map depicting all of the post offices has a footnote that the Rita Post Office was established in 1885, with Lonso Murphy as the first post master⁴⁵. An 1895 map of Knox

³⁹ Deed of Sale from L. D. Murphy, E. J. Kinzel and M. J. Kinzel to R. F. Murphy, W. A. Murphy, J. R. Murphy, Mrs. Dicey M. Murphy, dated July 15, 1878, Knox County, Tennessee, Deed Book R3, Pages 313-314. Knox County Archives, Knoxville, Tennessee.

⁴⁰ Quit Claim Deeds (four deeds), Knox County, Tennessee, Deed Book U3, Pages 1-3, dated March 6, 1880, recorded June 11th, 1880. Knox County Archives, Knox County, Tennessee.

⁴¹ Right-of-Way recording from R. F. Murphy and J. R. Murphy to Powell's Valley R.R. Co., dated May 23, 1887, Knox County, Tennessee, Deed Book J4, Pages 595-596. Recorded Oct 18, 1887, Knox County Archives, Knoxville, Tennessee.

⁴² Rule, William. Standard History of Knoxville, Tennessee. p. 294

⁴³ Knox County TnGenWeb, "History of Knoxville: Chapter 14: Transportation", <http://knoxcotn.org/about-knox-county/31-history/18-history-of-knoxville-chapter-14-transportation> (accessed April 11, 2014)

⁴⁴ Babelay, David, "Knox County, TN Communities", page 74

⁴⁵ *Historical Map of Knox County, Tennessee 1748-1971*. Map. Louis T. Ketron. 1971. Copy archived in the Calvin M. McClung Collection, Knox County Public Library, Knox County, Tennessee.

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County (figure #10) confirms the locations of Fancy Hill School, Murphy's Chapel, The Rita Post Office and train station, Corinth Church, and depicts the location of "French Murphy" (Robert F. Murphy's widow) and "Lonsdale Murphy" (William Alanzo Murphy) ⁴⁶.

The three children of Robert F. Murphy attended the still-functioning Fancy Hill School on McCampbell Drive. Their first grade teacher was Miss Annie Anders, granddaughter of the pioneer settler William Anderson and niece of Dr. Isaac Anderson, founder of Maryville College⁴⁷. In 1890, it seems likely that a photographer came through the area offering to take pictures of families in front of their houses, as well as classes in front of their schools. Pictures of Fancy Hill School⁴⁸, the Murphy House⁴⁹ (figure #2), and the Stoffell house⁵⁰ to the east of the Murphy farm were all taken at the same time. A date range for the Murphy house photo can be established: Robert F. Murphy, who died in July 1890, and his daughter Betty Ann, born in Feb 1889, can both be seen in the photograph. Robert F. Murphy died of typhoid fever, and his brother John Rush helped raise the three children, along with his widow Sarah French and his step-mother Dicey. Dicey arranged for lifelong care when she gave John Rush her 46 acres in 1899 in consideration for "maintain and support (Dicey) during the balance of her natural life in the same manner that she is now doing"⁵¹. Robert F. Murphy, along with his wife Sarah, step-mother Dicey, and brother John Rush, are interred in the cemetery on the northeast corner of the nominated property (resource #14) that was associated with Murphy's Chapel (resource #13).

No information is known about agricultural practices for Murphy Springs farm during this period. Precise configuration of the fields and pastures from this period is unknown; no limestone or other immovable objects define fence lines on the farm. The size of the fields and types of crops produced undoubtedly changed between the 1850s and today; otherwise the farm would have become economically unviable and would not remain as a farm today. The 1890 photo (figure #1) and a c. 1905 photo (figure #2) depict a white picket fence surrounding the house, with board fences four boards high used to create livestock pens in front of the house as well as behind the house. Based on the c. 1905 photo, a barn was built behind the house at an unknown date, and a family member remembers being told that it burned down sometime prior to 1925⁵². Other outbuildings were built during this time too, including the garage with corn crib (resource #5) and wood shed (resource #7).

The addition of a railroad for transportation, depot, post office, and general store on the farm reflect the pattern of slow but steady improvements to rural areas of Knox County. The identity of the Ritta community was centered on the eastern area of the farm, and the community maintained its own identity through the 1980s until it was slowly absorbed by surrounding new development.

⁴⁶ *Map of Knox Co. Tennessee*. Map. Vance, Coffee and Pill, 1895. *Lib of Cong*. Web. Accessed October 12, 2014. <

<http://www.loc.gov/item/2004629227/>>

⁴⁷ Murphy, Robert M. Sr., "The Robert Murphy Family", page 41

⁴⁸ Photograph of Fancy Hill School, ca. 1890, McCampbell Drive, Knox County,

<http://cmhc.knoxlib.org/cdm/singleitem/collection/p265301coll005/id/917/rec/17>

⁴⁹ Photograph of front of Murphy House, ca. 1890-1891, Washington Pike, Knox County. Copy in possession of Kevin Murphy, Knoxville, TN

⁵⁰ Photograph of S. R. Stoffell house, ca. 1890, Washington Pike, Knox County,

<http://cmhc.knoxlib.org/cdm/singleitem/collection/p265301coll005/id/788/rec/4>

⁵¹ Deed of Sale from D. M. Murphy to J. R. Murphy, dated May 27, 1899, Deed Book 211, Page 99. Knox County Archives, Knoxville, Tennessee

⁵² Alvin Murphy Jr, Oral interview, 12 August 2013, by Kevin Murphy via phone

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Rural Reform and Agriculture (1900-1945)

For the 20th century, the Historical and Architectural Resources in Knoxville and Knox County, Tennessee Multiple Property Listing focuses on urban and industrialization trends of Knoxville, with little reference to farming and agricultural practices in rural areas. However, the Historic Family Farms in Middle Tennessee Multiple Property Nomination covers agricultural themes that are relevant on a statewide level and can be applied to the nominated property.

The Murphy farm shifted from crop production to dairy production, which was a significant progressive agricultural trend identified in the Multiple Property Nomination. Several additional outbuildings were built around the 1900-1920 period, including a spring house (resource #3) and an adjacent one-room dairy house (resource #4) with a fireplace for boiling water to sterilize the dairy equipment⁵³. A larger barn and associated silo (location A) were built around 1920; the barn stood until substantial water damage and structural deterioration forced demolition in 2008. This barn had a large hay loft and hay trolley above the main entry, several stables on the northern side, and a milking parlor on the lower (southern) tier. The date of the silo's demolition is not clear; it was demolished sometime after the World War II.

Alvin Murphy, Jr, recalls that his great-uncle, John Rush Murphy, had a weekly dairy run into town each Saturday where he would deliver milk and eggs to customers. The dairy cows were pastured behind (to the east) of the barn and in pastures just north and northwest of the barn. Alvin Murphy Jr.'s uncle and cousins would call the cows from the pasture north of the barn down a cedar-lined lane to the barn for milking. Fields south of the railroad track, and on the south side of Washington Pike, were used for hay. Some corn was grown north of the cow pasture, in the area of the Robert Murphy log cabin site (location B) and to the west of it. This corn was harvested and blown up into the silo using a power take-off attached to a tractor to produce ensilage for the dairy cattle. Field and pastures were separated by barbed wire fences and were in a similar configuration as they are today. The Robert Murphy barn was used primarily for additional hay storage. William Alanzo Murphy (died 1916) and his son Fred, who owned the eastern side of the farm, grew corn and hay to sell to nearby dairy farms, including their cousins to the west.

A small amount of tobacco was also grown on the farm during this time in a small field north of the chicken coop, and dried under a small barn located north of the current wood shed. Evidence exists of later tobacco cultivation on another area of the farm; the Robert Murphy barn (location G) still has pine poles that tobacco was hung from in later years.

The chicken coop (resource #6) was also built in the early 1900s and reflects reform movements that encouraged side production on farms such as canning, chickens and eggs, fruit, and nuts⁵⁴. Each house on the farm had a large garden, and the families harvested blackberries each summer.

⁵³ Vic Hood [vhoo@leatherwoodinc.com], "notes from Murphy Farm – smoke house and spring houses", Message to Kevin Murphy, Jan 29, 2011. [This message states information about construction of the cook kitchen and spring house]

⁵⁴ National Register of Historic Places, Historic Family Farms of Middle Tennessee, National Register # 64500605. p E30 and F51

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Domesticated pigs were raised in a pen near the spring house for a number of years. Meat was cured and smoked in the smokehouse. Around 1938, the family located a source of green hams from Lay's Market in Knoxville that could be cured and smoked without having to keep pigs on the farm, and raising pigs was no longer required. The pig lot reverted to hay fields and pasture.

While the Murphy family never held slaves, at some point around 1900, they took on their first full-time hired hand, Tip Chesney. Tip, born in 1876, was the grandson of Pharaoh Chesney, a former slave who was probably born in the 1780s and lived a very long life⁵⁵. Tip was mentioned to be working in the fields gathering hay in approximately 1905 when one of the Murphy's went off to the University of Tennessee, and several members of the next generation remember Tip, who passed away in 1943. A house, of unknown date, was constructed on the southwest corner of the farm on McCampbell Drive for the Chesneys (location K on the site map). When Ann (Murphy) Koger and her husband moved back to Knoxville around 1930, they settled in the Chesney's house, and Tip built a new house on Murphy Road (location E).

William Alanzo's son Fred became the first Murphy to attend a university, enrolling at the University of Tennessee. Leaving the school a year before he would have earned his degree, Fred Murphy worked as an engineer for several railroads, and then designed coaling stations for the U.S. Navy prior to World War I. After the war, he worked for several engineering firms designing power plants. He returned to Knoxville and lived in his father's house on the farm (location O) with his wife Dixie, who was originally from England. He became the City Service Director for Knoxville in 1939, but passed away in 1940 from a heart attack⁵⁶. His widow sold the larger house and built a one-bedroom cottage on the eastern edge of the farm near the site of the former rail depot and general store (location P). Used as a rental property for years after her death, the physical condition of the cottage deteriorated and it was demolished in 2012 after it was determined that it was a non-contributing structure to the farm and served as an attractive nuisance.

Fred's cousin, Robert M. Murphy Sr., was an important figure in agriculture in Knox County and Tennessee. He graduated from the University of Tennessee agricultural college in 1910, and then received a master's degree from the University of Wisconsin in 1912, majoring in animal husbandry and dairying. Soon after he became head of the dairying department at the University of Georgia, and spent a year there before returning to Tennessee and taking charge of the livestock car that was part of an agricultural train touring the state to advertise the university's agricultural college. When the University of Tennessee's agricultural extension service was started in 1914, Robert was placed in charge of the livestock service.

In the early-1920s, Robert M. Murphy returned to the Murphy farm and built a house for his family on the southern side of Washington Pike (location F on the map), along with an adjacent hay barn (location G). He served as the extension agent for nearby Jefferson County for two years until the country voted to not have an extension agent⁵⁷. In 1930 he became the agent for Knox County, where he served for 27 years. During his time as the county extension agent, he was involved in starting a number of initiatives that impacted

⁵⁵ J. C. Webster, "Last of the Pioneers: Being the Life and Reminiscences of Pharaoh Jackson Chesney (Aged 120 Years)". S. B. Newman & Co., Printers & Bookbinders, 1902. Electronic Edition: <http://docsouth.unc.edu/neh/webster/webster.html>

⁵⁶ Fred E. Murphy. Obituary. 1940, September 15. Knoxville News-Sentinel.

⁵⁷ Robert M. Murphy Sr. obituary, page A-1. 1969, December 14. Knoxville News-Sentinel. McClung Collection Vertical File on Murphy, page 2, Knoxville, Tennessee

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agriculture in Knox County, such as the Knoxville Milk Producers Association, Knox Farmer's Co-operative, Knox County Dairy Herd Improvement Association, Knox County Soil Conservation District, and East Tennessee Community Improvement Program which later grew into the Southeastern Community Development Association⁵⁸. He was a pioneer of using mass media to reach out to farmers across the region, walking from his office in the Old Knox County Courthouse to the radio stations on Gay Street and hosting agricultural programs on them several times a week.⁵⁹

The extension agent program was an important development for Tennessee agriculture, and the prominent position of a Murphy family member creates a strong link to this Agricultural-theme. Robert M. Murphy's term as county extension agent spanned the Great Depression, and it is likely that several New Deal initiatives were administered by his office. He used his own farm as a demonstration site for techniques publicized by his office. Evidence of contour plowing to control soil erosion still exists in the pasture north of the old barn site.

Robert's brother, Alvin R. Murphy Sr., completed his undergraduate education in engineering, and then continued to Columbia University for a master's program. He began work as one of the first employees for Wallace and Tiernan, who invented the chlorinator for municipal water treatment. During World War I, he served in Europe as an officer and set up water treatment stations to provide potable water for the troops near the battlefield. He was able to return to Knoxville after the war as an employee of Wallace and Tiernan, and remained with them as a vice president until retirement in 1950.

When Alvin married in 1925, his new wife, Jane Rule, insisted on modernization of the Murphy house, which is consistent with the theme of Rural Reform described in the Historic Family Farms in Middle Tennessee Multiple Property Listing⁶⁰. Rural electrification efforts brought electricity to the farm house and outbuildings. Indoor plumbing was installed. A seventh gable end to provide space for a bathroom was added upstairs. The kitchen was enlarged with a breakfast nook, a small porch and an alcove for a new electric refrigerator. The front entry hallway was removed, along with the associated fireplace for the northwest room on the first level, to provide a larger entertaining parlor for Mrs. Murphy. A boiler was installed in the basement, along with radiator heat for the downstairs. Initially the boiler was wood-fired, and later modified for coal and finally for fuel oil. These improvements to the Hugh Murphy House are examples of how "Better Homes" meant "Better Farms" and support the Criterion A - Agriculture theme significance of the district⁶¹.

In June 1926 the parcels owned by John Rush Murphy and his brother Robert Fillmore Murphy were divided into three sections for Robert F. Murphy's children – 65 acres on the western side for Ann (Murphy) Koger, 50 acres in the center for A. R. Murphy Sr. including the Hugh Murphy House, and 65 acres to the east for R.M. Sr, which included property on the southern side⁶². The eastern portion of the farm, approximately 50

⁵⁸ Clonts, Homer. "String of Farm Improvements Marks Pat Murphy's Career." Knoxville News Sentinel, 23 Dec 1956: Sunday Magazine section. Print.

⁵⁹ Denton, Neal. Letter to Tennessee Historical Commission. 15 September 2014. TS

⁶⁰ Mary S. Hoffschwell, "Rebuilding the Rural Southern Community: Reformers, Schools and Homes in Tennessee, 1914-1929", PhD dissertation, Vanderbilt University, Chapter 5

⁶¹ National Register of Historic Places, Historic Family Farms of Middle Tennessee, National Register # 64500605. p E 31

⁶² Deeds of Sales (three deeds), dated June 22, 1926, Deed Book 430, pages 412-417, Knox County Archives, Knox County, Tennessee

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acres, was owned by other members of the Murphy family. Several parcels of this property along Washington Pike were sold off, and the remaining parcels were eventually acquired by A. R. Murphy Sr, including the site of Murphy's Chapel.

During the 1930s, the Tennessee Valley Authority acquired a 200 foot wide north/south right-of-way across the western portion of the farm, and installed a high voltage transmission line. The New Deal, particularly the TVA, strongly impacted agriculture in east Tennessee. While the line crossing Murphy Springs Farm isn't impactful enough to be a contributing resource, it serves as an example and reminder of the New Deal impact to the area.

The year 1935 saw several changes to the domestic complex around the Hugh Murphy House. The original single bay barn with shed roof was torn down and the present new concrete-block garage was built in its place (resource #8). The garage with corncrib (resource #5) was re-sided, the bay doors were removed, and shake roof replaced with a metal roof. The wood shed (resource #7) was relocated from a position in front of the garages to its current location.

With the passing of John Rush Murphy in 1937, agricultural responsibility on the western portion of the farm were handed to the Chesneys for A. R. Murphy; Robert Murphy continued to farm his parcels. The Chesneys maintained dairy operations for a few years, but the dairy operations probably ceased when Tip Chesney passed away in 1943. Production shifted to beef cattle at some point during World War II. There may have been a transition of cattle and equipment to the nearby Stoffell's Dairy, located just east of the Murphy farm. Robert Murphy Sr. grew corn and raised cattle on his parcels on the north side of Washington Pike, until his full-time job as an extension agent consumed most of his time; he then leased a majority of the farm out to renters.

Post-War Transformations (1945-1965)

Cessation of the dairy operations and transition to beef cattle was the dominant trend in Tennessee agriculture; the use (and dis-use) of the structures and fields of Murphy Springs Farm from 1900 until today reflect this trend and continue to support the significance of Murphy Springs Farm through the post-war era. The spring house and wash house were no longer used for dairy operations. The milking parlor of the barn was no longer needed, nor was ensilage from the silo. These structures gradually began to deteriorate as they were not used.

As Robert M. Murphy's spare time was limited and the South had a shortage of timber, he turned his property south of Washington Pike into a tree farm. Robert M. Murphy continued to use mass media to reach farmers, and hosted a weekly television series "RDD 6" in the 1950s⁶³. He retired in 1956 from the county extension office. When he passed away in 1969, his portion of the farm was rented out to local farmers who continued to run cattle on the northern property.

In the early 1920s, the Murphy cousins (Fred, Robert and Alvin) shifted their worship home from Corinth Methodist Church to Church Street Methodist in downtown Knoxville. The membership of Murphy's Chapel

⁶³ Denton, Neal. Letter to Tennessee Historical Commission. 15 September 2014. TS

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declined as well, and eventually the chapel was stricken from the Methodist membership rolls in the 1930s. An account from the establishment of Highland Baptist Church recounts that, during the forming of that Baptist church, the members began using Murphy's Chapel for worship services in 1942, but were later evicted by the Methodist bishop⁶⁴. At an unknown date afterwards, likely in the 1950s, Murphy's Chapel was razed and the property reverted back to the Murphy family. A cemetery association was established to own and maintain the adjacent Murphy's Chapel cemetery (resource #11), which is the remaining extant resource of this early community asset.

During the 1940s, the remaining land holdings of the William A. Murphy descendants were acquired by the Robert F. Murphy descendants. Several house-lot sized parcels, including the William Alanzo Murphy house (location O) were sold off; these parcels are not included in the nominated property.

In 1957, Knox County acquired a 20 foot right-of-way for the private road running from Washington Pike to Tazewell Pike, which was later named Murphy Road.⁶⁵

The Farm Today (1965-2015)

The past fifty years have seen the passing of the last generations that grew up on the farm, a stabilization of land holdings in the family, and pressures of suburban expansion on the property.

Two additional houses were added to the family's land outside of the nominated boundary. One is a brick house on the south side of Washington Pike (location H) near the Murphy cemetery, built by Col. Robert M. Murphy Jr. in 1960 after his retirement from the Air Force. Colonel Murphy spent a number of years as the Knox County purchasing agent after his father retired as the Knox County extension agent. Another house was built by Mary Workman on the southeastern portion of the farm in the 1980s (location X marks the spot!).

Robert M. Murphy Sr. passed away in 1969; A. R. Murphy Sr. passed away in 1965, and their holdings were distributed to several of their children. Ann Koger Murphy died in 1985 and left her property to Col. Robert Murphy Jr. A number of land transactions between children and grandchildren have shifted ownership around, but by 2013 it was consolidated to four primary owners with smaller parcels owned by a few other Murphy family members. Two of Robert Murphy Sr.'s grandchildren still reside on the farm, along with one of Alvin Murphy Sr.'s great-grandchildren; however none of these family members grew up on the farm.

Paul "Henry" Chesney worked the Murphy farm until he passed away in the mid-1980s. After Paul's death, the house (location E) was demolished.

Agricultural operations continue on the farm. The land on the southern side of Washington Pike, which was converted to a tree farm in the 1940s, has lain fallow and been visually altered from the historic field patterns. It no longer contributes to the integrity and association of the historic district, and is not included in

⁶⁴ Highland Baptist Church in the Beginning, <http://www.hbcknox.org/History.html>, accessed August 15, 2013

⁶⁵ Deed of Sale from A. R. Murphy to Knox County, dated Oct 29, 1947, Deed book ??, Pages 549-550, Knox County Archives, Knox County, Tennessee

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the boundary (with the exception of the Murphy Family Cemetery). When Paul Chesney passed away in 1987, management of that portion of the farm was taken over by Joe Mitchell, who had been farming the Robert Murphy Sr. parcels with his step-father for several years. Mr. Mitchell continues to run a cow-calf operation on the farm, using portions of the farm for pasture and other portions for hay fields. Timber is occasionally harvested from the wood lots on the northern portion of the farm; the northeast corner adjacent to Luttrell Road was last harvested for pine in the mid-1990s. The farm is still associated with the UT Extension Service, which held their celebration of 100 Years of Extension Service at the farm in 2010.

The family received proposals from developers to sell off the farm in the early years of the 2000s. As the family began discussing the possibility of selling most of the farm, they consulted with local preservationists and learned about the history of the farm, the uniqueness of the house and smokehouse, and the rarity of intact family-owned farms in the area. In 2009 one family member committed to financing the restoration of the Hugh Murphy house, and the smokehouse and dairy house were restored in 2012. Although suburban expansion has come to the area, the Murphy Farm continues to retain its agricultural setting and purposes that were established over 200 years ago: producing cattle and hay. The family members are exploring options to sustain the farm for another 218 years.

Architecture

Murphy Springs Farm contains a collection of buildings representing styles from the mid to late 19th century, as well as several early-20th century buildings. The c. 1841 Hugh Murphy House is architecturally significant as an example of Gothic Revival domestic architecture. It has interior and exterior details typical of the style, including sawn wood trim, the staircase that accesses the second story, steeped pitched roof and dormers with sawn wood trim, dog-eared interior window surrounds and other details.

It is also an excellent, and rare, example of early Gothic Revival influence in Knox County; in fact, there is only one other remaining example of a Gothic Revival house in the county – the Bowman-McBee-Hodges House. The Hugh Murphy House is a Center Gable design with a single cross gable Gothic front. The steep roof pitch is quite distinctive, running approximately 4 vertical units for every 3 horizontal units.

Unlike the typical early Tennessee floor plans, the chimneys for the Murphy House are located on the interior, instead of on each gable end. The choice of the central hall plan reflects the values of Hugh Murphy as his increased stature in the local community as a teacher and a source of financial loans. Clifton Cox Ellis points out:

In general, the central passage house is associated with newfound wealth based on a growing antebellum economy and a desire on the owner's part to present a facade to the world that announced his success and place in society.⁶⁶

The ell wing on the rear of the house, slightly offset from center, seems like it would have been added at a later date, but the materials and construction clearly show that it is a single structure built at the same time as

⁶⁶ Clifton Cox Ellis, "Early Vernacular House Plans," in Tennessee Encyclopedia of History and Culture, University of Tennessee Press, 2002-2012. Article updated January 1, 2010, accessed July 16, 2014, <http://tennesseencyclopedia.net/entry.php?rec=659>

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the front of the house. The integrated kitchen is indicative of the family not owning slaves; a slave holding home would typically have a detached structure for the kitchen that was separate from the living area of the master.

Construction of the house and outbuildings represents material found in the local area: wood, stone, and clay. Wood was the most plentiful material on Murphy Springs Farm, and was the natural material to use for framing the house. Bricks used in the chimneys were handmade on site⁶⁷.

The adaptations to the Hugh Murphy House in the 1920s are also significant, and are consistent with the themes of rural reform described in the Historic Family Farms in Middle Tennessee Multiple Property Nomination.

In addition to the main house, the outbuildings surrounding the house represent a self-sufficient farm. The 1840s smokehouse, built of pine logs and retaining almost all of its original material, represents an early subsistence farm settlement structure with a high degree of integrity relating to farming and subsistence practices of the mid-19th century. Other agricultural outbuildings, including the late 1800s chicken coop, wood shed, spring house, two-bay barn, and dairy house represent the farm's later economic role as a small dairy farm. All of these outbuildings were built using wood, which would have been readily available on the family's land. The dairy house also includes a brick chimney made of manufactured brick, which would have been available by the early 1900s when it was built. A spring house and dairy house were extremely common in the rural landscape of eastern Tennessee and Knox County in the early 1900s, but few remain today and they are rare examples of this important period of Tennessee's history.⁶⁸

With its intact c. 1841 Gothic Revival style house, Murphy Springs Farm retains a high degree of integrity as it relates to the farm as it coalesced in the late 1850s. The house remains intact and includes additions that contributed to the modernization of the domestic sphere. The field patterns and wood lots reflect a 19th and 20th century farm that has changed as the owners shifted focus to dairy cattle, and then beef cattle and supporting crops during the rural reform era and later progressive agricultural era. The landscape retains several contributing features in both the domestic complex and agricultural landscape that include the mature trees from the early settlement period, transportation features such as roads and railroads, tree lines and fences, gates, and fields and pastures from the ongoing development through the 20th century. Together these contributing features and landscape elements represent early settlement architecture as well as agricultural practices in the 20th century. This is all in spite of growing development pressures in the area. The construction of Interstate 640 places the farm less than two miles from an interstate exit. The first decade of the 21st century has seen even more development pressure in northeast Knox County in the vicinity of the farm as suburban Knoxville has expanded. The city limits now reach the intersection of Washington Pike and Murphy Road. Amidst all this pressure, the farm remains whole, and the owners have made efforts to maintain the historic character and integrity of the district. It continues to be actively farmed and, as a result, its agricultural setting makes Murphy Springs Farm is an excellent intact example of an eastern Tennessee rural landscape.

⁶⁷ Faulkner, Dr. Charles H., email, "mud" to Kevin Murphy, June 29, 2009

⁶⁸ Denton, Neal. Letter to Tennessee Historical Commission. 15 September 2014. TS

United States Department of the Interior
National Park Service / National Register of Historic Places Registration Form
NPS Form 10-900 OMB No. 1024-0018

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Murphy, Alvin R. Jr. Interviewed by Kevin Murphy, Aug 12 2013

Previous documentation on file (NPS):		Primary location of additional data:	
<input type="checkbox"/>	preliminary determination of individual listing (36 CFR 67 has been requested)	<input type="checkbox"/>	State Historic Preservation Office
<input type="checkbox"/>	previously listed in the National Register	<input type="checkbox"/>	Other State agency
<input type="checkbox"/>	previously determined eligible by the National Register	<input type="checkbox"/>	Federal agency
<input type="checkbox"/>	designated a National Historic Landmark	<input type="checkbox"/>	Local government
<input type="checkbox"/>	recorded by Historic American Buildings Survey #	<input type="checkbox"/>	University
<input type="checkbox"/>	recorded by Historic American Engineering Record #	<input checked="" type="checkbox"/>	Other
<input type="checkbox"/>	recorded by Historic American Landscape Survey #	Name of repository: MTSU Center for Historic Preservation	
Historic Resources Survey Number (if assigned): KN-2586			

Murphy Springs Farm
Name of Property

Knox County, Tennessee
County and State

10. Geographical Data

Acreage of Property 176.34 USGS Quadrangle John Sevier, Fountain City

Latitude/Longitude Coordinates

Datum if other than WGS84:

- | | |
|-----------------------|-----------------------|
| 1. Latitude: 36.05102 | Longitude: -83.880794 |
| 2. Latitude: 36.06319 | Longitude: -83.880471 |
| 3. Latitude: 36.06295 | Longitude: -83.86686 |
| 4. Latitude: 36.05078 | Longitude: -83.86719 |

Verbal Boundary Description

The Murphy Springs Farm district is comprised of portions of six parcels, roads, and railroad totaling 176.34 acres in Knox County as identified on aerial map below. The property is bounded on the north by the Shannon Valley Farms subdivision, on the east by Luttrell Rd, on the south by Washington Pike and Murphy Creek, and on the west by adjacent agricultural property, residential property, Murphy Road, and a private school.

The parcels included within the contiguous boundary are:

049 083
049 080, which includes the land under the railroad
Murphy Rd between parcels 049 083 and 049 080
049 077 north of Washington Pike
049 071 except the northeast portion across Murphy Rd
050 001 and the railroad right of way splitting the parcel

Additionally, an approximately 50' x 50' section of 049 078 where the Murphy Family Cemetery is located is included within the district but is not contiguous to the above parcels.

Boundary Justification

The nominated boundary for Murphy Springs Farm contains the extent acreage associated with Murphy Springs Farm that reflect its use during a period of significance beginning c. 1841 and ending in 1965 and represent an important agricultural property⁶⁹. The historic property boundary is depicted in Figure 8, and the nominated boundary is a subset of that property that has significance and retains integrity. The property on the south side of Washington Pike, along with the property northeast of Luttrell Road, has visually been altered by tree cover and no longer has integrity for the farm, except for the Murphy Family Cemetery. The cemetery is a contributing resource, and on advice from staff at the Keeper's office, a

⁶⁹ Gabbert, James. Murphy Springs Farm Return Sheet. 16 December 2014.

Murphy Springs Farm

Name of Property

Knox County, Tennessee

County and State

discontiguous boundary around the cemetery is proposed⁷⁰. All of the nominated property was acquired by Robert Murphy and his son Hugh. The nominated 176.34 acres is managed and farmed as a single unit, wholly owned by descendants of Robert and Hugh Murphy. The makeup and ownership of the parcels of the farm have changed over the years, but Murphy Springs Farm is still being used for historical purposes and retains integrity of location, design of agricultural and pastoral areas, and historical buildings and sites.

⁷⁰ Gabbert, James. Email to Kevin Murphy

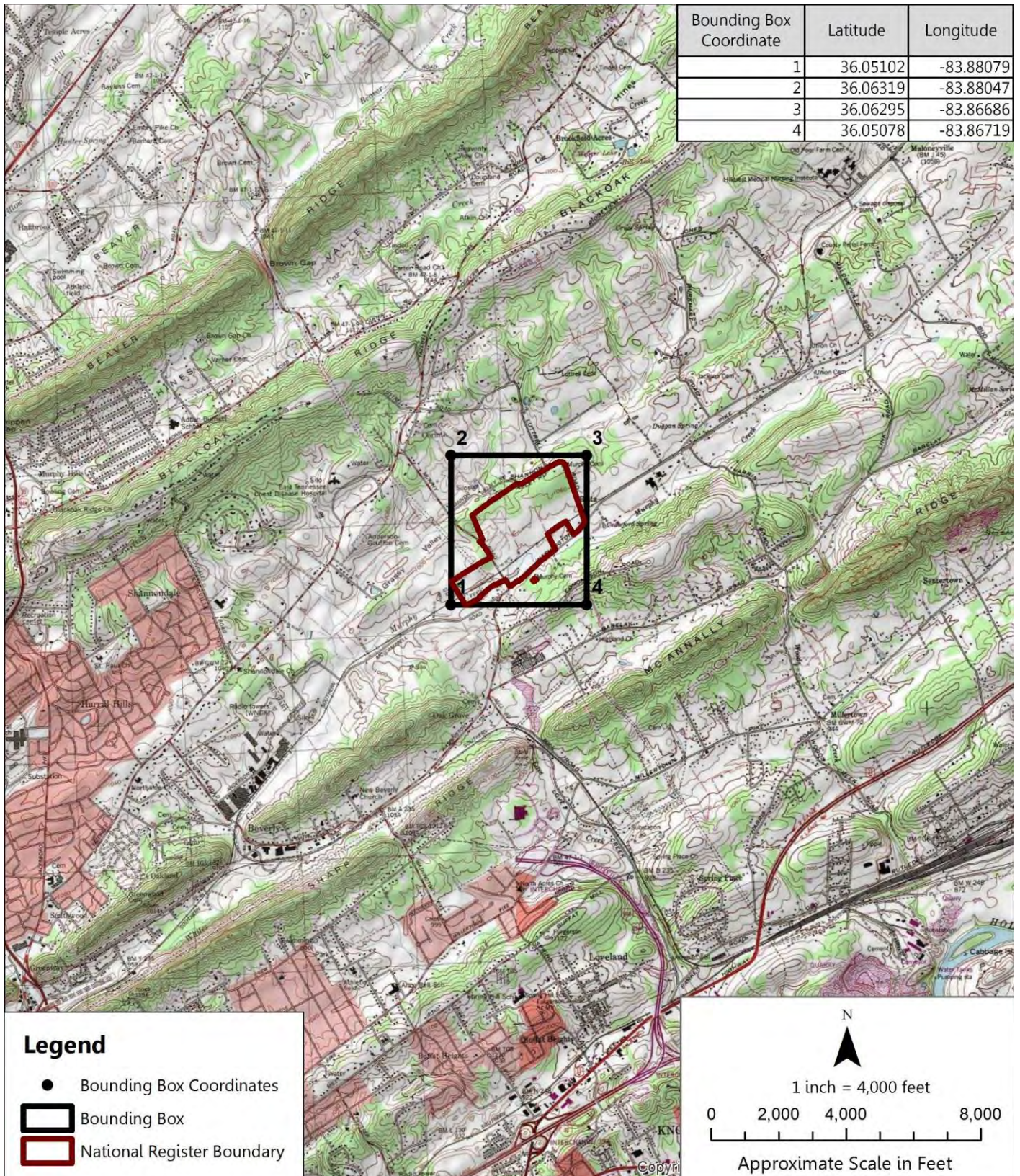
Murphy Springs Farm
Name of Property

Knox County, Tennessee
County and State



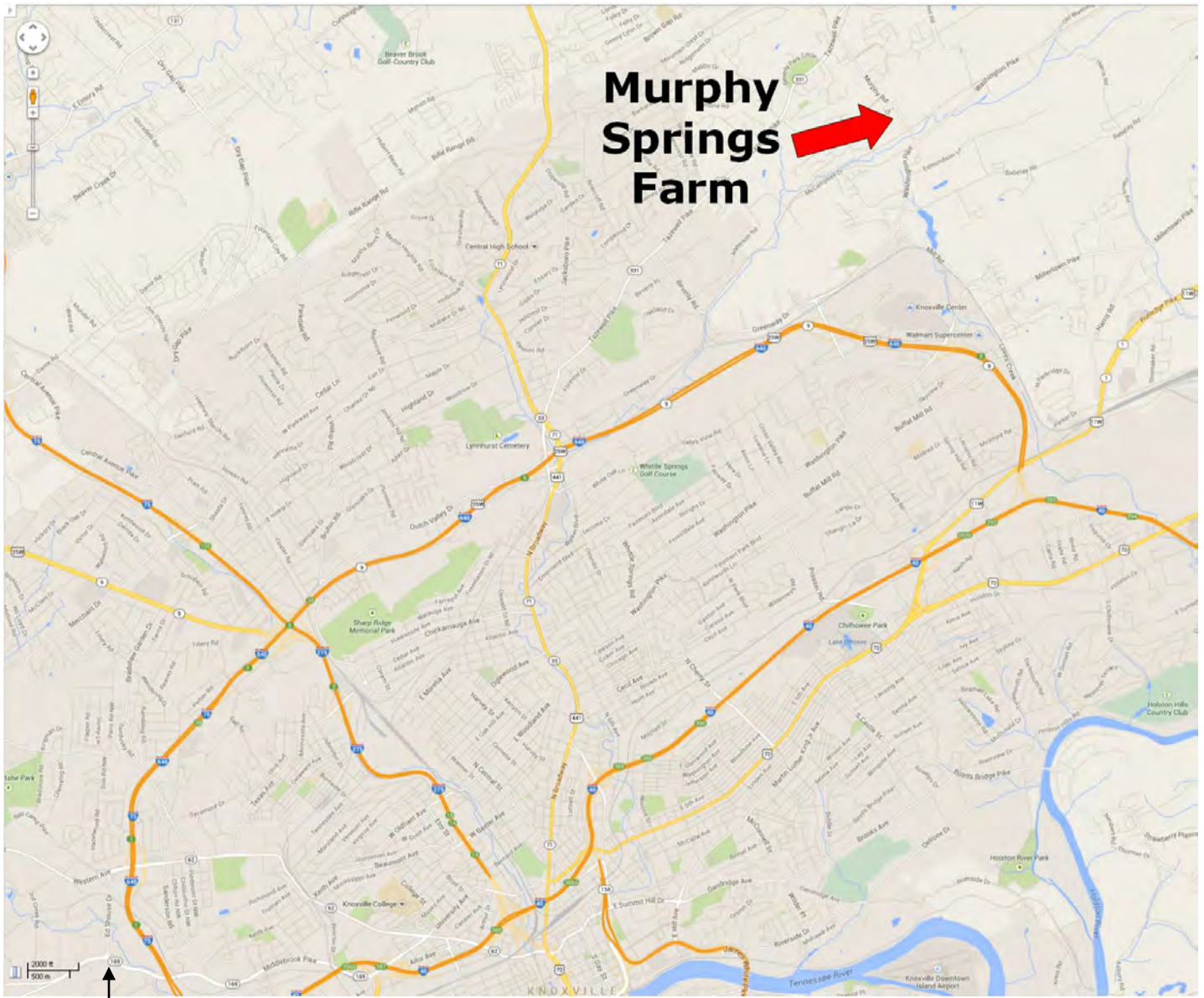
Murphy Springs Farm
Name of Property

Knox County, Tennessee
County and State



Murphy Springs Farm
Name of Property

Knox County, Tennessee
County and State



Murphy Springs Farm
Name of Property

Knox County, Tennessee
County and State

11. Form Prepared By

Name	Kevin Murphy, Property Owner; Ann Bennett, Preservation Specialist		
Organization	Murphy Springs Farm		
Street & Number	4508 Murphy Rd	Date	2015 February 2
City or Town	Knoxville	Telephone	865-523-8008
E-mail	murphysprings@gmail.com	State	TN Zip Code 37918

Additional Documentation

Submit the following items with the completed form:

- **Maps:** A USGS map or equivalent (7.5 or 15 minute series) indicating the property's location.
- **Sketch map** for historic districts and properties having large acreage or numerous resources. Key all photographs to map.
- **Photographs** (refer to Tennessee Historical Commission National Register *Photo Policy* for submittal of digital images and prints)
- **Additional items:** (additional supporting documentation including historic photographs, historic maps, etc. should be included on a Continuation Sheet following the photographic log and sketch maps)

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 100 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Office of Planning and Performance Management, U.S. Dept. of the Interior, 1849 C. Street, NW, Washington, DC.

Murphy Springs Farm
Name of Property

Knox County, Tennessee
County and State

Photo Log

Name of Property:	Murphy Springs Farm
City or Vicinity:	Ritta (Knoxville)
County:	Knox County
State:	TN
Photographer:	Kevin Murphy
Date Photographed:	Various (2012, 2013, and 2014)

Photo #1

Front field view of Murphy Springs Farm primary complex. Hugh Murphy House (Resource #1), southwest façade (right); garage with corn crib (Resource # 5, left), camera facing northeast. Oct 2012

Photo #2

Hugh Murphy House (Resource #1), southwest façade (right), northeast elevation (center), camera facing east; mule team with East Tennessee Draft Horse and Mule Owners Association plowing the front field. Oct 2013

Photo #3

Hugh Murphy House (Resource #1), southwest façade, camera facing northeast. July 2012

Photo #4

Hugh Murphy House (Resource #1), southwest façade (left), southeast elevation (right), smokehouse (Resources #2, right). This photograph is similar to the c1890 photograph in Figure #1. June 2013

Photo #5

Hugh Murphy House (Resource #1), southeast elevation (left), north east elevation for kitchen (right). Sep 2013

Photo #6

Hugh Murphy House (Resource #1), northeast elevation. Sep 2013

Photo #7

Hugh Murphy House (Resource #1), northwest elevation. Jan 2014

Photo #8

Hugh Murphy House (#1), dining room. Photographer facing southwest. Nov 2013

Photo #9

Hugh Murphy House (#1), dining room. Photographer facing west. Nov 2013

Photo #10

Hugh Murphy House (#1), dining room. Photographer facing northeast. Nov 2013

Photo #11

Hugh Murphy House (#1), dining room. Photographer facing east. Nov 2013

Photo #12

Hugh Murphy House (#1), 1st floor bedroom. Photographer facing southwest. Nov 2013

Photo #13

Hugh Murphy House (#1), 1st floor bathroom. Photographer facing northeast. Nov 2013

Murphy Springs Farm

Knox County, Tennessee

Name of Property

County and State

Photo #14

Hugh Murphy House (#1), living room, 1st floor. Photographer facing west. Nov 2013

Photo #15

Hugh Murphy House (#1), living room, 1st floor. Photographer facing southwest. Nov 2013

Photo #16

Hugh Murphy House (#1), living room, 1st floor. Photographer facing east. Nov 2013

Photo #17

Hugh Murphy House (#1), detail of original bookshelves, living room, 1st floor.. Nov 2013

Photo #18

Hugh Murphy House (#1), kitchen, 1st floor. Photograph facing northwest. Nov 2013

Photo #19

Hugh Murphy House (#1), kitchen, 1st floor. Photograph facing southeast. Nov 2013

Photo #20

Hugh Murphy House (#1), hallway from kitchen to living room, cellar entrance on right. Photographer facing southwest.. Nov 2013

Photo #21

Hugh Murphy House (#1), hallway from kitchen to living room. Photographer facing southeast. Nov 2013

Photo #22

Hugh Murphy House (#1), staircase. Photographer facing east.. Nov 2013

Photo #23

Hugh Murphy House (#1), staircase and northwest entrance door detail. Photographer facing northwest. Nov 2013

Photo #24

Hugh Murphy House (#1), staircase railing detail. Photographer facing south. Nov 2013

Photo #25

Hugh Murphy House (#1), 2nd floor landing, hallway, and banister detail. Photographer facing northwest. Nov 2013

Photo #26

Hugh Murphy House (#1), southwest bedroom, 2nd floor. Photographer facing south. Nov 2013

Photo #27

Hugh Murphy House (#1), northwest bedroom, 2nd floor. Photographer facing south. April 2014

Photo #28

Hugh Murphy House (#1), northwest bedroom, 2nd floor. Photographer facing northwest. April 2014

Photo #29

Hugh Murphy House (#1), hall bathroom, 2nd floor. Photographer facing east/southeast. Nov 2013

Photo #30

Hugh Murphy House (#1), hall bathroom, 2nd floor, detail of vanity. Photographer facing northeast. Nov 2013

Photo #31

Hugh Murphy House (#1), hall bathroom, 2nd floor. Photographer facing north. Nov 2013

Murphy Springs Farm

Knox County, Tennessee

Name of Property

County and State

Photo #32

Hugh Murphy House (#1), northeast master bedroom, 2nd floor. Photographer facing north. Nov 2013

Photo #33

Hugh Murphy House (#1), northeast master bedroom, 2nd floor. Photographer facing southwest. Nov 2013

Photo #34

Hugh Murphy House (#1), northeast master bathroom, 2nd floor. Photographer facing southeast. Nov 2013

Photo #35

Smokehouse (#2). Photographer facing north. Sept 2013

Photo #36

Smokehouse (#2). Photographer facing east. Oct 2013

Photo #37

Two bay garage with corn crib (#5). Photographer facing northeast. Oct 2013

Photo #38

Single car garage (#8). Photographer facing east. Oct 2013

Photo #39

Dairy house (#4). Photographer facing north/northeast. Dec 2013

Photo #40

Spring House (#3) and Dairy House (#4). Photographer facing west.. Dec 2013

Photo #41

Chicken coop (#6). Photographer facing northeast. Dec 2013

Photo #42

Chicken coop (#6), detail of chicken entrance. Photographer facing north. Dec 2013

Photo #43

Wood shed (#7). Photographer facing north. Dec 2013

Photo #44

Old barn and silo site (location A). Photographer facing northeast. Dec 2013

Photo #45

Pole barn (#9). Photographer facing north. Dec 2013

Photo #

Colonel Robert M. Murphy Jr. House (location H), Photographer facing south. Dec 2013

Photo #46

Murphy Family Cemetery (#10), markers of Robert Murphy (1757-1850), wife Martha Murphy (1768-1847), son Hugh Murphy (1801-1877), their daughter-in-law Sarah White Murphy. Photographer facing north/northeast. Dec 2013

Photo #47

Murphy Chapel Cemetery (#11). Photographer facing west. Dec 2013

Photo #48

Landscape view of front fields and fields across Murphy Rd (#12) from Hugh Murphy House (#1). April 2014

Murphy Springs Farm

Name of Property

Knox County, Tennessee

County and State

Photo #49

Landscape view of pasture and agricultural fields (#12). Photographer facing north. Dec 2013

Photo #50

Landscape view of fields (#12) and hilltop of Robert Murphy log cabin site (location B). Photographer facing northwest. Dec 2013

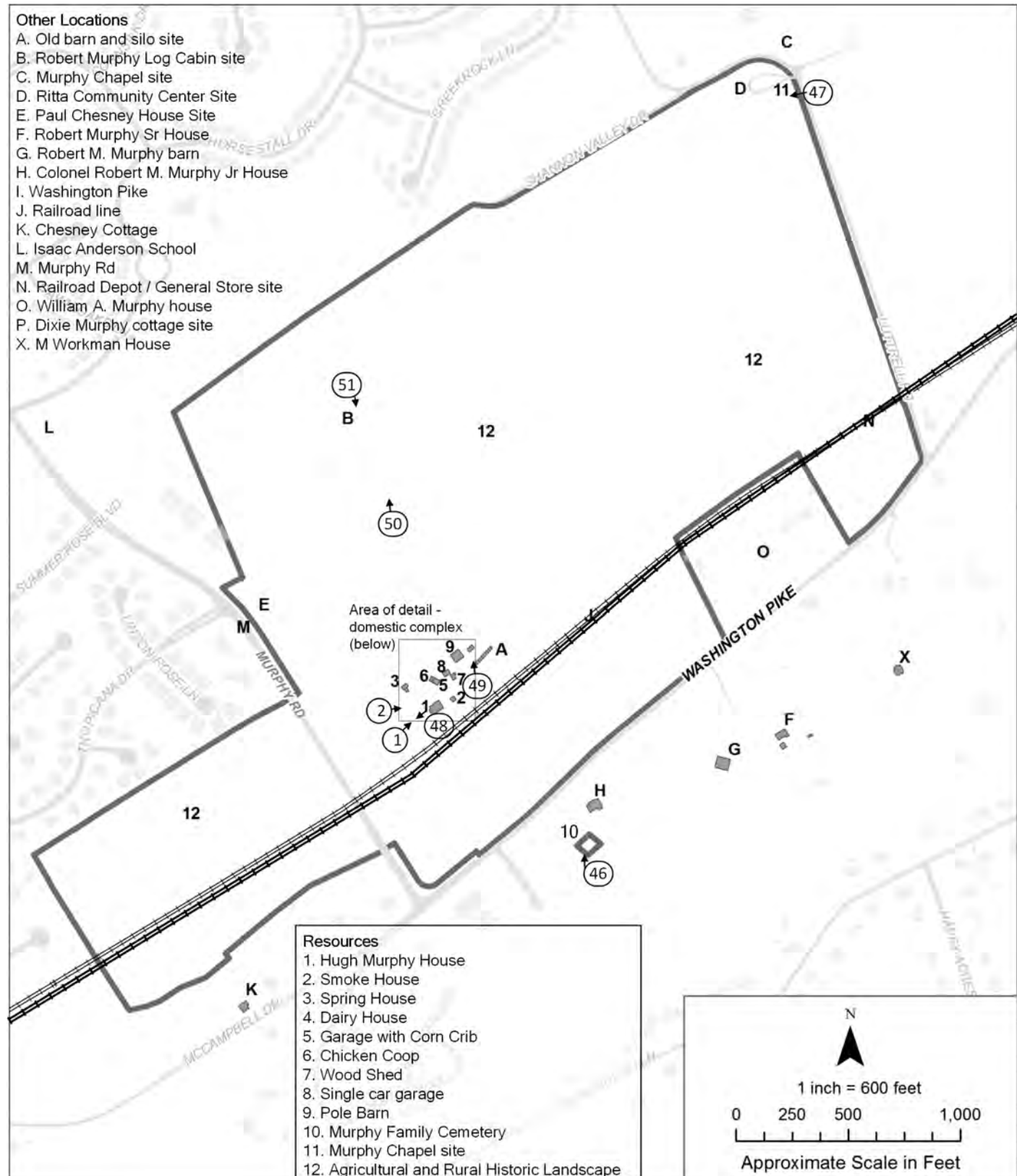
Photo #51

Robert Murphy log cabin site (location B) and remaining mound of buried stone for chimney foundation. Photographer facing southeast.. Dec 2013

Murphy Springs Farm
Name of Property

Knox County, Tennessee
County and State

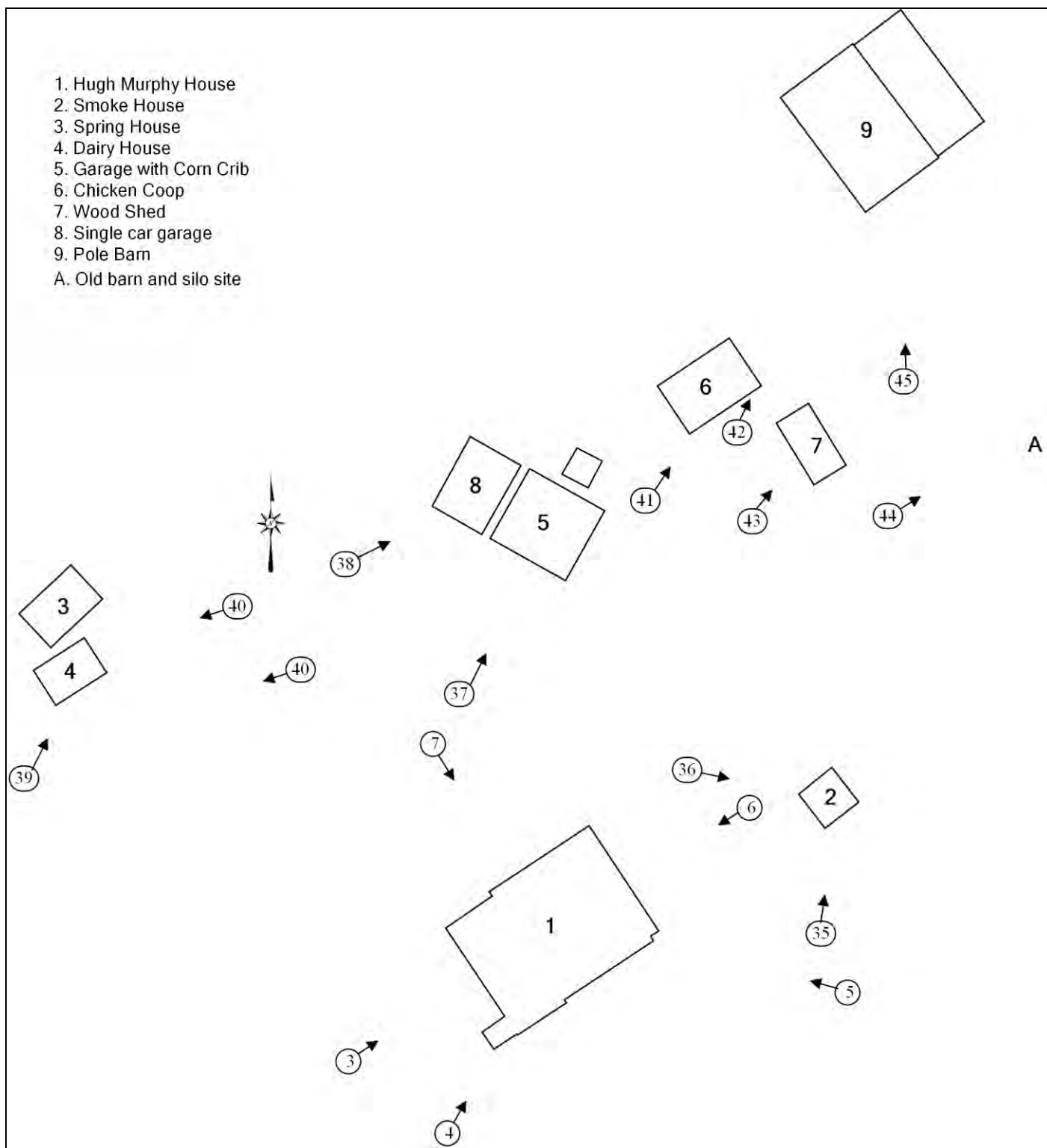
Site Plan



Murphy Springs Farm Photo Key – Site Plan Level

Murphy Springs Farm
Name of Property

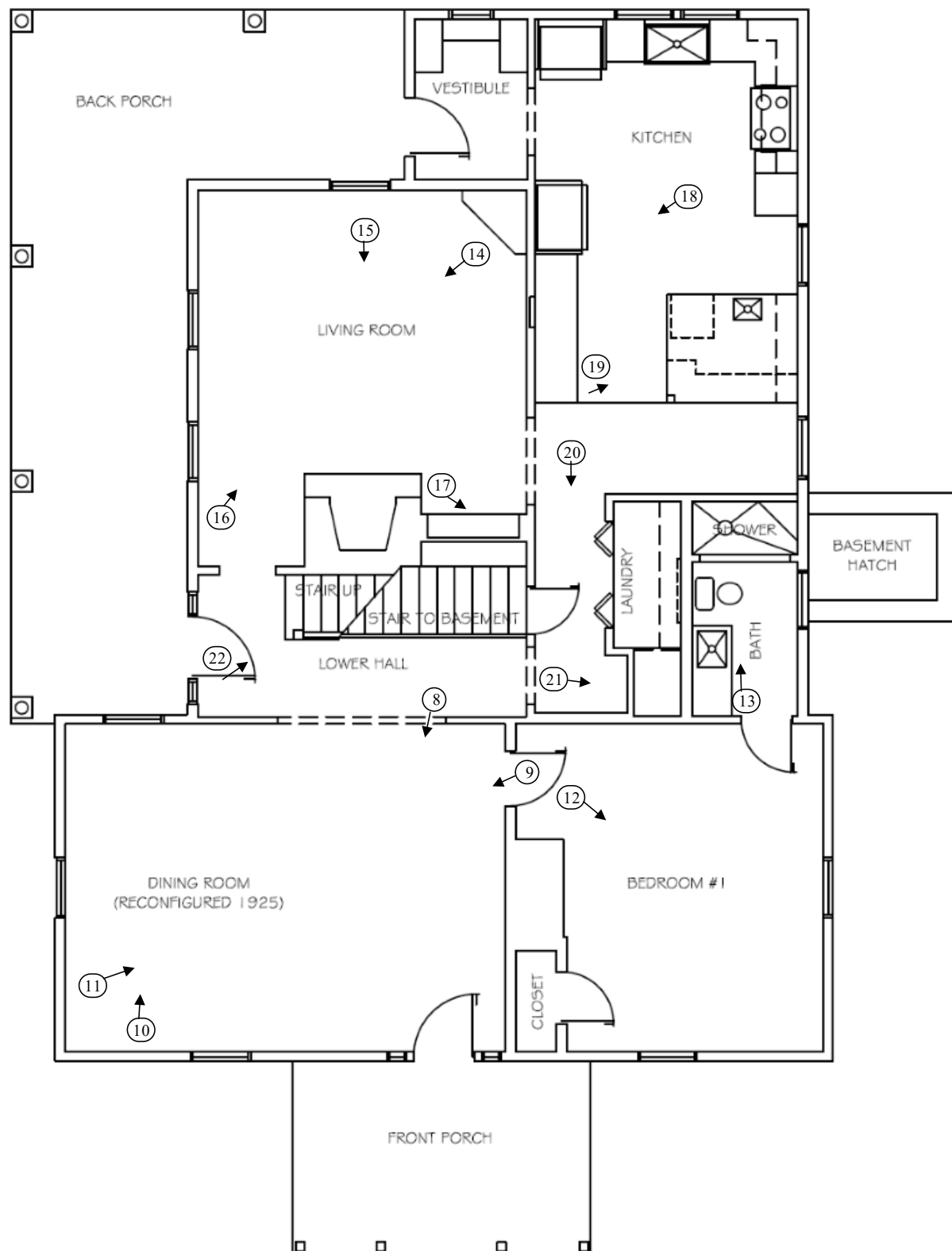
Knox County, Tennessee
County and State



Murphy Springs Farm - Detailed Photo Key surrounding primary domestic complex

Murphy Springs Farm
Name of Property

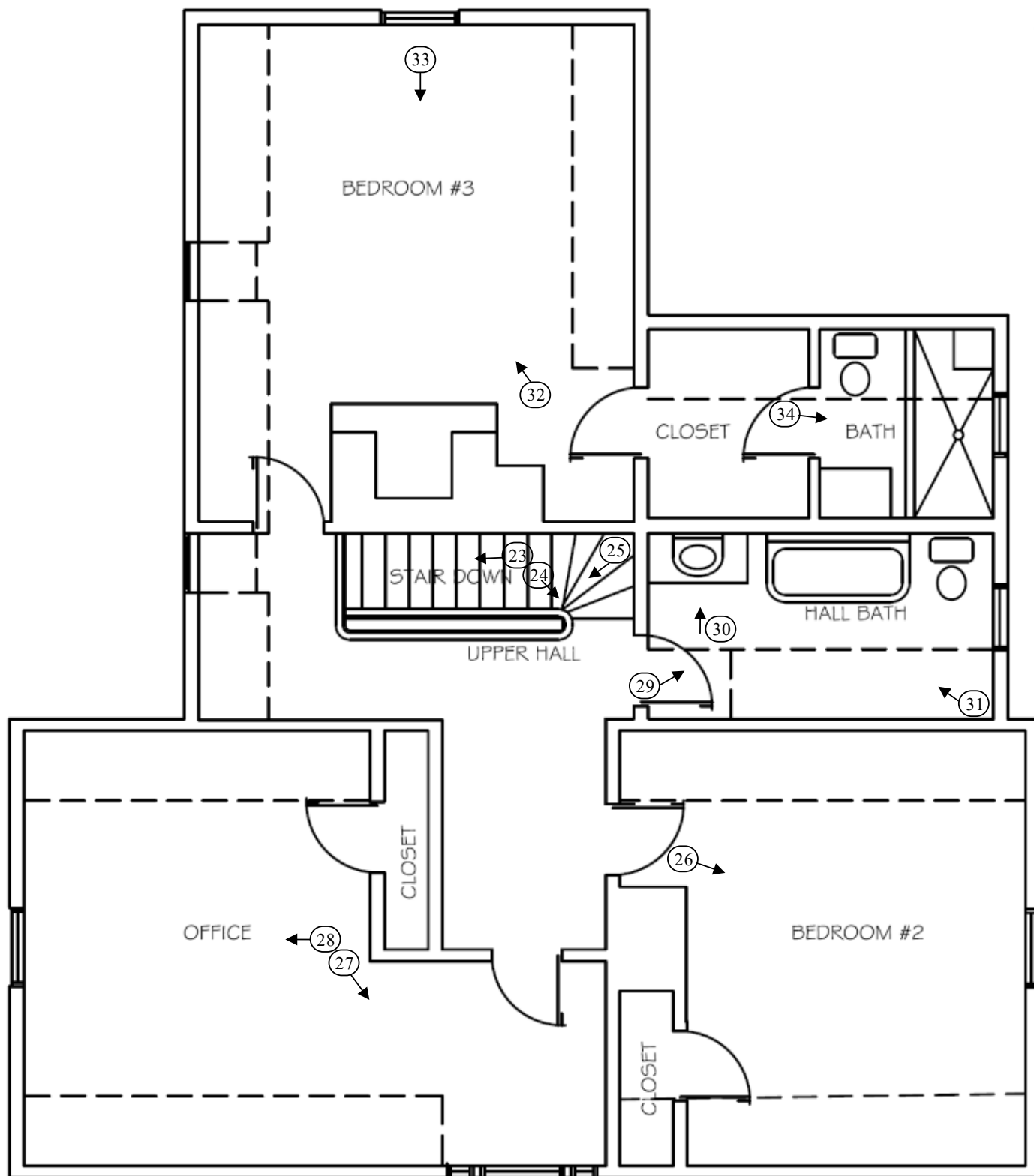
Knox County, Tennessee
County and State



Hugh Murphy House – Detailed Photo Key – First Floor

Murphy Springs Farm
Name of Property

Knox County, Tennessee
County and State

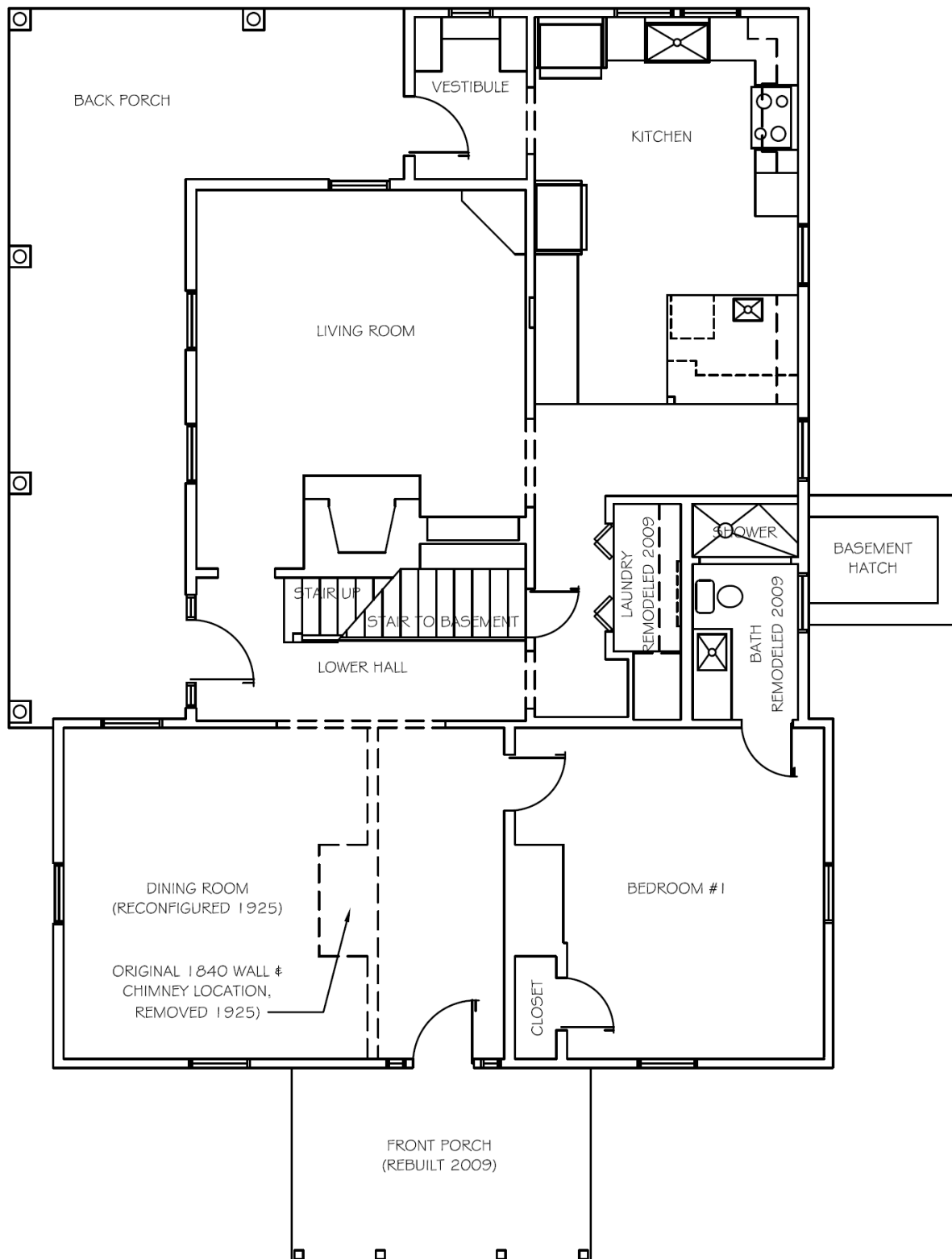


Hugh Murphy House – Photo Key – Second Floor

Murphy Springs Farm
Name of Property

Knox County, Tennessee
County and State

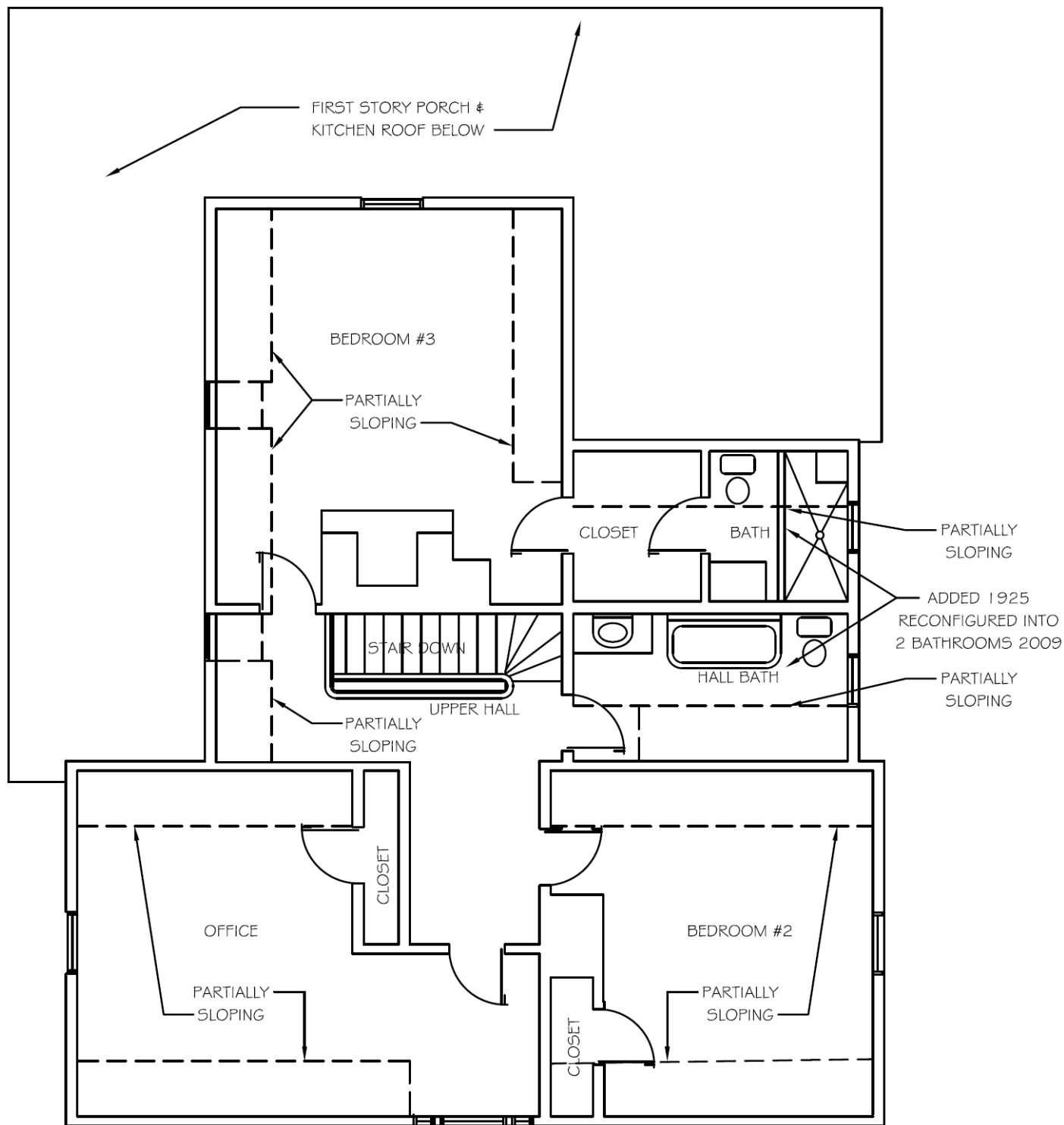
Floor Plan – Hugh Murphy House



Hugh Murphy House – Floor Plan – First Floor

Murphy Springs Farm
Name of Property

Knox County, Tennessee
County and State



Hugh Murphy House – Floor Plan – Second Floor

Index of Figures

Name of Property:	Murphy Springs Farm
City or Vicinity:	Ritta (Knoxville)
County:	Knox County
State:	TN

Figure #1

Hugh Murphy House, southwest façade and southeast elevation, camera facing north, c 1890.

Figure #2

Southeast yard of Hugh Murphy House showing smokehouse, edge of Hugh Murphy House, and a barn that reportedly burned, camera facing north, c. 1905

Figure #3

Positioned in current driveway on north side of Hugh Murphy House, camera facing northeast, c 1930, depicting two-bay barn, single bay barn, and wood shed in its original location.

Figure #4

Depicting two bay barn and single bay barn (no longer standing), camera facing northeast, positioned in current driveway, c 1930

Figure #5

Hugh Murphy House backyard, camera facing north, c. 1936

Figure #6

South yard of Hugh Murphy House, camera looking south across railroad, Murphy Creek and Washington Pike.

Figure #7

Hugh Murphy House, southwest façade and southeast elevation, c 1950. Camera facing north

Figure #8

Map of Murphy Springs Farm with current and historical boundaries

Figure #9

Hugh Murphy House, original floor plan – first floor - prior to 1925 renovation

Figure #10

Detailed section from *Map of Knox Co. Tennessee* published by Vance, Coffee and Pill in 1895 that depicts the area around Murphy Springs Farm

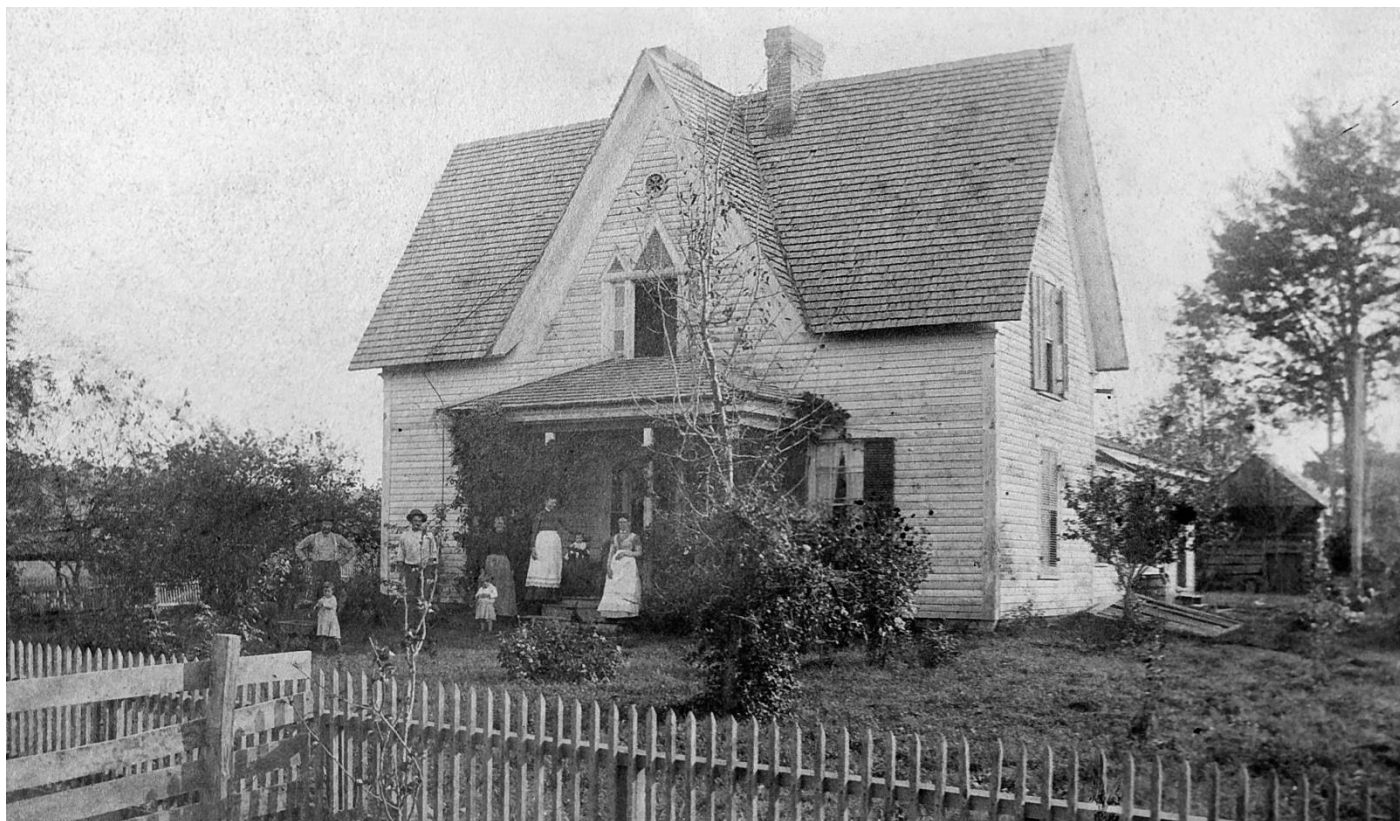


Figure 1. Hugh Murphy House, southwest façade and southeast elevation, camera facing north, c 1890. Children are (l-r) Alvin R. Murphy Sr, Robert M. Murphy, Ann Murphy. The smokehouse is visible on the right side of the photograph. Photographer unknown; it seems likely that a photographer passed through the area; pictures from the same time period of neighboring Fancy Hill Elementary and the Stoffel Family are in the Calvin M. McClung Historical Collection, part of the Knox County Library System.



Figure 2. Southeast yard of Hugh Murphy House showing smokehouse, edge of Hugh Murphy House, and a barn that burned before 1925, camera facing north, c. 1905-1910

The smoke house is visible in the top of the photograph. Towards the upper left, it appears that the outline of the kitchen area of the house is visible. A large barn is on the upper right area of the photograph, which according to family history burned down in the 1920s or early 30s. The photographer was probably standing on the railroad track or very close to it, between the Hugh Murphy House and Murphy Creek.

Three Murphy siblings, l-r Robert M. Murphy Sr, Ann Murphy, Alvin R. Murphy Sr.



Figure 3. Positioned in current driveway on north side of Hugh Murphy House, camera facing northeast, c 1930, depicting two-bay barn, single bay barn, and wood shed in its original location.

Several Murphy cousins on a buggy in the driveway. The wood shed is in its original location in the middle of the current driveway. The original two-bay barn, which is now a garage, is present with original door. A single bay barn on the left was torn down and replaced with the current concrete block structure in the 1940s. The chicken coop is barely visible on the right side of this photograph.



Figure 4. Depicting two bay barn and single bay barn (no longer standing), camera facing northeast, positioned in current driveway, c 1930

The two bay barn and single bay barn/garage are clearly seen in this picture, along with electrical wires providing power to the spring house building. The door between the two barn bays leads to a corn crib.



Figure 5. Hugh Murphy House backyard, camera facing north, c. 1936

This picture, c. 1934, shows the building that is now the 2-bay garage with a wood shake roof, and a second 1 bay barn/structure just past it. Two wires running power to the outbuildings show the early electrification efforts in rural areas. A model airplane is gliding through the foreground. The porch had been slightly enlarged and screened in during the 1925 renovation. The spring house can just be seen through the screen on the left side of the picture.



Figure 6. South yard of Hugh Murphy House, camera looking south across railroad, Murphy Creek and Washington Pike.

This photograph, c 1934, is taken from the southwestern corner of the Hugh Murphy House, looking southeast across Murphy Creek and Washington Pike. The Robert M. Murphy barn can be seen in the background, just to the right of the bench. A utility pole with numerous insulators is discernable on the left side of the photo. Notable is the inability to see the railroad track, which would have been running in parallel with the electrical lines. It is likely that the railroad bed originally was several feet lower, and was later raised up. Not clearly visible in the photograph is the Murphy Cemetery, which would be on the top right of the picture. Jane (Rule) Murphy, wife of Alvin R. Murphy Sr., is pictured with her son's model airplanes.



Figure 7 Hugh Murphy House, southwest façade and southeast elevation, c 1950. Camera facing north
Alvin R. Murphy Sr, holding a golf club



Figure 8. Map of Murphy Springs Farm, with additional shaded areas showing property previously owned by Hugh Murphy and later sold off by his descendants.

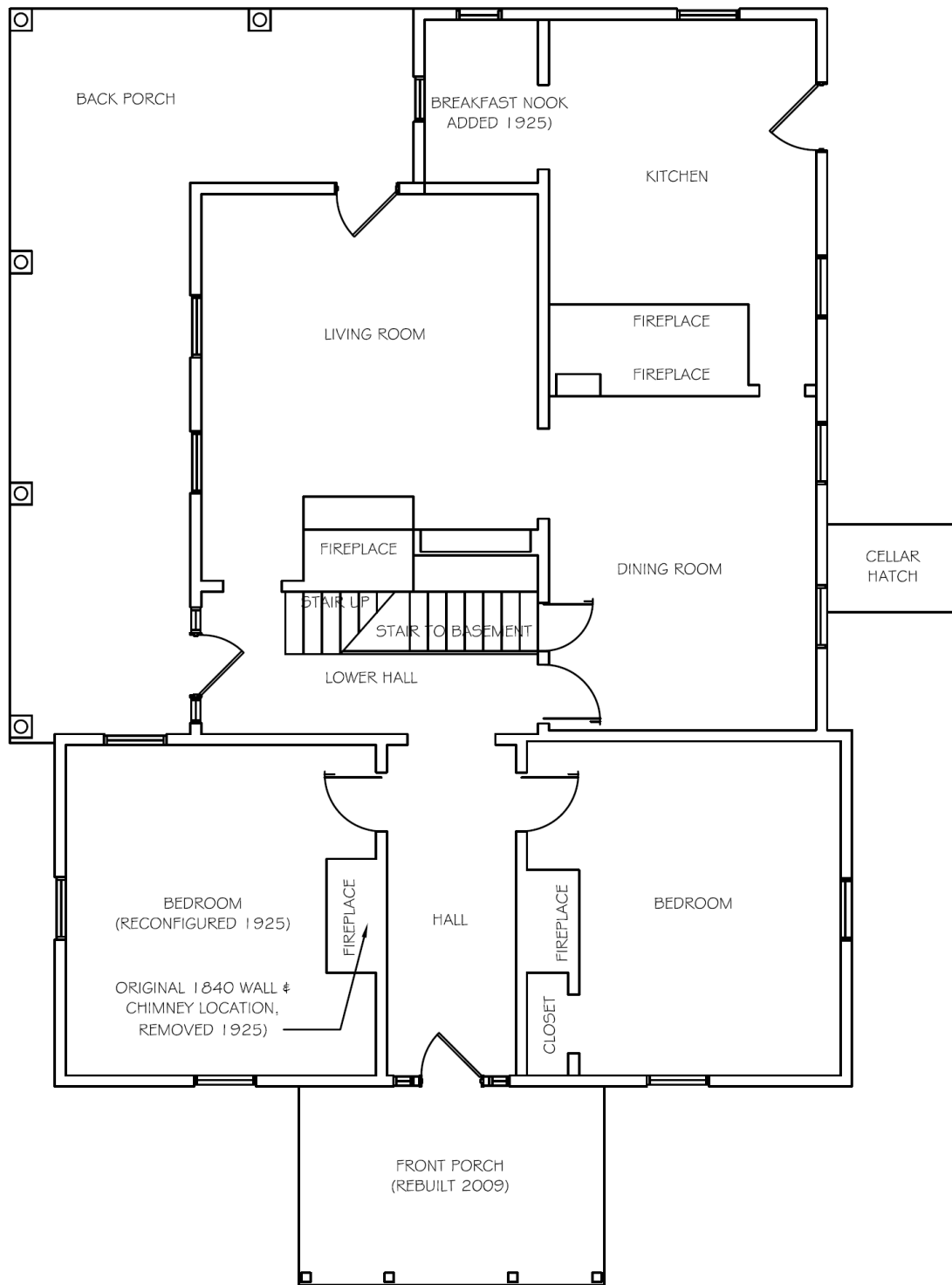


Figure #9 First Floor Plan of Hugh Murphy House prior to the 1925 renovation, showing the center hallway

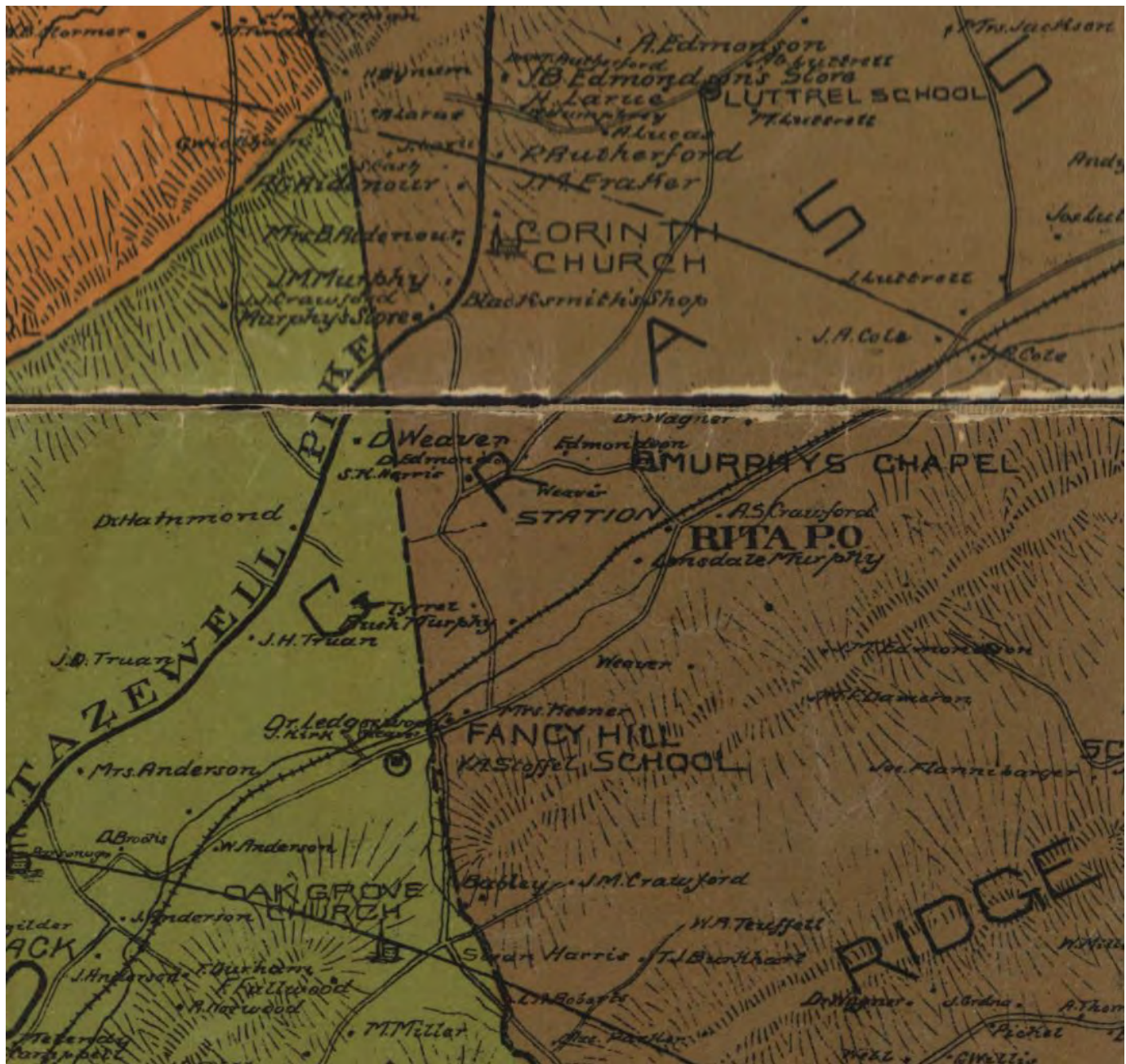


Figure #10. Detailed section from *Map of Knox Co. Tennessee* published by Vance, Coffee and Pill in 1895 that depicts the area around Murphy Springs Farm. The Hugh Murphy House can be seen labeled as “French Murphy”, with Fancy Hill School located to the southeast. Murphy’s Chapel is present on the northeast corner of the farm. On the eastern edge where the railroad crosses Luttrel Road is the Rita Post Office, located with a railroad station, near the Lonsdale Murphy house (this house is outside the nominated boundaries).































































































MURPHY

LUTTRELL

MARGARET LUTTRELL
BORN
MAR 2 1861
DIED
AUG 27 1938
ANDS CLUTTRELL
BORN
MAR 24 1855
DIED
MAY 16 1928









National Register of Historic Places
Memo to File

Correspondence

The Correspondence consists of communications from (and possibly to) the nominating authority, notes from the staff of the National Register of Historic Places, and/or other material the National Register of Historic Places received associated with the property.

Correspondence may also include information from other sources, drafts of the nomination, letters of support or objection, memorandums, and ephemera which document the efforts to recognize the property.

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

REQUESTED ACTION: RESUBMISSION

PROPERTY NAME: Murphy Springs Farm

MULTIPLE
NAME:

STATE & COUNTY: TENNESSEE, Knox

DATE RECEIVED: 6/05/15 DATE OF PENDING LIST:
DATE OF 16TH DAY: DATE OF 45TH DAY: 7/21/15
DATE OF WEEKLY LIST:

REFERENCE NUMBER: 14001034

DETAILED EVALUATION:

☒ ACCEPT ☐ RETURN ☐ REJECT 7-14-2015 DATE

ABSTRACT/SUMMARY COMMENTS:

Addresses All Return Comments

Locally Significant in Agr, settlement, & Architecture

RECOM./CRITERIA Accept All

REVIEWER J. Gubins DISCIPLINE _____

TELEPHONE _____ DATE _____

DOCUMENTATION see attached comments Y/N see attached SLR Y/N



TENNESSEE HISTORICAL COMMISSION
STATE HISTORIC PRESERVATION OFFICE
2941 LEBANON ROAD
NASHVILLE, TENNESSEE 37214
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org
E-mail: Claudette.Stager@tn.gov
(615) 532-1550, ext. 105
<http://www.tn.gov/environment/history>



October 17, 2014

Carol Shull
Keeper of the National Register
National Park Service
National Register Branch
1201 Eye Street NW
8th floor
Washington, DC 20005

Dear Ms. Shull:

Enclosed please find the documentation to nominate *Murphy Springs Farm* to the National Register of Historic Places. The enclosed disk contains the true and correct copy of the nomination for the *Murphy Springs Farm* to the National Register of Historic Places. We ask that you please undertake a substantive review of this nomination because our office disagrees with the boundaries chosen by the author/property owner.

If you have any questions or if more information is needed, please contact Christine Mathieson at (615) 770-1086 or Christine.Mathieson@tn.gov.

Sincerely,

Claudette Stager
Deputy State Historic Preservation Officer

CS:cm

Enclosures(4)

CERTIFIED LOCAL GOVERNMENT NATIONAL REGISTER REVIEW

CLG: Knoxville
PROPERTY: MURPHY SPRINGS FARM
ADDRESS: 4500 MURPHY ROAD

HISTORIC PRESERVATION COMMISSION EVALUATION

NAME OF COMMISSION: KNOXVILLE HISTORIC ZONING COMMISSION
DATE OF MEETING: AUGUST 21, 2014
HOW WAS THE PUBLIC NOTIFIED OF THE MEETING? NEWSPAPER
☒ ELIGIBLE FOR THE NATIONAL REGISTER MPC WEBSITE
☐ NOT ELIGIBLE FOR THE NATIONAL REGISTER



The main house, referred to as the Hugh Murphy House, is an excellent surviving example of the Early Gothic Revival style and wood-frame construction in east Tennessee. The house was constructed with lumber from the farm and brick fired on-site. A renovation in 1925 resulted in several changes to the house while leaving a majority of the original materials and woodwork intact and retaining a high degree of integrity. A rehabilitation in 2009 relied on historic photographs to rebuild the front porch to its original.

SIGNATURE: *Kaye Graybeal* AICP
TITLE: Kaye Graybeal, Certified Local Government Coordinator

DATE: 8.21.2014

THC STAFF EVALUATION

☒ ELIGIBLE FOR THE NATIONAL REGISTER
☐ NOT ELIGIBLE FOR THE NATIONAL REGISTER

REASONS FOR ELIGIBILITY OR NON-ELIGIBILITY:

Murphy Springs Farm was settled in 1797 and is located in northeast Knox County, Tennessee. The farm is eligible for listing in the National Register of Historical Places under Criteria A and C for its local significance in settlement, agriculture, religion, and architecture. The nominated property meets the registration requirements of the Historic and Architectural Resources in Knoxville and Knox County, Tennessee Multiple Property Documentation Form.

SIGNATURE: *Cathy Mathieson*
TITLE: Historic Preservation Specialist-National Register
DATE: July 18, 2014

PLEASE COMPLETE THIS FORM AND RETURN BEFORE: September 15, 2014

RETURN FORM TO:

CHRISTINE MATHIESON
TENNESSEE HISTORICAL COMMISSION
2941 LEBANON ROAD
NASHVILLE, TENNESSEE 37214

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

REQUESTED ACTION: NOMINATION

PROPERTY NAME: Murphy Springs Farm

MULTIPLE
NAME:

STATE & COUNTY: TENNESSEE, Knox

DATE RECEIVED: 10/24/14 DATE OF PENDING LIST: 11/14/14
DATE OF 16TH DAY: 12/01/14 DATE OF 45TH DAY: 12/10/14
DATE OF WEEKLY LIST:

REFERENCE NUMBER: 14001034

REASONS FOR REVIEW:

APPEAL: N DATA PROBLEM: N LANDSCAPE: N LESS THAN 50 YEARS: N
OTHER: N PDIL: N PERIOD: N PROGRAM UNAPPROVED: N
REQUEST: Y SAMPLE: N SLR DRAFT: N NATIONAL: N

COMMENT WAIVER: ☒ N

☐ ACCEPT ☒ RETURN ☐ REJECT 12.9.2014 DATE

ABSTRACT/SUMMARY COMMENTS:

Procedural Error - State did not notify All owners

See attached Review Comments

*Owner Submitted large Amount of Comment/Additional information
Received Dec 1, 2014*

RECOM./CRITERIA *Return*

REVIEWER *[Signature]*

DISCIPLINE

TELEPHONE

DATE

DOCUMENTATION see attached comments Y/N see attached SLR Y/N

If a nomination is returned to the nominating authority, the nomination is no longer under consideration by the NPS.



United States Department of the Interior

NATIONAL PARK SERVICE

1849 C Street, N.W.
Washington, DC 20240

The United States Department of the Interior National Park Service

National Register of Historic Places Evaluation/Return Sheet

Property Name: Murphy Springs Farm, Knox County, TN

Reference Number: 14001035

Reason for Return

This nomination is being returned due to procedural error in the nomination process, as well as for substantive and technical revision. Subsequent to the nomination, two additional property owners were identified. The nomination is being returned to address the error in notification, as well as to address substantive and technical issues with the nomination itself. The nomination for the Murphy Springs Farm was submitted as a disputed nomination; the State Review Committee recommended the nomination as submitted while the State Historic Preservation Officer recommended that the property is not eligible as submitted. In dispute is whether the boundaries of the property are appropriate to reflect the criteria and areas of significance under which the property was nominated.

The nomination and additional information submitted by Mr. Kevin Murphy subsequent to the nomination raise some questions. While not nominated under either the Historic Family Farms of Middle Tennessee MPS or the Knoxville and Knox County MPS cover documents, the nomination does correctly interpret the relevant contexts found in them. However, the information found in the Murphy Springs Farm nomination does not always support the conclusions of the nomination as it relates to those two contexts.

The property is nominated under Criteria A and C, with Agriculture, Exploration/Settlement, and Religion as areas of significance under Criterion A, and Architecture under Criterion C. We agree that the property is eligible under Criterion C, primarily for the Hugh Murphy farmhouse, supported by the collection of outbuildings. We do not feel that Criterion A - Religion - is supported, nor appropriate for this property. Any tie to significance in religion is tenuous at best, and there are no extant resources related to that area of significance. Please delete reference to Religion as an area of significance. Similarly, Exploration/Settlement is also not supported. While the land itself is the land initially acquired by Murphy family in stages over the early settlement period, there are no extant cultural resources that reflect that early period. Criterion D has not been cited, and since no archeological testing or investigation is referenced, nor compelling research questions that might be answered by archeological investigation presented, we believe that the beginning of any period of significance should begin with the earliest known and extant resources that reflect the agricultural

development of the property - c. 1841. It was around that time when the farm coalesced into as close a representation of the Murphy Springs Farm as it is today (Section 8-16).

As for Agriculture as an area of significance, we feel that based on the application of the contexts as presented in the two MPS covers, the Murphy Springs Farm is representative of the "rural reform and agriculture" era in the area. The narrative notes the transition of the farm from a multi-crop subsistence farm to a dairy farm to a cow/calf operation. As noted in the Historic Family Farms of Middle Tennessee MPS, this transition is an important one in the general history of Tennessee agriculture. In the wealth of information provided by Mr. Murphy to this office, copies of four other single farm nominations were provided, meant to demonstrate the similarity of the listed properties to Murphy Springs Farm. There are similarities; however, there is a difference in the information provided in the nominations for the listed properties and that provided in the Murphy Springs Farm nomination. In discussing the agricultural significance of the Allen Farm, the Oak Hill Farm, Allendale, and the Searcy-Mathews-Tarpley Farm, each nomination provides specific information on the agricultural practice of each as well as how the property relates to the associated MPS cover. The Murphy Springs Farm nomination provides no specifics about the agricultural practice or products of the farm, noting only that there were tenants who worked the acreage and that there was a transition from crops to livestock.

Based on the information provided, and based on the general condition of the land as evidenced by the nomination photographs, satellite imagery, and historic and contemporary USGS topographic maps, it appears that the substantial portions of the farm reflect its historic use during a period of significance that begins c. 1841, and ends c. 1963. There is no evidence of exceptional importance. Based on the historic period, where the farm transitioned from crops to livestock and livestock feed, the appropriate boundaries appear to be a compromise between the acreage presented in the nomination and those proposed by the SHPO. Based on the agricultural significance of the property, we would suggest boundaries that include only those portions of the farm located to the north of the Washington Pike road, excepting the small portion where the former Murphy Chapel stood. This would include all of parcels 049-083, 049-080, 049-071, 050-001, and 049-072 and the portion of parcel 049-077 located north of Washington Pike. These parcels evoke the combination of open land utilized for both crop and pasture typical for a farm of this type, and as evidenced by the USGS topographic maps from the 1930s through 1960s. This includes sufficient acreage to represent an important agricultural property that has lost some of its character-defining agricultural buildings (notably the barn).

The portion of the Murphy Springs Farm located south of the Washington Pike has visually been altered. The tree cover that historically was associated with the rise in elevation to the south has crept downslope to the verge of the road. The nomination notes that a "tree farm" was introduced to the area sometime after World War 2, but there is no evidence of its success or role in the farming operation. The land appears to have been left fallow to provide solitude for the houses located there.

The land to the north of Washington Pike, with the exception of the small parcel of land east of Luttrell Road where the former Murphy Chapel was located, appears to retain the field patterns, wood lots, and other characteristics of a 19th and 20th century farm.

Technical Comments

The materials Mr. Murphy provided to our office included two changes to the nomination - one that changes the property type from "buildings" to "district." This is an appropriate

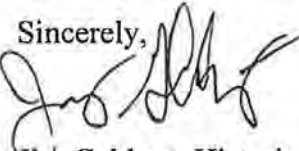
change and if the nomination is resubmitted, should be done. A new site map, creating a continuous boundary, was also provided. This new map addresses one of the SHPO's concerns detailed in the SHPO comments. Any new map that addresses revised boundaries should include a contiguous boundary.

We concur with the SHPO's comments regarding the status of the site of the Ritta Community Center (#15), the site of the barn and silo (#10), the site of the log cabin (#11), and we also would include the site of the Paul Chesney House (#21). These sites can be noted, explained, and located, but should not be counted. They lack sufficient integrity to reflect significance in either agriculture or architecture, and since there is no attempt to evaluate the property under Criterion D, they are not appropriately counted as resources. We also concur that the railroad bed need not be counted. A linear resource like this needs evaluation beyond a quarter-mile portion of its length. And, since the bed itself has been raised within the last 50 years, it lacks integrity from the period of significance. It should be noted and explained, but need not be counted. We disagree with SHPO's opinion of the chicken coop. It is recognizable for its historic use based on its remaining walls and adds to the integrity of feeling and association. The SHPO's comments on other resources (#13, #12, #16, etc) reflect our opinion that the portion of the farm located south of Washington Pike should be left out of the nomination.

We concur with the SHPO opinion that #22, the Chesney House, should not be labeled on the map as a numbered resource nor included in the inventory description. It could be labeled simply by name as a reference point, and noted in the historic context when discussing the role of the tenants. As presented, it is confusing.

The nomination details acquisition, consolidation, division, and reconsolidation of the farm over time. A map or maps that indicate the disposition of the farm at various points in time would have been illustrative and helpful.

We appreciate the opportunity to review this nomination and hope that you find these comments useful. Please feel free to contact me if you have any questions. I can be reached at (202) 354-2275 or email at <James_Gabbert@nps.gov>.

Sincerely,


Jim Gabbert, Historian
National Register of Historic Places
12-16-2014

National Register of Historic Places Registration Form

RECEIVED 2280

OCT 24 2014

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register of Historic Places Registration Form. If any item does not apply to the property being documented, check the "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions.

1. Name of Property

Historic name Murphy Springs Farm

Other names/site number Hugh Murphy House; Murphy House; Seven Gables

Name of related multiple
property listing N/A

2. Location

Street & Number: 4508 Murphy Rd

City or town: Knoxville

State: Tennessee

County: Knox

Not For Publication: ☐ N/A

Vicinity: ☐ N/A

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this ☒ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property ☐ meets ☒ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

☐ national ☐ statewide ☒ local

Applicable National Register Criteria:

☒ A ☐ B ☒ C ☐ D

Claudette Spru

Signature of certifying official/Title:

10/17/14

Date

☒ State Historic Preservation Officer, Tennessee Historical Commission

State or Federal agency/bureau or Tribal Government

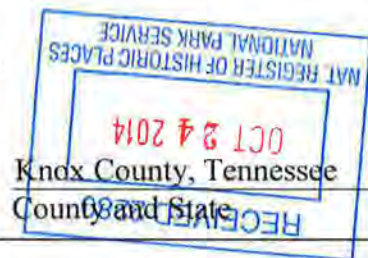
In my opinion, the property ☐ meets ☐ does not meet the National Register criteria.

Signature of Commenting Official:

Date

Title:

State of Federal agency/bureau or Tribal
Government



Murphy Springs Farm
Name of Property

Knox County, Tennessee
County and State

4. National Park Service Certification

I hereby certify that this property is:

- ☐ entered in the National Register
☐ determined eligible for the National Register
☐ determined not eligible for the National Register
☐ removed from the National Register
☐ other (explain:) _____

Signature of the Keeper

Date of Action

5. Classification

Ownership of Property

(Check as many boxes as apply.)

- Private ☒
 Public – Local ☐
 Public – State ☐
 Public – Federal ☐

Category of Property

(Check only **one** box.)

- Building(s) ☒
 District ☐
 Site ☐
 Structure ☐
 Object ☐

Number of Resources within Property

Contributing	Noncontributing	
9	4	buildings
4	4	sites
3	0	structures
0	0	objects
16	8	Total

Number of contributing resources previously listed in the National Register 0

United States Department of the Interior
National Park Service

**Murphy Springs Farm**

Name of Property

Knox County, Tennessee

County and State

National Register of Historic Places**Continuation Sheet**Section number NA Page 1

Staff met with the owner of the Murphy Springs Farm several years ago and determined that the property was eligible for listing in the National Register. Specific boundaries were not set, but it was suggested that the road or railroad would be appropriate boundaries. When the city of Knoxville proposed improvements to Washington Pike, the office determined that appropriate boundaries would be the 49.5-acre parcel 049080. We conveyed this information to the Tennessee Department of Transportation, who conveyed this to the city. This was done on March 7, 2013. The boundaries were chosen to encompass the house and several outbuildings and to represent the era of continual farming activity that occurred on the property. We were aware that the property owner wanted a larger boundary, but based our determination on the known history of the farmstead, associative qualities of the extant resources, and the architectural character and integrity of the buildings.

This year the office received a draft National Register nomination for the Murphy Springs Farm with a proposed boundary of approximately 205 acres. The expanded boundary primarily contains farmland with a few sites and buildings. Many of the resources added do not contribute to the agricultural or architectural character of the nominated property. The nomination does not state why the boundary of 205 acres is significant, other than it has been in the family. It is also unclear how the landscape may have changed through the period of significance. The National Register nomination is well-researched and contains interesting family history. It is still the SHPO opinion that the property is eligible and that the 49.5 acre boundary is the one that best reflects the architectural character and agricultural history of the farmstead. The nomination and subsequent information sent by the property owner does not justify adding the additional land. In addition, the city of Knoxville used the staff determination and boundaries for planning their road improvement project. With no substantive new information, we believe that the original boundaries should stand.

Most of the resources around the domestic complex are fine and contribute to the historic character of the farmstead, but we disagree with expanding the boundaries to include land as a buffer when noncontributing properties are at the edges. The

United States Department of the Interior
National Park Service

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Continuation Sheet

Section number NA Page 2



Murphy Springs Farm

Name of Property

Knox County, Tennessee

County and State

boundaries appear to be discontinuous and gerrymandered. Refer to attached site plan for comments below. (C/NC are from author's nomination unless otherwise noted.)

In the northeast corner:

13. This is a site of Murphy Chapel that is considered noncontributing.

14. This is the cemetery associated with the noncontributing chapel site (13).

Contributing.

15. This is the site of the Riita Community center and is noncontributing.

Including two noncontributing sites and a contributing cemetery, separated from the domestic complex by acreage (20 in inventory) is not justified in the text or boundary justification.

In the southeast corner:

There is a separate parcel that may have nothing on it or it has the site of a demolished building. See? on map. The author has not explained why this is included.

Western boundary:

The boundary crosses Murphy Road to pick up a parcel with no resources.

22. This is drawn outside the boundary, and the author insists on including this on the map and in the text, although it is not part of the nomination. See photo 53.

Again, it is unclear how the land ties in with the significance of the farmstead other than it is family owned.

South of Washington Pike:

12. Murphy Family Cemetery. Contributing.

16. Robert Murphy Senior House. This house does not add to the associative qualities that make the farmstead eligible under criterion A. Its setting has been compromised by the noncontributing resources around it. There are questions as to whether there is sufficient important/character defining features of the building. See photo 49.

17. This is a noncontributing barn.

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Section number NA Page 3



Murphy Springs Farm

Name of Property

Knox County, Tennessee

County and State

18. Col. Robert Murphy Jr. House. This is a 1960s ranch house that is contributing. The relationship of the building to the farm other than family is not clear.

19. M. Workman House. Noncontributing.

The only agricultural resource on this parcel is noncontributing and with the relationship of the 1960s ranch house to the farm history not being clear, the nomination does not justify adding these parcels.

23 and 24. The author has the road and railroad as contributing but staff disagrees. They are only small portions of a linear resource and there is little information about changes to the resources over the years. There is no reason given for including part of the road to connect the parcels while excluding other sections; there is no difference in the integrity of the excluded/included parts.

The boundary is also drawn as discontinuous and this is incorrect for this resource.

6. Chicken coop is considered contributing but the façade and floor were removed in the 1980s, substantially changing the appearance of the resource. Staff considers this noncontributing, since this is a major, post period of significance change.

10. Barn and silo site. No remains. Noncontributing.

11. Log cabin chimney remains, foundation stones only. Contributing?

At the September 17, 2014, State Review Board meeting the boundaries were discussed by the board, staff, and the property owner. It has been our office policy to send nominations where the board and staff disagree on a major issue (boundaries, eligibility) to the National Register office as a disputed nomination and request that the Keeper do a substantive review. When this was conveyed to the board, they voted unanimously to recommend approval with the larger boundary and let the Keeper decide the appropriate boundary.

United States Department of the Interior
National Park Service



Murphy Springs Farm

Name of Property

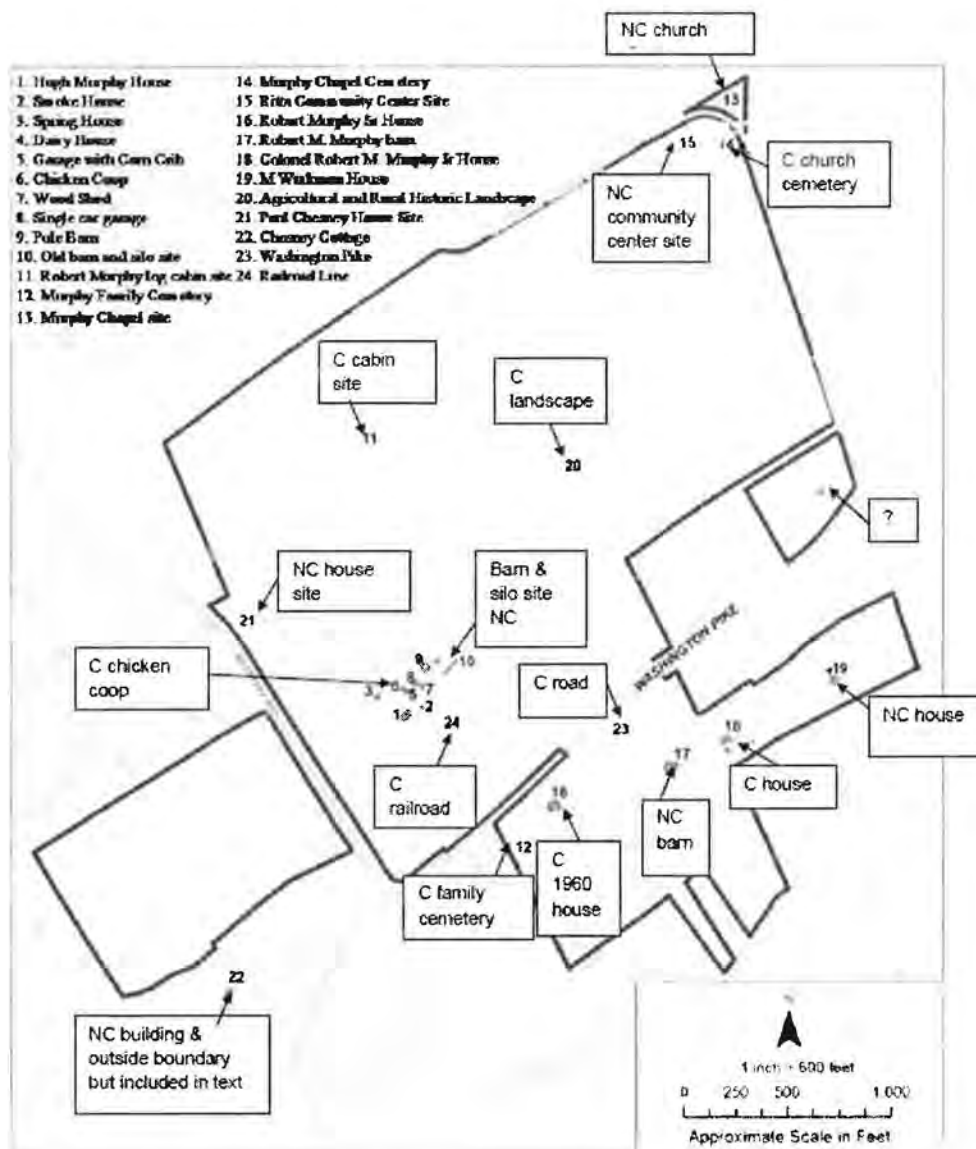
Knox County, Tennessee

County and State

National Register of Historic Places

Continuation Sheet

Section number NA Page 4



Site plan with SHPO areas of concern/disagreement. C/NC is author's designation.

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Section number NA Page 5



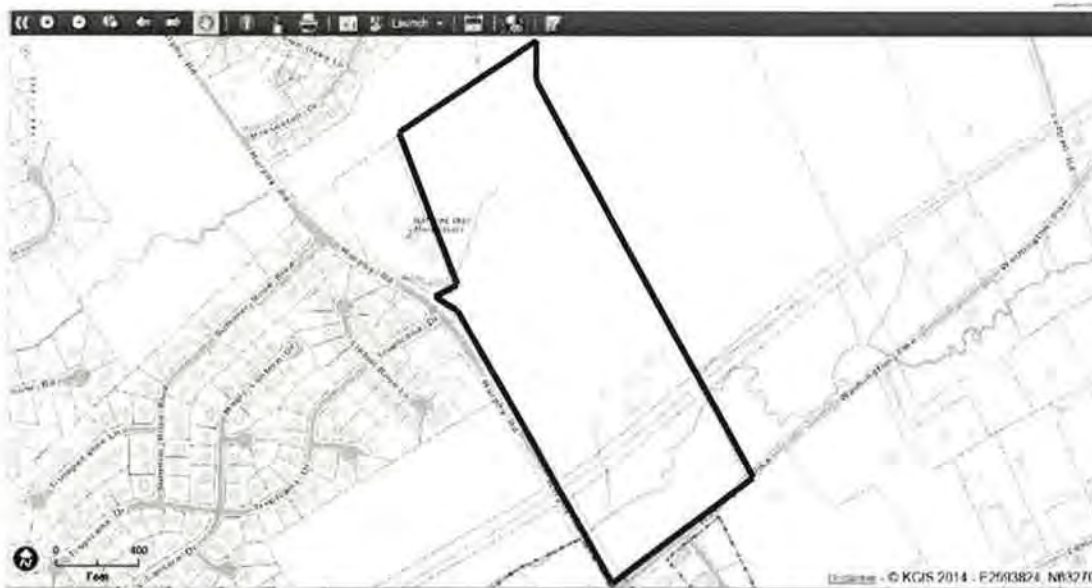
Murphy Springs Farm

Name of Property

Knox County, Tennessee

County and State

Boundary proposed by staff, parcel 049 080.



Claudia K. Smith

Deputy SHPO

10/17/14

Date

Kevin Murphy
4508 Murphy Rd
Knoxville, TN 37918-9179

Mr. Edson Beall, Control Unit Manager
National Park Service
National Register of Historic Places
1201 Eye Street, NW (2280)
Washington, DC 20005

November 28, 2014

Dear Mr. Beall,

Enclosed is a DVD-ROM with my comments and documentation related to the Murphy Springs Farm nomination to the National Register of Historic Places, reference number 14001034. I have also uploaded them to two cloud services in case there is some corruption of these files, and have emailed you and Mr. Moriarty with those links.

Please send me a quick note via email to confirm that have been able to access these files.

Nicholas Della Volpe
5216 Crestwood Drive
Knoxville, TN 37914

November 28, 2014



Mr. J. Paul Loether
Chief, National Register of Historic Places Program
1201 Eye Street, NW (2280)
Washington, DC 20005

RE: Murphy Springs Farm, Knoxville, TN --- National Register Nomination

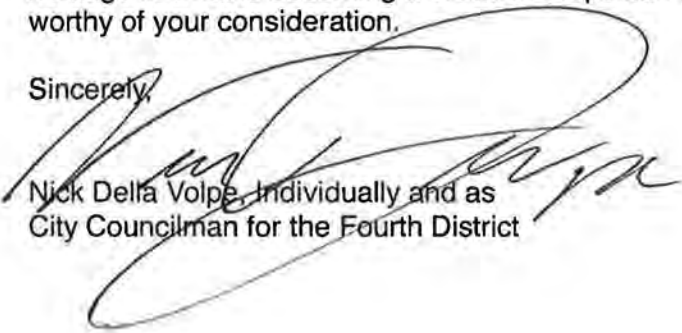
Dear Mr. Loether,

I am a resident of East Knoxville and the Knoxville City Councilman for the 4th District and I appreciate the opportunity to write to you about the proposed listing of Murphy Springs Farm on the National Register of Historic Places. I know that Kevin Murphy has labored for some time to restore the old farm house and to work with the several Murphy descendants to pull together the various pieces of the old farmstead that has been divided amongst heirs over the years.

Your office is apparently charged with determining whether to consider listing the entire farmstead or just the parcel with the resorted home. The old family farm, while now divided, is an example of early east Tennessee history and our agricultural roots. It is situated in a fairly developed county (Knox County, population over 400,000), and is located some 15 minutes from downtown Knoxville (population 187,000). The population of the east city and county are expanding and vacant land, like the Murphy Farm, is both a worthy piece of rural life to preserve but also an attractive large parcel for future commercial and residential development. A narrow piece of this land is likely needed for the widening of local roads, like Washington Pike, but the balance of the family farm could survive into the future if it had protection offered by listing on the Register.

The old house and outbuildings are significant, but so is the agricultural setting. By helping to preserve that historical context of the farm in a long-standing agricultural environment gives future visitors and admirers a chance to appreciate the Murphy farm and our agricultural heritage in what is becoming a broad metropolitan area. The broader National Register listing is worthy of your consideration.

Sincerely,



Nick Della Volpe, Individually and as
City Councilman for the Fourth District

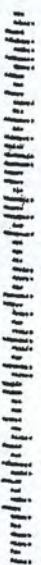
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J. Paul Keller, Chief
National Registry of Historic Places
1201 eye St. NW (2280)
Washington, DC. 20005

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JUN - 5 2015

Nat. Register of Historic Places
National Park Service



TENNESSEE HISTORICAL COMMISSION
STATE HISTORIC PRESERVATION OFFICE
2941 LEBANON ROAD
NASHVILLE, TENNESSEE 37214
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org
E-mail: Claudette.Stager@tn.gov
(615) 532-1550, ext. 105
<http://www.tn.gov/environment/history>

June 1, 2015

J. Paul Loether
Deputy Keeper and Chief
National Register and National Historic Landmark Programs
National Register of Historic Places
1201 Eye St. NW, 8th Fl.
Washington D.C. 20005

Dear Mr. Loether:

Enclosed please find the documentation to nominate *Murphy Springs Farm* to the National Register of Historic Places. The enclosed disk contains the true and correct copy of the nomination for the *Murphy Springs Farm* to the National Register of Historic Places.

If you have any questions or if more information is needed, please contact Christine Mathieson at (615) 770-1086 or Christine.Mathieson@tn.gov.

Sincerely,

A handwritten signature in blue ink, reading "Claudette Stager".

Claudette Stager
Deputy State Historic Preservation Officer

CS:cm

Enclosures(4)

- 01 - Additional Narrative Supporting Boundary Justification for Murphy Springs Farm
- 02 - Letter from Knox County Extension Agent
- 03 - Letter from Knox Heritage
- 04 - Letter from Steve Cotham County Historian

Mr. J. Paul Loether
Chief, National Register of Historic Places Program
1201 Eye Street, NW (2280)
Washington, DC 20005

Kevin P. Murphy
4508 Murphy Rd
Knoxville, TN 37918-9179
November 28, 2014

RE: Additional Information Supporting Boundary Justification for Murphy Springs Farm

Dear Mr. Loether,

The information below is generally the same information that I provided in a letter to the Tennessee State Review Board¹ when they met on September 17, 2014 after I received a memo from the Tennessee State Historic Preservation Office ("SHPO") on Sept 11 2014, about a boundary dispute². The dispute is about a difference in the proposed boundary of the Murphy Springs Farm Nomination, and a boundary established by TDOT in March 2013, where the boundary was defined as a single parcel 049 080.

Additionally, your office should consider that this nomination is of similar quality and character to other nominations for farms in Tennessee that have *already been listed* on the National Register of Historic Places. The Murphy Springs Farm nomination contains more detail, and spans a larger portion of time, than any of these nominations. Precedent has been set, and the SHPO's dispute of the boundaries ignores this precedence. Similar nominations already listed on the National Register include:

- Allen-Birdwell Farm (Reference # 11000088). 176 acre farm with substantial agricultural landscape acreage that doesn't have many outlying buildings
- Allendale Farm (Reference # 78002619). Note that this was a boundary increase from a 1978 entry of 3.9 acres; the new boundary was 314 acres.
- Oak Hill (Reference # 13000125)
- Searcy-Mathews-Tarpley (Reference # 11000459). Note that this 106 acre nomination had an agricultural landscape description of only a single paragraph (section 7, page 6)

I have included copies of these nominations in "Folder 06 - Other National Register Listed Farms".

The Murphy Springs Farm nomination now in front of you contains full descriptions of historical significance and integrity and proposes boundaries that capture the full extent of available resources covered by the nomination.

For farms, there is excellent guidance available in the NPS Publication *Guidelines for Evaluating and Documenting Rural Historic Landscapes* for establishing boundaries.

¹ Original letter handed out at State Review Board Meeting is in Folder 04 – Additional Info for SHPO and State Review Board \ 05 - Murphy letter to Tennessee State Review Board.

² Memo from SHPO to State Review Board is in Folder 04 – Additional Info for SHPO and State Review Board \ 02 - SHPO Memo to SRB re Murphy Springs Farm Proposed National Register Boundary.

Following that guidance, the selected boundaries are justified in the Murphy Springs Farm nomination as follows:

Historic Property

“Historic property” is the farm land acquired by Robert Murphy from 1797 through 1826 and later owned by his son Hugh Murphy, and Hugh Murphy’s descendants. This historical ownership controls the area of study and the maximum possible boundary of the nomination.

What to Include

“What land within the historic property today has both historic significance and integrity?” The historic uses for Murphy Springs Farm that represent settlement patterns, farming, animal husbandry, and other Criterion A uses were:

- Agricultural – evidenced by historic field patterns and well established fence lines and tree lines, as well as agricultural outbuildings that have been in place for over 100 years.
- Transportation (Road) – Norfolk Southern railroad
- Transportation (Railroad) – Washington Pike and Murphy Rd
- Funerary (Cemetery) – Murphy Family Cemetery, and Murphy Chapel Cemetery

In addition to those Criterion A uses, the Hugh Murphy House, as an example of early Gothic Revival Architecture, is significant under Criterion C. It represents the building style of an early settler who was educated and rose to financial prominence in the community.

Included land in the Murphy Springs Farm nomination retains the general character and feeling of the historic period spanning 1797-1964. Pasture land and hay fields still exist that were used for grazing dairy cattle in the early 1900s. The Hugh Murphy House is located next to a spring, which provided easy water access for early settlers. Transportation corridors still run through the farm, which illustrate events in the development of the region. Murphy Chapel Cemetery represents the establishment of organized religion in a rural area by Methodist circuit riders, while the Murphy Family Cemetery represents the typical small, family burial plots (and is also significant since Robert Murphy and his son Hugh are buried there and associated with the land.) The current tree farm on the southern portion of the farm was established by county extension agent Robert M. Murphy Sr. in the 1940s in response to the shortage of timber crops.

Current Knox County Agricultural Extension Agent Neal Denton stated that the entire Murphy Springs Farm is significant from an agricultural perspective.³ All of the property has been associated with all of the major developments of agriculture in eastern Tennessee, from early subsistence farming through cotton, row cropping, tobacco, dairy, and now beef cattle, and it is a rare property that has been kept largely intact and controlled by the same family.

The farm was operated as single farming operation until approximately World War II; the residents lived on different parcels of the farm but worked it and managed it as a single unit. Robert M. Murphy and his sons, who lived on the southern portion of the farm, came over to the historic barn site behind the Hugh Murphy House to help John Rush Murphy, Tip Chesney, and Henry Chesney milk the cows for the dairy⁴. After World War II, the farm was

³ Folder 01 – Additional Boundary Justification Narrative\02 – Letter from Knox County Extension Agent

⁴ Alvin Murphy Jr, Oral interview, 12 September 2014,, by Kevin Murphy via phone

managed as two distinct operations by Robert M. Murphy Sr. and Henry Chesney, but after their deaths it reverted to operation as a single farming entity. Today, cattle and farmer know no property divisions between the parcels; the grass is green on each side of the legal property line.

Most importantly, the overall integrity of the agricultural history of the farm, the development of rural architecture, and the emergence of improved transportation options is intact.

A few parcels of the farm have been sold outside of the Murphy family and changed to rural residential use. These parcels no longer reflect the history of agriculture, and are excluded from the nomination. The nomination contains a map clearly identifying the historic boundaries of the property, and the nominated boundaries.

Select Appropriate Edges

The edges selected for the Murphy Springs Farm nomination are the historical boundaries of the land owned by Robert Murphy and his son Hugh, excepting the parcels no longer owned by their descendants. The boundary includes railroad and highway right of way, some of which is an easement interest in the property and some which is owned fee-simple by the railroad or local government. These transportation corridors are part of the historically significant farm – Washington Pike was established approximately 200 years ago through the farm; the railroad was established c. 1888, and Murphy Road has existed as a farm line since prior to 1900 – all of these transportation corridors created and present during the period of significance for the nominated property.

By following the guidance in the *Guidelines for Evaluating and Documenting Rural Historic Landscapes* for Selecting Boundaries, I believe the nomination contains boundaries that represent the full context of available resources that describe the Murphy Spring Farm.

Restricting the boundaries to a single parcel (049-080) is problematic because:

- That parcel was created after Robert Murphy acquired all of the land, and his son Hugh built a Gothic Revival farmhouse (which is significant under Criterion C).
 - The parcel was not a boundary that Robert Murphy or Hugh Murphy were familiar with; it was created by survey and division of property in 1926.
 - In fact, the parcel boundaries do not reflect any particular period of significance of the farm.
- The dairy farm was clearly a significant period, and the single parcel does not reflect the full operation of the dairy farm. You cannot have a dairy farm without the fields on the adjacent property for the cattle to graze and for hay/silage, and land to the east and the west of the parcel was used for these purposes. There was a silo for silage, and Alvin Murphy Jr. recalls a cutter attached to the power take-off of a tractor that blew the silage up to the top of the silo when he was a child⁵. Additional context (fields and land) are available and should be included.
- The reduced boundaries do not include several significant, contributing resources:
 - Murphy Family Cemetery – which contains the burial sites of the initial settler Robert Murphy and his son Hugh, and provides context for a family cemetery that overlooked the farm and the house that Hugh built.
 - Murphy Chapel Cemetery – providing context for early Methodist circuit riders

⁵ Murphy, Oral interview, 12 Sept 2014

- Robert M. Murphy, Sr. House and Barn – associated with a significant figure in the agricultural development of Knox County
- No documentation has been completed that provides a definition of the historical significance of resources within just that parcel, and establishes the historic integrity of those resources, in addition to establishing why the resources lying on the farm outside of parcel 049-080 do not contain enough significance or integrity to be considered as part of the nomination.

In support of this full boundary, I am including the following letters and statements:

- Letter from the current Knox County Extension Agent, Neal Denton, supporting the significance of the entire farm and the integrity it still has. Copies handed out at Tennessee State Review Board Meeting on Sept 17, 2014⁶
- Letter from Steve Cotham, Knox County Historian⁷
- Letter from Kim Trent, Executive Director, Knox Heritage⁸

Finally, the second page of the SHPO memo informs the State Review Board about the boundaries and design of the TDOT project and the potential impacts of accepting a nomination with expanded boundaries⁹. Nowhere in any of the National Park Service bulletins about preparing or reviewing National Register nominations can I find guidance or criteria that the impact to current or proposed federal projects should be considered in establishing boundaries. These bulletins provide guidance that the establishment of National Register property boundaries should be based on historical significance and integrity of the property.

The fact that there is a transportation project proposed for the area should not be a factor in the SHPO's or State Review Board's review and recommendation on this nomination, and I believe the second page of the SHPO's memo regarding the impact on the unbuilt TDOT project should be disregarded by the State Review Board.

Very respectfully,



Kevin P. Murphy

Below: Partial Listing of Deeds associated with Murphy Springs Farm

⁶ Folder 01 – Additional Boundary Justification Narrative\02 – Letter from Knox County Extension Agent

⁷ Folder 01 – Additional Boundary Justification Narrative\04 – Letter from Steve Cotham Knox County Historian

⁸ Folder 01 – Additional Boundary Justification Narrative\03 – Letter from Knox Heritage

⁹ Folder 04 - Additional Info for SHPO and State Review Board\02 - SHPO Memo to SRB re Murphy Springs Farm Proposed National Register Boundary

Partial Listing of Deeds Associated with Murphy Springs Farm

Book	From	To	Date	Description	Size
B21 191-2	John Crawford	Robert Murphy	24 May 1797	Original tract described in his will	110 acres
B21 204	John Edmonson	Robert Murphy	1 Jul 1797		50 acres
Grant 6152	State of TN	Robert Murphy	12 Mar 1819	John Murphy holds originals for this grant	15
Grant 14970	State of TN	Robert Murphy	10 Mar 1826	John Murphy holds originals for this grant	12.5
Grant 20579	State of TN	William Murphy (Robert's son)	28 Jan 1837	Haven't obtained a copy of this grant before; it appears in the deed that transfers property after Hugh's death. Unsure where this plays into the picture.	81
O-2 p. 45-56	Robert Murphy	Methodist Episcopal Church	26 Jan 1847	Property for Murphy Chapel (now where Luttrell Road turns)	
P-2 p.796-799	William Murphy	Hugh Murphy	29 Aug 1851	Conveyance of 50% interest in original farm to Hugh	50% of 110 + 50 + 15 + 12.5 acres
R 3 p.313-314	Hugh Murphy	W.A. Murphy John Rush Murphy Robert Fillmore Murphy Dicey M. Murphy (widow)	15 Jul 1878	Took all of the R. M. Murphy farm plus a piece from William Murphy (see 28 Jan 1837 grant) and gave it to his children. Two heirs were bought out, leaving three children and a widow as owners.	
U3 1-2	Dicey M. Murphy John Rush Murphy William A. Murphy	Robert Fillmore Murphy	6 Mar 1880	Gave Robert F. Murphy the western part of the farm. Note that Robert F. passed away in 1891.	46
U3 2-3	Robert F. Murphy Dicey M. Murphy William A. Murphy	John Rush Murphy	6 Mar 1880	Gave John R. Murphy the middle part of the farm	46
U3 3	W. A. Murphy	Dicey M. Murphy	6 Mar 1880	Gave Dicey Murphy the eastern part of the farm. Note: There must be another deed that gave W. A. Murphy his farm....	46
J4 p. 595-596	Robert Fillmore Murphy William Alanzo Murphy	Powell Valley Railroad Company	23 May 1887	Grants "free ingress egress and regress for the pursuit of constructing and operating a roadload at all times and seasons forever hereinafter into along through and out of our land" "to have and to hold the right of said passage right of way and ???"	
94 p. 14	Dicey M. Murphy (Hugh's widow)	Powell Valley Railroad Company	5? Feb 1888	Another deed granting privileges according to the Charter and enough land for ??? depot if desired	
211 p. 99	Dicey M. Murphy	John Rush Murphy	27 May 1899	For J. R. to take care of her	46
239 p. 282	W. A. Murphy	Southern Railway Co	29 May 1913	20' right-of-way either side of track. According to letters, never received compensation for right-of-way	
293 p. 144	John R. Murphy	Alanzo E. Murphy	22 Nov 1922	For one acre tract; this is probably 049 074, 049 075 or 049 073 now	1

Book	From	To	Date	Description	Size
430 412-417	John R. Murphy	Alvin R. Murphy Sr. Robert M. Murphy Sr. Ann Murphy Koger	1 June 1926	Splits up the Robert F. Murphy and John R. Murphy properties into three parts – a western farm (Kevin Murphy's property 049 080), a center farm to Robert M. Murphy (now part of the "estate"), and an eastern parcel that is on the west side of Murphy Rd	

UT TSU Extension Knox County
City-County Building
400 W Main Street, Suite 560
Knoxville, TN 37902-2411

State Review Board
Tennessee Historical Commission
2941 Lebanon Road
Nashville, TN 37214

RE: Murphy Springs Farm National Register Nomination

September 15, 2014

Dear Board Members,

Murphy Springs Farm in northeast Knox County is a family farm that is significant to the agricultural history of the area, and represents agricultural trends and production to this day. It is significant for its range of production uses, the intact agricultural outbuilding, the field patterns that have been maintained for over 200 years, and the association with an individual of local prominence in the agricultural community.

Agriculture in eastern Tennessee began with early settlers engaging in subsistence farming. Many farmers then turned to cotton in the 1800s with the advent of the cotton gin and then the early 1900's burley tobacco became the preeminent market crop, as well as row crops such as corn and small grain production. The dairy industry emerged in the late 1800's and was the focus of many family farms through the 1950's, which then gave way to a beef cattle industry that is a significant portion eastern Tennessee agriculture to this day. Murphy Springs Farm has evolved through all of these periods in the agricultural development of East Tennessee, and is especially rare as the same family has been associated with the farm for over two hundred years.

The agricultural outbuildings present on the farm are rare intact examples of the early subsistence farming and the dairy period of the farms. The smokehouse was important to early settlers for preserving meat that could be used to augment their grain and vegetable diets. A spring house and dairy work building were extremely common in the rural landscape of eastern Tennessee and Knox County in the early 1900s, but few remain today.

Finally, a significant individual to eastern Tennessee agriculture is associated with the Murphy family and Murphy Springs Farm. Robert M. Murphy, Sr. was the first full-time and longest serving (to-date) county extension agent for Knox County. He was previously employed by the American Hereford Association, and started as the extension agent in Knox County in 1920's and returned in 1930's during the Great Depression. He also served as the first extension specialist for The University of Tennessee Agricultural Extension Service in the area of animal husbandry. Murphy was a pioneer of using mass media to reach out to farmers across the region, walking from his office in the Old Knox County Courthouse in Knoxville down Gay Street to the radio stations located there, and hosting agricultural programs on several of them each week. He hosted on a weekly television series "RDD 6" in the 1950s.

R. M. Murphy used portions of Murphy Springs Farm to experiment with evolving agricultural practices of erosion control, evidenced by the berms in one of the fields. He also converted a portion of the fields to a tree farm, which was a trend that developed in the 1920s after most of Tennessee's old forests had been cut and timbered.

All of these factors – the association of the farm to all periods of agricultural production in eastern Tennessee, rare and intact agricultural outbuildings, a land that exhibits historical field lines and changes in agricultural techniques such as erosion control and forestry, and an association with an important individual to agriculture make the entire Murphy Springs Farm historic and significant. The entirety of the property tells the story of east Tennessee agriculture. Our office considered Murphy Springs Farm important enough to Knox County that we held our celebration of 100 Years of Extension Service at the farm in 2010.

I would consider the entire farm for listing on the National Register of Historic Places.

Respectfully,

A handwritten signature in cursive script that reads "Neal Denton".

Neal Denton
Director, UT Extension, Knox County



**KNOX
HERITAGE**

Preserve. Restore. Transform.

P.O. BOX 1242
KNOXVILLE, TN 37901

PHONE 865-523-8008
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Tom McAdams
General Counsel

LOCAL PARTNER
NATIONAL TRUST FOR
HISTORIC PRESERVATION

November 25, 2014

Mr. J. Paul Loether
Chief, National Register of Historic Places Program
1201 Eye Street, NW (2280)
Washington, DC 20005

RE: Murphy Springs Farm National Register Nomination

Dear Mr. Loether,

I am writing on behalf of Knox Heritage Board of Directors in support of listing Murphy Springs Farm in the National Register of Historic Places with the full boundaries that were proposed. Our Board understands that the staff of the State Historic Preservation Office have disputed the proposed boundaries. We believe that the staff is in error, and we concur with the unanimous vote of the State Review Board that the entire farm should be listed.

Many of our Board members have visited Murphy Springs Farm. The context created by the outbuildings, and all of this agricultural landscape just 15 minutes away from downtown Knoxville, makes you feel like you've been transported back in time 150 years.

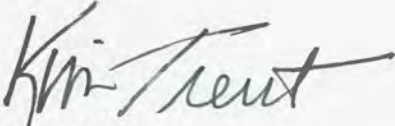
We believe it would be a mistake to limit the nomination to just a single parcel. We believe that several buildings and cemeteries outside of that parcel are significant and of sufficient integrity that we would include them in our mission to preserve and protect. Additionally, the agricultural landscape, with the mature tree lines, pasture layout, and acreage convey a sense of what rural, frontier eastern Tennessee and Knox County looked like 150 years ago.

This is a remarkable resource to have at the edge of Knoxville's city limits, and is becoming even rarer as the county continues to urbanize and develop. The northeast area of Knox County, where Murphy Springs Farm is located, has a large percentage of our undeveloped land. The transportation corridors of Washington Pike and Murphy Road will face expansion pressure in the future. Recognizing the significance of the entire farm will guide future road improvement projects to minimize the impact to a precious historical resource in our community.

Finally, Knox Heritage wasn't consulted about eligible boundaries for Murphy Springs Farm, except when TDOT circulated a report in March 2013. The report didn't make it clear that there was a boundary conflict; we just saw that the farm was identified as eligible and steps were being taken to protect it. At no other time did TDOT or the SHPO contact us in 2012-2014 regarding Murphy Springs Farm.

We request that you list Murphy Springs Farm on the National Register of Historic Places with the full boundaries.

Sincerely,

A handwritten signature in black ink, appearing to read "Kim Trent". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Kim Trent
Executive Director



OFFICE OF COUNTY MAYOR TIM BURCHETT

Knox County Public Library • 500 West Church Avenue, Knoxville, TN 37902

J. Paul Loether
Chief, National Register of Historic Places Program
1201 Eye Street, NW (2280)
Washington, DC 20005

Steve Cotham, Manager
Calvin M. McClung Historical Collection
601 South Gay Street
Knoxville, TN 37901

November 24, 2014

Dear Mr. Loether:

In my capacity as Knox County Historian, I am writing in support of the request to list the **entire** remaining tract of Murphy Springs Farm on the National Register of Historic Places with **the full surviving undeveloped boundaries of the original property**, not the reduced boundaries that have been suggested by the Tennessee Historical Commission. I have had the pleasure of visiting Murphy Springs Farm and seeing the preservation work being carried on there. I have also helped Mr. Murphy with researching some of the family and community history, using the resources in the McClung Historical Collection. Grassy Valley was one of the early settlement areas of Knox County. The 1796 Tennessee state constitutional convention had four delegates from Knox County - two from the small town of Knoxville proper, and two from Grassy Valley. Settled just a year after Tennessee became a state, Murphy Springs Farm is a very rare surviving family farm from that era – one of only five in Knox County. The community of Ritta, centered on the railroad station and post office established in the 1880s on the far eastern edge of the farm, maintained its community identity through the 1980s. Murphy Springs Farm was there long before Ritta was formed, and it is still there after the community's identity has slowly been absorbed by surrounding new development.

The only time I have been consulted on eligible boundaries for Murphy Springs Farm, to date, was when the Tennessee Department of Transportation circulated a report in March 2013. I was just gratified to see the entire farm identified as historically significant and that there was no proposed taking of property for the right-of-way. Murphy Springs Farm is an intact, surviving example of a family farm that links our current county to our past. I encourage you to list Murphy Springs Farm on the National Register of Historic Places with the full boundaries.



OFFICE OF COUNTY MAYOR TIM BURCHETT

Knox County Public Library • 500 West Church Avenue, Knoxville, TN 37902

Sincerely,

Steve Cotham
Knox County Historian

Steve Cotham, Mgr.
Calvin M. McClung Historical Collection
Knox County Public Library System
East Tennessee History Center
601 South Gay Street
Knoxville, TN 37902

865-215-8808

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Section number NA Page 1

Murphy Springs Farm

Name of Property

Knox County, Tennessee

County and State

Staff met with the owner of the Murphy Springs Farm several years ago and determined that the property was eligible for listing in the National Register. Specific boundaries were not set, but it was suggested that the road or railroad would be appropriate boundaries. When the city of Knoxville proposed improvements to Washington Pike, the office determined that appropriate boundaries would be the 49.5-acre parcel 049080. We conveyed this information to the Tennessee Department of Transportation, who conveyed this to the city. This was done on March 7, 2013. The boundaries were chosen to encompass the house and several outbuildings and to represent the era of continual farming activity that occurred on the property. We were aware that the property owner wanted a larger boundary, but based our determination on the known history of the farmstead, associative qualities of the extant resources, and the architectural character and integrity of the buildings.

Commented [KPM1]: The initial boundary determination was made by TDOT Historic Preservation Staff, overriding initial recommendations in the Oct 2012 draft made by the consultant for CDM Smith / City of Knoxville. SHPO staff "did not read the report for Washington Pike all that closely" and simply concurred with it. For more information, see Folder 05.

Commented [KPM2]: This report was never sent to the property owner by TDOT – see the cover sheet and distribution list in "02 - Historic Structures Report Distribution List – TDOT." The report indicates that the project consultant, CDM Smith, should have distributed it to the property owner and other organizations, but this distribution never occurred and is backed up by the responses of open records request to Knoxville-Knox County MPC, Knox County Historian, and other bodies.

Commented [KPM3]: The SHPO and TDOT never requested additional information from the property owners or any local historical groups (e.g. Knox Heritage, Knox County Historic Zoning Commission, Knox County Historian). In this case, the SHPO was simply negligent in seeking further information to increase their awareness of the history of the farmstead, extant resources, and character and integrity of the buildings.

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Section number NA Page 2

Murphy Springs Farm

Name of Property

Knox County, Tennessee

County and State

This year the office received a draft National Register nomination for the Murphy Springs Farm with a proposed boundary of approximately 205 acres. The expanded boundary primarily contains farmland with a few sites and buildings. Many of the resources added do not contribute to the agricultural or architectural character of the nominated property. The nomination does not state why the boundary of 205 acres is significant, other than it has been in the family. It is also unclear how the landscape may have changed through the period of significance. The National Register nomination is well-researched and contains interesting family history. It is still the SHPO opinion that the property is eligible and that the 49.5 acre boundary is the one that best reflects the architectural character and agricultural history of the farmstead. The nomination and subsequent information sent by the property owner does not justify adding the additional land. In addition, the city of Knoxville used the staff determination and boundaries for planning their road improvement project. With no substantive new information, we believe that the original boundaries should stand.

Commented [KPM4]: It contains a substantially larger sample of resource #20 – "Agricultural and Rural Historic Landscape" which is strongly related to the Criterion A aspect of the nomination. It also contains 4 additional contributing resources – 2 sites, 2 buildings, and 4 non-contributing buildings/sites. The expanded nomination contains additional sections of contributing sites of Washington Pike and the Railroad Line

Commented [KPM5]: This comment ignores the letter with documentation about the boundary justification and significance that was passed out at the State Review Board meeting. This information was available to the SHPO when this continuation sheet was written. The letter is provided in folder 04 – "05 - Murphy Letter to Tennessee State Review Board"

Commented [KPM6]: True – there is only one living person remaining who lived and/or worked on the farm prior to 1940, and other primary source information about fences, pastures, and such has not been located. However, other National Register entries for farms do not contain extensive information on how the landscape has changed over time. This requirement would be holding this particular nomination to a higher standard.

Commented [KPM7]: The 49.5 acre boundary of parcel 049 080 is very problematic – the boundaries do not represent any particular period of significance of the farm. The 3rd page of the document in Folder 01 "01 - Additional Narrative Supporting Boundary Justification for Murphy Springs Farm" provides

Commented [KPM8]: Impact on plans for a road improvement project are not relevant for determining boundaries of a National Register project. Note: the City of Knoxville Washington Pike Improvement Project uses federal funds in an 80/20 split.

Commented [KPM9]: The original draft was only four pages of text, along with a few questions. See folder 05 for information initially provided. The completed nomination was over 57 pages long – a substantial amount of relevant, justified information.

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Section number NA Page 3

Murphy Springs Farm

Name of Property

Knox County, Tennessee

County and State

Most of the resources around the domestic complex are fine and contribute to the historic character of the farmstead, but we disagree with expanding the boundaries to include land as a buffer when noncontributing properties are at the edges. The boundaries appear to be discontinuous and gerrymandered. Refer to attached site plan for comments below. (C/NC are from author's nomination unless otherwise noted.)

In the northeast corner:

13. This is a site of Murphy Chapel that is considered noncontributing.

14. This is the cemetery associated with the noncontributing chapel site (13). Contributing.

15. This is the site of the Riita Community center and is noncontributing.

Including two noncontributing sites and a contributing cemetery, separated from the domestic complex by acreage (20 in inventory) is not justified in the text or boundary justification.

Commented [KPM10]: There are both contributing and non-contributing resources on the edges. Also, the added farm land is a contributing resource, not a "buffer"

Commented [KPM11]: No comments or questions were received about the boundaries until the State Review Board meeting. An updated boundaries map has been included in Folder 03 that has contiguous boundaries.

Commented [KPM12]: This is no just acreage – it is a rural, historic landscape containing farmland and historic field patterns and used for the same agricultural, historical use. The cemetery has a first burial date of

Burial date in the cemetery.

Commented [KPM13]: It is included and justified in the text of "01 - Additional Boundary Justification Narrative\ 01 - Additional Narrative Supporting Boundary Justification for Murphy Springs Farm""

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Section number NA Page 4

Murphy Springs Farm

Name of Property

Knox County, Tennessee

County and State

In the southeast corner:

There is a separate parcel that may have nothing on it or it has the site of a demolished building. See? on map. The author has not explained why this is included.

Western boundary:

The boundary crosses Murphy Road to pick up a parcel with no resources.

22. This is drawn outside the boundary, and the author insists on including this on the map and in the text, although it is not part of the nomination. See photo 53.

Again, it is unclear how the land ties in with the significance of the farmstead other than it is family owned.

Commented [KPM14]: It is part of the land originally owned by the family. It is separated from the other parcel by right-of-way owned fee simple by Norfolk Southern railroad. The updated boundary map now includes that railroad ROW and connects the parcel. The parcel was the site of the old Ritta post office mentioned in the narrative, as well as a train station, depicted on the 1895 map of the county.

Commented [KPM15]: The parcel is a component of resource #20 – Agricultural and Rural Historic Landscape. It also provides context of where the Hugh Murphy house was originally located in relationship to the family's entire property holdings, and is part of the viewshed that has been part of the Hugh Murphy House since c. 1841

Commented [KPM16]: Half the people reading this nomination asked for it to be included on the map to provide a better understanding when reading the text, and half said to remove it. You're damned if you do, damned if you don't....

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Section number NA Page 5

Murphy Springs Farm

Name of Property

Knox County, Tennessee

County and State

South of Washington Pike:

12. Murphy Family Cemetery. Contributing.

16. Robert Murphy Senior House. This house does not add to the associative qualities that make the farmstead eligible under criterion A. Its setting has been compromised by the noncontributing resources around it. There are questions as to whether there is sufficient important/character defining features of the building. See photo 49.

17. This is a noncontributing barn.

18. Col. Robert Murphy Jr. House. This is a 1960s ranch house that is contributing.

The relationship of the building to the farm other than family is not clear.

19. M. Workman House. Noncontributing.

The only agricultural resource on this parcel is noncontributing and with the relationship of the 1960s ranch house to the farm history not being clear, the nomination does not justify adding these parcels.

Commented [KPM17]: This building is on family land, and its owner was local significant, especially for the agricultural theme the nomination is being considered under. See Folder 01 for "02 - Letter from Knox County Extension Agent". The house provides an evolutionary picture and context of early settlement through family origination and development. The house is part of the evolution.

Commented [KPM18]: Agreed – the house would not be significant under Criterion C, but it is under Criterion A.

Commented [KPM19]: Typifies east Tennessee rural residential ranch houses in the 1960s, which are found throughout east Tennessee on family farms as they slowly converted from agricultural to rural residential use.

Commented [KPM20]: Agree that this is non-contributing because it is not yet 50 years old, however, it is part of the family land and included in the nominated boundary.

Commented [KPM21]: The timber farm is a contributing component of the rural and historic agricultural landscape. Timber farm was established in 1940s by an agricultural extension agent living in the house on the farm, in response to timber shortages.

Commented [KPM22]: Primary justification is the Murphy Family Cemetery, with earliest burial date of 1847. Includes original settler and Hugh Murphy, builder of the house. Also shows establishment of timber farms, and a house associated with an agriculture extension agent.

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Section number NA Page 6

Murphy Springs Farm

Name of Property

Knox County, Tennessee

County and State

23 and 24. The author has the road and railroad as contributing but staff disagrees. They are only small portions of a linear resource and there is little information about changes to the resources over the years. There is no reason given for including part of the road to connect the parcels while excluding other sections; there is no difference in the integrity of the excluded/included parts.

The boundary is also drawn as discontinuous and this is incorrect for this resource.

Commented [KPM23]: Washington Pike was an access road to Washington Presbyterian Church. The road was created almost 200 years ago; it's a part of the rural historic landscape. The railroad was put in in 1888 and contributed to evolution of the east Tennessee agricultural area. See 1895 map (Figure 10 in nomination) that evidences both of them.

Commented [KPM24]: Unfortunately there aren't many records that document changes to the path of the roads or railroad. Washington Pike is a 2-lane road with no shoulder, and probably follows its original path very closely.

Commented [KPM25]: No issue was brought up. Now that it is an issue – the original boundary drawing depicted property where the family owns underneath the road and railroad, and excluded where the railroad and county owned fee-simple the road.

Commented [KPM26]: The updated boundary map includes the entire railroad and length of Washington Pike. See Folder 03.

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Section number NA Page 7

Murphy Springs Farm

Name of Property

Knox County, Tennessee

County and State

6. Chicken coop is considered contributing but the façade and floor were removed in the 1980s, substantially changing the appearance of the resource. Staff considers this noncontributing, since this is a major, post period of significance change.

10. Barn and silo site. No remains. Noncontributing.

11. Log cabin chimney remains, foundation stones only. Contributing?

At the September 17, 2014, State Review Board meeting the boundaries were discussed by the board, staff, and the property owner. It has been our office policy to send nominations where the board and staff disagree on a major issue (boundaries, eligibility) to the National Register office as a disputed nomination and request that the Keeper do a substantive review. When this was conveyed to the board, they voted unanimously to recommend approval with the larger boundary and let the Keeper decide the appropriate boundary.

Commented [KPM27]: This resource does not contain a desired level of integrity to its original use, but it still provides location context, and enough of it remains that it can be correctly interpreted as a chicken coop within the domestic complex.

Commented [KPM28]: This was stated in the nomination. Is this being disputed? Why is this listed on the continuation sheet?

Commented [KPM29]: It could yield archeological evidence if excavated; therefore it fits the definition of a contributing site.

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

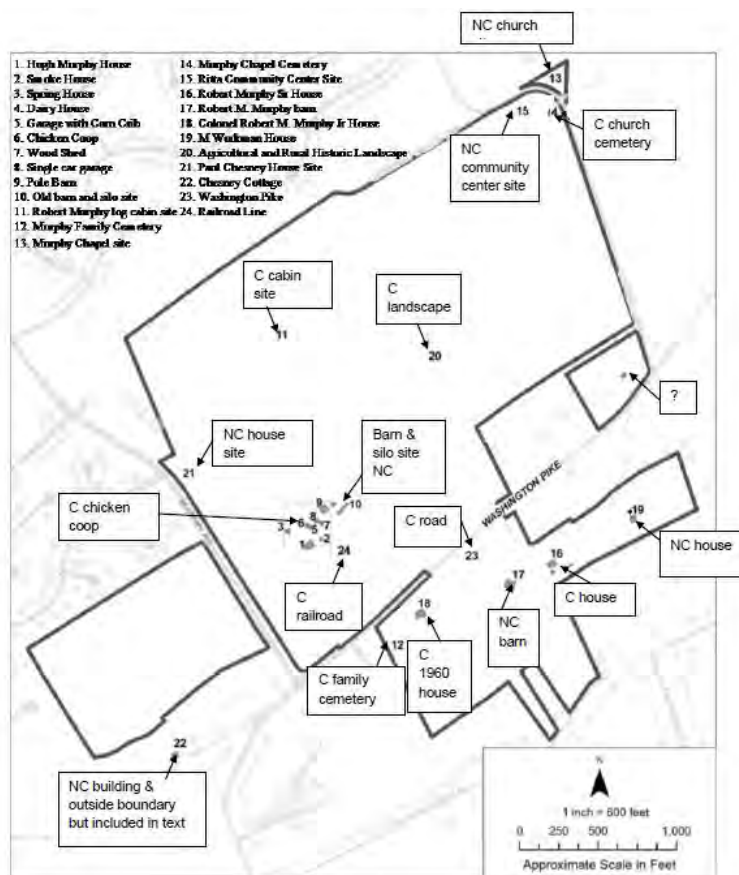
Section number NA Page 8

Murphy Springs Farm

Name of Property

Knox County, Tennessee

County and State



Site plan with SHPO areas of concern/disagreement. C/NC is author's designation.

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Section number NA Page 9

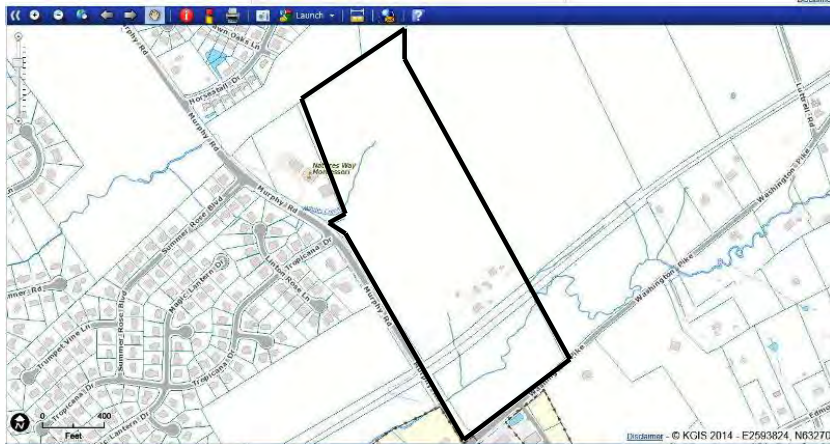
Murphy Springs Farm

Name of Property

Knox County, Tennessee

County and State

Boundary proposed by staff, parcel 049 080.



Commented [KPM30]: To repeat: This boundary is what TDOT staff guided the CDM Smith / City of Knoxville consultant to select after rejecting the larger boundary. SHPO staff simply concurred with this after the report was finalized, and did not substantially review it.

Deputy SHPO

Date



**STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION**

ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

March 4, 2013

Mr. E. Patrick McIntyre
State Historic Preservation Officer
Tennessee Historical Commission
2941 Lebanon Road
Nashville, TN 37243

SUBJECT: Historic Structures Survey and Documentation of Effects for the proposed Washington Pike
Roadway Improvement Project in Knoxville, Knox County, Tennessee
PIN 043090.00

Dear Mr. McIntyre:

A consultant for the city of Knoxville, CDM Smith, submitted an architectural assessment and documentation of effects report for the above-referenced project. The consultant surveyed fourteen (14) properties and in their opinion one (1) property is eligible for listing in the National Register of Historic Places: Murphy Springs Farm. It is also the consultant's opinion that the proposed project would not have an adverse effect on the National Register eligible farm. A staff historian with the Tennessee Department of Transportation (TDOT) has reviewed the assessment and concurs with the consultant's findings.

Please review the enclosed report pursuant to 36 CFR 800. We look forward to your comments. Thank you for your help in this matter.

Sincerely,

A handwritten signature in cursive script that reads "Martha Carver".

Martha Carver
Historic Preservation Manager



**STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION**

ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

March 4, 2013

SUBJECT: Historic Structures Survey and Documentation of Effects for the proposed Washington Pike Roadway Improvement Project in Knoxville, Knox County, Tennessee

To Whom It May Concern:

The city of Knoxville, with funding from the Federal Highway Administration and with the Tennessee Department of Transportation (TDOT) acting as a flow-through agency for the funding, is proposing the above-referenced project. A consultant hired by the city prepared a historic survey and documentation of effects report indicating on National Register eligible property: Murphy Springs Farm. It is the consultant's opinion, and TDOT concurs, that the proposed project would not have an adverse effect on the historic property.

A federal law, the National Historic Preservation Act of 1966, requires that for road projects with federal funds, TDOT and local governments should identify and work to protect properties that are considered historic. Under this law, "historic" is defined as those properties that are listed in or eligible for listing in the National Register of Historic Places. Since this project includes federal money, a staff historian for TDOT reviewed the general project area in an attempt to identify historic properties which could be impacted by the proposed project.

The enclosed report discusses the survey findings. You are receiving this report because TDOT has identified you as a Knox County party or individual with historic preservation interests. The Advisory Council on Historic Preservation Regulations specify that members of the public with interests in an undertaking and its effects on historic properties should be given reasonable opportunity to have an active role in the Section 106 process. As such, TDOT would like to give you the opportunity to participate in that process. If you would like to learn more about the historic review process go to <http://www.achp.gov> for additional information.

If you have any comments on historic issues related to this project, please write me. Federal regulations provide that you have thirty days to respond from the receipt of this letter.

Sincerely,

Tammy Sellers

Tammy Sellers
Historic Preservation Supervisor

Enclosure

cc: Mr. Patrick McIntyre, TN-SHPO

PUBLIC PARTICIPATION

The Environmental Division of the Tennessee Department of Transportation prepared a list by counties of historic groups and other such organizations which might be interested in proposed projects. This list is regularly updated and refined.

From this list, TDOT identified a number of historical groups and individuals in the county in which the project is located. TDOT will mail a copy of this report to them.

East Tennessee Historical Society
P.O. Box 1629
Knoxville, TN 37901

Knoxville Heritage, Inc.
P. O. Box 1242
Knoxville, TN 37901

East TN Community Design Center
1300 North Broadway
Knoxville, TN 37917

Heather Bailey
ETDD Historic Preservation Planner
Post Office Box 249
Alcoa, TN 37701-0249

Knox County Mayor
Suite 651, City-County Building
400 Main Street
Knoxville, TN 37902

Tennessee Valley Authority
Cultural Resources
400 West Summit Hill Drive
Knoxville, TN 37902

Knoxville/Knox Co. Planning
Commission
City County Building, Suite 403
400 Main Avenue
Knoxville, TN 37902-2476

Steve Cotham
Knox County Historian
Knox County Public Library
500 West Church Avenue
Knoxville, TN 37902-2505

Ethiel Garlington
East TN Preservation Alliance
Post Office Box 1242
Knoxville, TN 37902

Knoxville Historic Zoning
Commission
c/o Knoxville-Knox County MPC
Suite 403, City County Building
Knoxville, TN 37902

01 - Murphy request Correction of Professional Errors.pdf

02 - Photo Key - Site Plan - Revised Nov 23 2014.png

03 - Overhead Map Page 32 Revised Nov 23 2014.png

Mr. Jim Gabbert, Reviewer
National Register of Historic Places
1201 Eye Street, NW (2280)
Washington, DC 20005

Kevin P. Murphy
4508 Murphy Rd
Knoxville, TN 37918-9179
November 28, 2014

RE: Change of "Category of Property" and updated boundary map

Dear Mr. Gabbert,

I would like to correct two errors that I made in the Murphy Springs Farm nomination. I'm a non-history professional property owner; this was the first, and probably last nomination that I'll prepare. The two errors are the Category of Property, and the boundary map.

The Murphy Springs Farm nomination currently has the Category of Property selected as "Building(s)". After reviewing information in the Bulletins *Guidelines for Evaluating and Documenting Rural Historic Landscapes* and *How to Complete a National Register Nomination*, I believe the correct property type should be a District instead of Building. Murphy Springs Farm contains sites and buildings that are united historically under the evolving settlement patterns of early eastern Tennessee settlement and the evolution of agricultural practices in the area. *How to Complete a National Register Nomination* specifically states:

District applies to properties having:

...

- Large acreage with a variety of resources, such as a *large farm, estate, or parkway*.

The most appropriate choice for Category of Property appears to be "District", and I request that the Murphy Springs Farm application be updated to reflect that.

Secondly, I would like to update the boundary maps contained in the nomination. The maps as drawn originally were based on the property lines in the local GIS system. They depict parcels separated by right-of-way for railroads and roads. This doesn't reflect actual ownership of the land; in many cases the Murphy family still retains ownership of the land under the railroad, Washington Pike, and Luttrell Road. I would like to submit an updated overhead map (page 32) and updated Photo Key – Site Plan Level (page 40) that draw a contiguous boundary around the nominated property. Again, this was a (amateur?) professional error in preparing the nomination boundaries – other nominations I've looked at rely heavily on the GIS map, but in this case the ownership depicted in the GIS system differs from actual deed ownership, and it's necessary to revise the boundary lines.

I ask that you consider including these updates in the final listing.

Also, additional boundary justification text was submitted in Folder 01. If you agree that the correct boundary is the larger parcel, perhaps that additional justification should be included in the Boundary Justification item of Section 10.

With apologies for any confusion or extra work that my inexperience may have caused,

A handwritten signature in black ink, appearing to read 'K. Murphy', with a long, sweeping horizontal stroke extending to the right.

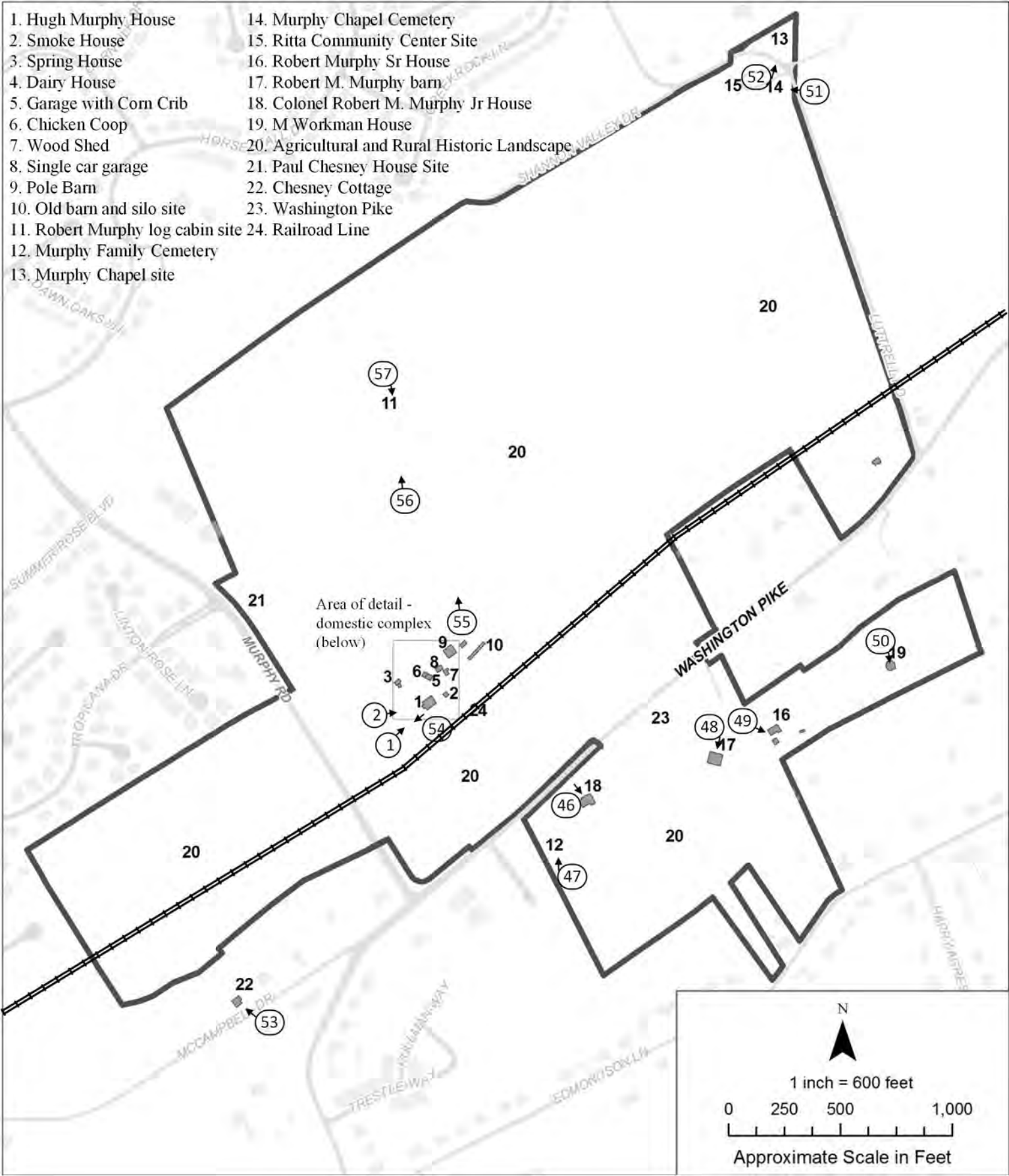
Kevin P. Murphy

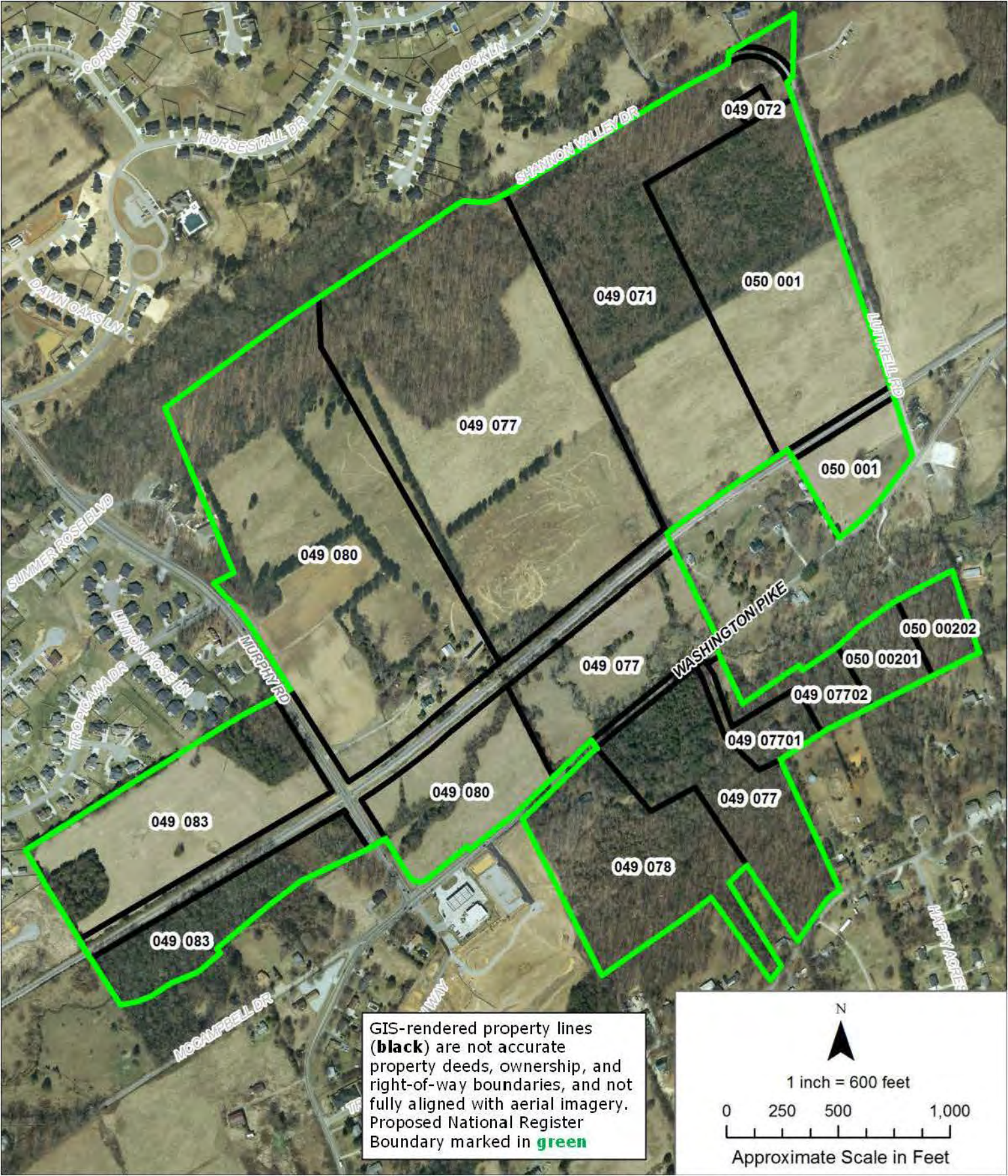
Enclosures:

02 - Photo Key - Site Plan - Revised Nov 23 2014.png

03 - Overhead Map Page 32 Revised Nov 23 2014.png

1. Hugh Murphy House
2. Smoke House
3. Spring House
4. Dairy House
5. Garage with Corn Crib
6. Chicken Coop
7. Wood Shed
8. Single car garage
9. Pole Barn
10. Old barn and silo site
11. Robert Murphy log cabin site
12. Murphy Family Cemetery
13. Murphy Chapel site
14. Murphy Chapel Cemetery
15. Ritta Community Center Site
16. Robert Murphy Sr House
17. Robert M. Murphy barn
18. Colonel Robert M. Murphy Jr House
19. M Workman House
20. Agricultural and Rural Historic Landscape
21. Paul Chesney House Site
22. Chesney Cottage
23. Washington Pike
24. Railroad Line





CORNELL DR

HORSESHALL DR

CREEK ROCK LN

SHANNON VALLEY DR

DAWN OAKS LN

SUMMER ROSE BLVD

UNION ROSE LN

THORNTON DR

MURPHY RD

MCCAMPBELL DR

MURFALL RD

WASHINGTON PIKE

HAPPY ACRES

049 072

049 071

050 001

049 077

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050 00201

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049 080

049 083

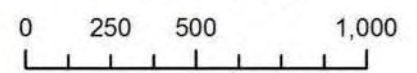
049 078

GIS-rendered property lines
(**black**) are not accurate
property deeds, ownership, and
right-of-way boundaries, and not
fully aligned with aerial imagery.
Proposed National Register
Boundary marked in **green**

N



1 inch = 600 feet



Approximate Scale in Feet

Folder: 04 – Additional Info for SHPO and State Review Board

- *02a – Email re Murphy Springs Farm National Register Boundary* – was sent out on Sept 11, 2014 by SHPO staff to Kevin Murphy
- *02b – SHPO Memo to SRB re Murphy Springs Farm Proposed National Register Boundary* - attachment to email
- *03 – Tennessee State Review Board – Murphy Springs Farm PowerPoint* – presentation showed at the SHPO meeting by SHPO staff
- *04 – Letter from Knox County Extension Agent* – distributed by Kevin Murphy at State Review Board Meeting on Sept 17, 2014
- *05 – Murphy Letter to Tennessee State Review Board* – distributed by Kevin Murphy at State Review Board Meeting on Sept 17, 2014
- *06 – Tennessee State Review Board Meeting Minutes 9-17-14 DRAFT* – unofficial draft provided by SHPO staff. **Note that there are comments where the minutes are incorrect. The Board voted to approve/recommend the nomination prior to the staff comments being made; the draft minutes indicate that the motion and approval was after the staff comments.**
- *07 – State Review Board Recording 2014-09-17 09_29_2014-09-17 09_29.m4a* – poor quality recording of the Murphy Springs Farm section of the SHPO meeting on Sept 17, 2014 made by Kevin Murphy
- *08 – Partial Transcript by Kevin Murphy of the SHPO meeting* – a transcript of a portion of the SHPO meeting made by Kevin Murphy from the recording above

Subject: Murphy Springs Farm National Register Boundary
From: Christine Mathieson <Christine.Mathieson@tn.gov>
Date: 9/11/2014 10:57 AM
To: "murphysprings@gmail.com" <murphysprings@gmail.com>

Hi Kevin,

An issue was raised at the office about the National Register boundary of the property that was set before I began working at the THC. My supervisor Claudette Stager reviews all the nominations and she raised concern to me that this was an issue. Please see the attached memo that she will be sending to the Review Board. You can defend the boundaries that you have chosen to the Board next week, and we have the option of submitting both boundaries to the Keeper. Please let me know if you have any questions on this.

Christine

Christine Mathieson
Historic Preservation Specialist-National Register Coordinator
Tennessee Historical Commission
Tennessee State Historic Preservation Office
2941 Lebanon Road
Nashville, Tennessee 37214
(615) 770-1086
Christine.Mathieson@tn.gov

-Attachments: _____

Murphy Springs Farm Proposed National Register Boundary.doc

185 KB



Murphy Springs Farm

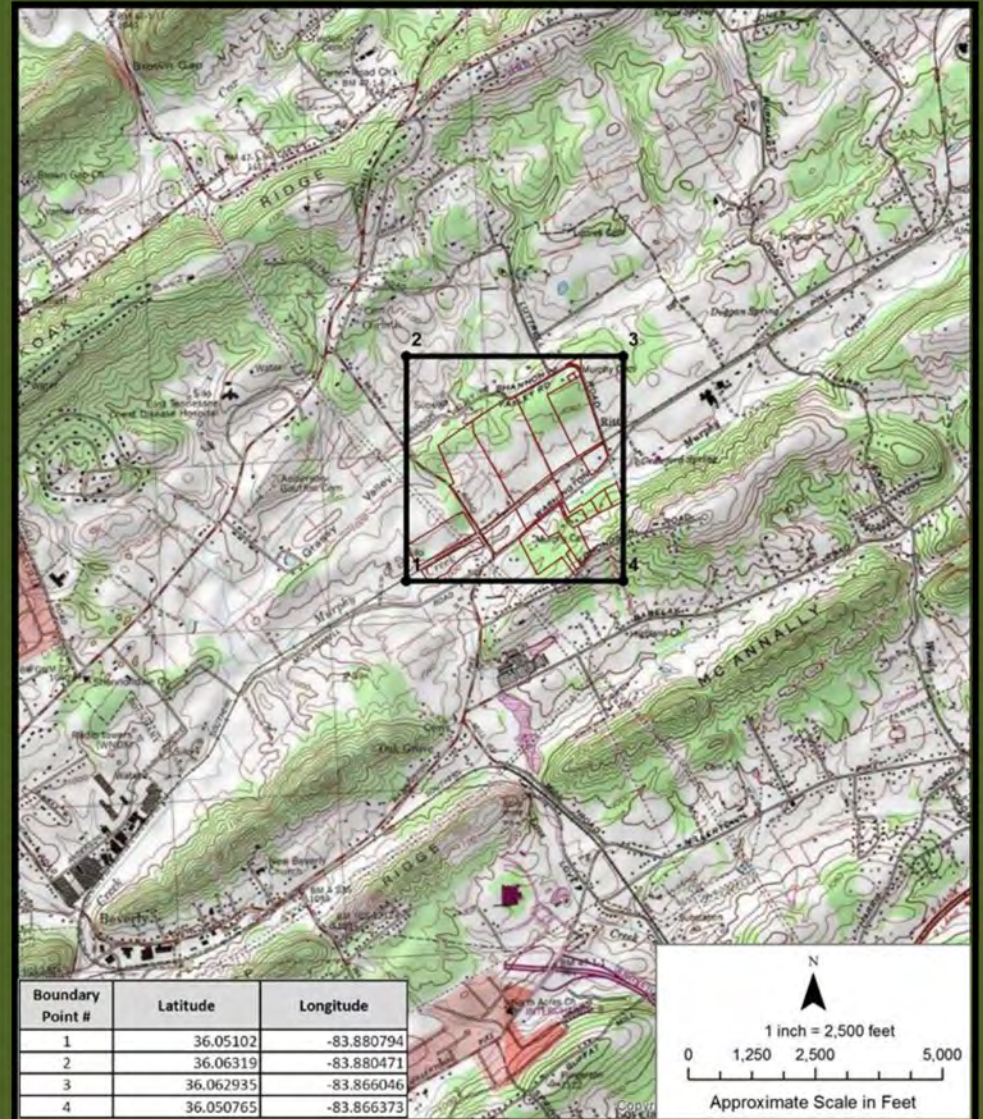
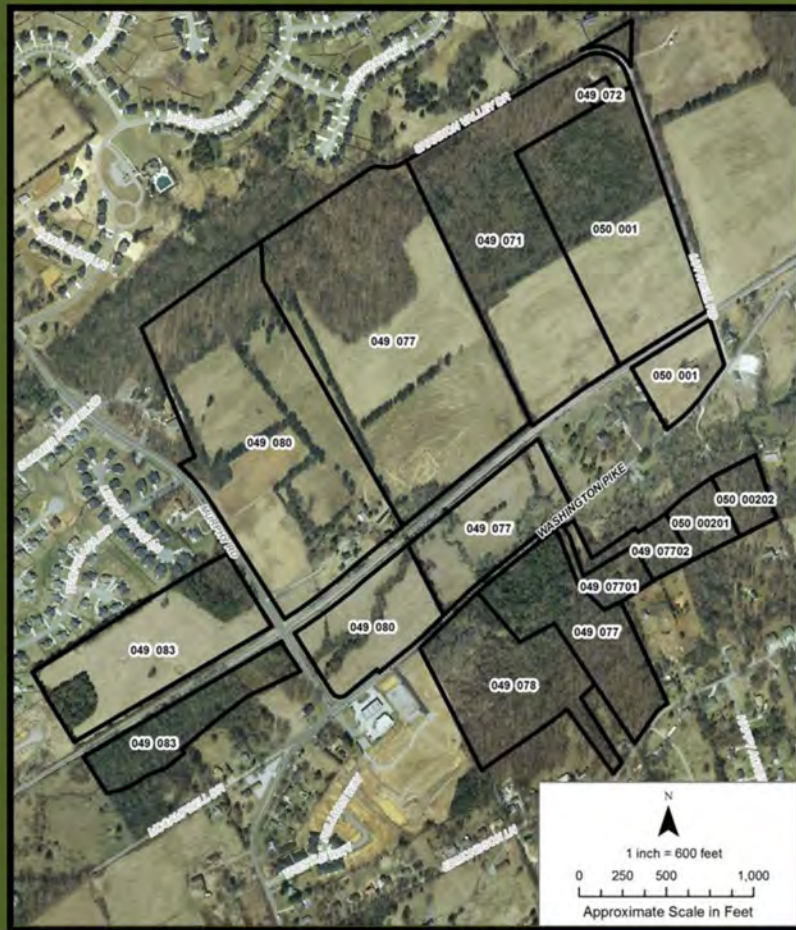
Knox County

1797-1964

Criteria A and C
Agriculture
Exploration/Settlement
Religion
Architecture

Hugh Murphy House



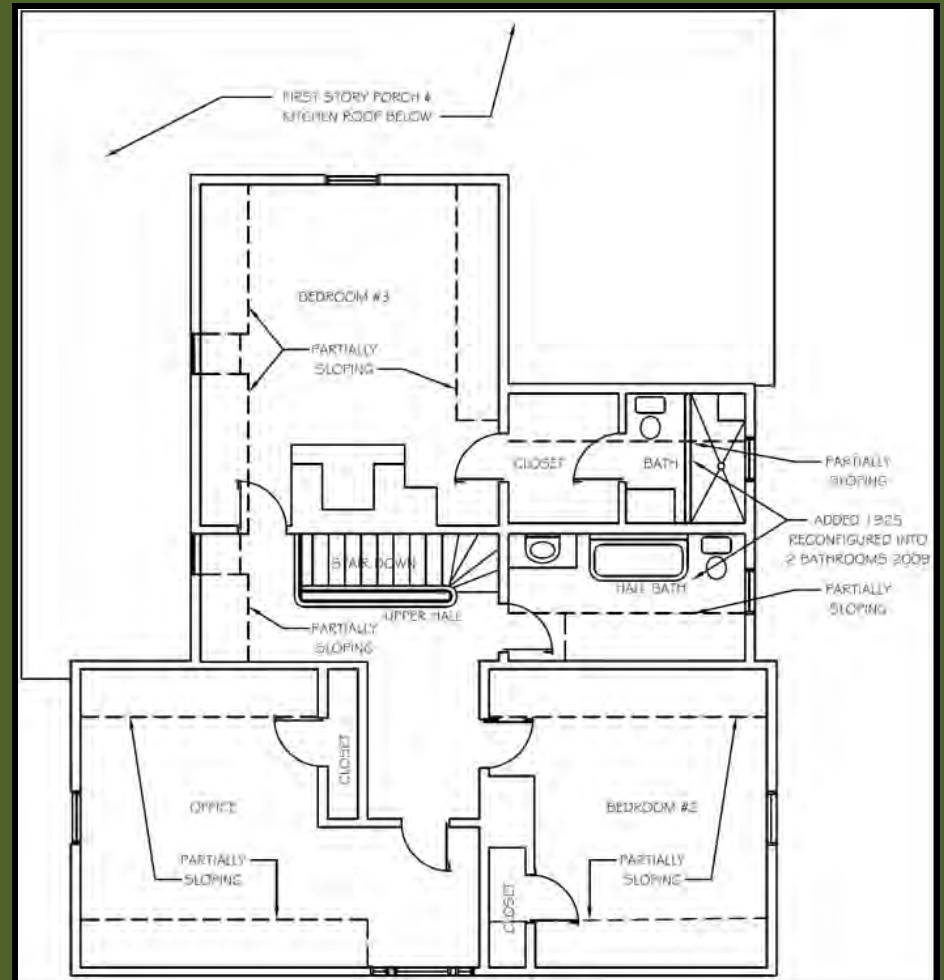




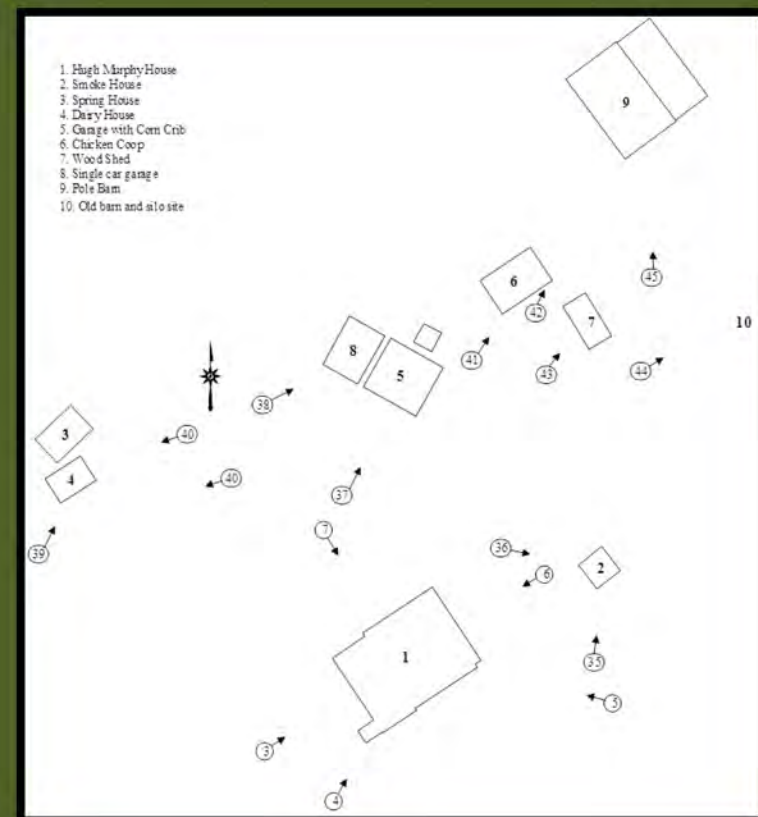




First Floor Plan



Second Floor Plan





Floor Plan prior to 1925 renovation

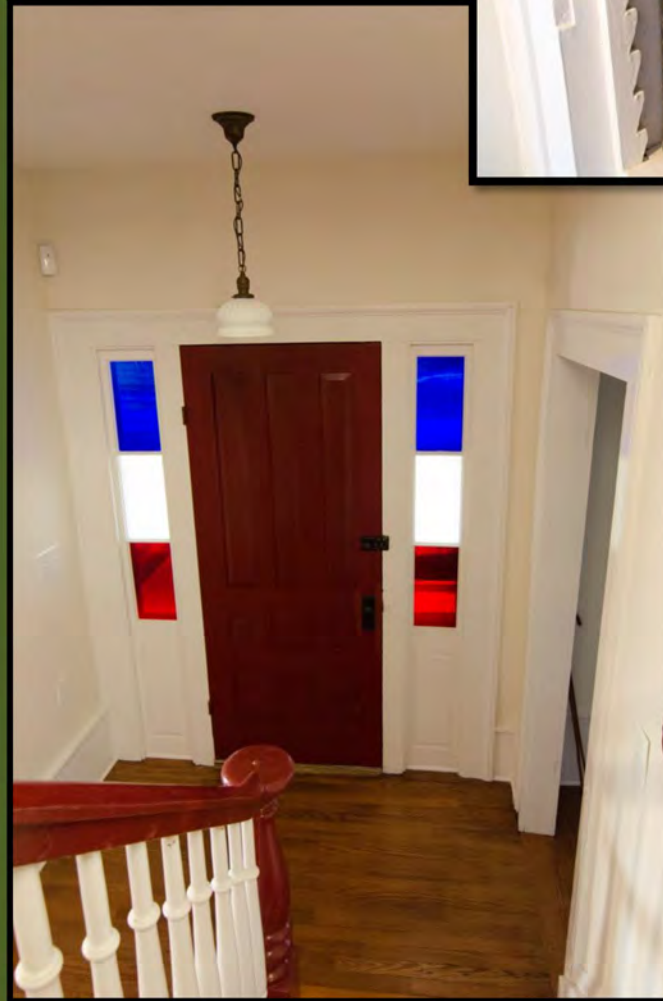


Southwest façade and southeast elevation, circa 1950



Hugh Murphy House, southwest façade and southeast elevation, camera facing north, c 1890. Children are (l-r) Alvin R. Murphy Sr, Robert M. Murphy, Ann Murphy. The smokehouse is visible on the right side of the photograph.









Smokehouse



Dairy House

Chesney House



Landscape view
of pasture and
agricultural fields

Murphy Chapel Cemetery



Murphy Family Cemetery markers

Robert Murphy Sr. House



Landscape view of front fields
and fields across Murphy Rd
from Hugh Murphy House

Murphy Springs Farm

Knox County

1797-1964

Criteria A and C
Agriculture
Exploration/Settlement
Religion
Architecture



UT TSU Extension Knox County
City-County Building
400 W Main Street, Suite 560
Knoxville, TN 37902-2411

State Review Board
Tennessee Historical Commission
2941 Lebanon Road
Nashville, TN 37214

RE: Murphy Springs Farm National Register Nomination

September 15, 2014

Dear Board Members,

Murphy Springs Farm in northeast Knox County is a family farm that is significant to the agricultural history of the area, and represents agricultural trends and production to this day. It is significant for its range of production uses, the intact agricultural outbuilding, the field patterns that have been maintained for over 200 years, and the association with an individual of local prominence in the agricultural community.

Agriculture in eastern Tennessee began with early settlers engaging in subsistence farming. Many farmers then turned to cotton in the 1800s with the advent of the cotton gin and then the early 1900's burley tobacco became the preeminent market crop, as well as row crops such as corn and small grain production. The dairy industry emerged in the late 1800's and was the focus of many family farms through the 1950's, which then gave way to a beef cattle industry that is a significant portion eastern Tennessee agriculture to this day. Murphy Springs Farm has evolved through all of these periods in the agricultural development of East Tennessee, and is especially rare as the same family has been associated with the farm for over two hundred years.

The agricultural outbuildings present on the farm are rare intact examples of the early subsistence farming and the dairy period of the farms. The smokehouse was important to early settlers for preserving meat that could be used to augment their grain and vegetable diets. A spring house and dairy work building were extremely common in the rural landscape of eastern Tennessee and Knox County in the early 1900s, but few remain today.

Finally, a significant individual to eastern Tennessee agriculture is associated with the Murphy family and Murphy Springs Farm. Robert M. Murphy, Sr. was the first full-time and longest serving (to-date) county extension agent for Knox County. He was previously employed by the American Hereford Association, and started as the extension agent in Knox County in 1920's and returned in 1930's during the Great Depression. He also served as the first extension specialist for The University of Tennessee Agricultural Extension Service in the area of animal husbandry. Murphy was a pioneer of using mass media to reach out to farmers across the region, walking from his office in the Old Knox County Courthouse in Knoxville down Gay Street to the radio stations located there, and hosting agricultural programs on several of them each week. He hosted on a weekly television series "RDD 6" in the 1950s.

R. M. Murphy used portions of Murphy Springs Farm to experiment with evolving agricultural practices of erosion control, evidenced by the berms in one of the fields. He also converted a portion of the fields to a tree farm, which was a trend that developed in the 1920s after most of Tennessee's old forests had been cut and timbered.

All of these factors – the association of the farm to all periods of agricultural production in eastern Tennessee, rare and intact agricultural outbuildings, a land that exhibits historical field lines and changes in agricultural techniques such as erosion control and forestry, and an association with an important individual to agriculture make the entire Murphy Springs Farm historic and significant. The entirety of the property tells the story of east Tennessee agriculture. Our office considered Murphy Springs Farm important enough to Knox County that we held our celebration of 100 Years of Extension Service at the farm in 2010.

I would consider the entire farm for listing on the National Register of Historic Places.

Respectfully,

A handwritten signature in cursive script that reads "Neal Denton".

Neal Denton
Director, UT Extension, Knox County

State Review Board, Tennessee Historical Commission
Clover Bottom Mansion
2941 Lebanon Road
Nashville, TN 37214

Kevin P. Murphy
4508 Murphy Rd
Knoxville, TN 37918-9179
September 17, 2014

RE: Boundaries of Murphy Springs Farm National Register Nomination

Dear Board Members,

I received a memo from the Tennessee State Historic Preservation Office ("SHPO") on Sept 11 2014, about a difference in the proposed boundary of the Murphy Springs Farm Nomination, and a boundary established by the SHPO in March 2013, which was defined by parcel 049 080. I wish I had been able to get this letter to you prior to the scheduled meeting of the State Review Board, but the late arrival of the memo in this process made it impossible to get this to you before the meeting.

The initial boundary determination by the SHPO was based on limited information from a site visit in 2009, four pages of information and no maps from an incomplete draft of a National Register nomination, and a Tennessee Century Farm application form. The Murphy Springs Farm nomination now in front of you contains full descriptions of historical significance and integrity and proposes boundaries that capture the full extent of available resources covered by the nomination.

For farms, there is excellent guidance available in the NPS Publication *Guidelines for Evaluating and Documenting Rural Historic Landscapes* for establishing boundaries. Following that guidance, the selected boundaries are justified in the Murphy Springs Farm nomination as follows:

Historic Property

"Historic property" is the farm land acquired by Robert Murphy from 1797 through 1826 and later owned by his son Hugh Murphy, and Hugh Murphy's descendants. This historical ownership controls the area of study and the maximum possible boundary of the nomination.

What to Include

"What land within the historic property today has both historic significance and integrity?" The historic uses for Murphy Springs Farm that represent settlement patterns, farming, animal husbandry, and other Criterion A uses were:

- Agricultural – evidenced by historic field patterns and well established fence lines and tree lines, as well as agricultural outbuildings that have been in place for over 100 years.
- Transportation (Road) – Norfolk Southern railroad
- Transportation (Railroad) – Washington Pike and Murphy Rd
- Funerary (Cemetery) – Murphy Family Cemetery, and Murphy Chapel Cemetery

In addition to those Criterion A uses, the Hugh Murphy House, as an example of early Gothic Revival Architecture, is significant under Criterion C. It represents the building style of an early settler who was educated and rose to financial prominence in the community.

Included land in the Murphy Springs Farm nomination retains the general character and feeling of the historic period spanning 1797-1964. Pasture land and hay fields still exist that were used for grazing dairy cattle in the early 1900s. The Hugh Murphy House is located next to a spring, which provided easy water access for early settlers. Transportation corridors still run through the farm, which illustrate events in the development of the region. Murphy Chapel Cemetery represents the establishment of organized religion in a rural area by Methodist circuit riders, while the Murphy Family Cemetery represents the typical small, family burial plots (and is also significant since Robert Murphy and his son Hugh are buried there and associated with the land.) The current tree farm on the southern portion of the farm was established by county extension agent Robert M. Murphy Sr. in the 1940s in response to the shortage of timber crops.

In an oral interview with current Knox County Extension Agent Neal Denton on September 12th, 2014, Mr. Denton stated that the entire Murphy Springs Farm is significant from an agricultural perspective. All of the property has been associated with all of the major developments of agriculture in eastern Tennessee, from early subsistence farming through cotton, row cropping, tobacco, dairy, and now beef cattle, and it is a rare property that has been kept largely intact and controlled by the same family.

The farm was operated as single farming operation until approximately World War II; the residents lived on different parcels of the farm but worked it and managed it as a single unit. Robert M. Murphy and his sons, who lived on the southern portion of the farm, came over to the historic barn site behind the Hugh Murphy House to help John Rush Murphy, Tip Chesney, and Henry Chesney milk the cows for the dairy¹. After World War II, the farm was managed as two distinct operations by Robert M. Murphy Sr. and Henry Chesney, but after their deaths it reverted to operation as a single farming entity. Today cattle and farmer know no property divisions between the parcels; the grass is green on each side of the legal property line.

Most importantly, the overall integrity of the agricultural history of the farm, the development of rural architecture, and the emergence of improved transportation options is intact.

A few parcels of the farm have been sold outside of the Murphy family and changed to rural residential use. These parcels no longer reflect the history of agriculture, and are excluded from the nomination. The nomination contains a map clearly identifying the historic boundaries of the property, and the nominated boundaries.

¹ Alvin Murphy Jr, Oral interview, 12 September 2014,, by Kevin Murphy via phone

Select Appropriate Edges

The edges selected for the Murphy Springs Farm nomination are the historical boundaries of the land owned by Robert Murphy and his son Hugh, excepting the parcels no longer owned by their descendants.

By following the guidance in the *Guidelines for Evaluating and Documenting Rural Historic Landscapes* for Selecting Boundaries, I believe the nomination contains boundaries that represent the full context of available resources that describe the Murphy Spring Farm.

Restricting the boundaries to a single parcel is problematic because:

- That parcel was created after Robert Murphy acquired all of the land, and his son Hugh built a Gothic Revival farmhouse (which is significant under Criterion C).
 - The parcel was not a boundary that Robert Murphy or Hugh Murphy were familiar with; it was created by survey in 1926.
 - In fact, the parcel boundaries do not reflect any particular period of significance of the farm.
- The dairy farm was clearly a significant period, and that parcel does not reflect the full operation of the dairy farm. You cannot have a dairy farm without the fields on the adjacent property for the cattle to graze and for hay/silage, and land to the east and the west of the reduced parcel was used for these purposes. There was a silo for silage, and Alvin Murphy Jr. recalls a cutter attached to the power take-off of a tractor that blew the silage up to the top of the silo when he was a child. Additional context (fields and land) are available and should be included.
- The reduced boundaries do not include several significant, contributing resources:
 - Murphy Family Cemetery – which contains the burial sites of the initial settler Robert Murphy and his son Hugh, and provides context for a family cemetery that overlooked the farm and the house that Hugh built.
 - Murphy Chapel Cemetery – providing context for early Methodist circuit riders
 - Robert M. Murphy, Sr. House and Barn – associated with a significant figure in the agricultural development of Knox County
- No documentation has been completed that provides a definition of the historical significance of resources within just that parcel, and establishes the historic integrity of those resources, in addition to establishing why the resources lying on the farm outside of parcel 049 080 do not contain enough significance or integrity to be considered as part of the nomination.

I am attaching a letter from the current Knox County Extension Agent, Neal Denton, supporting the significance of the entire farm and the integrity it still has.

Finally, the second page of the above referenced memo informs the State Review Board about the boundaries and design of the TDOT project and the potential impacts of accepting a nomination with expanded boundaries. Nowhere in any of the National Park Service bulletins about preparing or reviewing National Register nominations do I find guidance or criteria for that the impact to current or proposed federal projects should be considered in establishing boundaries. These bulletins that the establishment of National Register property boundaries should be based on historical significance and integrity of the property.

The fact that there is a transportation project proposed for the area should not be a factor in the SHPO's or State Review Board's review and recommendation on this nomination, and I believe the second page of the SHPO's memo regarding the impact on the unbuilt TDOT project should be disregarded by the State Review Board.

Very respectfully,

A handwritten signature in black ink, appearing to read 'K. Murphy', with a long, sweeping horizontal line extending to the right.

Kevin P. Murphy

Enclosures: Partial Listing of Deeds associated with Murphy Springs Farm

Partial Listing of Deeds Associated with Murphy Springs Farm

Book	From	To	Date	Description	Size
B21 191-2	John Crawford	Robert Murphy	24 May 1797	Original tract described in his will	110 acres
B21 204	John Edmonson	Robert Murphy	1 Jul 1797		50 acres
Grant 6152	State of TN	Robert Murphy	12 Mar 1819	John Murphy holds originals for this grant	15
Grant 14970	State of TN	Robert Murphy	10 Mar 1826	John Murphy holds originals for this grant	12.5
Grant 20579	State of TN	William Murphy (Robert's son)	28 Jan 1837	Haven't obtained a copy of this grant before; it appears in the deed that transfers property after Hugh's death. Unsure where this plays into the picture.	81
O-2 p. 45-56	Robert Murphy	Methodist Episcopal Church	26 Jan 1847	Property for Murphy Chapel (now where Luttrell Road turns)	
P-2 p.796-799	William Murphy	Hugh Murphy	29 Aug 1851	Conveyance of 50% interest in original farm to Hugh	50% of 110 + 50 + 15 + 12.5 acres
R 3 p.313-314	Hugh Murphy	W.A. Murphy John Rush Murphy Robert Fillmore Murphy Dicey M. Murphy (widow)	15 Jul 1878	Took all of the R. M. Murphy farm plus a piece from William Murphy (see 28 Jan 1837 grant) and gave it to his children. Two heirs were bought out, leaving three children and a widow as owners.	
U3 1-2	Dicey M. Murphy John Rush Murphy William A. Murphy	Robert Fillmore Murphy	6 Mar 1880	Gave Robert F. Murphy the western part of the farm. Note that Robert F. passed away in 1891.	46
U3 2-3	Robert F. Murphy Dicey M. Murphy William A. Murphy	John Rush Murphy	6 Mar 1880	Gave John R. Murphy the middle part of the farm	46
U3 3	W. A. Murphy	Dicey M. Murphy	6 Mar 1880	Gave Dicey Murphy the eastern part of the farm. Note: There must be another deed that gave W. A. Murphy his farm....	46
J4 p. 595-596	Robert Fillmore Murphy William Alanzo Murphy	Powell Valley Railroad Company	23 May 1887	Grants "free ingress egress and regress for the pursuit of constructing and operating a roadload at all times and seasons forever hereinafter into along through and out of our land" "to have and to hold the right of said passage right of way and ???"	
94 p. 14	Dicey M. Murphy (Hugh's widow)	Powell Valley Railroad Company	5? Feb 1888	Another deed granting privileges according to the Charter and enough land for ??? depot if desired	
211 p. 99	Dicey M. Murphy	John Rush Murphy	27 May 1899	For J. R. to take care of her	46
239 p. 282	W. A. Murphy	Southern Railway Co	29 May 1913	20' right-of-way either side of track. According to letters, never received compensation for right-of-way	
293 p. 144	John R. Murphy	Alanzo E. Murphy	22 Nov 1922	For one acre tract; this is probably 049 074, 049 075 or 049 073 now	1

Book	From	To	Date	Description	Size
430 412-417	John R. Murphy	Alvin R. Murphy Sr. Robert M. Murphy Sr. Ann Murphy Koger	1 June 1926	Splits up the Robert F. Murphy and John R. Murphy properties into three parts – a western farm (Kevin Murphy's property 049 080), a center farm to Robert M. Murphy (now part of the "estate"), and an eastern parcel that is on the west side of Murphy Rd	

**STATE REVIEW BOARD
MINUTES OF MEETING
SEPTEMBER 17, 2014**

The State Review Board for the National Historic Preservation Act of 1966 met at 9:00 a.m. on Wednesday, September 17, 2014, Clover Bottom Mansion, 2941 Lebanon Road, Nashville, Davidson County, Tennessee.

Members present were, Michael Birdwell, Chair; Kevin Smith, Vice-Chair; Kevin Chastine; Bennett Graham; Gail Guymon; Reavis Mitchell; Michael Sicuro; Jefferson Rogers; Juan Self; and James Thompson. Ann Gray, Lee Ingram, and Beverly Robertson were unable to attend the meeting. Also attending the meeting were Tennessee Historical Commission (THC) staff members Peggy Nickell, Christine Mathieson, Steve Rogers, Louis Jackson, and Joe Garrison. E. Patrick McIntyre, State Historic Preservation Officer, and Claudette Stager, Deputy State Historic Preservation Officer, also attended the meeting.

The first order of business was to approve the agenda. Mr. Chastine moved, Mr. Graham seconded, that the agenda be approved. Voted and approved.

The next order of business was to approve the minutes of the May 2014 meeting. Mr. Self moved, Dr. Smith seconded, that the minutes of the meeting be approved. Voted and approved.

The next order of business was to set the date of a future meeting. The January meeting had been set for January 28, 2015. The May 2015 meeting will be held on May 20.

Mr. McIntyre presented the "Progress Report on the National Historic Preservation Act (PL 89-665) Activities" was noted. The report is a summary of federal staff activities since the last meeting.

National Register Nominations

Dr. Birdwell noted that this was Ms. Guyman's last meeting and commended her terms on the board. Ms. Nickell mentioned that the office would eventually be getting scanned copies of all nominations from the National Register office.

Dr. Birdwell welcomed visitors to the meeting and explained the procedures. He then called upon Ms. Nickell and Ms. Mathieson to lead the discussion on the nominations. They showed a PowerPoint presentation and gave information on the properties being nominated.

Leadvale Coaling Station, Cocke County

The property was nominated under criteria A and C for its local significance in transportation and engineering. Caroline Eller, preservation planner for the East Tennessee Development District represented the property and spoke in support of the nomination.

The property is owned by the Tennessee Valley Authority and leased to the Rankin Wildlife Management Area, who sent in a letter of support.

Mr. Thompson moved, Dr. Smith seconded, that the nomination be approved. Voted and approved.

Richland, Grainger County

The property was nominated under criterion C for its local significance in agriculture, exploration/settlement, social history, and architecture. Ms. Eller prepared the nomination and spoke in support of it. Harry and Jean Fox, property owners, attended the meeting in support of the nomination.

Board members had questions about the style of the building, architectural details in the nomination, and footnotes. These issues will be corrected before the nomination is sent to the National Register office.

Mr. Thompson moved, Mr. Graham seconded, that the nomination be approved with corrections. Voted and approved.

Standard-Coosa-Thatcher Mills, Hamilton County

The property was nominated under criterion A for its local significance in commerce and industry. Marion Ellis of Ray and Ellis Consulting prepared the nomination and spoke in support of it. Tim Boyle, property owner, attended the meeting and spoke in support of the nomination and stated that his plans were to use the preservation tax incentives to rehabilitate the building.

Dr. Smith moved, Mr. Graham seconded, that the nomination be approved. Voted and approved.

Murphy Springs Farm, Knox County

The property was nominated under criteria A and C for its local significance in agriculture, exploration/settlement, religion, and architecture. Kevin Murphy, the property owner, prepared the nomination and spoke in support of it.

Board members commented on technical issues in the nomination that need to be changed before the nomination will be sent to the National Register office. Staff had

sent information to the board and Mr. Murphy about the THC approving a smaller boundary prior to the nomination submission. This was done at an early site visit with Mr. Murphy and later for a proposed road project. Dr. Garrison, coordinator of Section 106 program for the office, explained the 106 procedure. He explained that a change in the boundary would most likely result in the city of Knoxville and the Tennessee Department of Transportation (TDOT) having to redo the project. Ms. Stager explained why the smaller boundary was chosen and why staff thought that any new information in the nomination did not justify expanding the boundary. She also explained that if the board recommended approval of the larger boundary, the office had a responsibility to the city and TDOT to defend the original boundaries to the National Register office. The nomination will be sent to the National Register office along with staff, board, and property owner comments and determinations on the boundaries. Mr. Murphy explained why he thought that the expanded boundaries were appropriate.

Dr. Mitchell moved, Ms. Guymon seconded, that the nomination be approved. Voted and approved.

Brown Farm, Washington County

The property was nominated under criterion A for its local and statewide significance in industry and exploration/settlement. Amber Clawson, researcher, and Rocky Swingle, the property owner, prepared the nomination and spoke in support of it.

Board members had questions about the style of the building, architectural details in the nomination, and why it was not being nominated under criterion C for architecture. These issues will be corrected before the nomination is sent to the National Register office.

Ms. Guymon moved, Mr. Self seconded, that the nomination be approved with corrections and criterion C added. Voted and approved.

Dunbar-Carver Historic District, Haywood County

The property was nominated under criterion A for its local significance in African American ethnic heritage as it relates to education. Rebecca Hightower of Thomason and Associates prepared the nomination and attended the meeting in support of it. Brownsville is a Certified Local Government (CLG) and CLG comments were given to the board.

Dr. Smith moved, Mr. Self seconded, that the nomination be approved. Voted and approved.

Jefferson Street Historic District, Haywood County

The property was nominated under criterion A for its local significance in African American ethnic heritage as it relates to commerce. Ms. Hightower prepared the

nomination and attended the meeting in support of it. Brownsville is a CLG and CLG comments were given to the board. Dr. Carroll Van West spoke as the State Historian on Haywood County's African American heritage.

Dr. Mitchell moved, Dr. Self seconded, that the nomination be approved. Voted and approved.

Mt. Pisgah Missionary Baptist Church, Henderson County

The property was nominated under criteria A and C for its local significance in social history, funerary customs, and architecture. Renee Tavares, preservation planner for the Southwest Tennessee Development District prepared the nomination and spoke in support of it. Several members of the Mt. Pisgah Missionary Baptist Church attended the meeting and spoke in support of the nomination.

Board members discussed the areas of significance and technical corrections needed in the nomination.

Mr. Self moved, Dr. Smith seconded, that the nomination be approved with corrections. Voted and approved.

Archaic Shell-Bearing Sites of the Middle Cumberland River Valley of Tennessee MPS and Barnes Site, Davidson County

The MPS is the context for evaluation for numerous shell-bearing sites in part of Middle Tennessee. The Barnes Site was nominated under criterion D for its local and statewide significance in prehistoric archaeology. Aaron Deter-Wolf, Tennessee Division of Archaeology, and Tanya Peres, Middle Tennessee State University, prepared the MPS and the nomination for the Barnes Site and attended the meeting in support of both. Representatives of Bells Bend Park, location of the Barnes Site, attended the meeting in support of the nomination. Tara Mielnik of the Metro Historical Commission stated that Nashville is a CLG and their commission recommended approval of the nomination and MPS.

Mr. Deter-Wolf gave a PowerPoint presentation. He noted that he had spoken with Dr. Smith and made corrections he suggested.

Dr. Smith moved, Mr. Graham seconded, that the MPS and the nomination be approved. Voted and approved.

Grand Ole Opry House, Davidson County

The property was nominated under criterion A for its local, statewide, and national significance in communications, entertainment/recreation, and popular culture. Dr. West prepared the nomination and spoke in support of it. Brenda Colladay, representing Grand Ole Opry LLC, attended the meeting and spoke in support of the

nomination. Dr. Mielnik stated that Nashville is a CLG and their commission recommended approval of the nomination and MPS.

There was a discussion about the property being less than fifty years old and whether a nomination for the property should wait until it is fifty years old. Mention was made of the fifty-year standard being a guideline of time needed to assess a property's historic importance. Mr. McIntyre noted fifty years is a guideline and not a rule, and expressed support for the nomination. The draft nomination had been reviewed by several people since it is being nominated for its exceptional significance.

Mr. Self moved, Dr. Smith seconded, that the nomination be approved. Voted and approved with Mr. Thompson and Dr. Birdwell voting against the motion.

Removal/Reassessment

H.L. Bruce House, Henry County

The property was listed in the National Register in 1988 but has since been demolished.

Dr. Smith moved, Mr. Thompson seconded, that the property be removed from the National Register. Voted and approved.

Thomas Williamson House, Rutherford County

The property was listed in the National Register in 1996 but has since been demolished and some of the historic material incorporated into a new house.

Dr. Smith moved, Mr. Thompson seconded, that the property be removed from the National Register. Voted and approved.

Pinch-North Main Commercial Historic District, Shelby County

The property was listed in the National Register in 1979 but less than half of the historic resources remain. Memphis is a CLG and their commission recommended deferring the removal and reassessing the district to determine if a smaller district is possible.

Board members discussed whether there was a need to remove the district now. Mr. Sicuro and Mr. Self, residents of Memphis, spoke about the changes to the district over the years.

Mr. Thompson moved, Dr. Mitchell seconded, that the removal of the property be deferred. Voted and approved to defer the removal of the district.

**Johnson City Warehouse and Commerce Historic District (boundary decrease),
Washington County**

The property was listed in the National Register in 2003 but seven buildings at the edge of the district have since been demolished by Johnson City due to long-term flooding issues. The boundary decrease proposal was to remove the area where the demolished buildings were.

Dr. Smith moved, Mr. Chastine seconded, to approve the boundary decrease for the district. Voted and approved.

Other Business

There being no further business, Dr. Birdwell adjourned the meeting at 11:19 a.m.

Approved,

Michael Birdwell, Chair

This is a partial, unofficial and amateur transcript of portions of the Tennessee State Review Board Meeting of the Tennessee Historical Commission on September 17, 2014 at Clover Bottom Farm. This covers the period of discussion when the Board discussed Murphy Springs Farm. The recording is of poor quality, and much of the conversation was difficult to make out.

Nomination was presented, Kevin made some comments, some technical corrections were suggested.

Board Chair: What is the pleasure of the board?

Member: Move to approve

Board Chair: Do I have a second? <several seconds>

Board Chair: Any opposed? <Silence>

Claudette Steger: Joe? Joe? Do you want to speak to the boundaries?

Joe Garrison: This project came to us a few years ago as a Section 106 project, Tennessee Department of Transportation / Federal Highway Administration for an intersection improvement. Tennessee Department of Transportation proposed a boundary, a rather smaller than this, I think it's 49 acres, which is the house and its outbuildings, which TDOT Cultural Resources Staff maintain is sufficient representation of the architecture and the agricultural significance of the property.

When we reviewed <unclear> Section 106 review, we concurred with that boundary. As far as Section 106 is concerned, I think that we would still hold with that boundary. We think the current proposed boundary is superfluous, and while it does represent some agricultural land associated with it, we think that it's probably a smaller boundary that adequately represents that.

I think the Board needs to be aware of the fact that your decisions have consequences. I think you've all known that all along. Were you to recommend with the enlarged boundary, what consequence it would have is that Tennessee Department of Transportation / Federal Highway Administration would basically have to start over. It would go not only again the section 106 review for this intersection, probably, but it would also trigger Section 4(f) of the National Highway Act. The expanded boundary would change, uhm, this project. It's a local project – City of Knoxville / Knox County spent a fair amount of time designing the intersection to respect the concurred boundary under Section 106; that would all be tossed out and we'd have to start over.

Now I don't know whether it's legitimate that it should influence your decision making, because we try to do these on technical sufficiency and I think on the basis of technical sufficient that the boundary that we concurred in with the Tennessee Department of Transportation / Federal Highway Administration when we reviewed this project for Section 106 review is the correct boundary. I've been at this for thirty years, and I've never seen an incident where TDOT cooked the books to truncate a boundary in order to stay out of trouble. They don't do that; not this group. And so I think the boundary that we concurred in is a legitimate boundary. And that's all I really need to say.

Board chair: Claudette?

Claudette Steger: Just a little bit of background on this. I went and saw the property, I think it was before the TDOT project came up, although that was sort of in the wind. And we agreed it was eligible. We knew the property owners wanted the larger boundary at some point, and the developer that did the TDOT report also wanted larger boundaries. As Joe said, our feeling was that the best representation of the architectural and agricultural and settlement history was the smaller boundary, which really isn't that small. There is land outside the boundary, which we agreed on with the agency, but there isn't that much on it. As far as non-contributing buildings that I find disturbing, they're near the edge. If the Board decides that the larger boundary is appropriate, what we will do is that we have made a commitment to an agency that has been planning for several years – we will send this up to the Keeper as a disputed nomination of the boundaries and let them decide on that because we would feel strongly that the smaller boundary, which is still 49-50 acres, is still correct, but we also value the Review Board's opinion and the nomination is good and there was some additional information, but not enough to justify extra land. We do not use land as a buffer zone, as some local planning agencies do. I just wanted to point that out.

Board Chair: Christine, could you show the slide that shows those boundaries and have them show the two different views. <shuffling of slides>

Joe: Point out where the 106 boundaries you agreed to on versus what is proposed.

Claudette: Go to the photo key map. This is the boundary, and technically <mumbled> when TDOT set the boundaries for the built environment, and we had looked at going pretty on this way and just including it here. The project is taking place right on this corner here.

<Discussion to understand the differing boundaries, TDOT project, etc. on the maps and slides>

Board Chair: Any further question?

Claudette: One parcel we looked at. Let's look at the parcel map.

...Claudette: Unless there's a strong reason to go across the road and pick up.

<At this point it gets pretty unintelligible for a bit. There was a lot of pointing at the map and various sections of it>

This one is in dispute. No, all the res of them.

Unless there is a strong reason to go across the road to pick up something.

The people who will make the decision on the nomination.

Kevin Murphy: I'd like to do a quick regurgitation of the justification. I received the memo from the State on Thursday. I apologize – it took a few days to collect all this information, and I just gave you all the copies and forgot to keep one for myself.

...

Board Chair: We agreed that the property is eligible. Now we have to consider the boundary issue.

Gail: But I just wanted to say, with all due respect to the Section 106 process, if the road project were not something we need to consider and we just had this nomination in front of us with the boundaries as they are, we wouldn't be having this discussion as to whether or not these boundaries need to be changed. That's something I think that every person on this Board needs to be thinking about. <unintelligible>

Board member: <unintelligible> personally I believe that looking at these. I'm not certain where... <unintelligible>

Board Chair: Was that intended to be a motion? Member: <no>

Board discussion: <unintelligible>. Discussion about the commenting period for register and what happens with the Keeper when the nomination is disputed. You can give us additional information and we can send it up, or but if you send it up before then it totally confuses them, and then we send it back.

Board chair: We'll be sending it on with the original boundaries that the Board has voted on with the additional <unintelligible>

01 - Cover - Proposed Boundary Determination.pdf
10 - SHPO Murphy Farm Email Correspondence 2008-2009.pdf
11 - 2009-01-WashingtonMillertownTPR.pdf
12 - 2012-04-06 Letter from City of Knoxville re Washington Pike Surveys.pdf
13 - 2012-04-13 Email from Kevin Murphy to Jana re Farm Map.pdf
14 - 2012-04-15 Letter on Washington Pike Widening.pdf
15a - Email from Kevin to Jana re Information on Murphy Farm.pdf
15b - Murphy Springs Farm Tennessee Century Farm Application.pdf
16 - 2012-05-01 Email inviting Mayor Rogero to ABSHNA Meeting.pdf
17a - Email from Kevin to Jana with draft NR nomination.pdf
17b - 10-900 Draft Murphy Springs National Register Nomination 2012-May-8.pdf
18a - Email from Jana to Kevin for Additional Info.pdf
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20a - Email from Kevin to Jana.pdf
20b - TaxMap of Sites.bmp
23 - 2012-05-WashingtonPikeNeighborhoodMeeting.pdf
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32 - 2012-Nov-27 Email from Jana Bean to Tammy Sellers.pdf
33 - Email from Joe Garrison to Jana Bean.pdf
34 - 2013-Jan-25 Email Jana Bean to Tammy Sellers re Washington Pike Revision.pdf
35 - 2013-Jan-29 Email from Tammy Sellers to Jana Bean.pdf
36 - 2013-01-WashingtonHistoricalStructuresSurvey.pdf
37 - Washington Pike Memo to SHPO, 2-5-13.pdf
40 - 2013-02-07 Email from Claudette Steger.pdf
41 - 2013-02-08 SHPO Ok onDraft.pdf
42 - 2013-Mar-04 Consultant Cover Letters.pdf
43 - 2013-Mar-12 SHPO OK with WashingtonHistoricalStructuresReport.pdf
44 - 2013-Apr-08 Email about initial notification.pdf
45 - 2013-Apr-09 Email Kaye Graybeal to Kevin Murphy.pdf
46 - Emails from Kaye Graybeal Fwd_ Washington Pike Roadway Improvement Project in Knoxville.pdf
50 - 2013-04-17 Letter to Mayor Roger re Washington Pike Widening.pdf
51 - 2013-05-14 City of Knoxville Washington Pk Response.pdf
52 - Email from NEKPA confirming non-receipt of report.pdf

Mr. J. Paul Loether
Chief, National Register of Historic Places Program
1201 Eye Street, NW (2280)
Washington, DC 20005

Kevin P. Murphy
4508 Murphy Rd
Knoxville, TN 37918-9179
November 25, 2014

RE: How the "SHPO Proposed Boundary" for Murphy Springs Farm was Determined

Dear Mr. Loether,

This set of files contains information about how the "SHPO Proposed Boundary" for Murphy Springs Farm. This initial opinion of boundary was determined when the City of Knoxville / Tennessee Department of Transportation ("TDOT") evaluated resources for a proposed Washington Pike / I-640 Improvement Project.

Major events that occurred are:

1. SHPO staff made a site visit to Murphy Springs Farm in 2009 and made an initial determination that the house and outbuildings were eligible. No boundary was discussed or proposed.
2. In Apr / May 2012, a consultant with the City of Knoxville (Jana Bean) requested info regarding the farm from Kevin Murphy. He provided a 7 page draft National Register nomination that didn't include a boundary justification section. The materials proposed a boundary that included the entire farm.
3. Jana Bean authored a draft Historic Structures Survey Report in Oct 2012 that recommended these boundaries¹.
4. TDOT staff (Tammy Sellers) commented that the boundaries were too large in Oct 2012². Several discussions occurred between Ms. Sellers and Ms. Bean. By the final revisions in Jan 2013, the boundary was reduced to parcel 049 080.
5. SHPO staff received the final report and concurred with it, with minimal review and independent research.
6. From Oct 2012 until the report was finalized, no local historic preservation groups or property owners were contacted for additional information or clarification.
7. The final Historic Structures Survey Report was never sent to Mr. Murphy or any of the property owners in the area. Mr. Murphy was not informed of the public participation process available as outlined on the ACHP website.

At issue are:

- Initial boundary for Murphy Springs Farm was determined based on an early, incomplete, working draft of a national register nomination and other materials that didn't include a boundary justification section

¹ 30 - Historic Structures Survey for Washington Pike Oct 2012 Draft.pdf, pages 33-37

² 31 - Historic Structures Survey - First Draft-TDOT edits.pdf

- Initially the City consultant proposed the full acreage, but the TDOT Historic Preservation Section staff pushed back for a smaller boundary, which was detailed in the final report and represents the "SHPO Proposed Boundary".
- There is no evidence the SHPO undertook a detailed review of the boundary; they cursorily looked at it and adopted that as the boundary
- Consultants, TDOT staff and the SHPO did not consult or send requests for information to local historians, preservation organizations, planners, property owners or communities when the boundary was being determined
- The Jan 2013 Historic Structures Survey report, which contained the boundary, was never sent to the property owners or the local neighborhood organization, who were interested parties (discrepancy between report's interested party list and TDOT interested party list)
- The only mention of a boundary dispute that local preservation groups and planners did receive was in March 2013 when they received the Jan 2013 Historic Structures Survey report - two sentences on page 35, which wasn't enough to alert them that there would be any issues during the review and comment period

Unfortunately, there's never been an actual conversation between the SHPO or the property owner, except for Nov 2011 when Kevin Murphy and Patrick McIntyre discussed it at a Knox Heritage dinner, and that was only at a conceptual level without looking at the details of the property.

On the following pages is a Detailed Chronology of Events with full footnotes and references to back up the above statements. Please note that all footnoted documents are assumed to be located in folder *05 – Chronicle of Proposed Boundary Determination*. (Skipping numbers in the document names does not indicate information has been withheld; rather it was a way to allow me to insert new documents more easily as I discovered them.)

I hope this explains why the discrepancy arose between the boundaries in the nomination I wrote, and what the SHPO asserts the boundary should be.

Sincerely,



Kevin P. Murphy

Detailed Chronology of Events for Determining Murphy Springs Farm Boundary

I submitted an Open Records Request to the TDOT and the Tennessee Historical Commission for items related to Murphy Springs Farm, and combined them with my own records to develop this chronology of events.

1982-1984 – The Knoxville / Knox County Metropolitan Planning Commission conducted a historical and architectural survey of the county. It identified the Murphy House (KN-3586) as being eligible for the National Register³.

Sometime in 2000 – An architectural survey was conducted of the area as part of an Advanced Planning Report by Thomason and Associates. The survey recommended that the Murphy House was not eligible⁴.

November 2, 2000 – SHPO staff member Joe Garrison sent a letter to TDOT concurring that there were no historic or architectural resources located within the proposed Washington Pike project area⁵. (This includes the area that the Hugh Murphy House and Murphy Springs Farm are located).

January 2009 - several members of the SHPO staff visited Murphy Springs Farm to view the house and outbuildings. The scope of that visit didn't include the pasture areas, fields, or older family cemeteries – it was an initial determination about the significance of the house under Criterion C (Architecture).⁶

January 2009 – Unrelated to the above conversation - City of Knoxville issued a Transportation Planning Report for Washington Pike / Millertown Pike⁷. This was not provided to property owners in the area or community organizations. Page 35 of the report indicates that no National Register eligible sites were found during a preliminary investigation (the Thomason report in 2000). This calls into question the information provided to and used by planners, because Murphy Springs Farm was clearly eligible.

November 2011 – Kevin Murphy attended a dinner with Ann Bennett, Historic Preservation Planner for Knoxville / Knox County Metropolitan Planning Commission, and Patrick McIntyre, Executive Director, Tennessee SHPO. At the dinner, the idea of listing the entire farm on the National Register was proposed. Mr. McIntyre was receptive to the concept, however no documentation or written proposals were provided to him.

April 6, 2012 – City of Knoxville sent letters to property owners about survey crews for the Washington Pike widening project⁸. This was the first notification that the project was underway.

April 2012 – Jana Bean was hired as a historic resources consultant by CDM Smith, who is the project designer for the City of Knoxville's Washington Pike from I-640 to Murphy Road Project (TN-PIN 043090.00, Federal STP-M-9109(64)). Ms. Bean contacted Kevin Murphy by letter or phone message, and Kevin sent initial information about the farm on April 13, 2012⁹.

³ 14 - Historic Structures Survey for Washington Pike Oct 2012 Draft.pdf, page 3

⁴ 14 - Historic Structures Survey for Washington Pike Oct 2012 Draft.pdf, page 3

⁵ 17 - Email from Joe Garrison to Jana Bean.pdf

⁶ 10 - SHPO Murphy Farm Email Correspondence 2008-2009.pdf

⁷ 11 - 2009-01-WashingtonMillertownTPR.pdf

⁸ 12 - 2012-04-06 Letter from City of Knoxville re Washington Pike Surveys.pdf

⁹ 13 - 2012-04-13 Email from Kevin Murphy to Jana re Farm Map.pdf

April 15, 2012 – Kevin Murphy sent a letter to Jim Hagerman, Director of Engineering, a letter about the Washington Pike project, which contained preliminary information about the farm and parcels that comprise the farm that could be eligible for listing on the National Register and may impact a Section 106 review¹⁰. Mr. Murphy requested to be included in public meetings on the project, and was unaware that the key words were “interested party” or “consulted party.”

April 16, 2012 – Kevin Murphy and Jana Bean had a telephone conversation. Kevin followed up with information¹¹ including a copy of letter to the City of Knoxville Engineering on April 15 2012 and an application to list Murphy Springs Farm in the Tennessee Century Farm program¹².

May 1, 2012 – Knoxville Mayor Rogero invited to speak at an Alice Bell / Spring Hill Neighborhood Association regarding Washington Pike widening and other plans¹³. Mayor wasn't able to attend, but sent engineering staff and arranged for another meeting on May 31, 2012.

May 7, 2012 – Jana Bean enquired about what was being nominated (the promised draft of the National Register nomination had not been sent).

May 8, 2012 - The next day Kevin replied with the information and the draft¹⁴. The draft nomination did not contain any boundary description or justification text¹⁵.

May 9, 2012 – Jana Bean requested additional information on structures and cemeteries¹⁶ and referenced several sites outside of parcel 049 080¹⁷.

May 13 2012 – Kevin Murphy replied back with clarification information about the Koger house¹⁸ and a tax map with figures¹⁹.

May 21, 2012 – Alice Bell / Spring Hill Neighborhood Association held a meeting with Northeast Knox Preservation Association discussing Washington Pike Widening. Staff from CDM Smith and City of Knoxville Engineering Department attended²⁰. A presentation was made but no public comment forms were distributed and no avenue was provided for public comment.

May 31, 2012 – Knoxville Mayor Madeline Rogero met with Kevin Murphy, other community groups, and City Engineering to discuss the Washington Pike projects and other projects in that vicinity²¹. Historic impacts were not specifically mentioned, but a need to work on other projects first was. Follow-up was supposed to occur from the mayor's office, but never did.

Aug 17 2012 – TDOT sent a letter to the Cherokee Nation about the project and asking if they wished to be an interested party²². I have not been provided any other copies of letters

¹⁰ 14 - 2012-04-15 Letter on Washington Pike Widening.pdf

¹¹ 15a - Email from Kevin to Jana re Information on Murphy Farm

¹² 15b - Murphy Springs Farm Tennessee Century Farm Application.pdf

¹³ 16 - 2012-05-01 Email inviting Mayor Rogero to ABSHNA Meeting.pdf

¹⁴ 17a - Email from Kevin to Jana with draft NR nomination.pdf

¹⁵ 17b - 10-900 Draft Murphy Springs National Register Nomination 2012-May-8.pdf

¹⁶ 18a - Email from Jana to Kevin for Additional Info.pdf

¹⁷ 18b – murphy questions.pdf

¹⁸ 20a - Email from Kevin to Jana.pdf

¹⁹ 20b - TaxMap of Sites.bmp

²⁰ 23 - 2012-05-WashingtonPikeNeighborhoodMeeting.pdf

²¹ 24 - 2012-06-02 Summary of meeting with Mayor Rogero.pdf

²² 25 - Knox Wash Pike NAC Allen 8.17.12.pdf

or information on who was notified and given the opportunity to be an interested party. Knox Heritage, the property owners, Alice Bell / Spring Hill Neighborhood Association, and Northeast Knox Preservation Association were not notified.

Oct 8 2012 – Jana Bean requested progress update on preparing the National Register Application, and dates for a few structures. Kevin Murphy replied back on Oct 30th with dates for those structures, and that no progress was made on the application.²³ This exchange concluded the conversation between Kevin Murphy and Jana Bean.

Oct 2012 – Jana Bean sent the Oct 2012 draft “Historic Structures Survey for the Washington Pike Roadway Improvements Project” to TDOT’s Historic Preservation Section²⁴. No cover letter or email was returned with the Open Records request. Murphy Springs Farm is described on pages 26-39. A proposed boundary of all the parcels (~205 acres) is described on pages 33-35. This draft was not provided to the property owners, SHPO, or local organizations – just to the TDOT Historic Preservation Section. It also notes on page 3 that an architectural survey by Thomason and Associates in 2000 recommended that the Murphy House was not eligible, even though it was determined as eligible in a 1982-1984 architectural survey by the Knoxville / Knox County Metropolitan Planning Commission titled *Historic and Architectural Resources in Knoxville and Knox County*. The report contains an appendix that list interested parties, which includes Kevin Murphy. It also contains Kevin Murphy’s letter to Jim Hagerman of April 15, 2012 as an appendix, and the Tennessee Century Farm’s application for Murphy Springs Farm.

Nov 2012 – An edit copy of the Historic Structures Survey was sent from TDOT back to Jana Bean²⁵. The edits show that the TDOT staff objected to the proposed boundary (p. 33-37) and didn’t think they are appropriate. The TDOT staff instructed Ms. Bean to “re-think realistic NR Boundary” (p.37)

Nov 27, 2012 – Email from Jana Bean to Tammy Sellers regarding Washington Pike Survey comments that were received in the mail on the 26th, with some initial information about the boundary decisions.²⁶

Jan 8, 2013 – Joe Garrison, TN SHPO sent an email to Jana Bean indicating that the SHPO concurred with the 2000 survey that there were no historic architectural resources located in the area²⁷. In this case, the survey, TDOT, and SHPO completely missed identifying Murphy Springs Farm, which the SHPO agreed with in Jan 2009 that it was eligible.

Jan 2013 – phone call between Jana Bean and Tammy Sellers (TDOT) that discussed a greatly reduced National Register boundary to be only the parcel that the farmhouse and outbuildings are on, referenced in an email from Jana Bean to Tammy Sellers on Jan 25, 2013²⁸.

Jan 25, 2013 – A revised Historic Structures report was sent from Jana Bean to Tammy Sellers (not included below due to file size; the finalized report is included and has very minor changes). Ms. Bean included the statement in an accompanying email that the NR

²³ 26 -Email between Jana and Kevin 2012-Oct.pdf

²⁴ 30 - Historic Structures Survey for Washington Pike Oct 2012 Draft.pdf

²⁵ 31 - Historic Structures Survey - First Draft-TDOT edits.pdf

²⁶ 32 - 2012-Nov-27 Email from Jana Bean to Tammy Sellers.pdf

²⁷ 33 - Email from Joe Garrison to Jana Bean.pdf

²⁸ 34 - 2013-Jan-25 Email Jana Bean to Tammy Sellers re Washington Pike Revision.pdf

boundary was greatly reduced to just a single parcel, and that the APE ("Area of Potential Effect") was not in the viewshed²⁹.

Jan 29, 2013 – Ms. Sellers replied to Ms. Bean with minor corrections, and then said it would be sent to TN-SHPO as a draft with those corrections³⁰.

End of Jan 2013 – the last set of revisions is made to the report; no other changes were made during future reviews³¹. The final version of the report proposes a boundary of parcel 049 080 where the Hugh Murphy house and associated outbuildings sits. The final version of the report also stated that the report would be mailed out to the interested parties in the appendix, which included Kevin Murphy, CDM Smith, Jana Bean, the City of Knoxville never mailed out the report to that list of interested parties; TDOT mailed it to a different list in March. Regarding the boundary, it states (page 35):

"The current owner, Kevin Murphy, had previously proposed the boundary be based on lands acquired by the original owner, Robert Murphy, which would total 207.92 acres and encompass various adjoining parcels now owned by family members. Prior submittal of this report to the TDOT resulted in a recommendation that the boundary reflect only the parcel containing the Murphy Springs Farm house and outbuildings that were associated with farming activities through the dairying period, approximately the 1920s. This would put the period of significance for Murphy Springs Farm to be from 1841, the construction of the Hugh Murphy house, to the 1920s, which marked the end of continuous farming activity. After dairying activities ended, the farm was further subdivided among family member who began their own homes and farms"

Feb 5, 2013 – a memo is sent from TDOT to TN SHPO (Claudette Steger / Joe Garrison) with the report, asking for reviews and comments before it is submitted formally³².

Feb 7, 2013 – email from TN SHPO (Claudette Stager) to TDOT (Tammy Sellers) that they agree with eligibility, and that she would give the report to Joe Garrison³³. "I did not read the report for Washington Pike all that closely since I just wanted to get it done and maybe look over the Chattanooga project. I might have charted some of the buildings or just looked at the area as a district...but I am not the consultant."

Feb 8, 2013 – Joe Garrison initialed the Feb 5 draft memo as "NAE JG 2/8/13" for "no adverse impact"³⁴. The note indicates that Jana was emailed on Feb 15 2013.

March 4, 2013 – letters were sent to the TN SHPO requesting comments, as well as to parties interested in historic preservation interests³⁵. Note: Kevin Murphy and the Northeast Knox Preservation Association were **NOT** included on that list of interested parties, although they were included in the list of interested parties in the Historic Structure Report.

²⁹ 34 - 2013-Jan-25 Email Jana Bean to Tammy Sellers re Washington Pike Revision.pdf

³⁰ 35 - 2013-Jan-29 Email from Tammy Sellers to Jana Bean.pdf

³¹ 36 - 2013-01-WashingtonHistoricalStructuresSurvey.pdf

³² 37 - Washington Pike Memo to SHPO, 2-5-13.pdf

³³ 40 - 2013-02-07 Email from Claudette Steger.pdf

³⁴ 41 - 2013-02-08 SHPO Ok onDraft.pdf

³⁵ 42 - 2013-Mar-04 Consultant Cover Letters.pdf

March 12, 2013 – Patrick McIntyre, TN SHPO, sends a letter concurring that an eligible National Register of Historic Places resource, Murphy Springs Farm, is in the project area and will not be adversely impacted³⁶.

Apr 8, 2013 – Kaye Graybeal, Historic Planner at Knoxville / Knox County Metropolitan Planning Commission, emails Kevin Murphy about a Historic Structures Survey. Kevin asks for a copy, and expresses a desire to comment. Ms. Graybeal responds that they only have a hard copy, and that comments should be sent in this week³⁷. This was the only notification that Mr. Murphy ever received that the report was published. Note that he was not provided with a copy of the cover letter from the consultants until he submitted Open Records Requests in Sept 2014 to TDOT and the Knoxville / Knox County MPC. The cover letter would have informed him of the review process and guided him to the ACHP website to learn how to participate in the process.

April 9, 2013 – Kaye Graybeal advised Mr. Murphy to view the design drawings with city engineering, and then write a letter to TDOT or TN-SHPO³⁸.

April 12, 2013 – Kevin Murphy wrote preliminary comments to Kaye Graybeal, expecting Ms. Graybeal to reply with perspective before he wrote letters to TDOT and the SHPO. Instead, Ms. Graybeal forwarded the comments to TDOT, and the SHPO. Tammy Sellers (TDOT) replied that she would be coordinating with the SHPO. Ms. Graybeal sent the comments to the SHPO. The SHPO replied back that they had worked with Tammy Sellers on the boundaries for the report, and that when they had previously met with Mr. Murphy they had not set boundaries but suggested the house and outbuildings.³⁹ Mr. Murphy took this as a final dispensation from the state, and that he would have to work with the report writers at the City of Knoxville. He was not aware that there was a SHPO and TDOT-led review process underway with a comment period; he thought the controlling agency was the City of Knoxville.

April 17, 2013 – Kevin Murphy sends a letter to Mayor Rogero, City of Knoxville, requesting an update since nothing had occurred since May 31, 2012. He explicitly requested key points for public meetings to be identified and that timelines for those public meetings be constructed.⁴⁰

May 13, 2013 – City of Knoxville sends a response to Mr. Murphy and community representatives⁴¹. They were informed that the project was not moving rapidly and that no comments were currently required by law or city commitment to public participation. They indicated a public meeting would be done during the Final Design Phase after the Environmental Phase was completed. The city also stated that according to TDOT, copies were mailed to Mr. Murphy and Northeast Knox Preservation Association. Neither Mr. Murphy nor NEKPA⁴² received these even though the addresses were correct, and it's unclear where the city received this information.

³⁶ 43 - 2013-Mar-12 SHPO OK with WashingtonHistoricalStructuresReport.pdf

³⁷ 44 - 2013-Apr-08 Email about initial notification.pdf

³⁸ 45 - 2013-Apr-09 Email Kaye Graybeal to Kevin Murphy.pdf

³⁹ 46 - Emails from Kaye Graybeal Fwd_ Washington Pike Roadway Improvement Project in Knoxville.pdf

⁴⁰ 50 - 2013-04-17 Letter to Mayor Roger re Washington Pike Widening.pdf

⁴¹ 51 - 2013-05-14 City of Knoxville Washington Pk Response.pdf

⁴² 52 - Email from NEKPA confirming non-receipt of report.pdf

From: Claudette Stager
To: Beadles, Brian; Bennett, Ann; Ford, Randall De; Jackson, Louis; Murphy, Kevin P.

January 9, 2009

Thanks to everyone for meeting with us at the Murphy property. As we said yesterday, it should be possible to nominate the property for historic significance (possibly agriculture or settlement patterns) even if the exact date of the original construction is unknown. I have already sent Ann information on doing nominations for farms (a multiple property listing and a sample nomination). A nomination would include the house and outbuildings and discuss (family) settlement and farming.

I am attaching a copy of a nomination for a property that evolved over many years and kept bits-and-pieces of each change in style. This house does not look like the Murphy house, but the nomination is a good example of how to prepare a nomination for a house with lots of changes.

It helped to see the floor plan of the proposed addition staked out. It is much easier to understand than looking at a drawing. I like the bungalow porch, but am not sure my colleagues agree with me on that.

We cannot tell you whether to complete a nomination now or wait until you have made changes to the house. That depends on your priorities. A property is nominated on what it looks like, not on what might happen to it. While it is rare, we have removed a property that had a huge addition put on after it was listed.

Feel free to contact Brian or me if you have questions about the nomination.

Claudette

John deaver good

From: "Murphy, Kevin P" <Kevin.Murphy2@ca.com>
To: "Ann Bennett" <Ann.Bennett@knoxmpc.org>, "Randall De Ford" <randaldefor...
CC: "John Manuel" <john.manuel@verizon.net>, <armurphy@verizon.net>, "Cather...
Date: 12/18/2008 10:41 AM
Subject: info for call
Attachments: 0703 Murphy Second FI 11-24-08.pdf; 0703 Murphy First FI 11-24-08, Revised.pdf

Hello,

Here's the information for the conference call if you don't have it:

Audio: 1-866-376-6162 code 29-36-36-5

Multimedia (pictures, plans, etc.) - Click here
<https://www.livemeeting.com/cc/cai/join?id=8HN4CK&role=present&pw=T*%60xjz%2BX9> for LiveMeeting

Website with pictures, etc:
<http://picasaweb.google.com/murphysprings/Farm?authkey=YcJ654XfRuw>

Chat with you in about 30 minutes.

--Kevin

Kevin P. Murphy, CISSP, ISSAP
CA
Sr Services Architect
Mobile: +1 865 202 1792
kmurphy@ca.com <<mailto:Kevin.Murphy2@ca.com>>

From: "Kevin P. Murphy" <kmurphy@alumni.rice.edu>
To: <Louis.Jackson@state.tn.us>, <Claudette.Stager@state.tn.us>
CC: "Ann Bennett" <Ann.Bennett@knoxmpc.org>, "Randall De Ford" <randalldefor...
Date: 12/2/2008 6:48 AM
Subject: Murphy farm National Register application
Attachments: elevation.jpg; site_layout.jpg; 0703 Murphy First FI 11-24-08, Revised.pdf; 0703 Murphy Second FI 11-24-08.pdf; Part.005

Hi Claudette and Louis,

Ann Bennett has been kind enough to work with me on a National Register application for our old farm on the east side of Knoxville. I'm also working with Randall De Ford on a possible addition to the old house.

I've attached Randall's latest sketches of the plan, along with the site plan and a front elevation.

There are some pictures of the house and the surrounding area at <FILL THIS IN> that may be helpful as well.

Would you be willing to do a short consultation with Randall and myself to review the proposed addition and comment on possible impacts to the National Registry application? I envision a 15-30 minute conference call amongst all of us, and I can arrange the dial in numbers, etc.

Our goal is to restore the original house as much as possible, but then add an addition that provides some badly needed living space.

Thanks for your assistance,

--Kevin

From: "Ann Bennett" <Ann.Bennett@knoxmpc.org>
To: <Claudette.Stager@state.tn.us>
Date: 11/25/2008 10:40 AM
Subject: Re: Fwd: elevation sketch

You did find it. It's at the very edge of the quad.

When I talked with Randall and the owner about the addition, I told them that at the very least, the addition needed to be connected by a very clear connection, needed to be set back as far as possible from the front facade, needed to be joined through an existing door, and needed to be shorter and narrower than the original house, so that it was clearly subservient to it. I know the owner is going to want this addition. And I fully understand that it isn't easy. Can you think of any other caveats I should give them, other than making the massing blend and the materials compatible?

Ann

From: Claudette Stager
To: Bennett, Ann
Date: 11/25/2008 10:35 AM
Subject: Re: Fwd: elevation sketch

I think I found this in the survey - it was at the edge of the quad. I think it would be better to wait for a nomination. It is hard to tell how big the addition will be, even if it is set back and attached by glass. Another change is the facade porch and interior hall. I know Randall, he has done several tax credit projects. We nominate on what the property looks like now, not the future. However, we had one case where after the addition was put on the NR-listed house it was so big and intrusive we removed the house. This is not an easy issue!

Claudette Stager
National Register
Tennessee Historical Commission
2941 Lebanon Road
Nashville TN 37214
615/532-1550, ext. 105
www.TDEC.net/hist

>>> "Ann Bennett" <Ann.Bennett@knoxmpc.org> 11/25/2008 8:48 AM >>>
Claudette:

I mentioned to you last week that I was beginning to work on the Murphy House - One of our two remaining Gothic Revivals off Washington Pike at Murphy Road - buildings on site include the house, a log smokehouse, a carriage house/garage with an internal log corn crib, two dairy houses, chicken coop converted to tractor shed and woodshed. The age of the house has become an obtuse mystery - family history shows the original Murphy in a log house (1796) about 1/4 mile west of this one, where stone piers/foundation still remain. It also shows the son of original Murphy building a new "imposing" structure c.1820, and I think that original is embedded in a rear room of this one. Then around 1836 there were a kitchen and dining room added, I think to the east. Sometime around mid-1950s - maybe as late as 1858 when the ET&V RR came through to the immediate east, I think the front two rooms that show as Gothic were added and the dogtrot was enclosed. An upstairs bath, with a steeply pitched gable, was added in the 1920s on the east elevation, when the current front porch was put on. I think. There isn't much of a crawl space. I've been partially in the one that exists, where I find hand adzed post and beam construction, pegged, with stripped log floor joists. Inside the house, there is one of the two chimneys in the front addition that is gone, as is the interior wall it was on. In that room there are c.1920 baseboards, but everywhere else there are 12-14" baseboards, in some places hand split hickory lathe still exists, the windows glass is c.1850, as is the trim, and there are gorgeous ruby/cobalt/patterned glass sidelights at the front and side doors and above the front second story window. Floors downstairs are oak t&G, probably laid on top of the pine boards that show on the second floor. The floor boards are not too wide - I think they were installed around the 1850s. They look a lot like the width of those in my house, which I'm pretty sure are c.1855.

Any insight you can shed into this evolution would be much appreciated.

I have been in touch with Dr. Faulkner, and sometime after the holidays he has agreed to spend a few hours prowling around, in hope that he can shed additional light on the evolution of this house. Rehabbing the inside, and the attendant selective demolition should also help. The family thinks, based on some ancestor's written description of the "imposing house" - that the Gothic Revival was built in 1820. I don't even think that's possible.

The new owner (family descendant) is working with Randall DeFord (quite good preservation-oriented local architect) to design an addition that will give him a kitchen/office/dining space big enough to incorporate huge family reunions and his day-to-day existence, but be sympathetic to the house. And that brings us to the attached e-mail and elevation sketch.

To the left of the elevation is the original house. Randall did not draw the remaining chimney in, but it will stay. On the interior in those front two rooms, the owner is thinking about reinserting the original entry hall. The front porch you see on the elevation is a copy of one showing in a c. 1880s family photograph, and it will be reconstructed. And to the right, towards the east will be the addition. It's difficult to tell, but the addition will step back from the original facade by about half or more of the depth of the historic house. It will be connected with a breeze way (glassed in) through a pre-existing, currently enclosed, exterior door.

Kevin really does want to have the house National Register listed, and rather than go through that process when he knows he's going to do this addition, without saying anything about the addition, I was hoping you could comment on whether you think the proposed new space would jeopardize the potential National Register listing. I feel Randall has done a good job of making the addition subservient to the history house, and picking up some of the general details, but making it a clearly modern addition. Do you see any problems with this approach to the addition?

I'll be out of the office the rest of this week for Thanksgiving, but will be interested in knowing what you think.

Ann

From: "Ann Bennett" <Ann.Bennett@knoxmpc.org>
To: <Claudette.Stager@state.tn.us>
Date: 11/12/2008 8:54 AM
Subject: Re: Fwd: Tennessee Century Farms program

Thanks. Yes, it was surveyed years ago. It was one of three gothic revival houses - all farm houses, as it happens, and now is one of only two. A spring house and a log smokehouse go with it. But I can't blame you for not remembering it. It was one of the properties I hoped to nominate as part of that long ago grant - but like I said, I could never find anyone who would claim ownership, much less let me in to photograph the interior. Nice house, though (except for that unfortunate front addition which is the only place they could seem to find to put a bathroom). Steeply pitched cross gable roof, gorgeous stained glass - simple, but very nice colors - weatherboard with sawn wood - I've always been very excited about this one.

Thanks for the help.

Ann

From: "Ann Bennett" <Ann.Bennett@knoxmpc.org>
To: <Claudette.Stager@state.tn.us>
Date: 11/12/2008 7:55 AM
Subject: Fwd: Tennessee Century Farms program
Attachments: Tennessee Century Farms program

Claudette -

The attached e-mail is proof that persistence, like water dripping on a stone, will have its way. This is the Gothic farmhouse on Murphy Road at Washington Pike that I have tried to do a nomination on for years, when I didn't exactly encounter reluctant property owners, I just couldn't find property owners anywhere, period. Suddenly there is a new owner who has inherited the house and surrounding acreage, and who is very interested in placing the house on the National Register and the local register, has hired Randall DeFord for architectural assistance, was looking at a century farm designation, and who intends to restore the house, removing a c.1920 front addition (which will be a big improvement) and putting back interior features, like walls, that are documented but long gone. I am so pleased - it's another one of those "top of my list things" that I'd like to finish before I leave this place. At any rate, there seems to be a Greene County nomination that might be helpful - also a Multiple Property nomination that I could use. Could you e-mail copies of those to me?

Thanks

Ann

Claudette Stager - Tennessee Century Farms program

From: "Kevin P. Murphy" <kmurphy@alumni.rice.edu>
To: <ann.bennett@knoxmpc.org>, <pam.dishongh@knoxmpc.org>
Date: 11/10/2008 4:50 PM
Subject: Tennessee Century Farms program

Below is a note from Caneta that you may be able to get some documents to help for the contextual statement area of the application.

--Kevin

From: "Caneta Hankins" <chankins@mtsu.edu>
To: <kmurphy@alumni.rice.edu>
Subject: Emailing: TENNESSEE CENTURY FARMS PROGRAM.doc
Date: Mon, 10 Nov 2008 10:38:13 -0600

Kevin,

Attached is Word doc. of C. F. application. I should think a Rice grad could write legibly!!! However, I decipher so many handwritten applications (not to mention student papers) I can't think yours would be unreadable.

As far as N. R. nominations go for farms, advise your historic zoning commission contact that the Center for Historic Preservation prepared a Multiple Property nomination for "Historic Farms in Middle Tennessee" in 1994 and since that time we have nominated a number of farmsteads, not just historic houses, across the state. For example, Center staff prepared a N. R. district in Greene County in 2001 - the Earnest Farms Historic District - that included five Century Farms. If they would like copies of these documents, we would be glad to make them available. This might save them some work, at least on the contextual statement portion.

Your farm is no less remarkable than those that date from 1796; we just had to draw a line and that year seemed reasonable. I look forward to receiving your application. Let me know if you have any questions.

Best,

Caneta

Caneta Hankins
Assistant Director, Center for Historic Preservation
Director, Tennessee Century Farms Program
Box 80
Murfreesboro, TN 31732
615/898-2947

From: Claudette Stager
To: Bennett, Ann
Subject: Re: Fwd: elevation sketch

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Ann

TRANSPORTATION PLANNING REPORT

WASHINGTON PIKE/MILLERTOWN PIKE

Section One – Millertown Pike from I-640 to City of Knoxville Boundary

Section Two- Washington Pike from I-640 to Murphy Road

Section Three- Washington Pike from Millertown Pike to I-640

Section Four- Millertown Pike from Washington Pike to I-640

***City of Knoxville
Knox County, Tennessee
PIN# 043090.00***



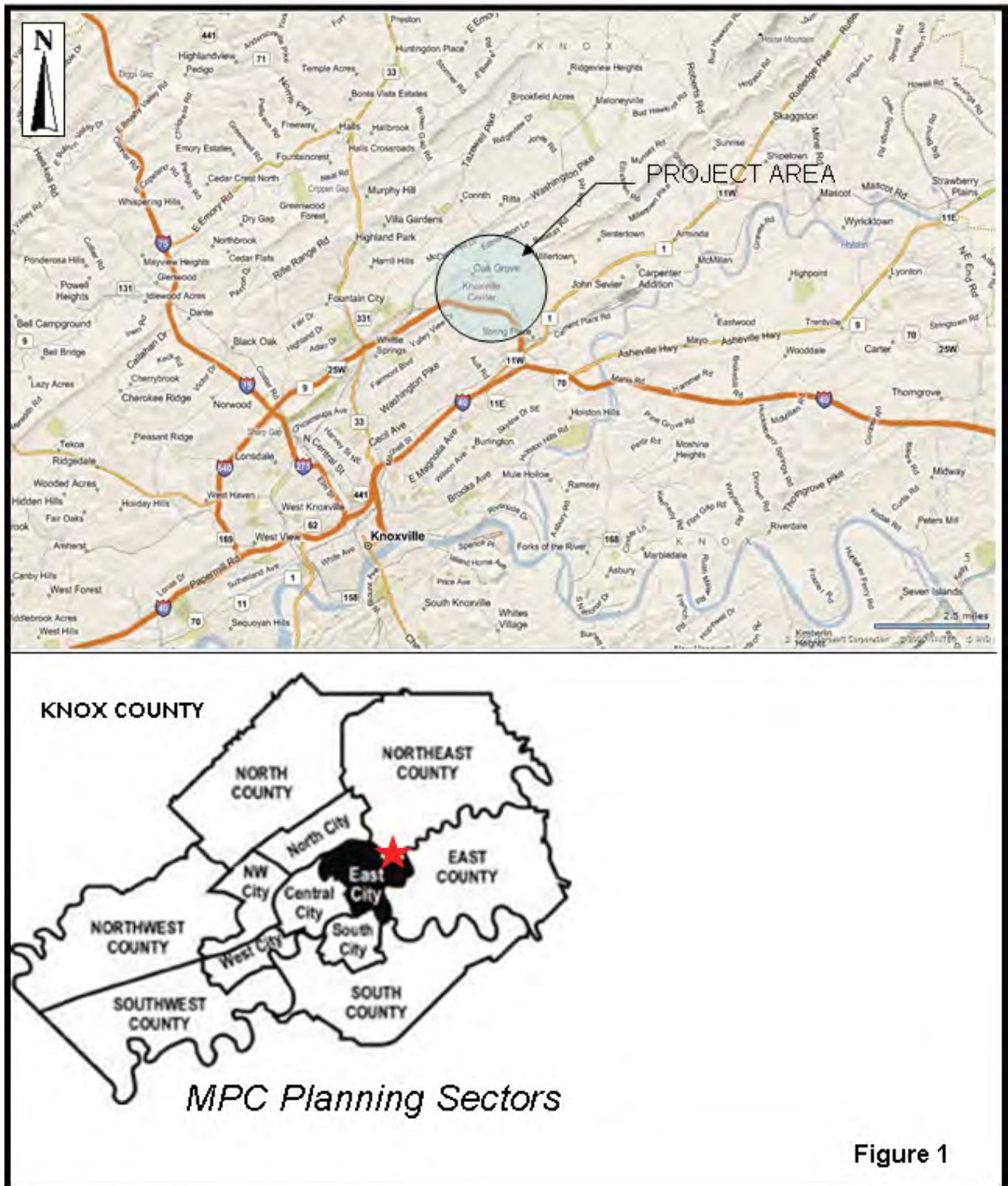
***PREPARED BY:
WILBUR SMITH ASSOCIATES
For the CITY OF KNOXVILLE
AND THE
TENNESSEE DEPARTMENT OF TRANSPORTATION
PROJECT PLANNING DIVISION***

Recommended by:	Signature	DATE
CHIEF OF ENVIRONMENT AND PLANNING		
TRANSPORTATION DIRECTOR PROJECT PLANNING DIVISION		
TRANSPORTATION MANAGER 2 PROJECT PLANNING DIVISION		

This document is covered by 23 USC § 409 and its production pursuant to fulfilling public planning requirements does not waive the provisions of § 409.

PROJECT VICINITY MAP

Washington Pike/Millertown Pike Transportation Planning Report Knoxville, Knox County, Tennessee



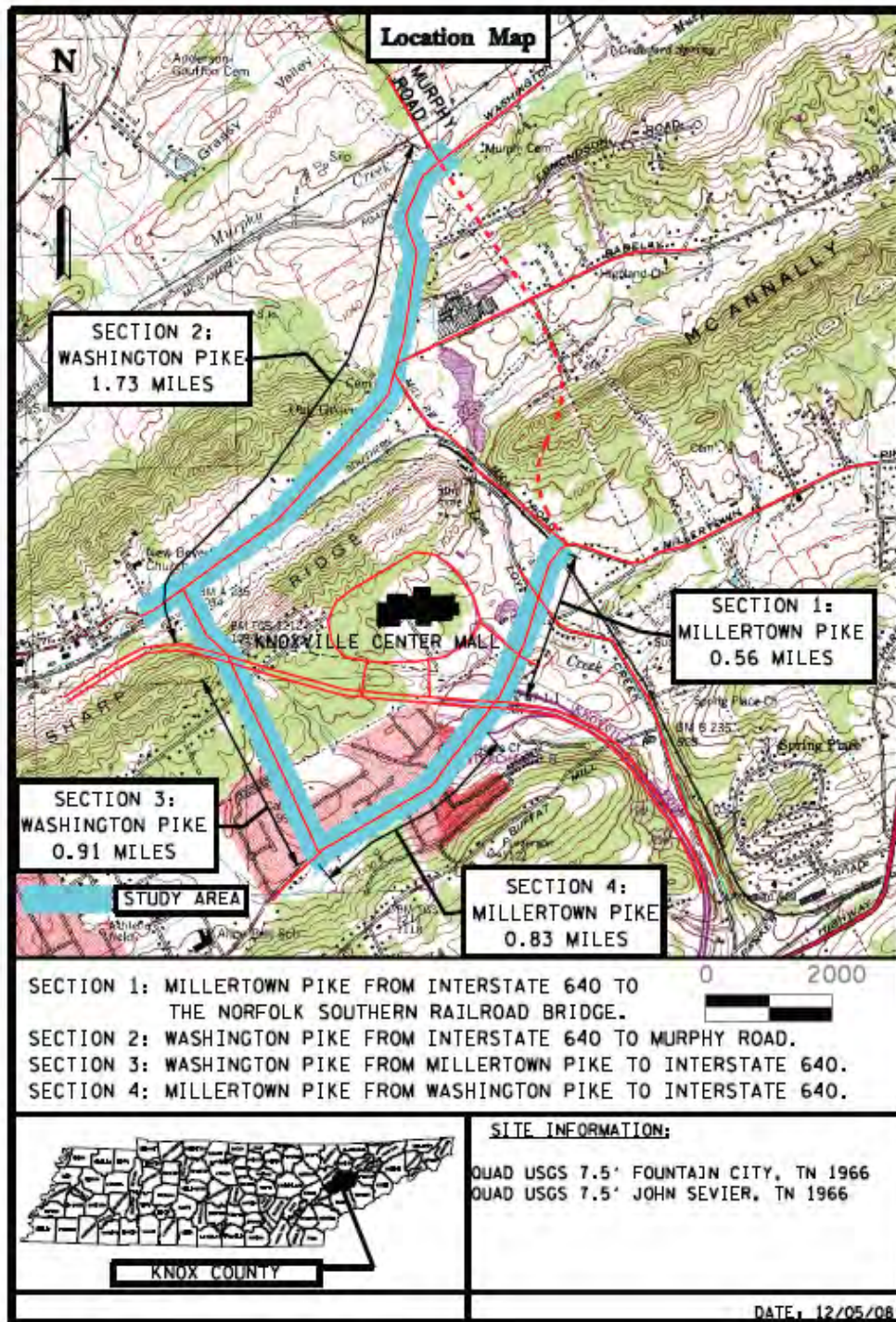
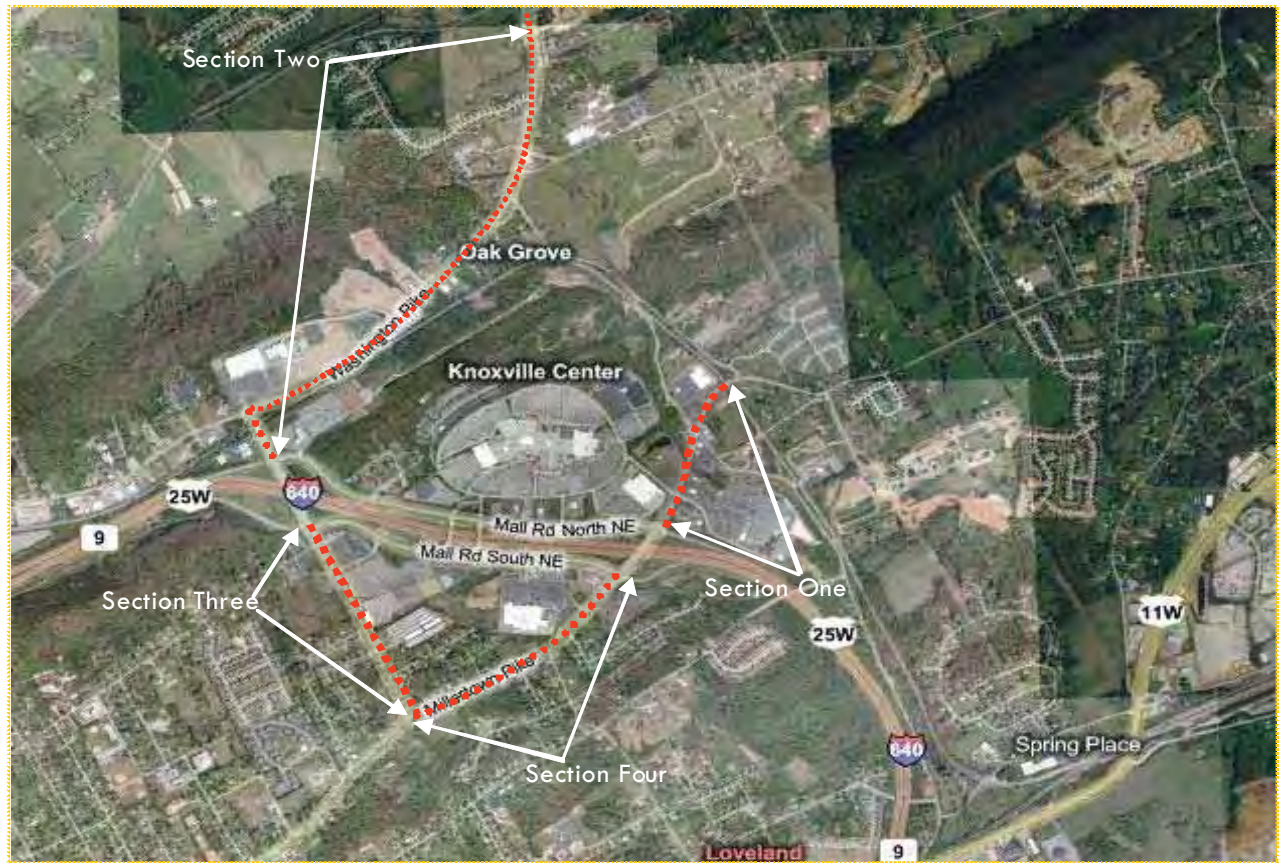


Figure 2

PROJECT LOCATION MAP WASHINGTON PIKE AND MILLERTOWN PIKE



AREA LOCATION MAP
WASHINGTON PIKE AND MILLERTOWN PIKE
Knoxville, Knox County, Tennessee



Figure 3

COMMUNITY PROFILE

Knoxville is the third-largest city (behind Nashville and Memphis) in the state of Tennessee and is the county seat of Knox County. Of Tennessee's four major cities, Knoxville, founded in 1791, is second oldest to Nashville. After Tennessee's admission into the Union in 1796, Knoxville was the state's first capital, in which capacity it served until 1819. The site for the capital then moved to Murfreesboro, prior to Nashville receiving the final designation. Knoxville was named in honor of the first Secretary of War, Henry Knox. Knoxville is located in a broad valley between the Cumberland Mountains to the northwest and the Great Smoky Mountains to the southeast. These two mountain ranges help provide the City its moderate climate. Knoxville, Tennessee is a rapidly growing city accessible from an international waterway. Located in the South Central region of the United States, Knoxville sits at the head of the Tennessee River navigation channel. Interstates 40, 75 and 81 converge in Knoxville allowing 53% of the nation's marketplace to be within a 650-mile radius of Knoxville. Knoxville, Tennessee is located near three national parks: Great Smoky Mountains National Park, Big South Fork National Park, and Cherokee National Forest.

As of the 2000 United States Census, Knoxville had a total population of 173,890 with a metropolitan population of 616,080. By 2008, the metropolitan population had increased to 689,695 (a 12 percent increase). Knoxville was noted as the best medium sized metropolitan area in the nation as published in the 2007 Best Cities for Relocating Families. In April 2008, *Forbes Magazine* named Knoxville among the Top 10 Metropolitan Hotspots in the United States. The Knoxville MSA includes Anderson, Blount, Knox, Loudon, and Union counties.

Over time, Knoxville has acquired several nicknames. In the early 20th century, the city was nicknamed *The Marble City* as a result of the number of quarries active in the city that supplied Tennessee pink marble to much of the country. In the 1930s, the city was labeled as the *Underwear Capital of the World* with over twenty textile and clothing mills. From 1930-1960, this industry was the city's largest employer. Since then, economic changes caused the closing of many mills in the Knoxville area resulting in the relocation of some Knoxville area residents.

Knoxville is home to the University of Tennessee's primary campus (UTK). The university's sports teams, called the "Volunteers" or "Vols" are extremely popular throughout the Southeastern region. In 2008, UTK had an average enrollment of 26,000 students ranking 45th among 164 public institutions by *US News and World Report*.

Moreover, Knoxville's economy is largely fueled by the regional location of the main campus of the University of Tennessee, the Oak Ridge National Laboratory (ORNL) and other Department of Energy (DOE) facilities (in nearby Oak Ridge, Tennessee), the National Transportation Research Center, and the Tennessee Valley Authority (TVA). These facilities make Knoxville the heart of the high-tech Tennessee Valley Corridor, which extends from Blacksburg, Virginia to Huntsville, Alabama.

As depicted on the Project Vicinity Map (Figure 1), the study area is partially within the City's East City Sector with portions in the East and Northeast Knox County Sectors. These sector plans, adopted by the Metropolitan Planning Organization, City of Knoxville and Knox County in 2002, focus on physical development, land use, transportation and community facilities. The sector plans serve as a tool to help the community identify development opportunities and plan for the future. The sector plans include proposals for land use and transportation improvements. An evaluation of the existing conditions in each sector includes information on environmental resources, development trends and characteristics of the population. The Knoxville Center District was defined by the city as a "Special Development Opportunity Area". With the area experiencing growth in retail and commercial development there has been a loss of low-density residential land use for the area. The City's vision for the Knoxville Center area includes recommendations for mixed-use developments and the redevelopment of those parcels where the existing low density residential land uses are no longer appropriate. The City proposes to create mixed-used developments with pedestrian-friendly facilities. Most commercial areas are easily accessible by a 5-10 minute walk; however continued pedestrian facility improvements are necessary on Washington Pike and Millertown Pike to address the needs of pedestrians and bicyclists in the area. The City's public transit provider, Knoxville Area Transit (KAT), currently provides transit service to the Knoxville Center area to address the needs of non-motorized users.

The City of Knoxville encompasses an area of 103.7 square miles of the 526 square mile total for Knox County. Residential land occupies the largest portion of developed land

in Knoxville which accounts for the abundance of subdivisions located adjacent to the city's major arterial roads and collector streets. In terms of acreage, most of the East City Sector is single-family residential. Within the last few years, sections of East and Northeast Knox County showed a dramatic increase in subdivision activity. Between 1990 and 2000, population for northeast Knox County increased by 14.9 percent.

Knoxville Center Mall is a super-regional shopping mall serving the Knoxville metropolitan area. The mall is located at Exit 8 on Interstate 640. Since the construction of the Knoxville Center Mall, this portion of the City has experienced more retail and commercial development resulting in more traffic from outlying areas of Knox and surrounding counties entering into this area. The mall and several surrounding commercial properties including Sam's Club, Kohl's, Wal-Mart, Target and Circuit City, are not located within the city sector but have a great deal of influence on the livability of adjacent East City neighborhoods. East Towne Crossing (Home Depot and Food Lion) and Isaiah's Landing (Lowe's, Cracker Barrel, and O'Charleys) are within the East City Sector, and located within close proximity to well-established Valley View, Buffat Mill, Spring Hill and Alice Bell neighborhoods. Food City, a regional supermarket is located at the intersection of Millertown Pike and Loves Creek Road. Directly across from Food City is the Millertown Plaza with several retail and office spaces. Redevelopment of the former Farmer's Market site at Washington Pike and Greenway Drive incorporated the County's vision for a community-friendly retail center with multi-functional public space and pedestrian amenities. The retail area contains a Super Target store as an anchor tenant along with several other regional retail chains. The Farmer's Market has been relocated next door to New Harvest Park. The Farmer's Market continually provides locally-grown produce and homemade arts, crafts and specialty items to buyers seasonally from May to November. New Harvest Park, which opened in 2007, is approximately 43 acres and includes a playground setting to look like a farm. The park includes a community building and a picnic/amphitheater and a ¼ - mile walking trail. The redevelopment of the former Farmers Market site spawned intersection improvements at the Washington Pike and Greenway Drive intersection. Additional roadway modifications along the entire Washington Pike corridor could improve the traffic circulation system within the environs of Interstate 640 and Washington Pike minimizing potential conflicts between pedestrians and vehicles.

PURPOSE OF STUDY

This Transportation Planning Report (TPR) is being prepared to identify the purpose and evaluate the need for and feasibility of construction of the proposed widening along Washington Pike and Millertown Pike. This report is being prepared in response to a request of the City of Knoxville in cooperation with Tennessee Department of Transportation and the Knoxville Regional Transportation Planning Organization (TPO). This TPR report is an update of an Advance Planning Report for both Washington and Millertown Pikes that was approved in 2001. The 2001 APR was a portion of a larger study to review the roadway network in the City's northeast sector surrounding the Knoxville Center Mall.

The updated TPR will discuss the City's need to make roadway improvements within the project area. The study discusses the opportunity to widen Washington Pike and Millertown Pike as well as the possibility of extending Murphy Road on new location from Washington Pike to a new intersection with Millertown Pike near Loves Creek Road. The study is divided into the following sections:

Section 1-Millertown Pike from Interstate 640 to the Norfolk Southern Railroad Bridge

Section 2-Washington Pike from Interstate 640 to Murphy Road

Section 3-Washington Pike from Millertown Pike to Interstate 640

Section 4-Millertown Pike from Washington Pike to Interstate 640

A Project Vicinity Map is shown in Figure 1. A Project Location Map (USGS Map Fountain City/John Sevier, TN Quadrangle) and an Area Location Map depict the study corridors and define the locations and termini of the four sub-sections of Washington and Millertown Pikes in Figure 2 and Figure 3 respectively.

This project is listed in the *Knoxville Regional Transportation Planning Organization's 2005-2030 Long Range Transportation Plan* as well as being listed as a requested project in the Transportation Improvement Project (TIP) for fiscal years 2008-2011. The City of Knoxville, as sponsor, has provided initial funding for planning, environmental, and concept engineering processes.

In addition to geometric and safety deficiencies, this study will evaluate the existing traffic conditions (2008) and analyze the base year (2013) and design year (2033) “Level of Service” (LOS) for the study area. The LOS analysis and projected traffic volumes for the base and design year are included in this report and are depicted in the Project Data Table and the traffic schematic. Other baseline data include a field investigation of the eighteen principal intersections to include traffic counts, overview of environmental considerations, design recommendations, estimate of construction costs and an update to the functional roadway plans submitted with the previous APR.

Traffic information gathered within the project area was submitted to TDOTs Project Planning Office for review and approval for use in the study. The figures relative to the traffic information are described later in the report and contained in the Appendix.

Relative to the study area is the Murphy Road Extension project. This new roadway would extend from the Millertown Pike/Mill Road intersection to Washington Pike at Murphy Road. The extension of Murphy Road has been proposed as a means to provide some traffic relief for the Tazewell Pike area and to relieve long-term unmitigated traffic congestion on Washington Pike. Although, this project is not within the City Limits, it is anticipated that when built there would be a considerable amount of traffic along the new corridor extending into the Knoxville Center area. Therefore, traffic analysis of the Murphy Road extension project will be provided in this report for informational purposes only.

PURPOSE AND NEED FOR THE PROJECT

The purpose of this Transportation Planning Report is to analyze existing and projected traffic data and determine the feasibility of improving the roadway system within the Knoxville Center Mall area. Washington Pike and Millertown Pike are the two primary non-interstate highway routes within the project area. Improvements to these facilities would not only increase traffic mobility in the Knoxville Center area, but would also provide a transportation solution that improves safety for vehicles and pedestrians; reduces travel delays for through traffic; enhances regional and local economic development opportunities; and improves transportation system linkages throughout the northeastern quadrant of the City.

As a result of current traffic conditions, this TPR was requested by the City of Knoxville with direction from TDOT to evaluate the need for and feasibility of constructing road improvements on Washington and Millertown Pikes to service the anticipated development growth and associated traffic demands of the Knoxville Center environs.

The Knoxville Center area and its environs have experienced significant residential, retail and commercial development in the last several years which has outpaced roadway improvements. As a result, there has been an increase in traffic congestion, abnormal delays and traffic accidents on both Washington Pike and Millertown Pike, two major routes that link east and northeast Knox County to Interstate 640. Extremely long delays are experienced at many key intersections along both Washington Pike and Millertown Pike, particularly near Knoxville Center Mall. These delays are most noticeable during the afternoon peak hours as motorists pass through the area to go home from work and Saturdays when motorists are shopping at the mall or in the adjacent retail and commercial developments.

Both Washington Pike and Millertown Pike are minor east-west arterials extending northeast into Knox County and southwest of the Interstate 640 interchange. Regional access to the Knoxville Center area is provided by Interstate 640 with ramps to and from the east from Millertown Pike and ramps to and from the west from Washington Pike. As a point of clarification, Interstate 640 and its interchanges with Washington Pike and Millertown Pike are not included in this project (related to the interchange itself).

Traffic volumes within the study area are anticipated to grow quite rapidly with the continuing development of new subdivisions and businesses locating in the Knoxville Center area, particularly within the environs of the Washington Pike and Millertown Pike corridors. Population declined by four percent in the City's sector (Census Tract 52.02) between 1990 (2,797 people) and 2000 (2,690 people); however Northeast Knox County that borders the study area (Census Tract 52.01) has seen an eleven percent increase in residents (4,002 persons to 4,467 persons) from 1990 to 2000.. The south side of Millertown Pike, outside the City, is a growing residential corridor. Currently in Knox County's planned growth area, there is discussion to extend the growth boundary to include the north side of Millertown Pike. A goal is to include recreational amenities such as walking trails when developing subdivisions.

Development opportunities have increased in the northeast portion of Knoxville and Knox County resulting in the construction of more residential subdivisions and large parcel developments for big box retailers. Consequently, minor roadway improvements have been made at various intersections near these developments to address the immediate need to alleviate traffic congestion and improve traffic operations along both Washington and Millertown Pikes. Short-term improvements including roadway widening, adding left-turn lanes and traffic signal installation or modification were essential to mitigate the traffic impacts brought on by these developments; however long-term improvement is necessary to improve the transportation linkages between Washington Pike and Millertown Pike.

A facility with adequate and consistent roadway width is needed to safely accommodate current and anticipated traffic volumes on Washington and Millertown Pikes. With improvements, motorists would have improved east-west mobility from the City's east sector to Interstate 640.

PROJECT HISTORY AND BACKGROUND

This TPR document is a re-examination of an earlier Advance Planning Report (APR) commissioned by the City of Knoxville and TDOT which was approved in 2001. This update will revise the previous document with new traffic counts and revisions of the functional plans.

This report documents analyses undertaken to evaluate the opportunities for improving traffic conditions in northeast Knoxville within the Knoxville Center area on Washington and Millertown Pikes. Both arterials serve as important regional connectors linking people in the area to Interstate 640, employment and commercial centers and local, regional and state recreational areas. The proposed improvements to Washington Pike and Millertown Pike will help improve mobility and enhance existing connections. Several roadway deficiencies are identified along both Washington Pike and Millertown Pike including substandard lane and shoulder widths, sharp curves, and inadequate sight distances. New residential and commercial development has added more vehicles to the area escalating safety concerns due to the increased number of crashes on both Washington Pike and Millertown Pike. This increase in traffic volumes has caused a decrease in levels of service.

Over the years, numerous transportation planning studies have been conducted in the project area ranging from isolated traffic impact studies to intersection improvement analyses. A substantial number of localized projects in Knoxville and Knox County have been undertaken over the past several years as a result of the traffic impacts from residential, retail and commercial development particularly in the Knoxville Center area.

These studies include:

- ❖ *Washington Pike/Millertown Pike Advance Planning Report (2001)- Proposed improvements include upgrading Washington Pike to a five-lane facility northeast of the Greenway Drive intersection. Between Greenway Drive and Murphy Road, a four-lane divided typical section is proposed. To further improve the Washington Pike and I-640 interchange operation, Valley View Drive would be relocated to intersect Washington Pike opposite Centerline Drive. New traffic signals would be anticipated on Washington Pike at Millertown Pike, Centerline Drive and Mill Road. Millertown Pike would transition from the existing two lane to a five-lane undivided section with a continuous left-turn lane south of the Interstate 640 interchange and to a six lane facility near Knoxville Center, north of the interchange to Love's Creek Road. The project also includes the Murphy Road Extension from Washington Pike to Millertown Pike providing a new primary movement between Tazewell Pike and the I-640 interchange.*
- ❖ *Knoxville North Traffic Impact Study (2004)-To address the impact and access of a proposed shopping center at the Farmer's Market site located in the Knoxville Center area of Knoxville. This study addressed the potential impacts to Washington Pike as a result of the proposed commercial development.*
- ❖ *Food City/Loves Creek Development Traffic Impact Study (2005)-To evaluate the development of a 46,000 s.f. supermarket development off of Millertown Pike at its intersection with Loves Creek Road. This project is located one-half mile east of the I-640/Washington Pike interchange.*
- ❖ *Knoxville Center/Lowe's Home Center Access Evaluation (2001)- The evaluation of the 135,000 s.f Lowe's Home Center and 160,000 s.f . of outparcel retail located adjacent to Millertown Pike. The site proposed*

two driveways on South Mall Road and three on Millertown Pike. The study included the evaluation of the driveway operations, capacity and levels of service on Millertown Pike.

- ❖ *Tazewell Pike Advance Planning Report (2001)-The APR recommends widening Tazewell Pike to a multilane facility between Broadway (US 441) and Jacksboro Pike. Additional improvements were recommended at the intersection of Tazewell Pike at the Jacksboro Pike/Sanders Road intersection.*
- ❖ *Operational Improvement Recommendations Long Range Transportation Plan, I-640/Millertown Pike/Washington Pike Interchange Area to I-640/Broadway Interchange Area (2001)-This document contained results from the Advance Planning Reports conducted on Tazewell Pike from Broadway to Jacksboro Pike and the 2001 Washington Pike/ Millertown Pike APR. The study recommendations proposed short- and long-term improvements on several arterials for greater access and mobility to the Knoxville Center area. Some recommendations were based on potential development in the area which required more detailed studies.*
- ❖ *Farmers Market Property Reuse Study- A reevaluation of the 39 acres Farmers Market site located on Washington Pike at Greenway Drive.. Knox County initiated the study with interest to redevelop the property with a use that would provide a greater economic return and employment opportunities for Knox County.*
- ❖ *Coventry Creek Traffic Impact Study-A traffic impact study for a proposed mixed use development on Washington Pike in the vicinity of Knoxville Center. This development is approximately 34 acres and contains a neighborhood shopping center, banks, office space, restaurants and residential condominiums. The primary access point lies within the project limits of this TPR study. The proposed development will generate more traffic within the study area and will require additional intersection improvements on Washington Pike for site access.*

EXISTING TRANSPORTATION CONDITIONS

Typically in this portion of the city, the main traffic arteries with the exception of Broadway (US441, SR33) run east/west. Increased development within the environs of

the Knoxville Center area has fueled a steady increase in traffic volumes on Washington and Millertown Pikes.

Millertown Pike is classified as an urban minor arterial street. Millertown Pike extends northeast from Washington Pike beyond the study area into Northeast Knox County. In 2004, average daily traffic on Millertown Pike varied from approximately 6,500 vehicles per day (vpd) east of Spring Hill Road to approximately 20,000 vpd at the I-640 westbound exit ramp. In 2008, traffic volumes at those same locations had risen to approximately 8,000 vpd and 23,000 vpd respectively. Millertown Pike, northeast of the interchange is multi-lane through the Knoxville Center/ Wal-Mart access and averages 17,800 vpd before it transitions back to a two-lane facility of approximately 22 feet in width prior to crossing the Norfolk Southern Railroad. Continuing on Millertown Pike beyond the study area, ADT volumes averaged nearly 6,400 vpd east of the railroad bridge. Traffic signals exist at the intersections of Loves Creek Road, Knoxville Center/Wal-Mart and the I-640 ramps.

Washington Pike is also classified as an urban minor arterial street, extending northeast and southwest of the I-640 interchange. The facility provides a two-lane section south of I-640 and a multilane section north from the I-640 interchange to Greenway Drive. At Greenway Drive, Washington Pike turns to the right and continues as a two-lane facility. The ADT volumes on this section of Washington Pike range from nearly 12,000 vpd west of Mill Road to over 9,100 vpd east of Murphy Road. Traffic signals exist at its intersections with the I-640 interchange ramps, Greenway Drive, Mill Road and Murphy Road. Heading southwest, Washington Pike intersects Millertown Pike and continues as Washington Pike where it intersects Broadway (US 441, SR 33). This portion of Washington Pike heading into the City averages 9,800 vpd west of the Shelbourne Road intersection. Washington Pike, north and south of the I-640 interchange had average daily traffic volumes of 19,000 vpd and 10,200 vpd respectively.

Loves Creek Road is a two-lane collector street with an approximate ADT of 5,800 vpd. This road extends north and south between Rutledge Pike (US 11W/SR-1) and Millertown Pike.

Mill Road is a two-lane north-south facility with a stop-controlled intersection at Millertown Pike. To the north, the intersection of Mill Road at Washington Pike has been improved with additional left turn lanes and signalization. Average daily traffic on Mill Road between Millertown Pike and Washington Pike is estimated at 9,000 vpd.

Murphy Road is another two-lane facility that recently underwent intersection improvements to alleviate congestion at its intersection with Washington Pike. Improvements included the addition of left turn lanes from southbound Murphy Road to Washington Pike and an eastbound left turn lane from Washington Pike onto Murphy Road. Average daily traffic on Murphy Road between Washington Pike and Tazewell Pike averages 11,000 vpd.

Truck traffic in the project area is relatively normal at two percent with most being delivery trucks to the mall and the commercial and retail stores in the Knoxville Center area. Washington Pike and Millertown Pike are not state routes; therefore heavy truck traffic is minimal in the area.

Segments of Millertown Pike and Washington Pike bordering the City's sector may operate at a volume under capacity but still have problems with excessive speeds and poor sight distance. In some areas, significant development has led to increased traffic without the necessary infrastructure improvements and efforts are underway to provide more acceptable operations.

For this study, the *2005-2030 Travel Demand Model (TDM)* was obtained from the *Knoxville Regional Transportation Planning Organization (TPO)*. The model was developed in accordance with the *Year 2005-2030 Long Range Transportation Plan*, which is currently being updated. The model was utilized to predict how travel patterns will change in the future based on land use, population and other factors. Results of the traffic model, turning movement volumes and growth rates were reviewed and discussed with TDOT's Project Planning Division.

When comparing the 2030 TDM generated traffic volumes with the 2005 base year traffic volumes, it became apparent that a uniform annual growth rate of 3.5 percent was most appropriate. The previously mentioned 2001 study identified an annual growth rate

of 7 percent for the area, based on historical traffic counts and the trend of residential and commercial development in the area. Although, commercial and residential construction is assumed to continue in the area, it is expected to be at a slower rate than in the past several years.

Both Washington Pike and Millertown Pike provide regional access to Interstate 640. Interstate 640, a bypass of the downtown section of Interstate 40, connects to Interstate 40 east and west of the Knoxville CBD and also Interstate 75 to the west. The bypass first opened in anticipation of the traffic generated by the 1982 World's Fair. Today, the bypass continues to greatly relieve traffic congestion in downtown Knoxville. Interstate 640, east of Washington Pike has a 2007 ADT of 41,400. Interstate 40 is an east-west facility extending between Nashville, Tennessee and Asheville, North Carolina. The approximate 2007 ADT for I-40/75 west of I-640 is 166,206. To the east US11E, I-40 has a 2007 ADT of 98,600. Interstate 75 extends north towards Lexington, Kentucky and to the west; I-75 turns south towards Chattanooga, Tennessee.

Since the completion of the I-640 bypass and the construction of the Knoxville Center Mall in 1984, the City of Knoxville is continuing to experience an increase in office, retail/ commercial development along the Washington Pike and Millertown Pike corridors. Figure 4 is a map of the study area identifying many of the major traffic generators in the area.

TABLE 1-Major Traffic Generators in the Knoxville Center Area

- | | |
|--|-------------------------------|
| • Knoxville Center Mall and outparcels | • Kohl's Department Store |
| • Sam's Club | • Target |
| • Wal-Mart Supercenter | • New Harvest Center |
| • Lowe's Home Improvement Store | • O'Charleys |
| • Home Depot | • Cracker Barrel |
| • Carmike Cinemas | • Isaiah's Landing outparcels |
| • McDonald's | • Food City |
| • Office Depot | |

Source: Knoxville-Knox County Metropolitan Planning Commission

During the public involvement phases for the previous APR study, citizens addressed concerns and offered suggestions regarding the potential traffic impacts on Washington and Millertown Pikes due to the recent increase in retail and commercial development.

Traffic congestion and delays were experienced mostly at key intersections on both Washington and Millertown Pikes. Previous traffic studies recommended a series of short- and long- term improvements to improve traffic circulation between the mall area and the other nearby shopping centers.

MAJOR TRAFFIC GENERATORS IN THE KNOXVILLE CENTER AREA



Figure 4

Both the City and County have invested in several capital projects for some short-term relief and/or spot improvements, widening, realignments, and expanded lanes to improve safety and capacity within the Knoxville Center environs. Numerous transportation planning studies have been conducted that address isolated intersection improvements. Some of these localized improvements have been undertaken over the past several years in response to the City's and County's economic activity near the project area. These improvements include:

- ❖ Washington Pike at Greenway Dr- This project included intersection improvements and traffic signal modifications
- ❖ Millertown Pike at Loves Creek Road- This project included intersection improvements with traffic signal modifications.
- ❖ Washington Pike at Mill Road-. The project included widening of Washington Pike from a 2-lane roadway to a 3-lane facility providing separate left-turn lanes on Washington Pike and Mill Road. The project also includes realignment of the Mill Road intersection and Babelay Drive intersection for better sight distance. The limits of the project extend from 500' south of the Mill Road intersection to north of the intersection of Aylesbury Road. The total length of the project was approximately 0.36 miles (1,900 L.F.)
- ❖ Millertown Pike at Knoxville Center/Kinzel Way- This project included an update of the traffic signal timing and lane modifications.
- ❖ Washington Pike at Murphy Road-Knox County reconstructed Murphy Road and its intersection with Washington Pike as part of its Capital Improvement Project in 1999. Prior to construction the intersection was a two-way stop controlled intersection with no turn lanes. Improvements included the addition of an eastbound left turn lane on Washington Pike and separate left and right turn lanes on Murphy Road onto Washington Pike and signalization.

These short-term improvements help to recognize the priority role Washington Pike and Millertown Pike play as major east-west corridors. More substantial improvement to provide capacity for through travel should be undertaken through a coordinated strategy of major roadway widening and improvement with additional operational improvements where warranted in the mean time.

ALTERNATIVE MODE CONSIDERATIONS

The City of Knoxville and Knox County are partnered in efforts to provide citizens a cohesive and connected system of parks, greenways and sidewalks throughout Knox County. The City of Knoxville currently has 17 segments totaling over 30 miles of greenway. Knox County has eight segments totaling 15 miles of greenway. Through various public meetings, citizens' interest in the creation and maintenance of greenways continues to be significant. Many greenway users have indicated a greater desire to utilize greenways to get from one place to another both for recreation and transportation purposes.

Within the project area, the City of Knoxville proposes to construct an East Knoxville Greenway Trail System. A portion of the trail running along Loves Creek was constructed as part of the Wal-Mart expansion project in 2005. The City plans to develop this portion of the greenway running from the Holston River northwest to Asheville Highway and Interstate 40. There are opportunities to connect Loves Creek and the Knoxville Center area north to New Harvest Park and its retail center. The Northeast County Sector Plan proposes preserving the floodplain protection area around Loves Creek headwaters to limit future flooding in the area. The plan recommends the acquisition of low-lying areas by the county to be utilized for recreational purposes. Acquiring easements for greenway connections and future community amenities should be done in coordination with right-of-way purchases for the road improvements. Connecting these segments of greenway requires commitment by both City and County and the affected communities. Further recommendations can be reviewed in the *Draft Knoxville, Knox County, Comprehensive Park, Recreation and Greenways Plan, January 2008*, which was prepared by the Metropolitan Planning Commission.

There are few alternative modes of transportation available in the study area. Bicycle and pedestrian facilities are very limited in the area but more are being planned as outlined in the City's sector plan. Sidewalks installed as part of the interstate project are located adjacent to both Washington Pike and Millertown Pike interchange ramps with I-640. Certain areas of the City's east sector are dense enough to support public transit. Additionally, Knoxville Area Transit (KAT) has a bus transfer point located at the main entrance to the Knoxville Center Mall. A rail line operated by Norfolk Southern Railway roughly parallels Loves Creek Road and portions of Washington Pike in the study area.

This rail line provides freight services but no passenger service. An illustration of the locations of bicycle, rail, sidewalks, and bus facilities within the city's east sector is contained in Figure 5 of this report. The highlighted circle indicates the transportation facilities located within the study area.

In addition to these alternative transportation modes in the study area, McGhee Tyson Airport is the premier air facility in East Tennessee. Daily, the airport handles commercial airline, air cargo, military aviation and general aviation air traffic. Located 12 miles south of downtown Knoxville, the airport occupies more than 2,000 acres of land with space for additional air cargo facilities or economic development. McGhee Tyson Airport provides non-stop service to 15 major airline hub cities.

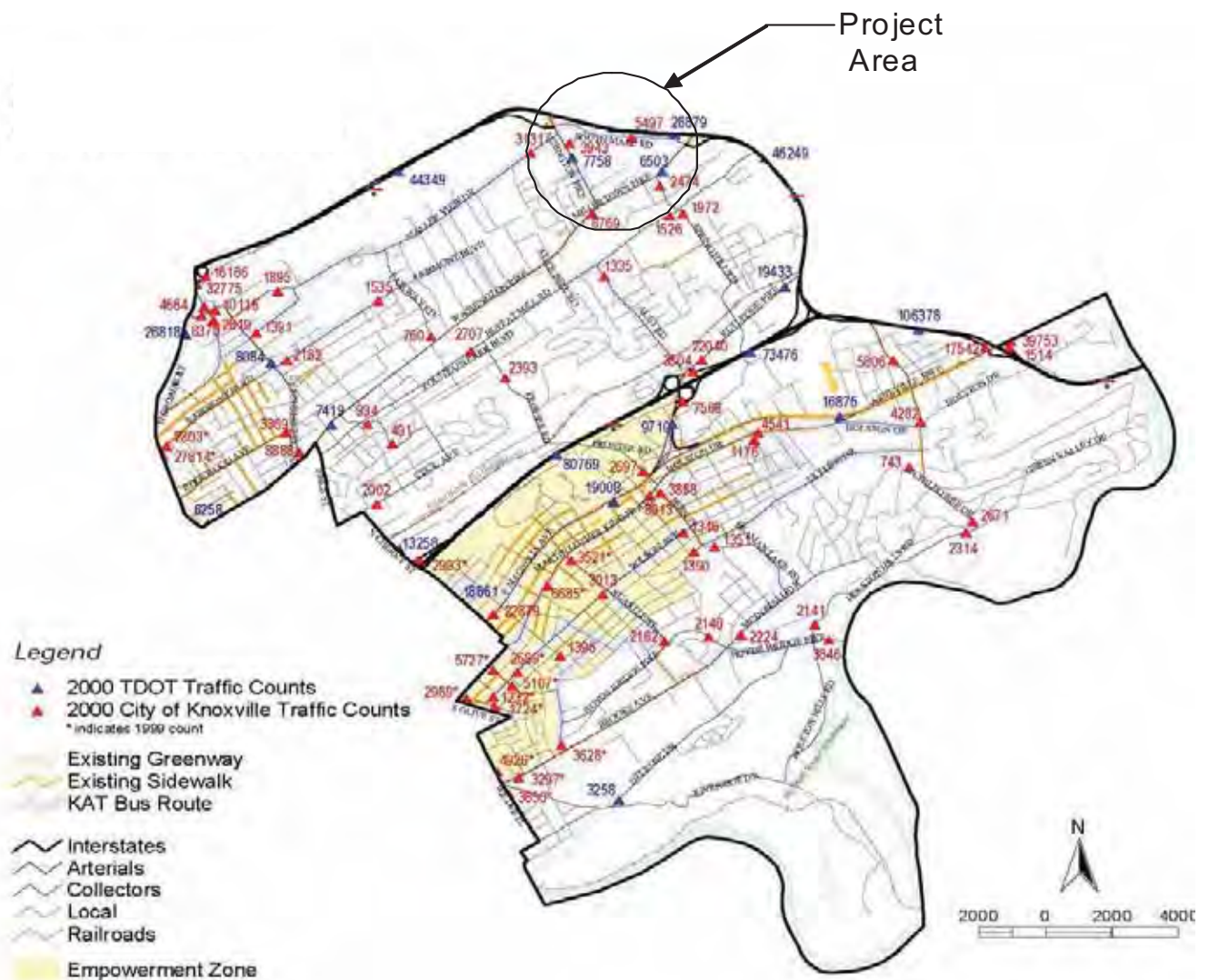
SAFETY

Traffic crash information for Washington Pike and Millertown Pike was obtained from TDOT's Safety Planning Division for the years 2004 through 2006 to study the number and types of crashes in the area. Over the three-year period, 236 total crashes were recorded on Millertown Pike between Spring Hill Road (Log Mile 4.71) and Mill Road (Log Mile 5.57). A majority of these crashes were at the eastbound and westbound interchange ramps to I-640. Sixty-six of these crashes occurred at the ramp to I-640 eastbound and forty-eight crashes were recorded at the I-640 westbound ramp. Nearly fifty percent of the accidents at both intersections were reported as angled or "t-bone" type crashes. Rear-end collisions were recorded as well at both intersections, this type of crash is typical of signalized intersections. Forty-eight accidents were recorded at the Knoxville Center Mall/Kinzel Way and Millertown Pike intersection. Twenty-two of these crashes were angled accidents occurring at the signalized intersection; whereas 15 crashes were reported as rear-end collisions.

The segment of Washington Pike north from the I-640 interchange to the Murphy Road intersection had reported 188 total crashes from 2004-2006. On average, one out of every four crashes (47 out of 188) involved an injury. One fatality was recorded at the intersection of Mill Road at Washington Pike in 2004. The intersection underwent improvements in 2005 to include traffic signalization and exclusive left turn lanes on Mill Road and westbound Washington Pike. Approximately 46 percent of the crashes

EAST CITY SECTOR PLAN

Transportation System



Source: Knoxville-Knox County Metropolitan Planning Organization, January 2002

Figure 5

(87 out of 188) that occurred on this portion of Washington Pike were rear-end collisions with approximately one-third (66 out of 188) of the crashes involving angled collisions at intersections.

The segment of Washington Pike south of the I-640 interchange to the Millertown Pike intersection recorded a total of 24 crashes. A majority of traffic accidents (54 percent) along this route were the result of angled accidents at Valley View Drive and Centerline Drive. Proposed improvements to relocate Valley View Drive several hundred feet south to a point opposite Centerline Drive may improve the traffic operation at the nearby Washington Pike interchange.

CAPACITY AND LEVEL OF SERVICE

A “Level of Service” (LOS) index was used to gauge the operational performance at each intersection/roadway segment. The LOS is a qualitative measure that describes traffic conditions related to speed and travel times, freedom to maneuver, traffic interruptions, etc. There are six levels ranging from “A” to “F” with “F” being the worst. Each level represents a range of operating conditions. Table 2 shows the traffic flow conditions and approximate driver comfort level at each level of service.

In order to evaluate traffic conditions, capacity and level of service (LOS) were calculated using the **2000 Highway Capacity Manual, Special Report 209** published by the Transportation Research Board (TRB). Signalized and unsignalized intersections are evaluated based on estimated delays, which are related to level of service.

The LOS analysis completed for this route utilized the projected base year (2013) design hour volumes (DHV) and design year (2033) DHV with existing geometry (the No-Build Option) as well as with the proposed build optional improvements for the four sections. The results are compared on the Project Data Table and discussed later in this report. Eighteen existing study intersections were identified including:

Washington Pike at Murphy Road

Washington Pike at McCampbell Drive

Washington Pike at Edmondson Lane

Washington Pike at Babelay Road

Washington Pike at Mill Road

Washington Pike at Greenway Drive

Table 2
LOS Criteria

LOS	Traffic Flow Conditions
A	Free flow operations. Vehicles are almost completely unimpeded in their ability to maneuver with the traffic stream. The general level of physical and psychological comfort provided to the driver is high.
B	Reasonable free flow operations. The ability to maneuver within the traffic stream is only slightly restricted and the general level of physical and psychological comfort provided to the driver is still high.
C	Flow with speeds at or near free flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted and lane changes require more vigilance on the part of the driver. The driver notices an increase in tension.
D	Speeds decline with increasing traffic. Freedom to maneuver within the traffic stream is more noticeably limited. The driver experiences reduced physical and psychological comfort levels.
E	At lower boundary, the facility is at capacity. Operations are volatile because there are virtually no gaps in the traffic stream. There is little room to maneuver. The driver experiences poor levels of physical and psychological comfort.
F	Breakdowns in traffic flow. The number of vehicles entering the highway section exceed the capacity or ability of the highway to accommodate that number of vehicles. There is little room to maneuver. The driver experiences poor levels of physical and psychological comfort.

Source: 2000 Highway Capacity Manual, Special Report 209 , Transportation Research Board (TRB)

Washington Pike at North Mall Road
Washington Pike at I-640, Exit 8 interchange
Washington Pike at Valley View Drive
Washington Pike at Centerline Drive
Washington Pike at Pinehurst Drive
Washington Pike at Millertown Pike
Millertown Pike at Springhill Road
Millertown Pike at South Mall Road
Millertown Pike at I-640 interchange
Millertown Pike at Knoxville Center/Kinzel Way
Millertown Pike at Loves Creek Road
Millertown Pike at Mill Road

An illustration of the principal intersections and its existing geometry is shown in Figure A1 of the Appendix. The existing averaged daily traffic volumes within the study area are

shown as Figure A2 in the Appendix. Anticipated ADT volumes for the base year (2013) and design year (2033) are shown in the Appendix on Figures A3 and A4 respectively. Traffic counts, which were conducted for an eight-hour period thereby providing morning and afternoon peak-hour traffic volumes, are illustrated in Figures A5 and A6. Capacity and level of service analysis were conducted for the principal intersections and the results illustrated in Figure A7 and A8 for existing AM and PM traffic conditions. Based on the 2008 traffic counts conducted, design hour volumes (DHV) and levels of service analysis were developed for the base year (2013) and are illustrated in Figures A9 through A12. Design Year 2033 traffic volumes and levels of service analysis are shown in Figures A13 through A16. Figure A15 and A16 reveal the continued failure in levels of service if no improvements are implemented.

Existing traffic characteristics revealed that the section of Millertown Pike from the interstate to the Norfolk Southern Railroad Bridge operates at a marginally acceptable to poor level of service during both AM and PM peak hour periods. The worst congestion and delays occur during the PM period at the Interstate 640, westbound exit ramp and at the Loves Creek Road intersection, both of which are signalized. The right-turn movement from the I-640 westbound off-ramp at Millertown Pike which has a v/c ratio of 0.64 and a LOS F during the PM peak hour, meters the traffic demand to the extent that the other intersections are demonstrating demands that are less than or equal the capacity of the off-ramp's right-turn movement thereby resulting in better LOS. The northbound movement on Millertown Pike through Loves Creek Road experiences a v/c ratio in excess of 0.90 suggesting great sensitivity to variations in traffic conditions. Volume to capacity ratios in excess of 0.90 indicate saturated conditions and vehicle delays will increase rapidly with small increases in traffic. Long queues will often be reflected with saturated conditions and may spill over to adjacent lanes depending on the available storage. These capacity ratios and resulting adverse traffic queues suggest the need for intersection and other geometric improvements for Millertown Pike.

Moreover, poor traffic conditions occur on weekends and holidays along this segment of Millertown Pike. Although examination of the intersection V/C ratio and LOS for Millertown Pike suggest that a signal timing deficiency exists for the interstate ramp, the traffic demand on the ramp exceeds the approach capacity. Thus resulting in excessive ramp queuing.

The unsignalized intersection of Millertown Pike at Mill Road experiences some delay during both morning and afternoon periods for motorists turning from Mill Road onto Millertown Pike. Southbound on Washington Pike from the interstate to Millertown Pike, motorists experience acceptable traffic conditions during both AM and PM peak periods.

The existing traffic conditions on Washington Pike reflect very directional traffic flows, operating at capacity for critical movements, during the morning peak hour. Both Greenway and Murphy Road intersections with Washington Pike are experiencing LOS E conditions and v/c ratios of 0.98 and 1.08, respectively. For the southbound right-turn movement from Murphy Road to Washington Pike has a v/c ratio of 1.05 and a LOS E, and the left-turn movement from Washington Pike at Greenway to the I-640 interchange is experiencing a capacity ratio (v/c) of 1.04. Both these movements during the AM peak hour result in long traffic queues which may spill over into the adjacent traffic lanes resulting in more congestion and increased delays.

For the PM peak hour, the intersection of Washington Pike and Mill Road approaches capacity with the northbound approach having a capacity ratio of 1.09 resulting in a LOS F and extensive queues. The capacity for the right-turn movement from Mill Road is also approached with a v/c ratio of 0.88. Capacity ratios in excess of 0.90 suggest unstable traffic conditions. These intersection capacity and levels of service indicate the need for a 4-lane facility for Washington Pike, between the I-640 interchange and Murphy Road.

PROPOSED IMPROVEMENTS

Proposed improvements for the Knoxville Center area include the widening of both Washington and Millertown Pikes and the future prospect of extending Murphy Road on new location from Washington Pike to a new intersection with Millertown Pike (not directly included in this proposed project). To prepare for the growth anticipated in some areas of the sector, improvements to Tazewell Pike are also being considered. However, improvements to the part of Tazewell Pike located within the Northeast County Sector are not currently scheduled.

Some recommended improvements require minimal and/or spot improvements, widening, realignments, widened shoulders, and expanded lanes. Spot improvements address problems at specific locations such as intersections, short lengths of roadways,

or access points and could improve safety and capacity. A better-connected network of streets will help relieve traffic growth along heavily used Washington and Millertown Pikes and reduce congestion at major choke points and intersections. Such improvements will also provide more safety to the overall transportation network, allowing people to access nearby destinations on smaller-scaled, walkable, bikeable, and transit-friendly roadways.

In order to provide residents and businesses safe, efficient, and truly usable transportation choices, the MPO plans include considerable funding options to provide for bike, pedestrian, transit and traffic calming projects. The overarching goal is to create a balanced, multi-modal transportation network, by 1) Improving regional connections; 2) Improving mobility for residents of adjacent neighborhoods; and 3) Making transportation choices which help foster livable communities.

There are two optional improvements proposed for this project. This includes a No-Build Option, which as the name implies, would retain the existing facilities with no improvements on Washington Pike and/or Millertown Pike and no plan for the new Murphy Road extension.

The No-Build Option as the name implies, denotes that only minor improvements (such as safety improvements and normal maintenance) would be made to the existing road and/or intersection areas. The No-Build does not meet the purpose and need of the study, and it will not provide the needed capacity to handle future traffic demands or the needed connectivity to Washington Pike, Millertown Pike and the Knoxville Center area.

The Build Option was developed with careful consideration of the study area keeping in mind the City's objective to provide an efficient transportation link from the city's eastern edge to Interstate 640 and the Knoxville Center area. Listed below are brief descriptions of the Build Option which are divided into four sections for the Washington Pike and Millertown Pike corridor alignments.

Section One- Millertown Pike from Interstate 640 to the Norfolk Southern Railroad Bridge is proposed as a 6-lane facility consisting of shoulders/bike lanes, curb and gutters and sidewalks. However for Section One, if shoulders are preferred, available

shoulder width could be utilized for pedestrians and bicycle mobility. The project will begin just north of Mall Road and extend past the Knoxville Center to the existing three-lane bridge at Mill Road. The project length of this section is approximately 0.56 miles (2,950 feet). Due to the complexity of traffic patterns at this location, multiple design options may be considered. A 300 foot corridor width is used for the proposed design of this section.

Section Two-Washington Pike, north from Interstate 640 to Murphy Road is proposed as four-lane facility with a raised median. This section consists of four traffic lanes (two in each direction), curb and gutter, sidewalks, and bike lanes. The typical section design for this section is guided by the City's request for first flush capability as guided by the City's storm water quality ordinance. As an option, this design may eliminate or reduce some curb and gutter sections with construction of grass swales. The project length of Section Two is approximately 1.73 miles (9130 feet). A 200 foot corridor width is suggested for the proposed roadway design for this section. A consistent multi-lane section is recommended in order to provide adequate future capacity.

Section Three - Washington Pike, south from Interstate 640 to Millertown Pike. This section proposes a three-lane facility with curb and gutter, sidewalks and bikeways on both sides. Proposed design options include a roundabout alternate and a T-intersection alternate for the intersection of Washington Pike and Millertown Pike. The project length is 0.91 miles (4800 feet). A 300 foot corridor width was used during the development of the typical section. The plan assumes completion of the pending realignment of Valley View Drive with Centerline Drive (construction scheduled for Spring 2009).

Section Four- Millertown Pike from Washington Pike to Interstate 640. A two-lane urban section with, curb and gutter, sidewalks, and bike lanes is recommended. This proposal presents a better two lane facility to safely accommodate the anticipated traffic volumes yet increase mobility for residents in the nearby neighborhoods along this route. The project length for this section is approximately 0.83 miles (4380 feet). A 300 foot wide corridor was utilized during the design of the typical section. As previously mentioned, multiple design options (roundabout or standard) will be considered for the existing three-legged Millertown/Washington intersection. Future improvements would encounter

several parcels of the adjacent Vaughn Dyer subdivision along the north side of the Millertown Pike/Washington Pike intersection. The acquisition of at least two properties are likely to construct the detention basins and for culvert relocations. The construction of a box culvert under Millertown Pike may require partial acquisition.

As previously noted, I-640 and its interchanges with Washington Pike and Millertown Pike are excluded from this project.

Potentially, the Build Option incorporates eleven-foot travel lanes in tight spots for each section. The proposed centerlines for each section will tie back to existing centerlines at the section termini; however there may be some shifting of the proposed centerline within each section to attain its recommended typical section width. The City requests that accommodations for bicyclists and pedestrians be provided on all four sections of this project, if possible.

Because development activities including roadways may contribute discharge to stormwater channels, the City has established ordinances and standards to protect water resources as outlined in its Best Management Practices (BMP) Manual during the design and implementation of new facilities. The City's Land Development Manual (LDM) is another useful resource which focuses on providing good stormwater and street design to satisfy City requirements. Stormwater design is essential in reducing and controlling erosion, nonpoint source pollution, flooding and other drainage problems. Detention basins and areas for natural filtration are present in the project area. Therefore, additional stormwater quality designs should be considered in the typical section designs. Moreover, the City has indicated a design option which shows a five foot berm placed between the sidewalks and curb and gutter sections for drainage purposes. The preferred typical section design for all sections must be supported by the City's Stormwater Engineering Division which has the primary responsibility for preventing pollution in natural creeks and streams in Knoxville and the adjacent portions of the Tennessee River.

Projected Levels of Service

The proposed road widening improvements should mitigate most of the poor service levels anticipated in Year 2033. However, unmitigated poor service levels along

Washington Pike could be mitigated by extending Murphy Road. The two most noteworthy poor service levels that could be improved upon are Washington Pike at Mill Road and Washington Pike at Murphy Road. Figures A13-A16 depicts the traffic volumes and levels of service analysis for Year 2033. Even with improvements, some of the side street movements at unsignalized intersections are expected to operate at LOS F. By 2033, some of these intersections may warrant a traffic signal. By Spring 2009, the City will be improving the traffic operations at the Valley View intersection with Washington Pike. Valley View Drive will be realigned with Centerline Drive to create a new four-legged intersection. Part of these improvements includes installing a traffic signal at this new intersection.

At the intersections of Washington Pike at McCampbell Drive /Edmonson Lane, a proposed mixed use development is being constructed that should necessitate the need for traffic signals. Without this development, traffic signals cannot be justified at these locations. Finally, the intersection of Millertown Pike and Mill Road should meet the criteria for signalization in 2033.

Spot Improvements

Additionally, the City has suggested funding small-scale projects which would improve the traffic operations and travel environment by way of “spot improvements”. The City is placing emphasis on performing two short-term improvements particularly on Section 4, Millertown Pike, at the Washington Pike/Millertown Pike intersection and a bridge replacement project east of Springhill Road. These short-term improvements will help to bridge physical and functional gaps in the area’s transportation system to maximize the effectiveness of existing transportation investments.

Although the City has indicated that Sections 3 and 4 are a lesser priority, these isolated improvements recommended at this time offer safer travel conditions, particularly at these locations, which would otherwise be delayed until the whole section is built. The City is requesting funding for its FY 2009-2010 Capital Improvement Program for these spot improvements. A brief description of the spot improvements is located in the Appendix.

Pedestrians and Bicycles

The proposed cross-section for both Millertown and Washington Pikes will have accommodations for pedestrians and bicycles. The minimum paved shoulder recommended for bike lanes is 4-feet wide. This, in conjunction with the recommended eleven-foot wide travel lanes (in tight spots), is adequate for pedestrian and bicycle use. The City recommends a five- foot sidewalk for pedestrian connectivity that is accessible and convenient to nearby neighborhoods. These areas include major and minor arterials, major and minor collectors, and any connections critical to the pedestrian network (e.g. greenways, pedestrian generators). The City of Knoxville has long understood the need to develop alternate transportation modes and is continually adding new sidewalks, greenways and bike lanes as an ongoing mission to improve pedestrian and bike safety. The *Knoxville TPO Regional Bicycle Plan* encourages that appropriate bicycle and pedestrian facilities be implemented as a part of city and county capital improvement (new and reconstruction) projects in order to address the present and future needs of bicyclists and pedestrians. The opportunity to provide better pedestrian and bicycle facilities would:

- Significantly improve the access, safety and quality of experience for cyclists and pedestrians as well as persons with disabilities in the Knoxville Center project area
- Create a connected, convenient and accessible facility that would be compatible with transit alternatives and which makes bicycling and walking viable transportation and recreation choices
- Enhance the value of the existing transportation system by successfully integrating bicycle/pedestrian facilities into the street system
- Be compatible with and serve the needs of the surrounding neighborhoods

An investment in transit provides the opportunity to reduce congestion, improve air quality and offer an alternate choice of travel. Although less than one percent of residents in the project area do not drive, the existing transit routes in the area can continue to improve mobility and provide feasible travel options to major generators like the mall, Target and other shopping destinations. The Knoxville Regional Transportation Plan provides substantial opportunities in both operational support and capital improvements for transit. Travel Demand Management (TDM) strategies like Ride Share, Guaranteed Ride Home, Park and Ride lots and other commuter information

provide viable transportation choices as outlined in the *KAT Action Plan 2010*. As a major destination attraction, Knoxville Center Mall is a designated transfer point for riders and could be considered as a location for park and ride opportunities if the need arises for users. Factors such as commuting patterns and regional destinations for shopping point to the need for a coordinated, multi-modal regional transportation plan.

OPTIONS CONSIDERED

Table 3 below describes the pros and cons of the Build Option. The No Build Option provides no improvements and serves as a baseline option against which the Build Option is compared.

Table 3: Comparison of No-Build and Build Option

PRO	NO-BUILD	BUILD OPTIONS
Meets purpose and need		X
Concurrence of the community		X
Less disruption of existing land use	X	
Direct Route		X
CON	NO-BUILD	BUILD OPTIONS
Right-of -Way Acquisition		X
Utility Relocation		X
Residential or Business Displacements		X

The Build Option may require some residential and/or business displacements while the No Build Option will not. Also, the Build Option will result in right-of-way acquisition and utility relocations in residential and business areas along both Washington Pike and Millertown Pike. The necessary right-of-way to build the project will vary depending on the typical roadway section, terrain, proposed land uses, and environmental considerations.

The Build Option would have some primary adverse effects including: 1) Loss of land and property due to right-of-way acquisition; 2) temporary construction impacts (siltation, dust, equipment, noise, etc.) during the construction period; and 3) impacts to the environment to be assessed in detail during the environmental phase of the project.

The advantages of the No Build Option includes less disruption of the existing land use patterns within the project area and no disruption in the area due to construction. Also mitigation measures to reduce environmental impacts within the project area would not be needed. However, the No Build Option would deliver increasingly inadequate operational conditions and safety concerns as a result of deficient roadway geometrics and increased traffic volumes. Furthermore, the No Build Option fails to address the long-term need to improve connectivity between the study area and Interstate 640.

The baseline traffic condition (2013) is projected five years from the existing traffic count year, 2008. The future traffic condition (2033) is projected twenty years from the baseline year. The 2013 Average Daily Traffic (ADT) volumes along Washington Pike from Millertown Pike to Greenway Drive are anticipated to range from approximately 12,000 to 22,000 vpd. On Millertown Pike from Spring Hill Road to Loves Creek Road the traffic ranges from approximately 9,500 to 21,000 vpd. Along Washington Pike towards Mill Road, nearly 14,300 vehicles are expected to travel in this area. By 2033, these ADT projections will increase to approximately 20,300 to 35,200 vpd on Washington Pike from Millertown Pike to Greenway Drive, from 15,000 to 33,300 vpd on Millertown Pike from Spring Hill Road to Loves Creek, and approximately 33,000 vpd on Washington Pike near Mill Road.

Today, it is common to observe that most unsignalized intersections have movements operating at LOS E or F and the signalized intersections have an overall operation of LOS E or F. The LOS for the No Build Option in both the base year and design year was calculated as an "F" at most intersections. Also, the disadvantages of the No Build Option include inadequate operating conditions and safety concerns inherent with increased traffic volumes, inadequate roadway geometrics and poor horizontal and vertical alignments.

Figure A17 shows that added lanes are necessary to provide capacity for the intersections to operate at an acceptable LOS based on future traffic volumes. Several intersections may experience unacceptable levels of service even with proposed improvements. Thus, the Murphy Road extension should be pursued to better mitigate the area's traffic congestion. Figure A18 and A19 depict the resulting LOS's if the recommendations shown in Figure A17 are implemented. Traffic reassignments and final volumes for 2033 are shown in Figures A20 through A23 if Murphy Road is extended. This new road would mitigate the remaining poor LOS's that are unmitigated with just the widening of Washington and Millertown Pikes.

PREFERRED OPTION

The most significant recommendations include the widening of the existing two-lane portions of Washington Pike to multi-lane facilities as outlined in the Build Option. Recommendations on Millertown Pike include a multi-lane facility from the I-640 interchange to the Norfolk Southern Railroad Bridge. Short-term or immediate improvements are recommended for the "triangular" portion of Millertown Pike to a roundabout alternate and a T-intersection alternate for the intersection of Washington Pike and Millertown Pike.

PRELIMINARY COST ESTIMATE

The preliminary cost estimates for the four sections of the Build Option are based on information available at the planning level. The cost estimates are summarized in the Summary Data Tables and Cost Data Sheet and provided in detailed in the Appendix.

DISPOSITION OF EXISTING ROUTE

The proposed improvements for both Washington Pike and Millertown Pike will be under the jurisdiction of the local governing agency for future maintenance responsibility. No portion of Washington Pike or Millertown Pike is proposed to be closed or abandoned as a result of this proposed construction.

ASSESSMENT OF OPTIONS WITH TDOT's SEVEN GUIDING PRINCIPLES

The Tennessee Department of Transportation has adopted seven guiding principles against which all transportation projects are to be evaluated. These guiding principles address concerns for system management, mobility, economic growth, safety,

community, environmental stewardship, and fiscal responsibility. These guiding principles are discussed in the following paragraphs as they relate to the Build Option discussed in this report.

Guiding Principle 1: Preserve and Manage the Existing Transportation System

Substantial residential, retail and commercial development has been ongoing within the Knoxville Center area for several years. Development opportunity has expanded in the east and northeast portions of Knox County, which border the project area. Trips generated from these new developments have caused the need for transportation improvements in the City's east sector, particularly on Washington Pike and Millertown Pike. These roads experience failing conditions today, and by 2033 without improvements, traffic conditions on these corridors are expected to deteriorate very substantially. Preserving the existing transportation network and replacing failed systems are tasks critical to the promotion and effective management to provide better regional mobility. The City's mission is to establish priorities on projects that maintain, repair and modernize existing infrastructure and to support projects and programs that improve the operation of the existing transportation system through transportation systems management.

Guiding Principle 2: Move a Growing, Diverse, and Active Population

The Build Option discussed in this report will provide the capacity needed to address the future travel demands anticipated on Washington and Millertown Pikes. Current traffic operations are poor at key intersections particularly during the afternoon when motorists are returning home from work and on Saturdays during peak shopping visits to the mall. New subdivision developments in the area have the potential to place more traffic on both Washington Pike and Millertown Pike provided they serve as the main arterials for local and regional access into the city. Emphasis to increase capacity and improve traffic operations along both corridors are necessary to accommodate the travel demands anticipated by residential growth in the area.

Guiding Principle 3: Support the State's Economy

Recent new developments around the Knoxville Center Mall area have stimulated an increase in economic growth leading to demands on the area's transportation system. Roadway widening improvements for Washington Pike and Millertown Pike will be

needed to allow for better east-west traffic operations and mobility. Additionally, improvements could offer more opportunity for economic investments in the project area.

Guiding Principle 4: Maximize Safety and Security

The safety of the Washington Pike and Millertown Pike corridors will be greatly improved by constructing facilities with adequate and consistent roadway widths and design standards. Proposed improvements will provide increased safety for vehicles and pedestrians and better transportation linkages in the northeast quadrant of the City.

Guiding Principle 5: Build Partnerships for Livable Communities

The previous APR document reported various workshops and public meetings to address citizens concerns with the project. Public meetings and coordination with City of Knoxville, TDOT staff, the general public and other governing agencies will continue throughout the development of this Transportation Planning Report (TPR). Several of these meetings were mentioned in the Existing Transportation Conditions section of this report. The public involvement process will continue as mandated by the provisions of the National Environmental Policy Act (NEPA).

Guiding Principle 6: Promote Stewardship of the Environment

A preliminary field review of the study area identified areas that may be environmentally sensitive. These areas include cemeteries, churches, public parks as well as floodplains, streams and creeks where permits may be required. These areas are noted on the functional plans. The study area contains several creeks and blue line streams. Depending on the design of the Build Option, several stream crossings may be considered. The exact number of stream crossings is not known with certainty due to the preliminary nature of the alignment corridor. A more comprehensive environmental evaluation to determine any potential impacts (natural and man-made) will be completed at a later date to comply with the National Environmental Policy Act (NEPA). The NEPA document will include an assessment of additional environmental disciplines including social, economic, farmland, displacements, and land use impacts.

As noted, this proposed project may require a few resident or business displacements. All displacements will be noted for each section of roadway as the typical section is determined during the environmental/preliminary engineering (PE) stage.

Guiding Principle 7: Emphasize Financial Responsibility

This principle addresses the financial responsibility, efficiency, and accountability of the project especially when involving both City and State functions involving funding programs, project development, project priorities and project implementation. Preliminary construction cost estimates were prepared for the four sections of the Build Option. These estimates should be considered as opinions of probable costs based on planning level information which will be refined over time based on more detailed information, inflation and other future circumstances. The goal is to follow a comprehensive transportation planning process, promote coordination among public and private stakeholders of transportation systems, and support efforts to provide stable funding for the public component of the transportation system. This requires exercising financial responsibility in the development and implementation of roadway projects and minimizing costs to taxpayers.

EARLY ENVIRONMENTAL SCREENING

The previously approved APR document contained Phase I investigations to identify any potential archaeological, architectural, and ecological resources within the project right-of-way. Each of the supplementary environmental documents were reviewed by TDOT's Environmental Planning Division and approved as part of the earlier APR process. Based on information submitted to TDOT, no defined archaeological sites or cultural resources of interest were found during the assessment. This is most likely due to ongoing residential, commercial and retail development within the project area, which would have removed any and all traces of previous settlement and use.

Presently, for Transportation Planning Reports (TPR) documentation, the Tennessee Department of Transportation (TDOT) has introduced an environmental screening process for the project study area. By screening the latest available Geographic Information Systems (GIS) environmental data during the early stages of project planning TDOT and the public will be better prepared to anticipate potential environmental issues and mitigation requirements. This screening process involves using GIS to assess environmental data as it spatially relates to the project's Area of Potential Effect (APE). In broad terms, the GIS environmental data reviewed in this TPR include the following layers:

1,000 ft EES Corridor

- Community Impact-

Cemetery Sites- A 2000 Phase 1 Archaeological Survey performed shovel testing on the property of the Oak Grove Church and Oak Grove Community Center. Results from the tests indicated no recovery of cultural materials. No other sites were defined within the project area. Results of the survey suggest that the proposed improvements and new construction will have no impact on significant archaeological resources.

Institutions(Church)- Fullwood Church, North Acres Church and Oak Grove Church are within the project vicinity. A 2000 Phase 1 Archaeological Survey performed shovel testing on the property of the Oak Grove Church and Oak Grove Community Center. Results from the tests indicated no recovery of cultural materials. No other sites were defined within the project area. Results of the survey suggest that the proposed improvements and new construction will have no impact on significant archaeological resources.

Sensitive Community Populations-There are several residential neighborhoods located within the project study area and corridor. Severe impact to sensitive community populations cannot be avoided. Preliminary maps reveal that the study area contains a minority population of 24 percent. The maps also revealed that 13.5 percent of area residents live below the state poverty level.

- Ecology- Rare and Protected Species-Bats

No project impact is anticipated.

- Railroads and Public Lands

Railroad- A rail line operated by Norfolk Southern Railway roughly parallels Loves Creek Road and portions of Washington Pike in the study area. This rail line provides freight services but no passenger service. Great impact on the project is anticipated as the railroad lies within the project study area or corridor. The railroad bridge on Millertown Pike, east of Loves Creek Road serves as the project terminus (and the City boundary) for Section One. Minimal impact in the vicinity of the railroad bridge is anticipated due to the Section One terminus location.

Park- New Harvest Park is a public park, owned by Knox County, located adjacent to the proposed project study area. There is a possibility that the park entrance would be disturbed during the widening on Washington Pike, however no impact to the

park, itself is anticipated. Additionally, there are no wildlife management areas observed within or adjacent to the proposed project corridor.

2,000 ft EES Corridor

National Register Sites- None located within the project study area or corridor. At the time of the investigation, there were no concentrations of pre-1958 properties meeting the National Register district criteria identified as being potentially eligible for the National Register of Historic Places (NRHP) along Washington and Millertown Pikes. If properties are identified later as being eligible for the National Register, they may also need to be avoided to prevent adverse effects or potential 4(f) impacts.

- Hazardous Substances and Geology

Superfund Sites-No project impact is anticipated as there are no known contaminated land tracts abutting or within the project study area or corridor.

Pyritic Rock/ Geotechnical-Limestone (symbolized as dark green) and dolomite (symbolized as light green) are present within the project study area or corridor.

- Public Lands-No TWRA Lakes or other Public Lands are present within project study area or corridor.

4,000 ft EES Corridor

- Rare and Protected Species

Minimal impact on the project is predicted as there are two known rare or state protected terrestrial species (*Lillium canadense* and *Pituophis melanoleucus melanoleucus*) located within the property study area or corridor. A survey for the species may be required.

- TDEC Conservation Sites and TDEC Scenic Waterways- None located within the project study area or corridor

- Large Wetland Impacts-Eleven Large Wetland areas are listed within the project study area. A substantial impact to the project is probable as there is greater than two acres of wetlands within the project study area or corridor. Compensatory mitigation will be required. Design effort will be needed to avoid and minimize impacts to wetlands to the maximum extent practicable. If a floodplain is crossed by the project, floodplain culverts may be necessary.

- Stream Impacts- There is potential for six streams to be affected by the proposed project. Loves Creek and four unnamed tributaries are located within the proposed

project corridor. Murphy Creek lies outside the project limits, but may be impacted by sediment and run-off from construction activities. Short-term adverse impacts to the stream water quality and aquatic communities may occur during construction through increased water turbidity associated with soil erosion during storm water run-off periods. No long-term significant adverse water quality impacts are expected to the streams as a result of the project implementation.

10,000 ft EES Corridor

- Aquatic Species-No project impact is anticipated in the project study area or corridor
- Caves- No project impact is anticipated as there are no caves in the project study area or corridor.

As of the publication of this document, the GIS data within each layer was up to date relevant to date of its publication. This data will be updated as part of the ongoing project development process.

SUMMARY

The recommendations for the proposed improvements contained in the Knoxville Center environs include widening of both Washington Pike and Millertown Pike corridors that include both short-term relatively low cost improvements and long-term potential improvements. Improvements to the Washington Pike and Millertown Pike corridors are needed to:

- Improve the east-west mobility primarily in the Knoxville Center area
- Provide a transportation solution that improves safety for vehicles and pedestrians
- Reduce travel delays for through traffic
- Enhance regional and local economic development opportunities
- Improve transportation system linkages throughout the northeastern quadrant of the City

The Build Option consists of four sections. Each section, described below, will be improved to service the anticipated development growth and associated traffic demands of the Knoxville Center area.

Millertown Pike (Section One) would transition from its existing two lanes to a six-lane facility consisting of bike lanes, curb and gutter and sidewalks, beginning south of the I-640 interchange tying in to the existing three-lane Norfolk Southern Railroad Bridge at Mill Road. The proposed project length for Section One is approximately 0.56 miles (2,950 feet).

Washington Pike (Section Two), north of Interstate 640 to Murphy Road would be upgraded to a four-lane facility with a raised median, curb and gutter, sidewalks and bike lanes. This typical section includes the design of infiltration trenches, swales, and catch basins as measures to prevent and control erosion, sediment, and other forms of stormwater pollution as part of the City's goal for effective stormwater quality management. The proposed project length for Section Two is approximately 1.73 miles (9,130 feet).

Washington Pike (Section 3), south from Interstate 640 to Millertown Pike proposes a three-lane facility with curb and gutter, sidewalks, and bike lanes. As a short-term improvement, the City suggests two improvement options: a roundabout option and T-intersection option as a means to reduce backups at the intersection of Washington Pike and Millertown Pike. The proposed project length for Section Three is approximately 0.91 miles (4800 feet).

Note: By Spring 2009, the roadway improvements to relocate Valley View Drive with Centerline Drive will be underway to provide better traffic operations at the I-640/ Washington Pike interchange.

Millertown Pike (Section 4) from Washington Pike to Interstate 640 proposes a better two-lane urban section with curb and gutter, sidewalks and bike lanes. A short-term improvement option is to reconstruct the bridge east of Springhill Road that would maintain or improve traffic operations on this existing section. The proposed project length for Section 4 is approximately 0.83 miles (4380 feet).

Beyond the TPR stage, each section of the Build Option will be further evaluated with additional studies and design phases to include horizontal and vertical alignments, right-of-way, utilities (relocation), structures and environmental mitigations. The primary adverse effects of the proposed Build Option include:

- Right-of-way acquisition
- Utility relocation
- Residential or Business Displacements
- Temporary construction impacts (dust, siltation, equipment noise, etc.)
- Traffic noise
- Potential environmental impacts

A preliminary construction estimate is prepared for each of the four sections of the Build Option. As of 2008, historic inflation costs averaged a 6% increase per year. Therefore, inflation costs were applied to the total costs at a rate of approximately 6% per year over five years.

The estimated total costs for each section of the proposed Build Option are:

- Section One=\$6,471,100
- Section Two=\$13,896,100
- Section Three=\$8,222,200
- Section Four=\$5,964,300

The proposed road widening improvements along Washington Pike and Millertown Pike should mitigate most of the poor service levels anticipated in Year 2033. However, unmitigated poor service levels along Washington Pike could be mitigated by additional long-term improvements which may include extending Murphy Road from Washington Pike to Millertown Pike. A new Murphy Road Extension would provide a new primary movement between Tazewell Pike and the I-640 interchange which would reduce the continuing traffic congestion and delays experienced on Washington Pike and Millertown Pike. The comparable LOS for the No-Build Option reveals LOS F or worse.

In the meantime, the City has identified several areas being fast-tracked for improvements. The City plans to obtain funds for spot improvements from its 2009-2010 Capital Improvement Program. Two particularly problematic sections, the three-legged intersection of Washington Pike and Millertown Pike and a structure east of Springhill Road will undergo improvements as part of the City's charge to improve congestion and better regulate traffic in the area. Once completed, residents and motorists can expect to see immediate benefits, including improved traffic flow, reduced congestion and increased public safety. The estimated costs for these recommended short term improvements along Section 4 (Millertown Pike) are shown below.

Section Four- Washington Pike and Millertown Pike (Roundabout Option) =\$1,005,400

Section Four- Washington Pike and Millertown Pike (T-intersection Option) =\$805,400

Section Four-Millertown Pike (Bridge Replacement) =\$215,100

The No-Build Option was initially considered but was not studied further because it would not fulfill the purpose and need of the project. The No Build Option has some advantages including less disruption of existing land use patterns and no disruption to the area as a result of construction noise. Also mitigation measures to reduce environmental impacts would not be needed. However, the No Build Option would not serve future traffic demands for regional access to Interstate 640; and would continue inadequate operational conditions and safety concerns that would extend beyond the project area as a result of deficient roadway geometrics and increase traffic volumes.

In conclusion, the Build Option addresses the purpose and need for roadway improvements on Washington Pike and Millertown Pike. The No-Build Option does not meet the purpose and need. Therefore, the Build Option should proceed into further environmental documentation to satisfy the NEPA planning process.

WASHINGTON PIKE /MILLERTOWN PIKE TPR

APPENDIX


VOLUME I

KICK-OFF MEETING MINUTES

MEMO To: Tom Clabo, Hollis Loveday

C: Thanh Duong, Bob Bowers

Date: April 25, 2008

From: Dawn Michelle Foster 

Subject: Washington Pike/Millertown Pike TPR

This project is an update of the previous Washington Pike/Millertown Pike Advance Planning Report (APR) performed by Wilbur Smith Associates and approved in 2001. A kick-off meeting was held on Friday, April 25, 2008 for the Washington Pike/Millertown Pike Transportation Planning Study (Study) to discuss the scope of work, traffic methodology, report preparation and documentation. A sign in sheet is attached.

Bob Bowers facilitated the meeting beginning with a brief introduction of WSA staff and assigned project duties. The meeting continued with an overview of the proposed schedule and to identify key elements including scheduling meetings with TDOT representatives and the public.

A PowerPoint presentation was utilized during the meeting to show the study area, proposed schedule and to discuss the existing conditions of key intersections.

Several items of discussion included the following:

- **Report Preparation and Documentation-** This report is an update of an approved document with functional plans. For the new study, further discussion with TDOT on report documentation is vital. Tom Clabo will have further discussion with Nancy Sartor (TDOT- Local Programs) for more detail on report preparation. The City will look at project priorities:
 - o Washington Pike – Target to Murphy Road
 - o Millertown Pike-I-640 to Loves Creek Road and railroad
 - o Washington /Millertown- south of I-640 including a roundabout option

A major outcome of this study is to confirm the priority order of project development.

- Discussion of the project purpose and need will be included in the new document. The study will include an overview of the environmental resources in the area derived primarily from the previous APR. However it should be noted that any NEPA document on the natural and cultural environment is only considered valid for five years-after that a new or updated document would have to be prepared in order for the project to advance.
- **Traffic Data Collections and Analysis-** The data collection, which consists of turning movement counts and site investigations has been completed on 22 intersections on the Washington Pike/Millertown project and 4 intersections on Tazewell Pike. It is understood that Tazewell Pike is not part of this particular study, however improvements to Washington Pike/Millertown Pike may potentially have some impact on traffic conditions along Tazewell Pike between Murphy Road and Smithwood. Steve King noted that there is a Tazewell Pike Task Force Committee in place to stay abreast of issues of concerns and potential traffic improvements along the Tazewell Pike corridor. Two additional intersections were added to the Tazewell Pike study including Tazewell Pike at Shannondale and Tazewell Pike at Villa. The City asked that WSA have all six turning movement counts on Tazewell Pike completed with analysis for the upcoming task force meeting.
- **TDOT Traffic Coordination-** WSA will be developing traffic information based on TDOT's published TPR standards. This study will consist of existing traffic conditions (2008), base year conditions (2013) and projected year conditions (2033). We are also working with Mike Conger (Knoxville TPO) to update the traffic and land use model. Results of the traffic model, turning movement volumes and growth rates will be discussed with Steve Allen (TDOT-Nashville) for approval before proceeding with analyses. Approval of traffic data is necessary in order to proceed with the functional plans.
- **Field Review-**An early step in the study process is the coordination of a field review of the project. The TDOT coordinator will advise the City of the representatives that need to be present at the field review.

- **Public Meetings**-Based on the project schedule, two public meetings are listed. The City stated that the Public Meetings will be driven by TDOT but that one public meeting which would focus on presentation of priority projects is currently envisioned.
- **Roadway Design and Functional Plans**- Thanh Duong led the discussion of the street design criteria based on the City's Land Development Manual to produce the functional plans. The previous APR used a design speed of 45 mph but it was pointed out that the sections of Millertown Pike and Washington Pike south of I-640 contains several residences and therefore the design speed in that area should be considered less than 45 mph.

The previous APR was approved with detailed functional plans which will be updated as part of this study. Since this is a locally managed project, typical sections need to be approved by TDOT

- Design speed- 45 MPH appears to be acceptable for section of Washington Pike between I-640 and Murphy Road.
- On the triangle, look at both 35 MPH and 40 MPH
- Typical Sections-A 4-lane divided section with sidewalk and curb and gutter is currently envisioned for the Washington Pike section north of I-640. If supported by traffic analysis, Millertown Pike and Washington Pike south of I-640 will likely be 3-lane sections with roundabouts considered at some locations.
- Millertown Pike from I-640 to Loves Creek Road will likely be a 6-lane urban section. Multiple options for the Millertown/Loves Creek Road/ Mill Road/ Future Murphy Road Extension will be considered.
- Consider using 11 ft lanes
- City will look into how the bike lanes fit in to the typical section
- Water Quality- the typical section design will be guided by the storm water quality ordinance which may eliminate some curb and gutter sections with replacement by grass swales and grass medians. WSA will work closely with the City to meet the recommended guidelines.
- Proposed Alignment (Washington Pike south of I-640)-WSA to contact Home Depot to find out their intention. The City would like

to consider their needs, but is not going to move the centerline on its own.

- Detention Basin- Need to plan large enough ROW for detention basins to accommodate not just detention basins per se, but for "natural" filtration.
- Roundabouts- As mentioned earlier, look at the options for roundabouts at the Millertown Pike intersections with Washington Pike and Spring Hill Road.

ACTION ITEMS:

CITY

- Tom Clabo to have further discussion with Nancy Sartor (TDOT-Local Programs)
- Determine how the bike lanes will fit in the typical section

WSA

- Conduct two additional turning movement counts for Tazewell Pike Study
- All six Tazewell Pike counts completed with analysis
- Contact Home Depot

WSA and CITY

- Meeting with TDOT to review traffic analysis and projections
- Coordinate Field Review

WASHINGTON PIKE/MILLERTOWN PIKE TPR
KICK-OFF MEETING
APRIL 25, 2008
10:00AM

[illegible]

WASHINGTON PIKE/MILLERTOWN PIKE TPR
KICK-OFF MEETING
APRIL 25, 2008
10:00AM

[illegible]

Agenda Points

I. Introduce Project

- Project Location
- Project Scope

II. Background

- Previous APR Report (Approved)
- Included functional plans and Phase I Historical/Architectural, Archaeological
- Can we use environmental reports as supporting information?

III. Need to talk with TPR Coordinator

- TDOT TPR Coordinator has not been identified, so we will work solely with City
- Until a TPR Coordinator is appointed.
- Determine format
- What does it need to include
- Functionals (update?)
- Environmental Screening
- Do we use standard TPR guidelines or do we modified accordingly

III. Traffic Forecasting

- Introduce Project
- Traffic Methodology
 - Existing Year (2008)
 - Base Year (2013)
 - Projected Year (2033)
- Determine if the methodology is different from what was used in the previous APR
- Approval of Traffic information by TDOT
- Coordinate meeting with Steve Allen (TDOT) and staff
- Check for methodology
 - Design Year DHV – Do we have to derived from quadrant turns or can we take turning movement that we had done?*
 - We would like to take results of travel demand model and produce a growth rate and apply the rates to existing turning movement volumes. (This method has to be approved by TDOT)*
 - Does TDOT require an ADT map to include quadrant turns?*

IV. Traffic Modeling

- Talk with Mike Conger (MPC) for traffic model run
- Land Use – if not consistent may need to adjust model

PROJECT MEETING UPDATE

MEMO **To:** Tom Clabo

C: Steve King, Brent Johnson, Bill Cole,
 Bob Bowers, Hollis Loveday, Thanh Duong, Mike Clevenger, Stephanie Hargrove,

Date: September 10, 2008

From: Dawn Michelle Foster

Subject: Washington Pike/Millertown Pike TPR Update

This meeting was for the discussion of the traffic analysis and recommendations for the above referenced project. A sign-in sheet of attendees and meeting agenda is attached.

Hollis Loveday facilitated the meeting beginning with a brief project overview of Tazewell Pike and the Washington Pike/Millertown Pike TPR. Discussions of the traffic methodology and project traffic volumes for Year 2013 and 2033 and their analysis were also discussed to define recommendations for both projects.

Tazewell Pike

It was discussed that when motorists divert from Tazewell Pike to Washington Pike that most will utilize Murphy Road. It has been experienced that this diversion creates more congestion and delays resulting in traffic back-up from I-640 at Washington Pike to Murphy Road. Also, with plans for the I-640/Broadway improvements it is possible for more traffic to find Tazewell Pike attractive.

During both AM and PM peak hours, most of the side streets experience long delays at unsignalized intersections.

Using information from TPO's TDM (2005-2030) projected growth did not seem significant on Tazewell Pike, however the model is being updated. It was noted that the TDM projects the same amount of traffic on Tazewell Pike with or without Murphy Road Extension. Ultimately, a 2.5 percent annual growth rate was used to grow traffic for 2013 and 2033.

A signal warrant analysis of various intersections on Tazewell Pike revealed that Beverly Road and Briarcliff Road did meet Signal Warrants for 8-hr, 4-hr and peak

hour scenarios but Villa Road and Shannondale Road did not meet the signal warrants..

Recommendations included adding turn lanes on Tazewell Pike at Briarcliff Road, Beverly Road and Shannondale Road intersections to reduce the rear end collisions. .

A comprehensive summary of the recommendations include:

Beverly Road- Add left and right turn lanes at its approach to Tazewell Pike; add a left turn lane on westbound Tazewell Pike; and do not install a signal.

Briarcliff Road-Add left and right turn lanes at its approach to Tazewell Pike; add a eastbound left turn lane on Tazewell Pike and do not install a traffic signal.

Shannondale Road- Add a eastbound left turn lane on Tazewell Pike and do not install a traffic signal.

Villa Road- No recommendations

The concept relative to adding a left turn lane on Tazewell pike at Beverly Road, Briarcliff Road, and Shannondale Road is to minimize the number of rear-end collisions on Tazewell Pike. This recommendation will eliminate the need for a continuous three-lane roadway as a compromise to the neighborhood. Also, this seems to be a logical progression toward a signal.

Further discussion on levels of conflicts with multiple lanes led to the discussion of a roundabout option. The discussion and recommendation of roundabouts at these intersections should include property acquisition, number of parcels affected and driveways affected. Wilbur Smith Associates was asked by the City to run analysis with the roundabout option and have further discussions.

WASHINGTON PIKE/MILLERTOWN PIKE TPR

This discussion included an update of the traffic methodology. An evaluation of the existing traffic conditions and 2013 Base Year and 2033 Design Hour Volumes were submitted to TDOT for approval. An approval letter from TDOT was received on September 11, 2008 for the existing system traffic volumes. The traffic volumes and analysis for the Murphy Road extension will be submitted to TDOT for review and approval. A 3.5 percent annual growth rate was used to project future traffic.

An evaluation of the existing conditions revealed that side streets on both Millertown and Washington Pike experience long delays. However the "triangle" area of Millertown Pike operates at an acceptable LOS.

The long delays in front of the mall on Millertown Pike and on Washington Pike from Murphy Road were discussed.

Recommendations:

Washington Pike

Washington Pike- from I-640 interchange north to Target

6-lane facility with divided median,

Washington Pike from I-640 interchange to Home Depot Main Entrance

5-lane section

Washington Pike from Greenway Drive to Murphy Road (terminus)

4-lane divided

Washington Pike from Millertown Pike to Home Depot Entrance

3-lane

Millertown Pike

Millertown Pike from Washington Pike to Lowe's south entrance-3-lane section

Millertown Pike from Lowe's south entrance to I-640 ramps- 5 lane section

Millertown Pike from I-640 ramps to Bridge near Love Creek Road- 6-lane divided section

Love Creek Road to RR Bridge(terminus)- 3-lanes

In hopes to alleviate traffic within the project area, the City is determining which section is more of a priority.

The City wishes to establish the priorities as:

Priority 1- Washington Pike from the I-640 interchange north towards Target (Greenway Drive) and then to Murphy Road

Priority 2- Millertown Pike from the I-640 interchange to the City Limits (RR Bridge)

Priority 3- Washington Pike from the I-640 interchange south to Millertown Pike

Priority 4- Millertown Pike from Washington Pike to the Lowe's south entrance and I-640 interchange

The City considers the Millertown Pike "triangle" area to be a lesser priority. However, the City hopes that if City funding is available that they will be able to make some spot (short-term) improvements for the triangle section of Millertown Pike. These will consist of improvements to the Washington/Millertown Pike intersection, which may include a roundabout. Other short term improvements may include the widening of some bridges on the Millertown Pike corridor.

Murphy Road Extension

Discussion of tying Murphy Road into Loves Creek Road or further to the east.. Ongoing Development of the Church and school on Mill Road may make this alignment unlikely.

The City needs is to tie into the existing Millertown Road bridge near Mill Road but they want a functional design with 2 alternatives

- 1) Tie Murphy Road in on top of Loves Creek Road
- 2) Tie Murphy Road in further east of Millertown Pike

The City wants to build on the recommendations that will tie into City limits (buildable now) with additional improvements

Typical Sections:

- o Typical Sections-A 4-lane divided section with sidewalk and curb and gutter is currently envisioned for the Washington Pike section north of I-640. If supported by traffic analysis, Millertown Pike and Washington Pike south of I-640 will likely be 3-lane sections
- o Millertown Pike from I-640 to Loves Creek Road will likely be a 6-lane urban section. Multiple options for the Millertown/Loves Creek Road/ Mill Road/ Future Murphy Road Extension will be considered.
- o Consider using 11 ft lanes
- o Bike lanes and sidewalks will be in typical section.
- o A five foot berm will be placed between sidewalk and curb and gutter for drainage.
- o Water Quality- the typical section design will be guided by the storm water quality ordinance which may eliminate some curb and gutter sections with replacement by grass swales and grass medians.

WSA will work closely with the City to meet the recommended guidelines.

- The Home Depot expansion will not affect the typical section. Home Depot plans to expand east toward the Food Lion store.
- Detention Basin- Need to plan large enough ROW for detention basins to accommodate not just detention basins per se, but for “natural” filtration.
- Roundabouts- WSA will look at the options for roundabouts at the Millertown Pike intersection with Washington Pike.

September 10, 2008
2:00PM

[illegible]

PUBLIC MEETING MINUTES

MILLERTOWN PIKE/WASHINGTON PIKE
ROADWAY IMPROVEMENTS

JULY 18, 2006
WORKING GROUP MEETING

ATTENDEES

NAME	ORGANIZATION	TELEPHONE	E-MAIL
Brent Johnson	City of Knoxville	215-2148	bjohnson@cityofknoxville.org
Charles Haun	Alice Bell-S-H	524-0038	C_haun@comcast.net
Tommy Vann	Mall Area Businesses	675-0038	TOM0038@aol.com
Mark Donaldson	MPC	215-2500	mark.donaldson@knoxmpc.org
Cindy Pionke	Knox County	215-5804	cindy.pionke@knoxcounty.org
Jeff Welch	Knox TPO	215-3790	jeff.welch@knoxtrans.org
Tom Clabo	City of Knoxville	215-6100	tclabo@cityofknoxville.org
Bob Bowers	Wilbur Smith Assoc.	963-4300	rbowers@wilbursmith.com
Lisa Starbuck	NEKPA	659-5708	lisa@aobe.com
Michael Kane	Ftn, City Town Hall	241-7587	makanel@bellsouth.net
Dave Hill	City of Knoxville	215-3764	dhill@cityofknoxville.org
Jeff Turner	TDOT-Knoxville	594-2442	jeff.d.turner@state.tn.us
Steve King (Not Present)	City of Knoxville	215-6100	sking@cityofknoxville.org
Bruce Wuethrich (Not Present)	Knox County	215-5800	bruce.wuethrich@knoxcounty.org

MILLERTOWN PIKE / WASHINGTON PIKE ROADWAY IMPROVEMENTS

WORKING GROUP AGENDA

August 15, 2006

- A. Review of the MPC Sector Plan and Major Road Plan
- B. Discussion of Current Project Recommendations
 - 1. Washington Pike between Millertown Pike and I-640
 - 2. Washington Pike between Greenway Drive and Mill Road
 - 3. Millertown Pike between Washington Pike and I-640
 - 4. Millertown Pike between I-640 and Norfolk Southern RR
- C. Discussion of the Murphy Road Extension
- D. Report from Alice Bell-Spring Hill Association
- E. Amendment Process for the Transportation Improvement Plan
- F. Group Discussion

WORKING GROUP AGENDA
July 18, 2006

July 18, 2006

- a) Attendees introduction
- b) Purpose of Working Group

C. Current Projects within the Transportation Improvement Program

E. Group Discussion

Next Meetings: Tuesday, August 15 at 3:00 pm
Tuesday, September 12 at 3:00 pm

MILLERTOWN PIKE/WASHINGTON PIKE ROADWAY IMPROVEMENTS

**JULY 18, 2006
WORKING GROUP MEETING
MINUTES**

The minutes of this meeting are provided in an effort to document discussions that occurred during the course of the working group meeting. Please review the minutes and if any additions or corrections are required, please forward these to Tom Clabo at tclabo@cityofknoxville.org.

Dave Hill with the City of Knoxville gave a brief introduction to begin the meeting.

Bob Bowers with Wilbur Smith Associates gave a brief overview of the Advanced Planning Report (APR) that Wilbur Smith Associates prepared for the City of Knoxville in 2001. Bob described in detail the recommended roadway sections that were developed from the 2001 APR.

Jeff Welch with the Knoxville Regional Transportation Planning Organization (TPO) described the current projects included within the TPO's Transportation Improvement plan (TIP). The TIP has two projects currently programmed. The first is called "Washington Pike/Millertown Pike" and is described as the widening of Washington Pike from I-640 to Millertown Pike and the widening of Millertown Pike from I-640 to Washington Pike to a five-lane section. This project is programmed with a construction cost of \$9,324,827.00. The second programmed project is called "Millertown Pike, I-640 to Loves Creek" and is described as the widening and improving of this roadway as specified in the APR. This project is programmed with an Engineering cost of \$800,000.00.

Jeff mentioned that the current two programmed projects could be amended once projects in this area are prioritized.

Bob Bowers discussed the current project proposals. The changes to the roadway sections with the current proposal included constructing the Washington Pike and Millertown Pike roadways south of I-640 with a 3-lane typical section, but acquiring the right-of-way for the 5-lane typical section. This alternative was discussed because the growth rate projected within the 2001 APR had not occurred for the area south of I-640.

Bob also discussed the configuration of Millertown Pike north of I-640. Specifically the need to determine the alignment of Loves Creek Road and Millertown Pike in relation to the proposed Murphy Road extension.

Charles Haun with the Alice Bell-Spring Hill Association expressed the importance of completing the Valley View Drive realignment project in a timely manner. Dave Hill commented that this project was funded within the City's current capital improvement program for design and right-of-way acquisition. Tom Clabo commented that the intent was to have the project ready to bid for construction in July of 2007. Dave Hill commented that the City is committed to completing this realignment project, but the project is contingent upon the transfer of the necessary right-of-way to the City from the Byrd property.

Charles Haun is going to discuss with the Alice Bell-Springhill Association their thoughts on the need for 5-lanes vs. 3-lanes for Washington Pike and Millertown Pike south of I-640.

MILLERTOWN PIKE/WASHINGTON PIKE
WORKING GROUP MEETING MINUTES
JULY 18, 2006
Page 2 of 2

Tommy Vann with the Mall area businesses expressed his concern for improvements to Millertown Pike north of I-640. He thought improvements should be made as soon as possible. He mentioned that he had discussed these projects with other area businesses. He said the Knoxville Center Mall would like Millertown Pike extend to the north to at least Mill Road to allow for a new mall entrance that would connect to the new Millertown Pike. He also expressed the need for the Murphy Road extension and voiced his support for this project. Mr. Vann also supported the direct connection of Loves Creek Road to the proposed Millertown Pike/Murphy Road extension, with improvements to Loves Creek Road occurring along the existing Loves Creek Road alignment.

Mark Donaldson with the Metropolitan Planning Commission was asked to investigate the current sector plan for the property located within the triangle bound by Washington Pike and Millertown Pike and south of I-640. He was also asked to provide a current copy of the Major Road Plan for this area.

Cindy Pionke with Knox County Engineering discussed capital projects currently funded and programmed by Knox County. Cindy expressed that this area is not currently programmed for any roadway improvements and the roadway priorities for Knox County have been set for the next 5 years.

Lisa Starbuck with the Northeast Knox Preservation Association expressed concern for placing priority on the projects north of I-640. She supported the Murphy Road extension. She was also supportive of short-term improvements to Millertown Pike between Mill Road and I-640.

Michael Kane with Fountain City Town Hall expressed support for the Murphy Road Extension as a means to alleviate some traffic congestion on Tazewell Pike.

Dave Hill expressed the need to utilize the existing funding in an expedient manner and the need to get projects programmed that would accomplish this.

It was generally agreed that the projects south of I-640, improvements to Washington Pike and Millertown Pike, and the improvements to Washington Pike from Greenway Drive to the city limits could be accomplished in a more timely manner due to less environmental concerns and their relative ease of construction.

Tom Clabo with the City of Knoxville was asked to investigate the cost involved to construct the Washington Pike and Millertown Pike roadway improvements south of I-640 with a 3-lane roadway section and acquiring right-of-way for a future 5-lane roadway section. Tom was also asked to investigate the cost involved in constructing improvements to Millertown Pike from Mill Road to I-640.

The next working group meeting is scheduled for August 15, 2006 at 3:00 pm at the City County Building, room 549.

**East Knoxville Transportation Program
Millertown Pike/Washington Pike Improvements
October 9, 2006**

A series of working group meetings including members from the City of Knoxville, Knox County, Metropolitan Planning Commission, Wilbur Smith Associates, Tennessee Department of Transportation, Alice Bell-Spring Hill Neighborhood Association, Knoxville Center Mall Area Businesses, Fountain City Town Hall and Northeast Knox Preservation Association occurred on July 18, 2006 and August 15, 2006 to discuss proposed improvements to Millertown Pike, Washington Pike and Murphy Road.

The purpose of the meetings was to set priorities for roadway improvements within this area. Jeff Welch with the Knoxville Regional Transportation Planning Organization (TPO) described the current projects included within the TPO's Transportation Improvement plan (TIP). The TIP has two projects currently programmed. The first is called "Washington Pike/Millertown Pike" and is described as the widening of Washington Pike from I-640 to Millertown Pike and the widening of Millertown Pike from I-640 to Washington Pike to a five-lane section. This project is programmed with a construction cost of \$9,324,827.00. The second programmed project is called "Millertown Pike, I-640 to Loves Creek" and is described as the widening and improving of this roadway as specified in the APR. This project is programmed with an Engineering cost of \$800,000.00.

Bob Bowers with Wilbur Smith Associates gave a brief overview of the Advanced Planning Report (APR) that Wilbur Smith Associates prepared for the City of Knoxville in 2001. Bob described in detail the recommended roadway sections that were developed from the 2001 APR. Bob discussed the current project proposals. The changes to the roadway sections with the current proposal included constructing the Washington Pike and Millertown Pike roadways south of I-640 with a 3-lane typical section. This alternative was discussed because the growth rate projected within the 2001 APR had not occurred for the area south of I-640. Bob also discussed the configuration of Millertown Pike north of I-640. Specifically the need to determine the alignment of Loves Creek Road and Millertown Pike in relation to the proposed Murphy Road extension. Below are the descriptions for the current proposed projects:

Washington Pike / Millertown Pike Improvements

Widen Washington Pike between Millertown Pike and I-640

Widen to a 3-lane section with center two way left turn lane. Typical section would be a 70-foot minimum R.O.W. with three 12-foot lanes, 3-foot bicycle lane, 2-foot curb and gutter and 7-foot sidewalk on both sides. Realign Valley View Drive with Centerline Drive.

Widen Washington Pike between Greenway Drive and Mill Road

Widen to a divided 4-lane section with median. Typical section would be a 104-foot minimum R.O.W. with a 22-foot median, four 12-foot travel lanes, 3-foot bicycle lane, 2-foot curb and gutter and 7-foot sidewalk on both sides.

Widen Millertown Pike between Washington Pike and I-640

Widen to a 3-lane section with center two way left turn lane. Typical section would be a 70-foot minimum R.O.W. with three 12-foot lanes, 3-foot bicycle lane, 2-foot curb and gutter and 7-foot sidewalk on both sides.

Widen Washington Pike between Mill Road and Murphy Road (County)

Widen to a divided 4-lane section with median. Typical section would be a 104-foot minimum R.O.W. with a 22-foot median, four 12-foot travel lanes, 3-foot bicycle lane, 2-foot curb and gutter and 7-foot sidewalk on both sides.

Murphy Road / Millertown Pike Improvements

Widen Millertown Pike between I-640 and Loves Creek Road

Widen to a divided 6-lane section with median. Millertown Pike would transition to a divided 5-lane undivided section with center two way left turn lane between Loves Creek Road and Mill Road. The typical 6-lane section would include 128-foot minimum R.O.W. with a 22-foot median, six 12-foot travel lanes, 3-foot bicycle lane, 2-foot curb and gutter and 7-foot sidewalk on both sides. The typical 5-lane undivided section would include 94-foot minimum R.O.W. with five 12-foot travel lanes, 3-foot bicycle lane, 2-foot curb and gutter and 7-foot sidewalk on both sides.

Construct new Murphy Road between Mill Road and Washington Pike

Construct a new 5-lane undivided section with center two way left turn lane. The typical 5-lane section would include 94-foot minimum R.O.W. with five 12-foot lanes, 3-foot bicycle lane, 2-foot curb and gutter and 7-foot sidewalk on both sides.

Charles Haun with the Alice Bell-Spring Hill Association expressed the importance of completing the Valley View Drive realignment project in a timely manner. Dave Hill commented that this project was funded within the City's current capital improvement program for design and right-of-way acquisition. Tom Clabo commented that the intent was to have the project ready to bid for construction in July of 2007. Dave Hill commented that the City is committed to completing this realignment project, but the project is contingent upon the transfer of the necessary right-of-way to the City from the Byrd property.

Tommy Vann with the Mall area businesses expressed his concern for improvements to Millertown Pike north of I-640. He thought improvements should be made as soon as possible. He mentioned that he had discussed these projects with other area businesses. He said the Knoxville Center Mall would like Millertown Pike extend to the north to at least Mill Road to allow for a new mall entrance that would connect to the new Millertown Pike. He also expressed the need for the Murphy Road extension and voiced his support for this project. Mr. Vann also supported the direct connection of Loves Creek Road to the proposed Millertown Pike/Murphy Road extension, with improvements to Loves Creek Road occurring along the existing Loves Creek Road alignment.

Cindy Pionke with Knox County Engineering discussed capital projects currently funded and programmed by Knox County. Cindy expressed that this area is not currently programmed for any roadway improvements and the roadway priorities for Knox County have been set for the next 5 years. Bruce Wuetrich with Knox County Engineering agreed that improvements to

Washington Pike and Millertown Pike/Murphy Road Extension would be supported by Knox County.

Lisa Starbuck with the Northeast Knox Preservation Association expressed concern for placing priority on the projects north of I-640. She supported the Murphy Road extension. She was also supportive of short-term improvements to Millertown Pike between Mill Road and I-640.

Michael Kane with Fountain City Town Hall expressed support for the Murphy Road Extension as a means to alleviate some traffic congestion on Tazewell Pike.

Dave Hill expressed the need to utilize the existing funding in an expedient manner and the need to get projects programmed that would accomplish this.

It was generally agreed that the projects south of I-640, improvements to Washington Pike and Millertown Pike, and the improvements to Washington Pike from Greenway Drive to the city limits could be accomplished in a more timely manner due to less environmental concerns and their relative ease of construction.

The City of Knoxville will work with the TPO in order to amend the current Transportation Improvement Program to incorporate the new project limits within the plan. Jeff Welch has outlined this process below:

<u>Agency</u>	<u>Task</u>	<u>Completion Date</u>
Knox TPO and TDOT	Amend TIP to provide funds to begin planning study and environmental assessment (\$500,000); submit TIP amendment to FHWA for approval	December 2006
City of Knoxville and TDOT	Scope of Work to TDOT for planning and environmental studies and enter into a contract with TDOT; contract approved by City Council and TDOT issues notice to proceed for planning study and environmental assessment	February 2007
City of Knoxville and Knox TPO	Select consultant for planning study and environmental assessment and City Council approval; consultant conducts planning study and preliminary environmental assessment, public meetings; City Council and TPO approval; amend TIP to set new project priorities, descriptions and costs	December 2007
City of Knoxville	Consultant finalizes environmental assessment and all necessary parties approve document	Spring 2008

CONCLUSION

The City of Knoxville supports improvements to the roadways within the East Knoxville Transportation Program. The City funded the design of the Valley View Drive Realignment Project within the current Capital Improvement Program. Once the design is complete and the necessary right-of-way is donated by the Byrd property, the City will move forward to fund the construction of this roadway improvement within the next Capital Improvement Program budget.

Once the TIP is amended and TDOT provides approval of funds for the planning study and environmental assessment, the City of Knoxville will utilize a design consultant to perform a transportation planning report for the projects. This report will be phased to allow the improvements to Washington Pike and Millertown Pike south of I-640, Washington Pike from Greenway Drive to the city limits and Millertown Pike from I-640 to Mill Road to proceed, while a more detailed study of the Murphy Road Extension is expected. The study will determine the roadway section required for the projects and will also analyze alternative alignments for the Murphy Road extension. A public meeting will be included in the transportation planning report process and public comments will be considered in the project alternatives.

The connection of a new Murphy Road extension to Millertown Pike is a critical piece of information that will effect any major improvements to Millertown Pike between I-640 and Mill Road. Since the Murphy Road extension is anticipated to occur in several years, the City of Knoxville is pursuing the use of grant funds from the Tennessee Department of Transportation for operational improvements to Millertown Pike from I-640 to Mill Road. These funds will be applied for through TDOT's Local Interstate Connector (LIC) Improvements Program.

After the transportation study is complete and the TIP is amended to reflect the new project priorities, the City of Knoxville will begin the project design process for the prioritized projects. Given the ease of construction and minimal environmental clearance issues, Washington Pike and Millertown Pike south of I-640 and Washington Pike from Greenway Drive to the city limits will be the first projects prioritized for design and construction.

EARLY ENVIRONMENTAL SCREENING (EES)

EES Report

PIN 040090.00
1,000 Foot Corridor
March 13, 2009

Community Impact

Cemetery Sites

Cemetery

There are none.

Cemetery Property

There are none.

Institutions

Total= 2

Fullwood Chapel

Church

North Acres Church

Church

Sensitive Community Populations

No Population Present

Present

Population 65 & Over

Not Present

Disability

Not Present

Households without Vehicle

Not Present

Minority Population-24%

Not Present

Linguistically Isolated

Not Present

Below Poverty-13.5%

Not Present

Below Poverty-27%

Not Present

Ecology

Rare & Protected Species

Bats

There are none.

Railroads & Public Lands

Railroads

Present

EES Report

PIN 040090.00
2,000 Foot Corridor
March 13, 2009

Historic Architecture & Archaeology

Historic Architecture

National Register Sites

There are none.

Hazardous Substances & Geology

Superfund Sites

There are none.

Geology

Pyritic Rock

Middle and Lower Portion of Chickamauga
Group
Maryville Limestone, Rogersville Shale and
Rutledge Limestone
Mascot, Longview, and Chepultepec Dolomite,
and Kingstport and Newala Formations
Conasauga Group
Middle and Lower Portion of Chickamauga
Group
Maynardville Limestone

Total= 6

Classification

Limestone

Limestone

Dolomite

Limestone

Limestone

Limestone

Railroads & Public Lands

Public Lands

TWRA Lakes

There are none.

Other Public Lands

There are none.

EES Report

PIN 040090.00
4,000 Foot Corridor
March 13, 2009

Ecology

Rare & Protected Species

Terrestrial Species

Lilium canadense

Pituophis melanoleucus melanoleucus

Total= 2

USESA

SPROT

T

T

TDEC Conservation Sites

There are none.

TDEC Scenic Waterways

There are none.

Large Wetland Impacts

Total= 11

PUBHh

PUBHh

PUBHh

PUBHh

PUBHh

PUBHx

PUBHx

PUBHh

PUBHh

PUBHh

PUBHh

Railroads & Public Lands

Public Lands

Tennessee Natural Areas Program

There are none.

Wildlife Management Areas

There are none.

EES Report

PIN 040090.00
10,000 Foot Corridor
March 13, 2009

Ecology

Rare & Protected Species

Aquatic Species

There are none.

Hazardous Substances & Geology

Geology

Caves

There are none.

PROJECT DATA SHEETS

DATA TABLE
Section 1- Millertown Pike

EXISTING CONDITIONS

From: Interstate 640
To: Norfolk Southern Railroad Bridge (City Limits)

Item

Functional Class	Urban Minor Arterial
System Class	STP
Length - Miles	0.56
Cross Section Feet	Variable
Present ADT (2008)	17,800
Projected Future ADT (2033)	33,300
Percent Trucks	2%



DATA TABLE
Section 1- Millertown Pike

From: Interstate 640
To: Norfolk Southern Railroad Bridge (City Limits)

<u>Item</u>	<u>Existing</u>	<u>Proposed</u>
Functional Class	Urban Minor Arterial	Urban Minor Arterial
System Class	STP	STP
Length - Miles		0.55
Cross Section Feet		Variable
Present ADT (2008)		17,800
Projected Future ADT (2033)		33,300
Percent Trucks		2
Estimated Right-of-Way (Business Average= \$12.70 s.f.) Acquisition(Acres)		1.864
Estimated Right-of-Way Tracts Affected		9
Estimated Family Displacements		0
Estimated Business Displacements		0
Estimated Right-of-Way Cost	\$	1,031,200
Estimated Utility Cost Reimbursable	\$	0
Estimated Utility Cost Non-Reimbursable	\$	969,500
Estimated Construction Cost	\$	3,127,850
Estimated Preliminary Engineering Cost	\$	284,350
Total Estimated Section Cost	\$	5,412,900*

*No Inflation Costs added

TENNESSEE DEPARTMENT OF TRANSPORTATION
DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE

ROUTE:	MILLERTOWN PIKE	ALTERNATE:	
SECTION:	1	REGION:	
COUNTY:	KNOX	PROJECT #:	

LOCATION

From:	I-640
To:	Norfolk-Southern Railroad (City Limits)

PARAMETER	CRITERIA
2008 ADT	17,800
2033 ADT	33,300
PERCENT TRUCKS(DHV)	2
DHV(10% ADT 2033)	3,330
FUNCTIONAL CLASSIFICATION	Urban Minor Arterial
MINIMUM DESIGN SPEED	40 mph
ACCESS CONTROL	N/A
MAXIMUM CURVE	600'
MAXIMUM GRADE	7%
MINIMUM STOPPING DISTANCE	275'/325'
SURFACE WIDTH	41'/77'
NUMBER OF LANES	3/7
USABLE SHOULDER WIDTH	0'/12'
MEDIAN WIDTH	6' to 12' Flush
MINIMUM RIGHT-OF-WAY	68'/150'
SIGNALIZATION	1 New/2 Modifications

REMARKS: Roadway varies from 6 lane section near Knoxville Center to 3 lane section at existing bridge over Norfolk-Southern Railroad. Curb and gutter and stabilized shoulders will be utilized in this area because of future development potential.

PROJECT COST SHEET
(Millertown Pike-Section 1)

Section: 1
Length: 0.55 miles

Right-of-Way471.

Land, (1.864 acres) --	\$ 1,031,200.00
Improvements -----	\$ 0
Damages -----	\$ 0
Incidentals -----	\$ 0
Relocation Payments (residences) -----	\$ 0
(business & farm)	
(non-profits)	

Total Right-of-Way Cost-----\$ 1,031,200.00

Utility Relocation

Reimbursable-----	\$ 0
Non-reimbursable-----	\$ 969,500.00

Total Adjustment Cost ----- \$ 969,500.00

Construction

Clear and Grubbing	\$ 34,650.00
Earthwork	\$ 171,000.00
Pavement Removal	\$ 36,450.00
Drainage (Includes Erosion Control)	\$ 219,000.00
Structures(Bridge over Love's Creek)	\$ 711,500.00
Railroad Crossing or Separation	\$ 0
Paving	\$ 1,092,000.00
Retaining Walls	\$ 0
Maintenance of Traffic	\$ 22,500.00
Topsoil	\$ 6,750.00
Seeding	\$ 4,650.00
Sodding	\$ 12,000.00
Signing	\$ 5,000.00
Lighting	\$ 0
Signalization	\$ 230,000.00
Fence	\$ 0
Guardrail	\$ 11,000.00
Rip Rap or Slope Protection	\$ 20,000.00
Other Construction Items(8.5%)	\$ 219,000.00
Mobilization	\$ 48,000.00
Construction Cost	\$ 2,843,500.00
10% Eng. And Cont.	\$ 284,350.00

15% Eng. And Conl.	\$ 25,000.00
Total Construction Cost	\$ 3,127,850.00

*Inflation Adjustment (6% Over 5 Years) ----- \$ 1,058,150.00

Preliminary Engineering (10%)-----	\$ 284,350.00
------------------------------------	---------------

Total Cost ----- \$ 6,471,050.00*

*Inflation Costs Added

DATA TABLE
Section 2- Washington Pike

EXISTING CONDITIONS

From: Interstate 640
To: Murphy Road

Item

Functional Class	Urban Minor Arterial
System Class	STP
Length - Miles	1.73
Cross Section Feet	22'
Present ADT(2008)	12,200
Projected Future ADT(2033)	22,880
Percent Trucks	2%



DATA TABLE
Section 2-Washington Pike
PROPOSED

From: Interstate 640
To: Murphy Road

<u>Item</u>	<u>Proposed</u>	
Functional Class	Urban Minor Arterial	
System Class	STP	
Length - Miles	1.736	
Cross Section Feet	94'	
Present ADT(2008)	12,200	
Projected Future ADT(2033)	22,880	
Percent Trucks	2%	
Estimated Right-of-Way (Business=11) Acquisition(8.272 Acres) (Residences=40) (Non-Profit=1)	8.272	
Estimated Right-of-Way Tracts Affected	52	
Estimated Family Displacements	3	
Estimated Business Displacements	0	
Estimated Right-of-Way Cost	\$	1,891,790
Estimated Utility Cost Reimbursable	\$	0
Estimated Utility Cost Non-Reimbursable	\$	2,756,455
Estimated Construction Cost	\$	5,371,050
Estimated Preliminary Engineering Cost	\$	488,300
Total Estimated Section Cost	\$	10,432,595*

* no inflation costs added

TENNESSEE DEPARTMENT OF TRANSPORTATION
DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE

ROUTE:	WASHINGTON PIKE	ALTERNATE:	
SECTION:	2	REGION:	1
COUNTY:	KNOX	PROJECT #:	

LOCATION

From:	Washington Pike
To:	Murphy Road

PARAMETER	CRITERIA
2008 ADT	12,200
2033 ADT	22,800
PERCENT TRUCKS(DHV)	2
DHV(10% ADT 2033)	229
FUNCTIONAL CLASSIFICATION	Urban Minor Arterial
MINIMUM DESIGN SPEED	40 MPH
ACCESS CONTROL	N/A
MAXIMUM CURVE	600'
MAXIMUM GRADE	7%
MINIMUM STOPPING DISTANCE	275-325
SURFACE WIDTH	94'
NUMBER OF LANES	4
USABLE SHOULDER WIDTH	0
MEDIAN WIDTH	22
MINIMUM RIGHT-OF-WAY	108
SIGNALIZATION	3

REMARKS: Signals at Washington Pike with Washington Pike, Washington Pike @ Mill Road and Washington Pike @ Murphy Road.

PROJECT COST SHEET
(Section 2-Washington Pike)

Section: 2
Length: 1.736 Miles

Right-of-Way

Land, (8.272acres) -----	\$ 1,816,790
Improvements -----	\$ 0
Damages -----	\$ 0
Incidentals -----	\$ 0
Relocation Payments (3 residences) -----	\$ 75,000.00
(business & farm)	
(non-profits)	

Total Right-of-Way Cost ----- **\$ 1,891,790.00**

Utility Relocation

Reimbursable -----	\$ 0
Non-reimbursable -----	\$ 2,756,455.00

Total Adjustment Cost ----- **\$ 2,756,455.00**

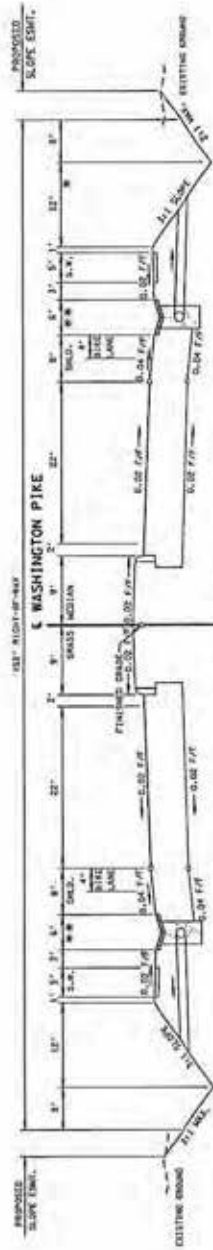
Construction

Clear and Grubbing -----	\$ 80,000.00
Earthwork -----	\$ 390,000.00
Pavement Removal -----	\$ 4,400.00
Drainage (Includes Erosion Control) -----	\$ 833,965.00
Structures -----	\$ 0
Railroad Crossing or Separation -----	\$ 0
Paving -----	\$ 2,429,000.00
Retaining Walls -----	\$ 216,000.00
Maintenance of Traffic -----	\$ 86,800.00
Topsoil -----	\$ 25,900.00
Seeding -----	\$ 17,900.00
Sodding -----	\$ 30,555.00
Signing -----	\$ 8,680.00
Lighting -----	\$ 0
Signalization -----	\$ 300,000.00
Fence -----	\$ 0
Guardrail -----	\$ 5,500.00
Rip Rap or Slope Protection -----	\$ 10,000.00
Other Construction Items(8.5%) -----	\$ 379,500.00
Mobilization -----	\$ 68,500.00
Construction Cost -----	\$ 4,882,750.00
10% Eng. And Cont. -----	\$ 488,300.00
Total Construction Cost -----	\$ 5,371,050.00
Inflation Adjustment (6% Over 5 Years) -----	\$ 3,388,500.00*
Preliminary Engineering (10%) -----	\$ 488,300.00

Total Cost ----- **\$ 13,896,095.00***

*Inflation Costs Included

DATE	BY	CHKD	APP'D
10/1/08	WJS	WJS	WJS
10/1/08	WJS	WJS	WJS
10/1/08	WJS	WJS	WJS
10/1/08	WJS	WJS	WJS



TANGENT SECTION
BASED ON STA. 800+00 TO 800+100 & 800+100 TO 800+200

- INFILTRATION BASE
GRAVEL FILTER SHALE
- INFILTRATION TRENCH

KNOXVILLE, TN
WASHINGTON PIKE
TYPICAL SECTIONS
WILBURSMITH ASSOCIATES

DATA TABLE
Section 3 –Washington Pike

EXISTING CONDITIONS

From: Millertown Pike
To: Interstate 640

Item

Functional Class	Urban Minor Arterial
System Class	STP
Length - Miles	0.91
Cross Section Feet	20'/84'
Present ADT(2008)	10,180
Projected Future ADT(2033)	11,960
Percent Trucks	2%



DATA TABLE
Section 3-Washington Pike

From: Millertown Pike
To: I-640

<u>Item</u>	<u>Existing</u>	<u>Proposed</u>
Functional Class	Urban Minor Arterial	Urban Minor Arterial
System Class	STP	STP
Length - Miles	0.9	0.9
Cross Section Feet	20'/84'	41'/116'
Present ADT(2007)		
Projected Future ADT(2027)		
Percent Trucks		
Estimated Right-of-Way (Business=\$13.75 s.f.) Acquisition(Acres) (Res.=\$5.20 s.f.)		1.38
Estimated Right-of-Way (19 Residential) Tracts Affected (6 Business)		23
Estimated Family Displacements		0
Estimated Business Displacements		0
Estimated Right-of-Way Cost	\$	762,520
Estimated Utility Cost Reimbursable	\$	0
Estimated Utility Cost Non-Reimbursable	\$	1,042,500
Estimated Construction Cost	\$	4,063,175
Estimated Preliminary Engineering Cost	\$	369,400
Total Estimated Section Cost	\$	6,237,595*

* No inflation costs added

TENNESSEE DEPARTMENT OF TRANSPORTATION
DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE

ROUTE:	WASHINGTON PIKE	ALTERNATE:	
SECTION:	3	REGION:	
COUNTY:	KNOX	PROJECT #:	

LOCATION

From:	Millertown Pike
To:	I-640

PARAMETER	CRITERIA
2008 ADT	10,180
2033 ADT	11,960
PERCENT TRUCKS(DHV)	2
DHV(10% ADT 2027)	1196
FUNCTIONAL CLASSIFICATION	Urban Minor Arterial
MINIMUM DESIGN SPEED	40
ACCESS CONTROL	N/A
MAXIMUM CURVE	600'
MAXIMUM GRADE	7%
MINIMUM STOPPING DISTANCE	275'/325'
SURFACE WIDTH	41'/77'
NUMBER OF LANES	3/7
USABLE SHOULDER WIDTH	0/12'
MEDIAN WIDTH	Flush/11'
MINIMUM RIGHT-OF-WAY	
SIGNALIZATION	2 Modifications

REMARKS:

PROJECT COST SHEET
(Washington Pike Pike-Section 3)

Section: 3
Length: 0.9

Right-of-Way

Land, (1.38 acres)	\$ 762,520.00
Improvements	\$ 0
Damages	\$ 0
Incidentals	\$ 0
Relocation Payments (residences)	\$ 0
(business & farm)	
(non-profits)	

Total Right-of-Way Cost ----- \$ 762,520.00

Utility Relocation

Reimbursable	\$ 0
Non-reimbursable	\$ 1,042,500.00

Total Adjustment Cost ----- \$ 1,042,500.00

Construction

Clear and Grubbing	\$	89,100.00
Earthwork	\$	510,000.00
Pavement Removal	\$	57,400.00
Drainage (Includes Erosion Control)	\$	378,360.00
Structures	\$	0
Railroad Crossing or Separation	\$	0
Paving	\$	1,474,500.00
Retaining Walls	\$	538,200.00
Maintenance of Traffic	\$	46,400.00
Topsoil	\$	13,850.00
Seeding	\$	9,565.00
Sodding	\$	60,000.00
Signing	\$	5,000.00
Lighting	\$	0
Signalization	\$	120,000.00
Fence	\$	0
Guardrail	\$	0
Rip Rap or Slope Protection	\$	50,000.00
Other Construction Items(8.5%)	\$	285,000.00
Mobilization	\$	56,400.00
Construction Cost	\$	3,693,775.00
10% Eng. And Cont.	\$	369,400.00

10% Eng. And Cont.	\$	555,155.00
Total Construction Cost	\$	4,063,175.00

*Inflation Adjustment (6% Over 5 Years)	\$ 1,984,625.00
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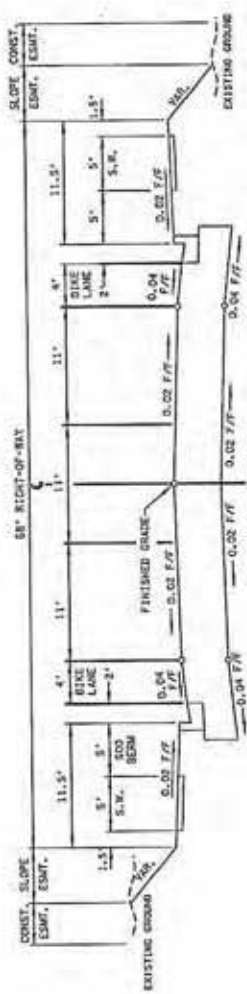
Inflation Adjustment (5% Over 5 Years)		
Preliminary Engineering (10%)	\$	369,400.00

Total Cost \$ 8,222,220.00*

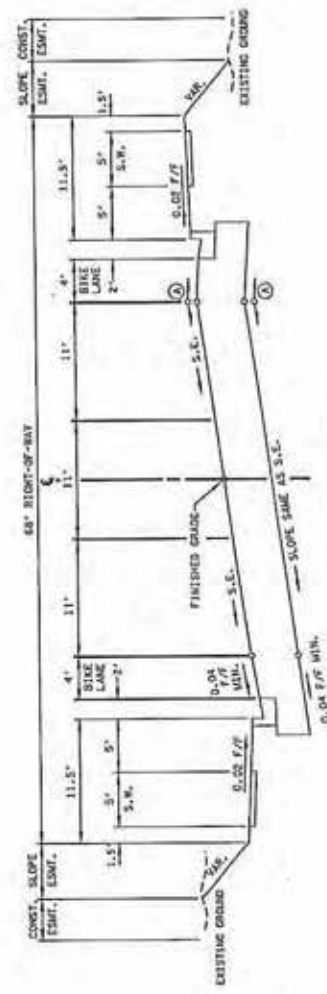
*With inflation costs added

TYPE	YEAR	PROJECT NO.	SHEET NO.
PLANT. 2008			2

DESIGN DIVISION	FILE NO.
TECHNICAL 0.0.1.1	



WASHINGTON PIKE
TANGENT SECTION
(BASED ON STD. DWG. R001-TS-7A)
FROM MILLERTOWN PIKE TO I-640



WASHINGTON PIKE
SUPERELEVATED SECTION
(BASED ON STD. DWG. R001-TS-7A)
FROM MILLERTOWN PIKE TO I-640

SECTION III
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
TYPICAL
SECTIONS

Sect. 3

DATA TABLE
Section 4 –Millertown Pike

EXISTING CONDITIONS

From: Washington Pike
 To: Interstate 640

Item

Functional Class	Urban Minor Arterial
System Class	STP
Length - Miles	0.83
Cross Section Feet	
Present ADT(2008)	8,040
Projected Future ADT(2033)	15,080
Percent Trucks	2



DATA TABLE
Section 4 –Millertown Pike

From: Washington Pike
To: Interstate 640

<u>Item</u>	<u>Existing</u>	<u>Proposed</u>
Functional Class	Urban Minor Arterial	Urban Minor Arterial
System Class	STP	STP
Length - Miles	0.63	0.63
Cross Section Feet		
Present ADT(2008)	8,040	
Projected Future ADT(2033)		15,075
Percent Trucks		
Estimated Right-of-Way Acquisition(Acres)		3.20
Estimated Right-of-Way Tracts Affected	(Business=3) (Residence=27)	30
Estimated Family Displacements		2
Estimated Business Displacements		0
Estimated Right-of-Way Cost	\$	422,000
Estimated Utility Cost Reimbursable	\$	0
Estimated Utility Cost Non-Reimbursable	\$	1,440,500
Estimated Construction Cost	\$	2,425,485
Estimated Preliminary Engineering Cost	\$	226,135
Total Estimated Section Cost	\$	4,514,120*

*No inflation costs added

Note: Channel changes, will cause the displacements of 2 families for this section but, could be contained within retaining walls. The proposed detention area near the intersection of Washington Pike and Millertown Pike will require some special design consideration to lessen impact.

TENNESSEE DEPARTMENT OF TRANSPORTATION
DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE

ROUTE:	MILLERTOWN PIKE	ALTERNATE:	
SECTION:	4	REGION:	
COUNTY:	KNOX	PROJECT #:	

LOCATION

From:	Washington Pike
To:	I-640

PARAMETER	CRITERIA
2008 ADT	8,040
2033 ADT	15,075
PERCENT TRUCKS(DHV)	2
DHV(10% ADT 2027)	1507
FUNCTIONAL CLASSIFICATION	Urban Minor Arterial
MINIMUM DESIGN SPEED	40
ACCESS CONTROL	N/A
MAXIMUM CURVE	600'
MAXIMUM GRADE	7%
MINIMUM STOPPING DISTANCE	275'/325'
SURFACE WIDTH	41'/66'
NUMBER OF LANES	2/6
USABLE SHOULDER WIDTH	0'/12'
MEDIAN WIDTH	Flush/11'
MINIMUM RIGHT-OF-WAY	68'
SIGNALIZATION	1 Modification

REMARKS:

PROJECT COST SHEET

(Millertown Pike-Section 4)

Section: 4
Length: 0.63 miles

Right-of-Way

Land, (3.2 acres)-----	\$ 372,300.00
Improvements -----	\$ 0
Damages -----	\$ 0
Incidentals -----	\$ 0
Relocation Payments (2 residences)-----	\$ 50,000.00
(business & farm)	
(1 non-profits)	

Total Right-of-Way Cost----- \$ 422,000.00

Utility Relocation

Reimbursable	\$ 0
Non-reimbursable	\$ 1,440,500.00

Total Adjustment Cost ----- \$ 1,440,500.00

Construction

Clear and Grubbing -----	\$ 39,600.00
Earthwork -----	\$ 120,000.00
Pavement Removal -----	\$ 25,000.00
Drainage (Includes Erosion Control) -----	\$ 324,600.00
Structures (3 Culverts) -----	\$ 130,000.00
Railroad Crossing or Separation -----	\$ 0
Paving -----	\$ 1,168,150.00
Retaining Walls -----	\$ 0
Maintenance of Traffic -----	\$ 36,000.00
Topsoil -----	\$ 28,600.00
Seeding -----	\$ 14,000.00
Sodding -----	\$ 44,100.00
Signing -----	\$ 3,150.00
Lighting -----	\$ 0
Signalization -----	\$ 60,000.00
Fence -----	\$ 0
Guardrail -----	\$ 3,850.00
Rip Rap or Slope Protection -----	\$ 30,000.00
Other Construction Items(8.5%) -----	\$ 172,300.00
Mobilization -----	\$ 62,000.00
Construction Cost -----	\$ 2,261,350.00
10% Eng. And Cont. -----	\$ 226,135.00

Total Construction Cost ----- \$ 2,425,485.00

*Inflation Adjustment (6% Over 5 Years) ----- \$ 1,450,196.00

Preliminary Engineering (10%)-----	\$ 226,135.00
------------------------------------	---------------

Total Cost ----- \$ 5,964,316.00*

*Inflation Costs Added

Sect. 4

6/16/2014
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MILLERTOWN PIKE
TANGENT SECTION
BASED ON STD. DWG. RD01-75-7A1



MILLERTOWN PIKE
SUPERELEVATED SECTION
BASED ON STD. DWG. RD01-75-7A1

DATE	PROJECT NO.	SHEET NO.
6/16/2014	2014-0001	21

SECTION II
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

(Millertown Pike-Option "A" Roundabout)

Section: 4
Length: 0.20 miles

Right-of-Way

Land, (1.74 acres)-----	\$ 169,938.00
Improvements -----	\$ 0
Damages -----	\$ 0
Incidentals -----	\$ 0
Relocation Payments (residences) -----	\$ 50,000.00
(business & farm)	
(non-profits)	

Total Right-of-Way Cost ----- \$ 219,938.00

Utility Relocation

Reimbursable	\$ 0
Non-reimbursable	<u>\$ 116,000.00</u>

Total Adjustment Cost ----- \$ 116,000.00

Construction

Clear and Grubbing -----	\$	5,000.00	
Earthwork -----	\$	18,000.00	
Pavement Removal -----	\$	3,000.00	
Drainage (Includes Erosion Control) -----	\$	40,175.00	
*Structures (3 Box Culverts) -----	\$	163,000.00	
Railroad Crossing or Separation -----	\$	0	
Paving -----	\$	94,425.00	
Retaining Walls -----	\$	0	
Maintenance of Traffic -----	\$	15,000.00	
Topsoil -----	\$	3,400.00	
Seeding -----	\$	2,000.00	
Sodding -----	\$	5,900.00	
Signing -----	\$	400.00	
Lighting -----	\$	0	
Signalization -----	\$	0	
Fence -----	\$	0	
Guardrail -----	\$	4,400.00	
Rip Rap or Slope Protection -----	\$	30,000.00	
Other Construction Items(8.5%) -----	\$	32,700.00	
Mobilization -----	\$	8,400.00	
Construction Cost -----	\$	425,800.00	
10% Eng. And Cont. -----	\$	42,580.00	
Total Construction Cost -----			\$ 468,380.00
*Inflation Adjustment (6% Over 5 Years) -----			\$ 158,500.00
Preliminary Engineering (10%) -----			\$ 42,580.00
Cost -----			\$ 1,005,398.00

* Inflation Costs Added

PROJECT COST SHEET
(Millertown-Pike Section 4 Option "B")
"T" Intersection

Section: 4
Length: 0.20 miles

Right-of-Way

Land, (0.457acres) -----	\$ 74,380.00
Improvements -----	\$ 0
Damages -----	\$ 0
Incidentals -----	\$ 0
Relocation Payments (residences) -----	\$ 0
(business & farm)	
(non-profits)	

Total Right-of-Way Cost ----- \$ 74,380.00

Utility Relocation

Reimbursable	\$ 0
Non-reimbursable	\$ <u>116,000.00</u>

Total Adjustment Cost ----- \$ 116,000.00

Construction

Clear and Grubbing -----	\$	5,000.00
Earthwork -----	\$	18,000.00
Pavement Removal -----	\$	5,000.00
Drainage (Includes Erosion Control) -----	\$	64,175.00
Structures (2 Box Culverts) -----	\$	105,000.00
Railroad Crossing or Separation -----	\$	0
Paving -----	\$	100,550.00
Retaining Walls -----	\$	0
Maintenance of Traffic -----	\$	15,000.00
Topsoil -----	\$	4,700.00
Seeding -----	\$	2,250.00
Sodding -----	\$	8,200.00
Signing -----	\$	600.00
Lighting -----	\$	0
Signalization -----	\$	0
Fence -----	\$	0
Guardrail -----	\$	4,950.00
Rip Rap or Slope Protection -----	\$	20,000.00
Other Construction Items(8.5%) -----	\$	30,050.00
Mobilization -----	\$	7,700.00
Construction Cost -----	\$	391,175.00
10% Eng. And Cont. -----	\$	39,120.00

Total Construction Cost ----- \$ 430,295.00

*Inflation Adjustment (6% Over 5 Years) ----- \$ 145,600.00

Preliminary Engineering (10%)-----	\$ 39,120.00
------------------------------------	--------------

Total Cost ----- **\$ 805,395.00***

* Inflation Costs Added

SPOT IMPROVEMENTS

Spot Improvements

Roundabout Option- Millertown Pike and Washington Pike

This project involves the construction of a traffic circle to replace the existing three-legged intersection. The intersection will extend approximately 400 feet east and west of the intersection of Washington Pike and Millertown Pike. There will be ten tracts affected by this construction, nine residential and one non-profit. Because of the construction of box culverts and channel relocation at the intersection of Washington Pike and Millertown Pike, two total acquisitions will be made to correspond with the construction of the traffic circle and could also become involved during culvert construction.

Springhill Bridge Relocation Project-Millertown Pike, east of Springhill Road

This project involves the replacement of a double 3' X 3' concrete box culvert sized for appropriate storm. The construction will take place between the intersections of Brookwood at Millertown Pike and Springhill at Millertown Pike for approximately 100 feet. The culvert will be built for proposed future widening of Millertown Pike in this area but will be constructed to current conditions. No widening will take place on Millertown Pike. There will be acquisitions from one business and three residential tracts. Utility replacements will be minimal.

PROJECT COST SHEET
(Millertown Pike-Option "A" Roundabout)

Section: 4
Length: 0.20 miles

Right-of-Way

Land, (1.74acres)-----	\$ 169,938.00
Improvements-----	\$ 0
Damages-----	\$ 0
Incidentals-----	\$ 0
Relocation Payments (residences)-----	\$ 50,000.00
(business & farm)	
(non-profits)	

Total Right-of-Way Cost----- **\$ 219,938.00**

Utility Relocation

Reimbursable-----	\$ 0
Non-reimbursable-----	\$ 116,000.00

Total Adjustment Cost----- **\$ 116,000.00**

Construction

Clear and Grubbing-----	\$ 5,000.00
Earthwork-----	\$ 18,000.00
Pavement Removal-----	\$ 3,000.00
Drainage (Includes Erosion Control)-----	\$ 40,175.00
*Structures (3 Box Culverts)-----	\$ 163,000.00
Railroad Crossing or Separation-----	\$ 0
Paving-----	\$ 94,425.00
Retaining Walls-----	\$ 0
Maintenance of Traffic-----	\$ 15,000.00
Topsoil-----	\$ 3,400.00
Seeding-----	\$ 2,000.00
Sodding-----	\$ 5,900.00
Signing-----	\$ 400.00
Lighting-----	\$ 0
Signalization-----	\$ 0
Fence-----	\$ 0
Guardrail-----	\$ 4,400.00
Rip Rap or Slope Protection-----	\$ 30,000.00
Other Construction Items(8.5%)-----	\$ 32,700.00
Mobilization-----	\$ 8,400.00
Construction Cost-----	\$ 425,800.00
10% Eng. And Cont.-----	\$ 42,580.00
Total Construction Cost-----	\$ 468,380.00
Inflation Adjustment (6% Over 5 Years)-----	\$ 158,500.00*

Preliminary Engineering (10%)----- **\$ 42,580.00**

Total Cost----- **\$ 1,005,398.00***

*Inflation Costs Added



PROJECT COST SHEET
(Millertown-Pike Section 4 Option "B")
"T" Intersection

Section: 4
Length: 0.20 miles

Right-of-Way

Land, (0.457 acres) -----	\$ 74,380.00
Improvements -----	\$ 0
Damages -----	\$ 0
Incidentals -----	\$ 0
Relocation Payments (residences) -----	\$ 0
(business & farm)	
(non-profits)	

Total Right-of-Way Cost ----- \$ 74,380.00

Utility Relocation

Reimbursable-----	\$ 0
Non-reimbursable-----	\$ <u>116,000.00</u>

Total Adjustment Cost ----- \$ 116,000.00

Construction

Clear and Grubbing	\$	5,000.00
Earthwork	\$	18,000.00
Pavement Removal	\$	5,000.00
Drainage (Includes Erosion Control)	\$	64,175.00
Structures (2 Box Culverts)	\$	105,000.00
Railroad Crossing or Separation	\$	0
Paving	\$	100,550.00
Retaining Walls	\$	0
Maintenance of Traffic	\$	15,000.00
Topsoil	\$	4,700.00
Seeding	\$	2,250.00
Sodding	\$	8,200.00
Signing	\$	600.00
Lighting	\$	0
Signalization	\$	0
Fence	\$	0
Guardrail	\$	4,950.00
Rip Rap or Slope Protection	\$	20,000.00
Other Construction Items(8.5%)	\$	30,050.00
Mobilization	\$	7,700.00
Construction Cost	\$	391,175.00
10% Eng. And Cont.	\$	39,120.00

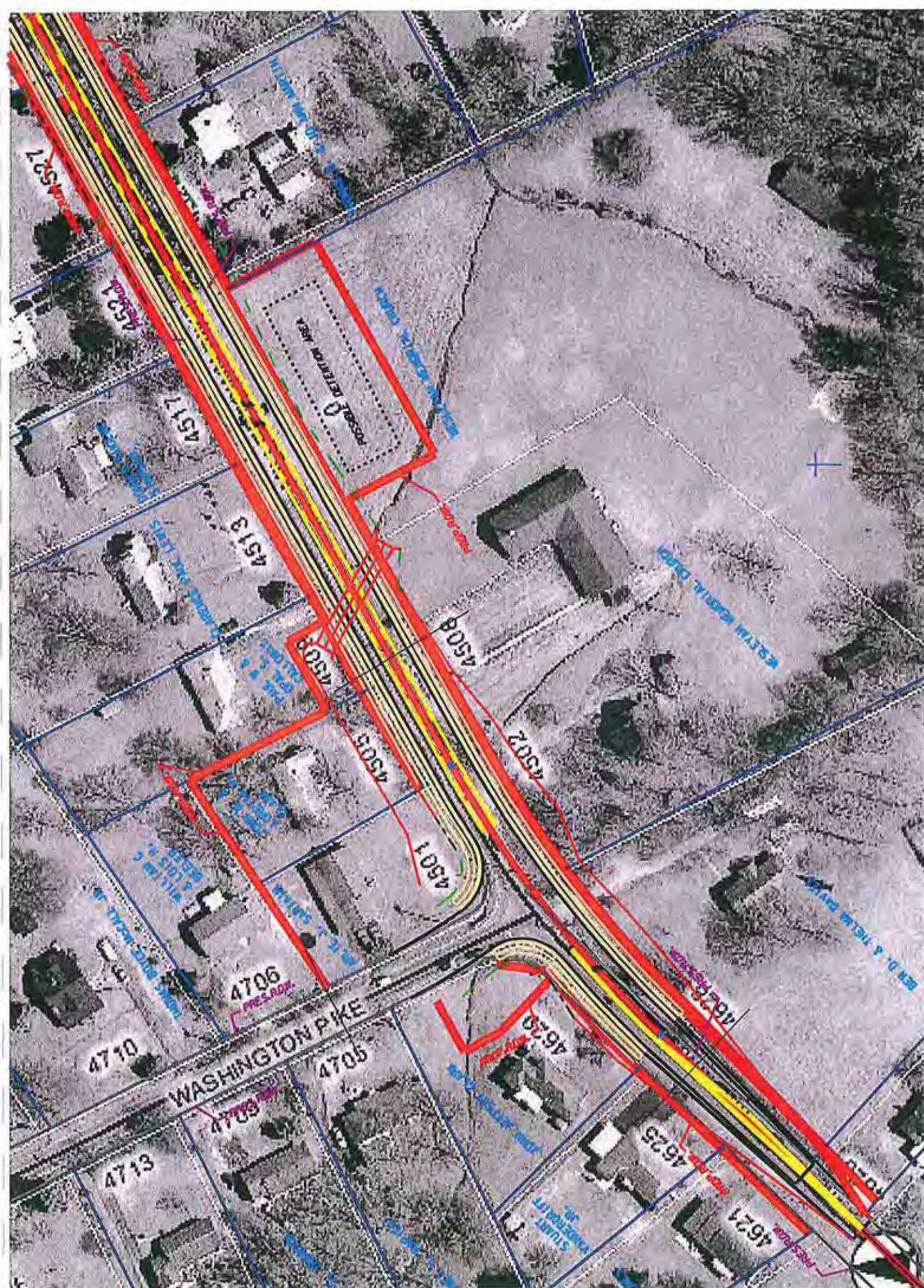
Total Construction Cost ----- \$ 430,295.00

Inflation Adjustment (6% Over 5 Years)----- \$ 145,600.00*

Preliminary Engineering (10%)-----	\$ 39,120.00
------------------------------------	--------------

Total Cost ----- \$ 805,395.00*

*Inflation Cost Added



DATA TABLE (Springhill)
Section 4 –Millertown Pike
Spot Improvement-Bridge Replacement

From: Washington Pike
To: Interstate 640

<u>Item</u>	<u>Existing</u>	<u>Proposed</u>
Functional Class	Urban Minor Arterial	Urban Minor Arterial
System Class	STP	STP
Length - Miles		
Cross Section Feet		
Present ADT(2008)	8,040	
Projected Future ADT(2033)		15,075
Percent Trucks		
Estimated Right-of-Way Acquisition(Acres)		
Estimated Right-of-Way Tracts Affected	(Business=0) (Residence=4)	4
Estimated Family Displacements		0
Estimated Business Displacements		0
Estimated Right-of-Way Cost	\$	22,000
Estimated Utility Cost Reimbursable	\$	0
Estimated Utility Cost Non-Reimbursable	\$	30,000
Estimated Construction Cost	\$	111,705
Estimated Preliminary Engineering Cost	\$	10,155
Total Estimated Section Cost	\$	173,860

Note: Channel change will need to occur to line up for additional work in future. This aspect will involve permitting. The permitting is not included in the Estimate.

Section 4 – Millertown Pike
Spot Improvement- Bridge Replacement Project

Section: 4
Length: 0.02 Miles

Right-of-Way

Land, (0.144acres) -----	\$ 22,000.00
Improvements -----	\$ 0
Damages -----	\$ 0
Incidentals -----	\$ 0
Relocation Payments (residences) -----	\$ 0
(1 business)	
(3 residences)	

Total Right-of-Way Cost-----\$ 22,000.00

Utility Relocation

Reimbursable-----	\$ 0
Non-reimbursable-----	\$ 30,000.00

Total Adjustment Cost ----- \$ 30,000.00

Construction

Clear and Grubbing -----	\$	2,000.00
Earthwork -----	\$	2,400.00
Pavement Removal -----	\$	0
Drainage (Includes Erosion Control) -----	\$	49,200.00
Structures -----	\$	0
Railroad Crossing or Separation -----	\$	0
Paving -----	\$	7,500.00
Retaining Walls -----	\$	0
Maintenance of Traffic -----	\$	15,000.00
Topsoil -----	\$	300.00
Seeding -----	\$	200.00
Sodding -----	\$	0
Signing -----	\$	0
Lighting -----	\$	0
Signalization -----	\$	0
Fence -----	\$	0
Guardrail -----	\$	3,300.00
Rip Rap or Slope Protection -----	\$	10,000.00
Other Construction Items(8.5%) -----	\$	7,650.00
Mobilization -----	\$	4,000.00
Construction Cost -----	\$	101,550.00
10% Eng. And Cont. -----	\$	10,155.00

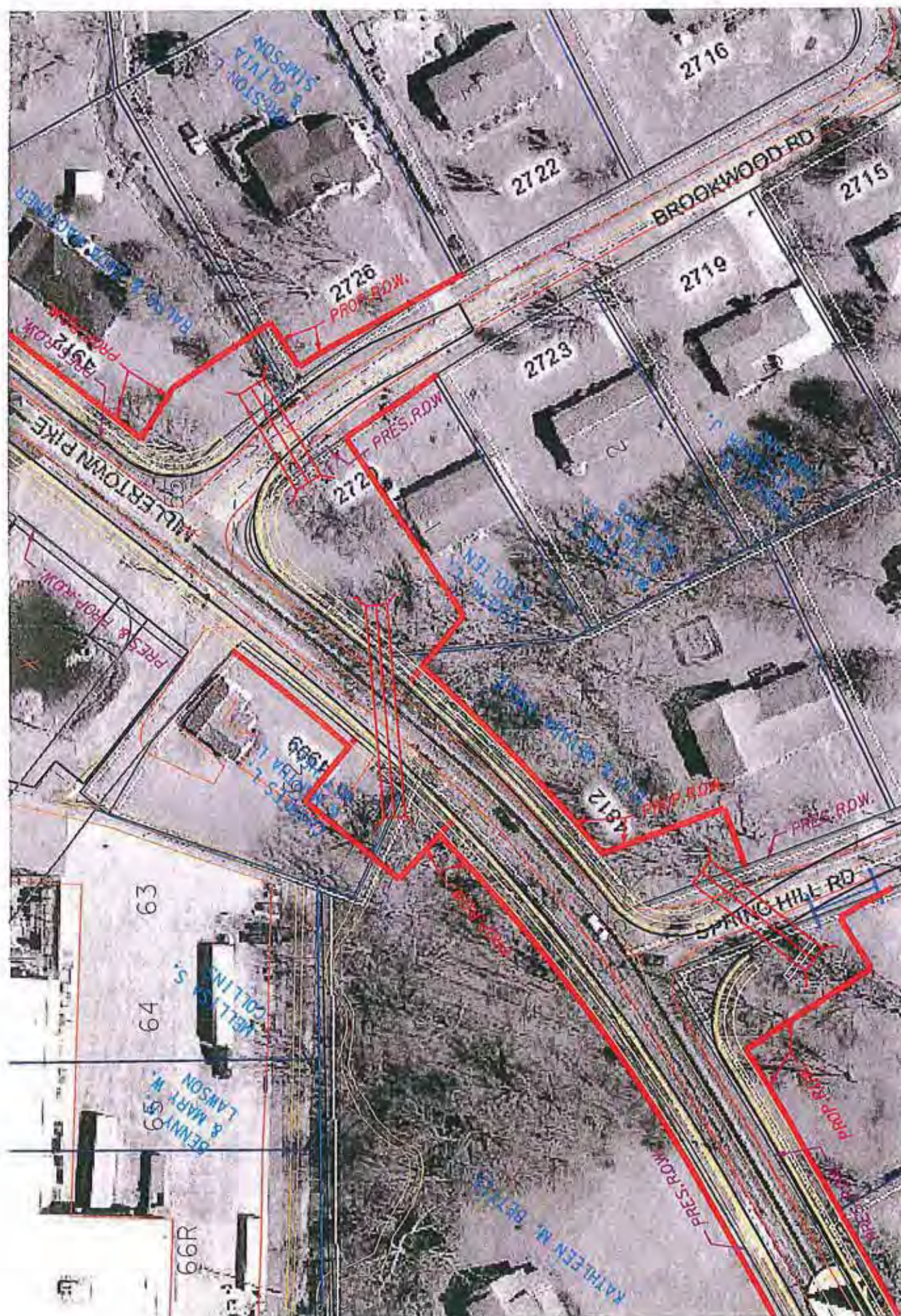
Total Construction Cost ----- \$ 111,705.00

Inflation Adjustment (6% Over 5 Years)-----	\$ 41,250.00*
---	---------------

Preliminary Engineering (10%)-----	\$ 10,155.00
------------------------------------	--------------

Total Cost ----- \$ 215,110.00*

*Inflation Costs Added



WASHINGTON PIKE /MILLERTOWN PIKE TPR

APPENDIX

VOLUME II

TRAFFIC SCHEMATICS



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
PROJECT PLANNING OFFICE
SUITE 1000, JAMES K. POLK BUILDING
NASHVILLE, TENNESSEE 37243-0344

September 8, 2008

Dawn Michelle Foster
Wilbur Smith Associates
1100 Marion Street, Suite 200
Knoxville Tennessee 37921

Subject: Traffic Figures for Washington Pike-Millertown Pike
Knoxville, Knox County

Dear Dawn:

We have reviewed the revised traffic schematics you submitted on September 3, 2008 for the subject project. These figures on the existing system have our approval for your use in the study.

Further coordination should be directed to Mr. Bill Hart's office. If I can be of further assistance, please advice.

Sincerely,

Tony Armstrong
Transportation Manager 1

Cc: Mr. Bill Hart



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
PROJECT PLANNING OFFICE
SUITE 1000, JAMES K. POLK BUILDING
NASHVILLE, TENNESSEE 37243-0344

October 9, 2008

Ms. Dawn Michelle Foster
Wilbur Smith Associates
1100 Marion Street, Suite 200
Knoxville Tennessee 37921

Subject: Traffic Figures for Washington Pike-Millertown Pike
Knoxville, Knox County

Dear Dawn,

We have reviewed the proposed system [Murphy Road Extension] traffic schematics submitted on October 3, 2008 for the subject project. These traffic figures have our approval for your use in the study. The existing system traffic was approved on September 8, 2008.

If I can be of further assistance, please advise.

Sincerely,

A handwritten signature in black ink, which appears to read "Tony Armstrong", is written over a horizontal line.

Tony Armstrong
Transportation Manager I

Cc: Mr. Bill Hart

Your Company Name Here

This is your address
Your City, State ZipCode
Your Tagline Here

File Name : No 1 Washington Pk with Murphy Rd
Site Code : 00000001
Start Date : 4/14/2008
Page No : 1

Groups Printed- Unshifted													
Murphy Rd				Washington Pk			Washington Pk						Int. Total
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00 AM	9	8	164	0	90	1	0	3	0	20	23	1	319
07:15 AM	14	5	193	1	200	7	4	2	0	46	41	5	518
07:30 AM	24	5	234	0	217	14	11	4	0	32	45	5	591
07:45 AM	21	13	229	0	186	16	0	2	0	45	51	1	564
Total	68	31	820	1	693	38	15	11	0	143	160	12	1992
08:00 AM	3	13	218	0	176	10	8	4	1	65	48	2	548
08:15 AM	3	4	168	0	99	8	3	2	0	64	18	1	370
08:30 AM	3	4	130	0	77	16	9	1	0	52	27	1	320
08:45 AM	7	9	117	0	86	11	4	3	0	45	20	9	311
Total	16	30	633	0	438	45	24	10	1	226	113	13	1549
11:15 AM	2	3	51	1	41	1	6	0	0	23	40	1	169
11:30 AM	3	2	42	0	34	5	4	2	0	42	19	7	160
11:45 AM	6	5	53	0	63	3	4	4	0	56	24	6	224
Total	11	10	146	1	138	9	14	6	0	121	83	14	553
12:00 PM	2	6	82	1	45	7	2	3	1	48	27	5	229
12:15 PM	2	4	62	0	32	5	0	2	0	58	25	2	192
12:30 PM	4	5	66	0	49	10	0	5	0	56	28	0	223
12:45 PM	2	4	83	0	37	4	8	4	0	59	32	7	240
Total	10	19	293	1	163	26	10	14	1	221	112	14	884
01:00 PM	8	4	81	0	44	10	2	5	0	55	44	4	257
Total	8	4	81	0	44	10	2	5	0	55	44	4	257
02:15 PM	10	1	72	0	60	9	2	3	0	65	39	3	264
02:30 PM	7	5	63	0	64	7	9	2	0	104	53	1	315
02:45 PM	11	6	71	0	23	14	3	4	0	76	60	2	270
Total	28	12	206	0	147	30	14	9	0	245	152	6	849
03:00 PM	10	2	60	0	96	15	8	4	0	117	55	0	367
03:15 PM	9	2	107	0	50	4	5	6	0	103	63	2	351
03:30 PM	3	3	85	0	58	11	2	4	0	130	60	3	359
03:45 PM	12	1	86	1	39	5	6	3	0	141	62	2	358
Total	34	8	338	1	243	35	21	17	0	491	240	7	1435
04:00 PM	9	3	98	0	48	4	1	0	0	173	78	2	416
04:15 PM	8	1	138	0	41	7	3	3	0	141	85	1	428
04:30 PM	3	3	150	0	64	6	4	4	0	162	106	2	504
04:45 PM	9	2	110	0	47	20	3	2	2	152	108	13	468
Total	29	9	496	0	200	37	11	9	2	628	377	18	1816
05:00 PM	6	9	89	0	55	7	9	8	0	150	133	17	483
05:15 PM	7	7	80	0	80	11	3	6	0	179	160	13	546
05:30 PM	12	7	93	0	38	12	4	6	0	161	151	9	493
05:45 PM	12	5	53	0	52	7	8	13	0	177	142	7	476
Total	37	28	315	0	225	37	24	33	0	667	586	46	1998
06:00 PM	7	5	96	0	51	9	2	10	0	171	138	4	493
Grand Total	248	156	3424	4	2342	276	137	124	4	2968	2005	138	11826
Apprch %	6.5	4.1	89.4	0.2	89.3	10.5	51.7	46.8	1.5	58.1	39.2	2.7	
Total %	2.1	1.3	29	0	19.8	2.3	1.2	1	0	25.1	17	1.2	

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File Name : No 1 Washington Pk with Murphy Rd
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	Murphy Rd				Washington Pk								Washington Pk				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	14	5	193	212	1	200	7	208	4	2	0	6	46	41	5	92	518
07:30 AM	24	5	234	263	0	217	14	231	11	4	0	15	32	45	5	82	591
07:45 AM	21	13	229	263	0	186	16	202	0	2	0	2	45	51	1	97	564
08:00 AM	3	13	218	234	0	176	10	186	8	4	1	13	65	48	2	115	548
Total Volume	62	36	874	972	1	779	47	827	23	12	1	36	188	185	13	386	2221
% App. Total	6.4	3.7	89.9		0.1	94.2	5.7		63.9	33.3	2.8		48.7	47.9	3.4		
PHF	.646	.692	.934	.924	.250	.897	.734	.895	.523	.750	.250	.600	.723	.907	.650	.839	.940

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

05:00 PM	6	9	89	104	0	55	7	62	9	8	0	17	150	133	17	300	483
05:15 PM	7	7	80	94	0	80	11	91	3	6	0	9	179	160	13	352	546
05:30 PM	12	7	93	112	0	38	12	50	4	6	0	10	161	151	9	321	493
05:45 PM	12	5	53	70	0	52	7	59	8	13	0	21	177	142	7	326	476
Total Volume	37	28	315	380	0	225	37	262	24	33	0	57	667	586	46	1299	1998
% App. Total	9.7	7.4	82.9		0	85.9	14.1		42.1	57.9	0		51.3	45.1	3.5		
PHF	.771	.778	.847	.848	.000	.703	.771	.720	.667	.635	.000	.679	.932	.916	.676	.923	.915

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File Name : No 2 Washington Pk with McCampbell Dr
Site Code : 00000002
Start Date : 4/14/2008
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Groups Printed- Unshifted

Start Time	McCampbell Dr				Washington Pk				Washington Pk				Washington Pk				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
07:00 AM	1	0	0	0	0	246	0	0	0	0	0	0	0	39	0	0	286
07:15 AM	2	0	1	0	0	323	4	0	0	0	0	0	0	96	0	0	426
07:30 AM	0	0	0	0	0	387	10	0	0	0	0	0	0	109	1	0	507
07:45 AM	0	0	1	0	1	386	5	0	0	0	0	0	0	113	0	0	506
Total	3	0	2	0	1	1342	19	0	0	0	0	0	0	357	1	0	1725
08:00 AM	0	0	1	0	0	367	4	0	0	0	0	0	0	117	0	0	489
08:15 AM	1	0	1	0	0	255	3	0	0	0	0	0	0	93	0	0	353
08:30 AM	1	0	0	0	0	206	0	0	0	0	0	0	0	99	0	0	306
08:45 AM	1	0	3	0	0	203	2	0	0	0	0	0	0	74	0	0	283
Total	3	0	5	0	0	1031	9	0	0	0	0	0	0	383	0	0	1431
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	93	2	0	0	0	0	0	0	60	0	0	155
11:30 AM	3	0	1	0	0	72	5	0	0	0	0	0	1	59	0	0	141
11:45 AM	0	0	1	0	0	88	11	0	1	6	2	0	2	77	0	0	188
Total	3	0	2	0	0	253	18	0	1	6	2	0	3	196	0	0	484
12:00 PM	1	0	0	0	0	138	1	0	0	0	0	0	3	95	0	0	238
12:15 PM	2	0	1	0	0	88	2	0	0	0	0	0	2	108	5	0	208
12:30 PM	0	0	3	0	0	119	3	0	0	0	0	0	1	97	0	0	223
12:45 PM	0	0	2	0	0	157	0	0	0	3	0	0	1	120	0	0	283
Total	3	0	6	0	0	502	6	0	0	3	0	0	7	420	5	0	952
01:00 PM	2	0	0	0	1	124	2	0	0	0	0	0	4	109	0	0	242
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	0	0	0	1	124	2	0	0	0	0	0	4	109	0	0	242
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	2	0	0	0	0	138	3	0	0	0	0	0	1	110	0	0	254
02:30 PM	0	0	0	0	0	140	5	0	0	0	0	0	11	144	0	0	300
02:45 PM	0	0	1	0	0	101	3	0	0	0	0	0	1	156	0	0	262
Total	2	0	1	0	0	379	11	0	0	0	0	0	13	410	0	0	816
03:00 PM	1	0	2	0	0	159	1	0	1	0	0	0	2	171	1	0	338
03:15 PM	6	0	2	0	0	169	1	0	0	0	0	0	6	161	0	0	345
03:30 PM	3	0	0	0	0	127	6	0	0	0	0	0	0	196	0	0	332
03:45 PM	0	0	2	0	0	137	3	0	0	0	0	0	1	210	0	0	353
Total	10	0	6	0	0	592	11	0	1	0	0	0	9	738	1	0	1368
04:00 PM	1	0	3	0	0	156	2	0	0	0	0	0	15	262	0	0	439
04:15 PM	0	0	5	0	0	122	43	1	0	1	0	0	4	226	0	0	402
04:30 PM	2	0	4	0	0	173	4	0	0	0	0	0	4	247	0	0	434
04:45 PM	1	0	3	0	0	182	5	0	0	0	0	0	20	270	0	0	481
Total	4	0	15	0	0	633	54	1	0	1	0	0	43	1005	0	0	1756

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File Name : No 2 Washington Pk with McCampbell Dr
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Groups Printed- Unshifted

	McCampbell Dr				Washington Pk				Washington Pk				Washington Pk				Int. Total
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
05:00 PM	3	0	5	0	0	160	5	0	0	0	0	0	0	334	0	0	507
05:15 PM	1	0	5	0	0	206	2	0	0	0	0	0	3	388	0	0	605
05:30 PM	3	0	5	0	0	155	3	0	0	0	0	0	2	370	0	0	538
05:45 PM	1	0	1	0	0	135	11	0	0	0	0	0	6	357	0	0	511
Total	8	0	16	0	0	656	21	0	0	0	0	0	11	1449	0	0	2161
Grand Total	38	0	53	0	2	5512	151	1	2	10	2	0	90	5067	7	0	10935
Apprch %	41.8	0	58.2	0	0	97.3	2.7	0	14.3	71.4	14.3	0	1.7	98.1	0.1	0	
Total %	0.3	0	0.5	0	0	50.4	1.4	0	0	0.1	0	0	0.8	46.3	0.1	0	

	McCampbell Dr					Washington Pk					Washington Pk					Washington Pk					Int. Total
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	2	0	1	0	3	0	323	4	0	327	0	0	0	0	0	0	96	0	0	96	426
07:30 AM	0	0	0	0	0	0	387	10	0	397	0	0	0	0	0	0	109	1	0	110	507
07:45 AM	0	0	1	0	1	1	386	5	0	392	0	0	0	0	0	0	113	0	0	113	506
08:00 AM	0	0	1	0	1	0	367	4	0	371	0	0	0	0	0	0	117	0	0	117	489
Total Volume	2	0	3	0	5	1	1463	23	0	1487	0	0	0	0	0	0	435	1	0	436	1928
% App. Total	40	0	60	0		0.1	98.4	1.5	0		0	0	0	0		0	99.8	0.2	0		
PHF	.250	.000	.750	.000	.417	.250	.945	.575	.000	.936	.000	.000	.000	.000	.000	.000	.929	.250	.000	.932	.951

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 05:00 PM

05:00 PM	3	0	5	0	8	0	206	2	0	208	0	0	0	0	0	3	388	0	0	391	605
05:15 PM	1	0	5	0	6	0	155	3	0	158	0	0	0	0	0	2	370	0	0	372	538
05:30 PM	3	0	5	0	8	0	155	3	0	158	0	0	0	0	0	6	357	0	0	363	511
05:45 PM	1	0	1	0	2	0	135	11	0	146	0	0	0	0	0	11	1449	0	0	1460	2161
Total Volume	8	0	16	0	24	0	656	21	0	677	0	0	0	0	0	11	1449	0	0	1460	2161
% App. Total	33.3	0	66.7	0		0	98.9	3.1	0		0	0	0	0		0.8	99.2	0	0		
PHF	.667	.000	.800	.000	.750	.000	.796	.477	.000	.814	.000	.000	.000	.000	.000	.458	.934	.000	.000	.934	.893

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File Name : No 3 Washington Pk with Edmonson Ln
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Groups Printed- Unshifted

Start Time	Washington Pk				Edmonson Ln				Washington Pk				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
07:00 AM	0	0	0	0	1	297	0	0	4	0	4	0	392
07:15 AM	0	0	0	0	3	369	0	0	6	0	2	0	464
07:30 AM	0	0	0	0	2	369	0	0	4	0	9	0	485
07:45 AM	0	0	0	0	5	374	0	0	4	0	1	0	489
Total	0	0	0	0	11	1409	0	0	18	0	16	0	1830
08:00 AM	0	0	0	0	1	290	0	0	6	0	1	0	397
08:15 AM	0	0	0	0	2	288	0	0	1	0	1	0	417
08:30 AM	0	0	0	0	5	233	0	0	4	0	3	0	350
08:45 AM	0	0	0	0	1	198	0	0	2	0	1	0	291
Total	0	0	0	0	9	1009	0	0	13	0	6	0	1455
11:00 AM	0	0	0	0	2	131	0	0	3	0	3	0	206
11:15 AM	0	0	0	0	1	123	0	0	2	0	0	0	226
11:45 AM	0	0	0	0	2	146	0	0	1	0	0	0	242
Total	0	0	0	0	5	400	0	0	6	0	3	0	674
12:00 PM	0	0	0	0	1	125	0	0	2	0	2	0	223
12:15 PM	0	0	0	0	0	113	0	0	5	0	1	0	234
12:30 PM	0	0	0	0	0	103	0	0	0	0	1	0	204
12:45 PM	0	0	0	0	0	150	0	0	2	0	2	0	304
Total	0	0	0	0	1	491	0	0	9	0	6	0	965
01:00 PM	0	0	0	0	1	133	0	0	6	0	2	0	268
Total	0	0	0	0	1	133	0	0	6	0	2	0	268
02:00 PM	0	0	0	0	2	110	0	0	2	0	4	0	272
02:15 PM	0	0	0	0	0	119	0	0	2	0	2	0	274
02:30 PM	0	0	0	0	0	144	0	0	3	0	7	0	296
02:45 PM	0	0	0	0	5	147	0	0	3	0	3	0	335
Total	0	0	0	0	7	520	0	0	10	0	16	0	1177
03:00 PM	0	36	0	0	1	85	0	0	3	28	1	0	267
03:15 PM	0	0	0	0	2	160	1	0	5	0	1	0	362
03:30 PM	0	0	0	0	2	125	0	0	2	0	1	0	335
03:45 PM	0	0	0	0	5	140	0	0	2	0	0	0	408
Total	0	36	0	0	10	510	1	0	12	28	3	0	1372
04:00 PM	0	0	0	0	0	146	0	0	2	0	1	0	435
04:15 PM	0	0	0	0	1	166	0	0	2	0	0	0	466
04:30 PM	0	0	0	0	3	137	0	0	4	0	1	0	446
04:45 PM	0	0	0	0	1	176	0	0	2	0	2	0	496
Total	0	0	0	0	5	625	0	0	10	0	4	0	1843
05:00 PM	0	0	0	0	4	156	0	0	2	0	1	0	520
05:15 PM	0	0	0	0	1	124	0	0	1	0	0	0	480
05:30 PM	0	0	0	0	3	134	0	0	1	0	5	0	461
05:45 PM	0	0	0	0	1	159	0	0	1	0	1	0	497
Total	0	0	0	0	9	573	0	0	5	0	7	0	1958
Grand Total	0	36	0	0	58	5670	1	0	89	28	63	0	11542
Apprch %	0	100	0	0	1	99	0	0	49.4	15.6	35	0	
Total %	0	0.3	0	0	0.5	49.1	0	0	0.8	0.2	0.5	0	

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Site Code : 00000003

Start Date : 4/16/2008

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						Washington Pk					Edmonson Ln					Washington Pk					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	0	0	3	369	0	0	372	6	0	2	0	8	0	82	2	0	84	464
07:30 AM	0	0	0	0	0	2	369	0	0	371	4	0	9	0	13	0	100	1	0	101	485
07:45 AM	0	0	0	0	0	5	374	0	0	379	4	0	1	0	5	0	104	1	0	105	489
08:00 AM	0	0	0	0	0	1	290	0	0	291	6	0	1	0	7	0	97	2	0	99	397
Total Volume	0	0	0	0	0	11	1402	0	0	1413	20	0	13	0	33	0	383	6	0	389	1835
% App. Total	0	0	0	0	0	0.8	99.2	0	0	0	60.6	0	39.4	0	0	0	98.5	1.5	0	0	0
PHF	.000	.000	.000	.000	.000	.550	.937	.000	.000	.932	.833	.000	.361	.000	.635	.000	.921	.750	.000	.926	.938

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

05:00 PM	0	0	0	0	0	4				160	2					352	5			357	520
05:15 PM	0	0	0	0	0	1	124	0	0	125	1	0	0	0	1	0	351	3	0	354	480
05:30 PM	0	0	0	0	0	3	134	0	0	137	1	0	5	0	6	0	313	5	0	318	461
05:45 PM	0	0	0	0	0	1	159	0	0	160	1	0	1	0	2	0	332	3	0	335	497
Total Volume	0	0	0	0	0	9	573	0	0	582	5	0	7	0	12	0	1348	16	0	1364	1958
% App. Total	0	0	0	0	0	1.5	98.5	0	0	0	41.7	0	58.3	0	0	0	98.8	1.2	0	0	0
PHF	.000	.000	.000	.000	.000	.563	.901	.000	.000	.909	.625	.000	.350	.000	.500	.000	.957	.800	.000	.955	.941

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Your Tagline File Name : No 4 Washington Pk with Babelay Rd

Site Code : 00000004

Start Date : 4/15/2008

Page No : 1

Groups Printed- Unshifted

Start Time	Babelay Rd				Washington Pk				Babelay Rd								Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
07:00 AM	0	0	2	0	0	285	0	0	7	0	2	0	0	59	3	0	358
07:15 AM	1	0	0	0	0	360	0	0	15	0	4	0	1	86	3	0	470
07:30 AM	0	0	7	0	1	388	1	0	21	0	4	0	1	108	5	0	536
07:45 AM	0	0	1	0	7	374	0	0	22	0	7	0	0	113	7	0	531
Total	1	0	10	0	8	1407	1	0	65	0	17	0	2	366	18	0	1895
08:00 AM	0	0	2	0	0	344	0	0	12	0	3	0	0	110	4	0	475
08:15 AM	2	0	3	0	4	240	0	0	7	0	1	0	0	101	6	0	364
08:30 AM	0	0	3	0	0	223	0	0	13	0	2	0	0	89	4	0	334
08:45 AM	0	0	0	0	0	187	0	0	11	0	1	0	2	78	4	0	283
Total	2	0	8	0	4	994	0	0	43	0	7	0	2	378	18	0	1456
11:00 AM	0	0	1	0	1	105	0	0	7	0	0	0	0	93	8	0	215
11:15 AM	0	0	1	0	2	98	0	0	10	0	1	0	0	74	6	0	192
11:30 AM	1	0	0	0	1	117	1	0	6	0	4	0	0	94	7	0	231
11:45 AM	0	0	0	0	1	114	0	0	11	0	2	0	1	96	3	0	228
Total	1	0	2	0	5	434	1	0	34	0	7	0	1	357	24	0	866
12:00 PM	0	0	4	0	0	123	0	0	6	0	0	0	1	106	5	0	245
12:15 PM	0	0	1	0	0	100	0	0	7	0	2	0	1	112	10	0	233
12:30 PM	0	0	0	0	3	122	0	0	5	0	6	0	2	119	12	0	269
12:45 PM	0	0	1	0	0	114	0	0	9	0	1	0	0	134	10	0	269
Total	0	0	6	0	3	459	0	0	27	0	9	0	4	471	37	0	1016
02:15 PM	0	0	0	0	0	111	2	0	9	0	2	0	1	154	15	0	294
02:30 PM	0	0	3	0	4	108	0	0	6	0	3	0	0	155	9	0	288
02:45 PM	0	0	0	0	2	128	1	0	8	0	2	0	1	166	8	0	316
Total	0	0	3	0	6	347	3	0	23	0	7	0	2	475	32	0	898
03:00 PM	0	0	0	0	0	152	0	0	8	0	2	0	0	156	9	0	327
03:15 PM	1	0	0	0	1	135	0	0	13	0	1	0	1	178	17	0	347
03:30 PM	0	0	0	0	0	126	0	0	5	0	3	0	4	193	13	0	344
03:45 PM	1	0	2	0	0	123	0	0	5	0	1	0	3	245	20	0	400
Total	2	0	2	0	1	536	0	0	31	0	7	0	8	772	59	0	1418
04:00 PM	0	0	0	0	3	164	0	0	4	0	3	0	0	251	16	0	441
04:15 PM	0	0	1	0	2	127	1	0	11	0	4	0	0	257	15	0	418
04:30 PM	0	0	1	0	3	147	0	0	3	0	2	0	0	289	11	0	456
04:45 PM	0	0	1	0	1	177	1	0	4	0	5	0	1	298	19	0	507
Total	0	0	3	0	9	615	2	0	22	0	14	0	1	1095	61	0	1822
05:00 PM	0	0	0	0	1	118	0	0	5	0	2	0	4	331	19	0	480
05:15 PM	2	0	4	0	1	132	1	0	5	0	1	0	1	358	16	0	521
05:30 PM	0	0	0	0	1	115	1	0	5	0	1	0	1	384	21	0	529
05:45 PM	0	0	0	0	3	132	2	0	4	0	2	0	0	326	17	0	486
Total	2	0	4	0	6	497	4	0	19	0	6	0	6	1399	73	0	2016
06:00 PM	1	0	0	0	4	136	0	0	7	0	1	0	2	286	15	0	452
Grand Total	9	0	38	0	46	5425	11	0	271	0	75	0	28	5599	337	0	11839
Apprch %	19.1	0	80.9	0	0.8	99	0.2	0	78.3	0	21.7	0	0.5	93.9	5.7	0	
Total %	0.1	0	0.3	0	0.4	45.8	0.1	0	2.3	0	0.6	0	0.2	47.3	2.8	0	

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File Name : No 4 Washington Pk with Babelay Rd
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	Babelay Rd					Washington Pk					Babelay Rd										
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	1	0	0	0	1	0	360	0	0	360	15	0	4	0	19	1	86	3	0	90	470
07:30 AM	0	0	7	0	7	1	388	1	0	390	21	0	4	0	25	1	108	5	0	114	536
07:45 AM	0	0	1	0	1	7	374	0	0	381	22	0	7	0	29	0	113	7	0	120	531
08:00 AM	0	0	2	0	2	0	344	0	0	344	12	0	3	0	15	0	110	4	0	114	475
Total Volume	1	0	10	0	11	8	1466	1	0	1475	70	0	18	0	88	2	417	19	0	438	2012
% App. Total	9.1	0	90.9	0		0.5	99.4	0.1	0		79.5	0	20.5	0		0.5	95.2	4.3	0		
PHF	.250	.000	.357	.000	.393	.286	.945	.250	.000	.946	.795	.000	.643	.000	.759	.500	.923	.679	.000	.913	.938

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

05:00 PM	0	0	0	0	0	1	118	0	0	119	5		2		7	4					
05:15 PM	2	0	4	0	6	1	132	1	0	134	5	0	1	0	6	1	358	16	0	375	521
05:30 PM	0	0	0	0	0	1	115	1	0	117	5	0	1	0	6	1	384	21	0	406	529
05:45 PM	0	0	0	0	0	3	132	2	0	137	4	0	2	0	6	0	326	17	0	343	486
Total Volume	2	0	4	0	6	6	497	4	0	507	19	0	6	0	25	6	1399	73	0	1478	2016
% App. Total	33.3	0	66.7	0		1.2	98	0.8	0		76	0	24	0		0.4	94.7	4.9	0		
PHF	.250	.000	.250	.000	.250	.500	.941	.500	.000	.925	.950	.000	.750	.000	.893	.375	.911	.869	.000	.910	.953

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File Name : No 5 Washington Pk with Mill Rd
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Groups Printed- Unshifted

Start Time	MILL RD				WASINGTON PIKE				MILL RD				WASINGTON PIKE				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
07:00 AM	0	0	0	0	93	132	0	0	6	0	27	0	0	27	1	0	286
07:15 AM	0	0	0	0	134	183	0	0	4	0	36	0	0	42	3	0	402
07:30 AM	0	0	0	0	117	295	0	0	6	0	68	0	0	42	5	0	533
07:45 AM	0	0	0	0	111	268	0	0	9	0	64	0	0	58	3	0	513
Total	0	0	0	0	455	878	0	0	25	0	195	0	0	169	12	0	1734
08:00 AM	0	0	0	0	147	238	0	0	3	0	58	0	0	44	4	0	494
08:15 AM	0	0	0	0	128	197	0	0	3	0	61	0	0	52	4	0	445
08:30 AM	0	0	0	0	80	141	0	0	4	0	64	0	0	54	2	0	345
08:45 AM	0	0	0	0	73	154	0	0	6	0	41	0	0	48	5	0	327
Total	0	0	0	0	428	730	0	0	16	0	224	0	0	198	15	0	1611
11:00 AM	0	0	0	0	57	68	1	0	4	0	51	0	0	50	6	0	237
11:15 AM	0	0	0	0	57	67	0	0	5	0	56	0	0	59	5	0	249
11:30 AM	0	0	0	0	68	72	0	0	7	0	91	0	0	58	7	0	303
11:45 AM	0	0	0	0	62	68	0	0	6	0	70	0	0	63	18	0	287
Total	0	0	0	0	244	275	1	0	22	0	268	0	0	230	36	0	1076
12:00 PM	0	0	0	0	86	77	0	0	3	0	55	0	0	78	19	0	318
12:15 PM	0	0	0	0	70	79	0	0	10	0	91	0	0	69	13	0	332
12:30 PM	0	0	0	0	60	72	0	0	5	0	84	0	0	79	9	0	309
12:45 PM	0	0	0	0	54	53	0	0	7	0	66	0	0	80	7	0	267
Total	0	0	0	0	270	281	0	0	25	0	296	0	0	306	48	0	1226
02:00 PM	0	0	0	0	62	74	0	0	9	0	66	0	0	98	9	0	318
02:15 PM	0	0	0	0	62	94	0	0	7	0	103	0	0	99	11	0	376
02:30 PM	0	0	0	0	68	77	2	0	8	0	79	0	0	79	15	0	328
02:45 PM	0	0	0	0	45	63	0	0	3	0	99	0	3	112	17	0	342
Total	0	0	0	0	237	308	2	0	27	0	347	0	3	388	52	0	1364
03:00 PM	0	0	0	0	68	72	1	0	4	0	118	0	0	105	4	0	372
03:15 PM	0	0	0	0	89	118	0	0	10	1	92	0	0	119	13	0	442
03:30 PM	0	0	0	0	67	88	0	0	7	0	95	0	0	125	14	0	396
03:45 PM	0	0	0	0	70	79	0	0	2	0	106	0	0	133	12	0	402
Total	0	0	0	0	294	357	1	0	23	1	411	0	0	482	43	0	1612
04:00 PM	0	1	0	0	79	72	0	0	15	0	147	0	0	167	14	0	495
04:15 PM	0	0	0	0	82	114	1	0	5	0	148	0	0	230	9	0	589
04:30 PM	0	0	0	0	86	92	0	0	8	1	148	0	0	234	21	0	590
04:45 PM	0	0	0	0	73	81	0	0	9	0	193	0	0	243	21	0	620
Total	0	1	0	0	320	359	1	0	37	1	636	0	0	874	65	0	2294
05:00 PM	0	0	0	0	67	61	0	0	10	0	157	0	0	264	12	0	571
05:15 PM	0	0	0	0	75	64	0	0	2	0	140	0	0	251	12	0	544
05:30 PM	0	0	0	0	70	83	0	0	9	0	179	4	0	213	8	0	566
05:45 PM	0	0	0	0	67	68	0	0	7	0	197	0	0	228	5	0	572
Total	0	0	0	0	279	276	0	0	28	0	673	4	0	956	37	0	2253
Grand Total	0	1	0	0	2527	3464	5	0	203	2	3050	4	3	3603	308	0	13170
Apprch %	0	100	0	0	42.1	57.8	0.1	0	6.2	0.1	93.6	0.1	0.1	92.1	7.9	0	
Total %	0	0	0	0	19.2	26.3	0	0	1.5	0	23.2	0	0	27.4	2.3	0	

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	MILL RD					WASINGTON PIKE					MILL RD					WASINGTON PIKE					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	0	0	134	183	0	0	317	4	0	36	0	40	0	42	3	0	45	402
07:30 AM	0	0	0	0	0	117	295	0	0	412	6	0	68	0	74	0	42	5	0	47	533
07:45 AM	0	0	0	0	0	111	268	0	0	379	9	0	64	0	73	0	58	3	0	61	513
08:00 AM	0	0	0	0	0	147	238	0	0	385	3	0	58	0	61	0	44	4	0	48	494
Total Volume	0	0	0	0	0	509	984	0	0	1493	22	0	226	0	248	0	186	15	0	201	1942
% App. Total	0	0	0	0	0	34.1	65.9	0	0		8.9	0	91.1	0		0	92.5	7.5	0		
PHF	.000	.000	.000	.000	.000	.866	.834	.000	.000	.906	.611	.000	.831	.000	.838	.000	.802	.750	.000	.824	.911

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	67	61	0	0	128	10					264	12			276	
05:15 PM	0	0	0	0	0	75	64	0	0	139	2	0	140	0	142	0	251	12	0	263	544
05:30 PM	0	0	0	0	0	70	83	0	0	153	9	0	179	4	192	0	213	8	0	221	566
05:45 PM	0	0	0	0	0	67	68	0	0	135	7	0	197	0	204	0	228	5	0	233	572
Total Volume	0	0	0	0	0	279	276	0	0	555	28	0	673	4	705	0	956	37	0	993	2253
% App. Total	0	0	0	0	0	50.3	49.7	0	0		4	0	95.5	0.6		0	96.3	3.7	0		
PHF	.000	.000	.000	.000	.000	.930	.831	.000	.000	.907	.700	.000	.854	.250	.864	.000	.905	.771	.000	.899	.985

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File Name: No 6 Washington Pk with Greenway and Target

Site Code : 00000000

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Groups Printed- Unshifted

Start Time	Target Ent-Exit				Washinton Pk				WASHINGTON PIKE				GREENWAY				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
07:00 AM	0	0	1	0	162	12	2	0	27	8	30	0	0	2	44	0	288
07:15 AM	0	1	0	0	200	3	1	0	22	1	35	0	0	5	71	0	339
07:30 AM	0	3	0	0	251	12	1	0	31	5	66	0	0	16	84	0	469
07:45 AM	0	3	1	0	295	12	0	0	34	4	72	0	0	11	134	0	566
Total	0	7	2	0	908	39	4	0	114	18	203	0	0	34	333	0	1662
08:00 AM	0	1	0	0	253	11	2	0	33	12	61	0	3	13	150	0	539
08:15 AM	0	4	2	0	194	17	2	0	42	9	60	1	1	7	70	0	409
08:30 AM	0	8	1	0	145	8	2	0	25	8	52	0	1	7	79	0	336
08:45 AM	0	6	5	0	146	9	4	0	13	8	39	0	3	5	53	0	291
Total	0	19	8	0	738	45	10	0	113	37	212	1	8	32	352	0	1575
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	1	19	3	0	64	13	2	0	44	32	30	0	4	10	52	0	274
11:15 AM	1	31	5	0	71	10	5	0	40	29	49	0	11	8	69	1	330
11:30 AM	1	33	9	0	61	3	1	0	45	43	42	0	5	6	58	0	307
11:45 AM	5	31	7	0	54	13	0	0	46	30	45	0	3	6	55	0	295
Total	8	114	24	0	250	39	8	0	175	134	166	0	23	30	234	1	1206
12:00 PM	2	37	4	0	64	8	1	0	58	30	46	1	11	10	58	0	330
12:15 PM	4	37	3	0	60	20	2	0	52	42	54	0	4	9	54	0	341
12:30 PM	3	29	10	0	58	17	6	0	34	43	50	0	6	6	63	0	325
12:45 PM	5	46	7	0	64	14	3	0	60	43	51	0	4	8	59	0	364
Total	14	149	24	0	246	59	12	0	204	158	201	1	25	33	234	0	1360
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	42	8	0	42	14	2	0	51	42	52	0	12	14	51	0	330
02:15 PM	3	42	9	0	59	15	0	0	48	34	60	0	4	13	61	0	348
02:30 PM	1	32	14	0	65	13	1	0	47	31	85	0	6	16	55	0	366
02:45 PM	4	32	8	0	78	12	1	0	64	36	67	0	1	16	40	0	359
Total	8	148	39	0	244	54	4	0	210	143	264	0	23	59	207	0	1403
03:00 PM	4	39	5	0	77	12	5	0	66	22	83	0	7	11	64	0	395
03:15 PM	3	32	3	0	74	17	3	0	67	37	79	0	3	10	65	0	393
03:30 PM	4	45	11	0	81	9	2	0	48	51	97	0	6	16	89	0	459
03:45 PM	6	32	4	0	78	11	0	1	45	35	89	0	5	22	56	0	384
Total	17	148	23	0	310	49	10	1	226	145	348	0	21	59	274	0	1631
04:00 PM	4	37	8	0	55	11	1	0	44	37	115	0	2	19	79	0	412
04:15 PM	6	28	8	0	78	12	1	0	54	38	143	0	4	16	86	0	474
04:30 PM	6	53	4	0	98	12	0	0	85	49	162	0	3	29	77	1	579
04:45 PM	6	43	6	0	58	10	1	0	63	53	202	0	5	22	96	0	565
Total	22	161	26	0	289	45	3	0	246	177	622	0	14	86	338	1	2030

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	Target Ent-Exit				Washinton Pk				WASHINGTON PIKE				GREENWAY				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
05:00 PM	11	35	5	0	75	7	4	1	66	50	229	0	1	18	76	0	578
05:15 PM	8	35	13	0	88	13	2	0	80	37	182	0	4	26	91	0	559
05:30 PM	4	44	2	0	74	16	1	0	75	37	208	0	2	13	63	0	539
05:45 PM	10	57	14	0	76	13	1	0	61	26	212	0	5	26	55	0	556
Total	33	171	34	0	313	49	8	1	262	150	831	0	12	83	285	0	2232
Grand Total	102	917	180	0	3298	379	59	2	1550	962	2847	2	126	416	2257	2	13099
Apprch %	8.5	76.5	15	0	88.2	10.1	1.6	0.1	28.9	17.9	53.1	0	4.5	14.9	80.6	0.1	
Total %	0.8	7	1.4	0	25.2	2.9	0.5	0	11.8	7.3	21.7	0	1	3.2	17.2	0	

	Target Ent-Exit					Washinton Pk					WASHINGTON PIKE					GREENWAY					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	1	0	0	1	200	3	1	0	204	22	1	35	0	58	0	5	71	0	76	339
07:30 AM	0	3	0	0	3	251	12	1	0	264	31	5	66	0	102	0	16	84	0	100	469
07:45 AM	0	3	1	0	4	295	12	0	0	307	34	4	72	0	110	0	11	134	0	145	566
08:00 AM	0	1	0	0	1	253	11	2	0	266	33	12	61	0	106	3	13	150	0	166	539
Total Volume	0	8	1	0	9	999	38	4	0	1041	120	22	234	0	376	3	45	439	0	487	1913
% App. Total	0	88.9	11.1	0		96	3.7	0.4	0		31.9	5.9	62.2	0		0.6	9.2	90.1	0		
PHF	.000	.667	.250	.000	.563	.847	.792	.500	.000	.848	.882	.458	.813	.000	.855	.250	.703	.732	.000	.733	.845

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

05:00 PM	11							4	1		50	229		345							578
05:15 PM	8	35	13	0	56	88	13	2	0	103	60	37	182	0	279	4	26	91	0	121	559
05:30 PM	4	44	2	0	50	74	16	1	0	91	75	37	208	0	320	2	13	63	0	78	539
05:45 PM	10	57	14	0	81	76	13	1	0	90	61	26	212	0	299	5	26	55	0	86	556
Total Volume	33	171	34	0	238	313	49	8	1	371	262	150	831	0	1243	12	83	285	0	380	2232
% App. Total	13.9	71.8	14.3	0		84.4	13.2	2.2	0.3		21.1	12.1	66.9	0		3.2	21.8	75	0		
PHF	.750	.750	.607	.000	.735	.899	.766	.500	.250	.900	.873	.750	.907	.000	.901	.600	.798	.783	.000	.785	.965

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File Name : No 7 Washington Pk with N Mall Rd

Site Code : 00000000

Start Date : 4/8/2008

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Groups Printed- Unshifted

Start Time	WASHPK				NMALLRD				WASHPK				NMALLRD				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
07:00 AM	0	76	196	1	4	85	7	0	50	47	2	0	0	0	0	0	468
07:15 AM	0	72	303	0	9	114	31	0	69	77	0	0	0	0	0	0	675
07:30 AM	0	118	337	0	8	127	33	0	54	100	0	0	0	0	0	0	777
07:45 AM	0	134	347	0	4	111	36	0	59	78	2	0	0	0	0	0	771
Total	0	400	1183	1	25	437	107	0	232	302	4	0	0	0	0	0	2691
08:00 AM	0	79	217	0	3	89	33	0	68	91	0	0	0	0	0	0	580
08:15 AM	0	72	175	0	10	53	19	0	43	76	0	0	0	0	0	0	448
08:30 AM	0	80	153	0	9	59	13	0	38	53	0	0	0	0	0	0	405
08:45 AM	0	47	92	0	9	51	32	0	43	60	0	0	0	0	0	0	334
Total	0	278	637	0	31	252	97	0	192	280	0	0	0	0	0	0	1767
11:00 AM	1	95	61	1	15	91	42	0	37	84	0	0	0	0	0	0	427
11:15 AM	0	106	50	0	26	88	34	0	45	104	0	0	0	0	0	0	453
11:30 AM	0	97	66	0	20	98	43	0	21	77	0	0	0	4	3	0	429
11:45 AM	1	102	54	1	17	61	65	0	26	112	0	0	0	0	0	0	439
Total	2	400	231	2	78	338	184	0	129	377	0	0	0	4	3	0	1748
12:00 PM	0	106	64	0	37	97	59	0	22	95	0	0	0	0	0	0	480
12:15 PM	0	82	77	0	30	104	52	0	35	103	0	0	0	0	0	0	483
12:30 PM	0	122	54	1	22	131	51	0	27	87	0	0	0	0	1	0	496
12:45 PM	0	124	67	0	22	85	66	0	39	103	0	0	0	0	0	0	506
Total	0	434	262	1	111	417	228	0	123	388	0	0	0	0	1	0	1965
02:00 PM	0	118	63	1	17	88	40	0	43	106	1	0	0	0	6	0	483
02:15 PM	0	96	82	0	24	109	51	0	38	116	0	0	0	0	0	0	516
02:30 PM	0	97	68	0	27	104	66	0	38	146	0	0	0	0	1	0	547
02:45 PM	7	128	86	0	23	83	50	0	47	142	0	0	1	0	0	0	567
Total	7	439	299	1	91	384	207	0	166	510	1	0	1	0	7	0	2113
03:00 PM	0	94	59	0	8	101	48	0	46	123	0	0	0	0	0	0	479
03:15 PM	0	124	78	0	17	78	47	1	39	154	0	0	0	0	0	0	538
03:30 PM	1	94	80	0	26	102	45	1	63	135	0	0	0	0	0	0	547
03:45 PM	0	118	65	0	22	106	63	0	46	181	0	0	0	0	0	0	601
Total	1	430	282	0	73	387	203	2	194	593	0	0	0	0	0	0	2165
04:00 PM	0	100	85	0	36	95	68	0	46	199	0	0	0	0	0	0	629
04:15 PM	0	99	75	0	13	98	80	0	43	215	0	0	0	0	1	0	624
04:30 PM	2	90	81	0	30	83	77	0	44	235	0	0	0	0	0	0	642
04:45 PM	0	100	72	0	22	98	69	1	46	239	0	0	0	0	0	0	647
Total	2	389	313	0	101	374	294	1	179	888	0	0	0	0	1	0	2542
05:00 PM	0	87	79	0	24	125	76	0	55	261	0	0	0	0	0	0	707
05:15 PM	0	130	66	0	25	90	103	0	39	289	0	0	0	0	0	0	742
05:30 PM	0	113	59	0	19	81	67	0	31	249	1	0	0	0	0	0	620
05:45 PM	0	85	88	0	20	82	68	0	49	197	0	0	0	0	0	0	589
Total	0	415	292	0	88	378	314	0	174	996	1	0	0	0	0	0	2658
Grand Total	12	3185	3499	5	598	2967	1634	3	1389	4334	6	0	1	4	12	0	17649
Apprch %	0.2	47.5	52.2	0.1	11.5	57	31.4	0.1	24.2	75.7	0.1	0	5.9	23.5	70.6	0	
Total %	0.1	18	19.8	0	3.4	16.8	9.3	0	7.9	24.6	0	0	0	0	0.1	0	

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File Name : No 7 Washington Pk with N Mall Rd
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	WASHPK					NMALLRD					WASHPK					NMALLRD					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	72	303	0	375	9	114	31	0	154	69	77	0	0	146	0	0	0	0	0	675
07:30 AM	0	118	337	0	455	8	127	33	0	168	54	100	0	0	154	0	0	0	0	0	777
07:45 AM	0	134	347	0	481	4	111	36	0	151	59	78	2	0	139	0	0	0	0	0	771
08:00 AM	0	79	217	0	296	3	89	33	0	125	68	91	0	0	159	0	0	0	0	0	580
Total Volume	0	403	1204	0	1607	24	441	133	0	598	250	346	2	0	598	0	0	0	0	0	2803
% App. Total	0	25.1	74.9	0		4	73.7	22.2	0		41.8	57.9	0.3	0		0	0	0	0		
PHF	.000	.752	.867	.000	.835	.667	.868	.924	.000	.890	.906	.865	.250	.000	.940	.000	.000	.000	.000	.000	.902
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	87	79	0	166	24	125			225	55										
05:15 PM	0	130	66	0	196	25	90	103	0	218	39	289	0	0	328	0	0	0	0	0	742
05:30 PM	0	113	59	0	172	19	81	67	0	167	31	249	1	0	281	0	0	0	0	0	620
05:45 PM	0	85	88	0	173	20	82	68	0	170	49	197	0	0	246	0	0	0	0	0	589
Total Volume	0	415	292	0	707	88	378	314	0	780	174	996	1	0	1171	0	0	0	0	0	2658
% App. Total	0	58.7	41.3	0		11.3	48.5	40.3	0		14.9	85.1	0.1	0		0	0	0	0		
PHF	.000	.798	.830	.000	.902	.880	.756	.762	.000	.867	.791	.862	.250	.000	.893	.000	.000	.000	.000	.000	.896

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Your File Name : No 8 - I640 EB Off Rmp with Washington Pk

Site Code : 00000003

Start Date : 4/1/2008

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Groups Printed- Unshifted

Start Time	Washington Pk								Washington Pk				I-640 EB Off Ramp				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
07:00 AM	12	27	0	0	0	0	0	0	0	47	6	0	19	21	20	0	152
07:15 AM	23	48	0	0	0	0	0	0	0	67	7	0	57	33	24	0	259
07:30 AM	30	54	0	0	0	0	0	0	0	70	7	0	40	33	40	0	274
07:45 AM	28	81	0	0	0	0	0	0	0	122	16	0	58	27	42	1	375
Total	93	210	0	0	0	0	0	0	0	306	36	0	174	114	126	1	1060
08:00 AM	42	84	0	0	0	0	0	0	0	89	15	0	29	45	40	0	344
08:15 AM	31	51	0	0	0	0	0	0	0	66	14	0	46	64	29	0	301
08:30 AM	27	50	0	0	0	0	0	0	0	67	19	0	46	48	47	0	304
08:45 AM	41	56	0	0	0	0	0	0	0	66	15	0	33	49	22	0	282
Total	141	241	0	0	0	0	0	0	0	288	63	0	154	206	138	0	1231
11:00 AM	55	48	0	0	0	0	0	0	0	65	22	0	36	104	30	0	360
11:15 AM	57	63	0	0	0	0	0	0	0	86	18	0	44	92	22	0	382
11:30 AM	46	49	0	0	0	0	0	0	0	69	30	0	46	106	30	0	376
11:45 AM	71	60	0	0	0	0	0	0	0	95	24	0	49	113	30	0	442
Total	229	220	0	0	0	0	0	0	0	315	94	0	175	415	112	0	1560
12:00 PM	55	57	0	0	0	0	0	0	0	90	36	0	63	97	36	0	434
12:15 PM	59	63	0	0	0	0	0	0	0	71	28	0	49	114	48	0	432
12:30 PM	59	70	0	0	0	0	0	0	0	106	27	0	44	92	32	0	430
12:45 PM	68	68	0	0	0	0	0	0	0	91	29	0	65	108	31	0	460
Total	241	258	0	0	0	0	0	0	0	358	120	0	221	411	147	0	1756
02:00 PM	47	63	0	0	0	0	0	0	0	67	20	0	66	112	26	0	401
02:15 PM	63	71	1	0	0	0	0	0	0	74	25	0	67	103	34	0	438
02:30 PM	51	72	1	0	0	0	0	0	0	74	20	0	66	101	41	0	426
02:45 PM	70	71	0	0	0	0	0	0	0	88	25	0	62	95	39	0	450
Total	231	277	2	0	0	0	0	0	0	303	90	0	261	411	140	0	1715
03:00 PM	57	75	0	0	0	0	0	0	0	93	18	0	88	97	54	0	482
03:15 PM	66	72	0	0	0	0	0	0	0	120	12	0	83	115	54	0	522
03:30 PM	71	65	0	0	0	0	0	0	0	106	32	0	86	125	58	0	543
03:45 PM	62	83	3	0	0	0	0	0	0	126	16	0	112	123	46	0	571
Total	256	295	3	0	0	0	0	0	0	445	78	0	369	460	212	0	2118
04:00 PM	53	83	0	0	0	0	0	0	0	136	20	0	107	118	44	0	561
04:15 PM	47	85	0	0	0	0	0	0	2	135	23	0	115	137	58	0	602
04:30 PM	64	82	0	0	0	0	0	0	0	118	19	0	144	121	55	0	603
04:45 PM	57	48	0	0	0	0	0	0	0	111	36	0	162	146	64	0	624
Total	221	298	0	0	0	0	0	0	2	500	98	0	528	522	221	0	2390
05:00 PM	66	71	0	0	0	0	0	0	0	128	22	0	164	139	61	0	651
05:15 PM	69	75	0	0	0	0	0	0	0	152	37	0	164	127	56	0	680
05:30 PM	75	63	1	0	0	0	0	0	0	137	34	0	190	132	53	0	685
05:45 PM	57	74	0	0	0	0	0	0	0	122	9	0	154	119	41	0	576
Total	267	283	1	0	0	0	0	0	0	539	102	0	672	517	211	0	2592
Grand Total	1679	2082	6	0	0	0	0	0	2	3054	681	0	2554	3056	1307	1	14422
Apprch %	44.6	55.3	0.2	0	0	0	0	0	0.1	81.7	18.2	0	36.9	44.2	18.9	0	
Total %	11.6	14.4	0	0	0	0	0	0	0	21.2	4.7	0	17.7	21.2	9.1	0	

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File Name : No 8 - I640 EB Off Rmp with Washington Pk
Site Code : 00000003
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	Washington Pk						Washington Pk						I-640 EB Off Ramp								
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	23	48	0	0	71	0	0	0	0	0	0	67	7	0	74	57	33	24	0	114	259
07:30 AM	30	54	0	0	84	0	0	0	0	0	0	70	7	0	77	40	33	40	0	113	274
07:45 AM	28	81	0	0	109	0	0	0	0	0	0	122	16	0	138	58	27	42	1	128	375
08:00 AM	42	84	0	0	126	0	0	0	0	0	0	89	15	0	104	29	45	40	0	114	344
Total Volume	123	267	0	0	390	0	0	0	0	0	0	348	45	0	393	184	138	146	1	469	1252
% App. Total	31.5	68.5	0	0		0	0	0	0		0	88.5	11.5	0		39.2	29.4	31.1	0.2		
PHF	.732	.795	.000	.000	.774	.000	.000	.000	.000	.000	.000	.713	.703	.000	.712	.793	.767	.869	.250	.916	.835
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	66	71	0	0	137	0	0	0	0	0	0	128	22	0	150	164	139	61			
05:15 PM	69	75	0	0	144	0	0	0	0	0	0	152	37	0	189	164	127	56	0	347	680
05:30 PM	75	63	1	0	139	0	0	0	0	0	0	137	34	0	171	190	132	53	0	375	685
05:45 PM	57	74	0	0	131	0	0	0	0	0	0	122	9	0	131	154	119	41	0	314	576
Total Volume	267	283	1	0	551	0	0	0	0	0	0	539	102	0	641	672	517	211	0	1400	2592
% App. Total	48.5	51.4	0.2	0		0	0	0	0		0	84.1	15.9	0		48	36.9	15.1	0		
PHF	.890	.943	.250	.000	.957	.000	.000	.000	.000	.000	.000	.887	.689	.000	.848	.884	.930	.865	.000	.933	.946

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File Name : No 9 Washington Pk with Valley View Dr

Site Code : 00000000

Start Date : 4/10/2008

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Groups Printed- Unshifted

Start Time	WASHPK				VALLEYVIEW				WASHPK				VALLEYVIEW				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
07:00 AM	1	60	7	1	2	1	6	0	6	35	6	0	16	1	7	0	149
07:15 AM	9	77	10	0	5	1	8	0	8	62	9	0	16	3	8	0	216
07:30 AM	10	117	10	0	5	1	9	0	10	70	14	0	15	0	17	1	279
07:45 AM	7	81	15	0	6	3	6	0	6	98	8	0	11	1	4	0	246
Total	27	335	42	1	18	6	29	0	30	265	37	0	58	5	36	1	890
08:00 AM	10	49	33	0	3	2	10	0	5	58	7	0	19	1	16	0	213
08:15 AM	7	71	8	0	3	0	9	0	7	28	1	0	21	2	7	0	164
08:30 AM	6	58	6	0	3	1	3	0	3	35	2	0	8	2	4	0	131
08:45 AM	6	74	8	0	5	1	7	0	5	46	9	0	17	2	9	0	189
Total	29	252	55	0	14	4	29	0	20	167	19	0	65	7	36	0	697
11:00 AM	4	44	14	1	2	0	2	0	7	49	2	0	19	2	10	0	156
11:15 AM	7	65	10	0	7	3	6	0	8	54	8	0	13	2	10	0	193
11:30 AM	10	71	15	0	4	1	6	0	8	63	2	0	18	4	12	0	214
11:45 AM	6	83	17	0	5	2	7	0	4	64	8	0	18	2	11	0	227
Total	27	263	56	1	18	6	21	0	27	230	20	0	68	10	43	0	790
12:00 PM	4	69	18	0	4	1	4	0	15	85	7	0	16	1	7	0	231
12:15 PM	6	63	10	0	0	0	6	0	8	69	5	0	12	4	5	0	188
12:30 PM	4	75	14	0	2	1	10	0	6	54	5	0	23	3	7	0	204
12:45 PM	8	98	23	0	3	2	12	0	10	68	6	0	15	2	14	0	261
Total	22	305	65	0	9	4	32	0	39	276	23	0	66	10	33	0	884
02:00 PM	11	81	18	1	2	2	10	0	11	81	11	0	25	1	11	0	265
02:15 PM	7	90	14	0	4	4	2	0	8	82	9	0	17	3	16	0	256
02:30 PM	5	59	18	0	2	1	0	0	4	57	6	0	13	4	8	1	178
02:45 PM	4	93	18	0	5	1	4	0	6	56	11	0	4	0	3	0	205
Total	27	323	68	1	13	8	16	0	29	276	37	0	59	8	38	1	904
03:00 PM	3	85	15	0	3	2	2	0	13	91	10	0	8	0	10	1	243
03:15 PM	7	74	12	0	1	1	0	0	5	69	1	0	4	3	6	0	183
03:30 PM	2	67	15	0	8	1	3	0	9	88	3	0	12	0	10	1	219
03:45 PM	8	75	14	0	6	3	4	0	13	98	9	0	27	3	13	0	273
Total	20	301	56	0	18	7	9	0	40	346	23	0	51	6	39	2	918
04:00 PM	9	67	13	0	4	0	2	0	3	92	7	0	7	0	11	0	215
04:15 PM	7	83	24	0	3	1	7	0	21	107	7	0	19	1	10	0	290
04:30 PM	16	80	22	1	4	2	7	0	14	111	7	0	23	2	17	0	306
04:45 PM	12	113	27	0	2	3	8	0	11	98	6	0	17	1	7	0	305
Total	44	343	86	1	13	6	24	0	49	408	27	0	66	4	45	0	1116
05:00 PM	1	44	7	0	1	1	2	0	8	81	3	0	9	0	12	0	169
05:15 PM	5	89	17	0	3	0	0	0	10	72	6	0	12	4	10	0	228
05:30 PM	12	80	19	0	4	0	9	0	16	85	7	0	15	1	19	0	267
05:45 PM	7	80	14	0	5	4	7	0	12	77	7	0	34	8	16	0	271
Total	25	293	57	0	13	5	18	0	46	315	23	0	70	13	57	0	935
Grand Total	221	2415	485	4	116	46	178	0	280	2283	209	0	503	63	327	4	7134
Apprch %	7.1	77.3	15.5	0.1	34.1	13.5	52.4	0	10.1	82.4	7.5	0	56.1	7	36.5	0.4	
Total %	3.1	33.9	6.8	0.1	1.6	0.6	2.5	0	3.9	32	2.9	0	7.1	0.9	4.6	0.1	

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File Name : No 9 Washington Pk with Valley View Dr
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	WASHPK					VALLEYVIEW					WASHPK					VALLEYVIEW					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	9	77	10	0	96	5	1	8	0	14	8	62	9	0	79	16	3	8	0	27	216
07:30 AM	10	117	10	0	137	5	1	9	0	15	10	70	14	0	94	15	0	17	1	33	279
07:45 AM	7	81	15	0	103	6	3	6	0	15	6	98	8	0	112	11	1	4	0	16	246
08:00 AM	10	49	33	0	92	3	2	10	0	15	5	58	7	0	70	19	1	16	0	36	213
Total Volume	36	324	68	0	428	19	7	33	0	59	29	288	38	0	355	61	5	45	1	112	954
% App. Total	8.4	75.7	15.9	0		32.2	11.9	55.9	0		8.2	81.1	10.7	0		54.5	4.5	40.2	0.9		
PHF	.900	.692	.515	.000	.781	.792	.583	.825	.000	.983	.725	.735	.679	.000	.792	.803	.417	.662	.250	.778	.855

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

05:00 PM	1	44	7	0	52	1	1	2	0	4	8	81	3	0	92	9	0	12	0	21	169
05:15 PM	5	89			111						16	85	7	0	108	15	1	19	0	35	267
05:30 PM	12	80	19	0	111	4	0	9	0	13	12	77	7	0	96	34	8	16	0	58	271
05:45 PM	7	80	14	0	101	5	4	7	0	16											
Total Volume	25	293	57	0	375	13	5	18	0	36	46	315	23	0	384	70	13	57	0	140	935
% App. Total	6.7	78.1	15.2	0		36.1	13.9	50	0		12	82	6	0		50	9.3	40.7	0		
PHF	.521	.823	.750	.000	.845	.650	.313	.500	.000	.563	.719	.926	.621	.000	.889	.515	.406	.750	.000	.603	.863

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Site Code : 00000000

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Groups Printed- Unshifted

Start Time	Washington Pike				Centerline Drive				Washington Pike								Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
07:00 AM	15	43	0	0	0	0	2	0	0	48	0	0	0	0	0	0	108
07:15 AM	7	79	0	0	1	0	5	0	0	61	3	0	0	0	0	0	156
07:30 AM	8	107	1	0	1	0	2	0	0	86	2	0	0	0	0	0	207
07:45 AM	19	97	0	0	1	0	11	0	0	99	7	0	0	0	0	0	234
Total	49	326	1	0	3	0	20	0	0	294	12	0	0	0	0	0	705
08:00 AM	23	61	0	0	0	0	5	0	0	67	8	0	0	0	0	0	164
08:15 AM	13	54	0	0	3	0	6	0	0	52	2	0	0	0	0	0	130
08:30 AM	15	41	0	0	1	0	13	0	0	42	6	0	0	0	0	0	118
08:45 AM	17	60	0	0	1	0	15	0	0	48	5	0	0	0	0	0	146
Total	68	216	0	0	5	0	39	0	0	209	21	0	0	0	0	0	558
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	16	66	0	0	2	0	17	0	0	49	4	0	0	0	0	0	154
11:15 AM	23	37	0	0	1	0	15	0	0	53	5	0	0	0	0	0	134
11:30 AM	18	61	0	0	1	0	23	0	0	55	5	0	0	0	0	0	163
11:45 AM	30	83	0	0	4	0	28	0	0	69	9	0	0	0	0	0	223
Total	87	247	0	0	8	0	83	0	0	226	23	0	0	0	0	0	674
12:00 PM	26	72	0	0	5	0	30	0	0	62	3	0	0	0	0	0	198
12:15 PM	24	73	0	0	2	0	33	0	0	68	5	0	0	0	0	0	205
12:30 PM	21	76	0	0	6	0	21	0	0	68	10	0	0	0	0	0	202
12:45 PM	20	70	0	0	3	0	27	0	0	58	5	0	0	0	0	0	183
Total	91	291	0	0	16	0	111	0	0	256	23	0	0	0	0	0	788
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	28	55	0	0	6	0	47	0	0	65	8	0	0	0	0	0	209
02:15 PM	27	86	0	0	3	0	22	0	0	60	4	0	0	0	0	0	202
02:30 PM	24	79	0	0	4	0	25	0	0	73	13	0	0	0	0	0	218
02:45 PM	16	83	0	0	7	0	24	0	0	62	13	0	0	0	0	0	205
Total	95	303	0	0	20	0	118	0	0	260	38	0	0	0	0	0	834
03:00 PM	23	90	0	0	2	0	20	0	0	98	2	0	0	0	0	0	235
03:15 PM	14	79	0	0	7	0	24	0	0	107	4	0	0	0	0	0	235
03:30 PM	26	83	0	0	4	0	30	0	0	95	5	0	0	0	0	0	243
03:45 PM	26	94	0	0	2	0	31	0	0	82	7	0	0	0	0	0	242
Total	89	346	0	0	15	0	105	0	0	382	18	0	0	0	0	0	955
04:00 PM	31	85	0	0	4	0	35	0	0	89	5	0	0	0	0	0	249
04:15 PM	26	73	0	0	4	0	34	0	0	84	2	0	0	0	0	0	223
04:30 PM	19	92	0	0	2	0	28	0	0	89	1	0	0	0	0	0	231
04:45 PM	26	85	0	0	2	0	33	0	0	73	8	0	0	0	0	0	227
Total	102	335	0	0	12	0	130	0	0	335	16	0	0	0	0	0	930

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File Name : No 10 Washington Pk with Centerline Dr
Site Code : 00000000
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Groups Printed- Unshifted

	Washington Pike				Centerline Drive				Washington Pike									
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total	
05:00 PM	30	86	0	0	4	0	30	0	0	118	4	0	0	0	0	0	0	272
05:15 PM	32	97	0	0	5	0	30	0	0	99	2	0	0	0	0	0	0	265
05:30 PM	28	89	0	0	1	0	16	0	0	73	7	0	0	0	0	0	0	214
05:45 PM	15	80	0	0	0	0	26	0	0	83	4	0	0	0	0	0	0	208
Total	105	352	0	0	10	0	102	0	0	373	17	0	0	0	0	0	0	959
Grand Total	686	2416	1	0	89	0	708	0	0	2335	168	0	0	0	0	0	0	6403
Apprch %	22.1	77.9	0	0	11.2	0	88.8	0	0	93.3	6.7	0	0	0	0	0	0	
Total %	10.7	37.7	0	0	1.4	0	11.1	0	0	36.5	2.6	0	0	0	0	0	0	

	Washington Pike					Centerline Drive					Washington Pike										
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	7	79	0	0	86	1	0	5	0	6	0	61	3	0	64	0	0	0	0	0	156
07:30 AM	8	107	1	0	116	1	0	2	0	3	0	86	2	0	88	0	0	0	0	0	207
07:45 AM	19	97	0	0	116	1	0	11	0	12	0	99	7	0	106	0	0	0	0	0	234
08:00 AM	23	61	0	0	84	0	0	5	0	5	0	67	8	0	75	0	0	0	0	0	164
Total Volume	57	344	1	0	402	3	0	23	0	26	0	313	20	0	333	0	0	0	0	0	761
% App. Total	14.2	85.6	0.2	0		11.5	0	88.5	0		0	94	6	0		0	0	0	0		
PHF	.620	.804	.250	.000	.866	.750	.000	.523	.000	.542	.000	.790	.625	.000	.785	.000	.000	.000	.000	.000	.813

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

05:00 PM	30	86	0	0	116	4	0	30	0	35	0	118	2	0	122	0	0	0	0	0	272
05:15 PM	32	97	0	0	129	5	0	30	0	35	0	99	2	0	101	0	0	0	0	0	265
05:30 PM	28	89	0	0	117	1	0	16	0	17	0	73	7	0	80	0	0	0	0	0	214
05:45 PM	15	80	0	0	95	0	0	26	0	26	0	83	4	0	87	0	0	0	0	0	208
Total Volume	105	352	0	0	457	10	0	102	0	112	0	373	17	0	390	0	0	0	0	0	959
% App. Total	23	77	0	0		8.9	0	91.1	0		0	95.6	4.4	0		0	0	0	0		
PHF	.820	.907	.000	.000	.886	.500	.000	.850	.000	.800	.000	.790	.607	.000	.799	.000	.000	.000	.000	.000	.881

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File Name : No 11 Washington Pk with Pinehurst Dr
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Groups Printed- Unshifted

Start Time	Washington Pike								Washington Pike				Pinehurst Dr				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
07:00 AM	0	48	1	0	0	0	0	0	1	44	0	0	2	0	2	0	98
07:15 AM	0	75	1	0	0	0	0	0	0	67	0	0	2	0	0	0	145
07:30 AM	0	105	0	0	0	0	0	0	1	85	0	0	2	0	1	0	194
07:45 AM	0	102	0	0	0	0	0	0	2	122	0	0	7	0	0	0	233
Total	0	330	2	0	0	0	0	0	4	318	0	0	13	0	3	0	670
08:00 AM	0	59	0	0	0	0	0	0	0	83	0	0	2	0	0	0	144
08:15 AM	0	47	1	0	0	0	0	0	0	49	0	0	0	0	0	0	97
08:30 AM	0	54	2	0	0	0	0	0	0	44	0	0	1	0	0	0	101
08:45 AM	0	44	1	0	0	0	0	0	0	50	0	0	1	0	1	0	97
Total	0	204	4	0	0	0	0	0	0	226	0	0	4	0	1	0	439
11:00 AM	0	59	1	0	0	0	0	0	0	63	0	0	0	0	0	0	123
11:15 AM	0	50	2	0	0	0	0	0	0	69	0	0	1	0	1	0	123
11:30 AM	0	51	1	0	0	0	0	0	1	69	0	0	0	0	1	0	123
11:45 AM	0	67	0	0	0	0	0	0	0	79	0	0	2	0	0	0	148
Total	0	227	4	0	0	0	0	0	1	280	0	0	3	0	2	0	517
12:00 PM	0	74	2	0	0	0	0	0	1	75	0	0	0	0	1	0	153
12:15 PM	0	67	1	0	0	0	0	0	2	95	0	0	1	0	2	0	168
12:30 PM	0	77	2	0	0	0	0	0	0	97	0	0	0	0	1	0	177
12:45 PM	0	56	0	0	0	0	0	0	1	99	0	0	1	0	0	0	157
Total	0	274	5	0	0	0	0	0	4	366	0	0	2	0	4	0	655
02:00 PM	0	65	4	0	0	3	0	0	0	78	0	0	5	0	2	0	157
02:15 PM	0	67	1	0	0	0	0	0	2	89	0	0	0	0	1	0	160
02:30 PM	0	70	4	0	0	0	0	0	1	99	0	0	4	0	2	0	180
02:45 PM	0	90	1	0	0	0	0	0	1	90	0	0	0	0	0	0	182
Total	0	292	10	0	0	3	0	0	4	356	0	0	9	0	5	0	679
03:00 PM	0	80	0	0	0	0	0	0	0	101	0	0	3	0	0	0	184
03:15 PM	0	84	5	0	0	0	0	0	0	109	0	0	3	0	0	0	201
03:30 PM	0	64	3	0	0	0	0	0	1	94	0	0	2	0	0	0	164
03:45 PM	0	60	6	0	0	0	0	0	0	94	0	0	4	0	0	0	164
Total	0	288	14	0	0	0	0	0	1	398	0	0	12	0	0	0	713
04:00 PM	0	97	0	0	0	0	0	0	0	93	0	0	0	0	0	0	190
04:15 PM	0	91	3	0	0	0	0	0	0	120	0	0	2	0	0	0	216
04:30 PM	0	89	4	0	0	0	0	0	1	96	0	0	2	0	1	0	193
04:45 PM	0	75	2	0	0	0	0	0	0	110	0	0	1	0	0	0	188
Total	0	352	9	0	0	0	0	0	1	419	0	0	5	0	1	0	787
05:00 PM	0	94	2	0	0	0	0	0	0	120	0	0	2	0	0	0	218
05:15 PM	0	68	4	0	0	0	0	0	1	117	0	0	3	0	0	0	193
05:30 PM	0	78	3	0	0	0	0	0	0	117	0	0	2	0	1	0	201
05:45 PM	0	79	1	0	0	0	0	0	1	90	0	0	4	0	0	0	175
Total	0	319	10	0	0	0	0	0	2	444	0	0	11	0	1	0	787
Grand Total	0	2286	58	0	0	3	0	0	17	2807	0	0	59	0	17	0	5247
Apprch %	0	97.5	2.5	0	0	100	0	0	0.6	99.4	0	0	77.6	0	22.4	0	
Total %	0	43.6	1.1	0	0	0.1	0	0	0.3	53.5	0	0	1.1	0	0.3	0	

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File Name : No 11 Washington Pk with Pinehurst Dr

Site Code : 00000000

Start Date : 4/15/2008

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	Washington Pike										Washington Pike					Pinehurst Dr						
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total	
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 07:15 AM																						
07:15 AM	0	75	1	0	76	0	0	0	0	0	0	67	0	0	67	2	0	0	0	2	145	
07:30 AM	0	105	0	0	105	0	0	0	0	0	1	85	0	0	86	2	0	1	0	3	194	
07:45 AM	0	102	0	0	102	0	0	0	0	0	2	122	0	0	124	7	0	0	0	7	233	
08:00 AM	0	59	0	0	59	0	0	0	0	0	0	83	0	0	83	2	0	0	0	2	144	
Total Volume	0	341	1	0	342	0	0	0	0	0	3	357	0	0	360	13	0	1	0	14	716	
% App. Total	0	99.7	0.3	0		0	0	0	0		0.8	99.2	0	0		92.9	0	7.1	0			
PHF	.000	.812	.250	.000	.814	.000	.000	.000	.000	.000	.375	.732	.000	.000	.726	.464	.000	.250	.000	.500	.768	
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 05:00 PM																						
05:00 PM	0	94			96							120			120						218	
05:15 PM	0	68	4	0	72	0	0	0	0	0	1	117	0	0	118	3	0	0	0	3	193	
05:30 PM	0	78	3	0	81	0	0	0	0	0	0	117	0	0	117	2	0	1	0	3	201	
05:45 PM	0	79	1	0	80	0	0	0	0	0	1	90	0	0	91	4	0	0	0	4	175	
Total Volume	0	319	10	0	329	0	0	0	0	0	2	444	0	0	446	11	0	1	0	12	787	
% App. Total	0	97	3	0		0	0	0	0		0.4	99.6	0	0		91.7	0	8.3	0			
PHF	.000	.848	.625	.000	.857	.000	.000	.000	.000	.000	.500	.925	.000	.000	.929	.688	.000	.250	.000	.750	.903	

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Site Code : 00000000

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Groups Printed- Unshifted

Start Time	WASHPK				MILLERTN				WASHPK				WASHPK				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
07:00 AM	15	0	32	1	0	26	23	0	0	0	0	0	24	31	0	0	152
07:15 AM	29	0	50	0	0	33	33	0	0	0	0	0	43	33	0	0	221
07:30 AM	34	0	73	0	0	47	50	0	0	0	0	0	55	49	0	0	308
07:45 AM	27	1	69	0	0	39	36	0	0	0	0	0	60	23	0	0	255
Total	105	1	224	1	0	145	142	0	0	0	0	0	182	136	0	0	936
08:00 AM	17	0	31	0	0	29	31	0	0	0	0	0	25	29	0	0	162
08:15 AM	12	0	31	0	0	39	19	0	0	0	0	0	25	26	0	0	152
08:30 AM	14	0	45	0	0	28	39	0	0	0	0	0	25	32	0	0	183
08:45 AM	13	0	38	1	0	29	45	0	0	0	0	0	32	34	0	0	192
Total	56	0	145	1	0	125	134	0	0	0	0	0	107	121	0	0	689
11:00 AM	27	0	32	1	0	48	38	0	0	0	0	0	52	49	0	0	247
11:15 AM	29	0	38	0	0	36	43	0	0	0	0	0	35	36	0	0	217
11:30 AM	38	0	33	0	0	47	47	0	0	0	0	0	42	36	0	0	243
11:45 AM	36	0	35	0	0	37	39	0	0	0	0	0	47	41	0	0	235
Total	130	0	138	1	0	168	167	0	0	0	0	0	176	162	0	0	942
12:00 PM	35	0	44	0	0	32	43	0	0	0	0	0	37	48	0	0	239
12:15 PM	38	0	47	0	0	41	37	0	0	0	0	0	37	48	0	0	248
12:30 PM	26	0	31	0	0	55	59	0	0	0	0	0	44	42	0	0	257
12:45 PM	38	0	42	0	0	41	55	0	0	0	0	0	39	41	0	0	256
Total	137	0	164	0	0	169	194	0	0	0	0	0	157	179	0	0	1000
02:00 PM	47	0	47	1	0	39	37	0	0	0	0	0	40	50	0	0	261
02:15 PM	40	0	39	0	0	59	52	0	0	0	0	0	51	49	0	0	290
02:30 PM	48	0	48	0	0	44	43	0	0	0	0	0	43	54	0	0	280
02:45 PM	30	1	48	0	0	44	50	0	0	0	0	0	44	37	0	0	254
Total	165	1	182	1	0	186	182	0	0	0	0	0	178	190	0	0	1085
03:00 PM	28	0	57	0	0	62	39	0	0	0	0	0	79	58	0	0	323
03:15 PM	41	0	59	0	0	44	42	0	0	0	0	0	84	49	0	0	319
03:30 PM	38	0	56	0	0	54	54	0	0	0	0	0	54	52	0	0	308
03:45 PM	38	0	40	0	0	45	37	0	0	0	0	0	50	49	0	0	259
Total	145	0	212	0	0	205	172	0	0	0	0	0	267	208	0	0	1209
04:00 PM	41	1	37	1	0	33	27	0	0	0	0	0	56	39	0	0	235
04:15 PM	42	0	21	0	2	40	56	0	0	0	0	0	57	59	0	0	277
04:30 PM	37	0	50	0	0	36	45	0	0	0	0	0	57	59	0	0	284
04:45 PM	52	0	50	0	0	58	55	0	0	0	0	0	65	66	0	0	346
Total	172	1	158	1	2	167	183	0	0	0	0	0	235	223	0	0	1142
05:00 PM	50	0	49	0	0	46	45	0	0	0	0	0	62	66	0	0	318
05:15 PM	58	0	38	0	0	45	40	0	0	0	0	0	70	45	0	0	296
05:30 PM	34	0	52	0	0	36	33	0	0	0	0	0	64	68	0	0	287
05:45 PM	40	0	43	0	0	41	42	0	0	0	0	0	35	42	0	0	243
Total	182	0	182	0	0	168	160	0	0	0	0	0	231	221	0	0	1144
Grand Total	1092	3	1405	5	2	1333	1334	0	0	0	0	0	1533	1440	0	0	8147
Apprch %	43.6	0.1	56.1	0.2	0.1	49.9	50	0	0	0	0	0	51.6	48.4	0	0	
Total %	13.4	0	17.2	0.1	0	16.4	16.4	0	0	0	0	0	18.8	17.7	0	0	

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	WASHPK					MILLERTN					WASHPK					WASHPK					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	29	0	50	0	79	0	33	33	0	66	0	0	0	0	0	43	33	0	0	76	221
07:30 AM	34	0	73	0	107	0	47	50	0	97	0	0	0	0	0	55	49	0	0	104	308
07:45 AM	27	1	69	0	97	0	39	36	0	75	0	0	0	0	0	60	23	0	0	83	255
08:00 AM	17	0	31	0	48	0	29	31	0	60	0	0	0	0	0	25	29	0	0	54	162
Total Volume	107	1	223	0	331	0	148	150	0	298	0	0	0	0	0	183	134	0	0	317	946
% App. Total	32.3	0.3	67.4	0		0	49.7	50.3	0		0	0	0	0	0	57.7	42.3	0	0		
PHF	.787	.250	.764	.000	.773	.000	.787	.750	.000	.768	.000	.000	.000	.000	.000	.763	.684	.000	.000	.762	.768

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

05:00 PM	50	0	49	0	99	46	45	91			70	45	0	0	115	318
05:15 PM	58	0	38	0	96	0	45	40	0	85	0	0	0	0	0	296
05:30 PM	34	0	52	0	86	0	36	33	0	69	0	0	0	0	0	287
05:45 PM	40	0	43	0	83	0	41	42	0	83	0	0	0	0	0	243
Total Volume	182	0	182	0	364	0	168	160	0	328	0	0	0	0	0	1144
% App. Total	50	0	50	0		0	51.2	48.8	0		0	0	0	0	0	
PHF	.784	.000	.875	.000	.919	.000	.913	.889	.000	.901	.000	.000	.000	.000	.000	.899

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File Name : No 13 Millertown Pk with Spring Hill Rd
Site Code : 00000000
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Groups Printed- Unshifted

Start Time	SPGHILLRD				MILLERTNPK				SPGHILLRD				MILLERTNPK				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
07:00 AM	0	0	0	1	11	38	0	0	15	0	9	0	0	33	19	0	126
07:15 AM	0	0	0	0	16	40	0	0	20	0	11	0	0	32	37	0	156
07:30 AM	0	0	0	0	25	52	0	0	40	1	10	0	0	33	49	0	210
07:45 AM	0	0	0	0	17	52	0	0	25	1	25	0	0	35	15	1	171
Total	0	0	0	1	69	182	0	0	100	2	55	0	0	133	120	1	663
08:00 AM	0	0	0	0	4	39	0	0	17	0	5	0	0	29	5	0	99
08:15 AM	0	0	0	0	5	37	0	0	9	0	7	0	0	34	9	0	101
08:30 AM	0	0	0	0	3	40	0	0	5	0	6	0	0	33	9	0	96
08:45 AM	0	0	0	0	10	36	0	0	7	0	16	0	0	41	4	0	114
Total	0	0	0	0	22	152	0	0	38	0	34	0	0	137	27	0	410
11:00 AM	0	0	0	1	12	56	0	0	7	0	23	0	0	40	9	0	148
11:15 AM	0	0	0	0	10	54	1	0	13	0	15	0	0	57	9	0	159
11:30 AM	0	0	0	0	7	73	0	0	9	0	20	0	0	47	8	0	164
11:45 AM	0	0	0	0	13	60	0	0	6	0	11	0	0	55	7	0	152
Total	0	0	0	1	42	243	1	0	35	0	69	0	0	199	33	0	623
12:00 PM	0	0	0	0	11	39	0	0	1	0	17	0	1	51	10	0	130
12:15 PM	0	0	0	0	8	60	0	0	9	0	19	0	0	48	13	0	157
12:30 PM	0	0	0	0	17	64	0	0	4	0	13	0	1	49	13	0	161
12:45 PM	0	0	0	0	15	61	0	0	16	0	14	0	0	45	12	0	163
Total	0	0	0	0	51	224	0	0	30	0	63	0	2	193	48	0	611
02:00 PM	0	0	0	1	9	69	0	0	12	0	10	0	0	57	5	0	163
02:15 PM	0	0	0	0	17	54	0	0	10	0	10	0	0	52	14	0	157
02:30 PM	0	0	0	0	25	60	1	0	10	0	9	0	1	59	18	0	183
02:45 PM	0	0	1	0	14	47	1	0	8	0	10	0	1	36	10	0	128
Total	0	0	1	1	65	230	2	0	40	0	39	0	2	204	47	0	631
03:00 PM	0	0	0	0	27	59	0	0	6	0	14	0	0	61	15	0	182
03:15 PM	0	0	0	0	15	60	0	0	11	0	18	0	0	60	12	0	176
03:30 PM	0	0	0	0	26	62	0	0	12	0	31	0	0	73	11	0	215
03:45 PM	0	0	0	0	16	61	1	0	10	0	20	0	0	64	9	0	181
Total	0	0	0	0	84	242	1	0	39	0	83	0	0	258	47	0	754
04:00 PM	0	0	0	0	14	65	0	0	8	0	18	0	0	69	14	0	188
04:15 PM	0	0	0	0	15	71	0	0	15	0	21	0	0	71	16	0	209
04:30 PM	0	0	0	0	14	43	0	0	22	0	17	0	1	61	17	0	175
04:45 PM	0	0	0	0	9	35	1	0	9	0	10	0	0	53	14	0	131
Total	0	0	0	0	52	214	1	0	54	0	66	0	1	254	61	0	703
05:00 PM	0	0	0	0	15	79	0	0	12	0	14	0	0	81	14	0	215
05:15 PM	0	0	0	0	21	77	0	0	9	0	14	0	0	74	7	0	202
05:30 PM	0	0	0	0	12	77	0	0	13	0	12	0	0	68	13	0	195
05:45 PM	0	0	0	0	6	71	0	0	12	0	17	0	1	70	21	0	198
Total	0	0	0	0	54	304	0	0	46	0	57	0	1	293	55	0	810
Grand Total	0	0	1	3	439	1791	5	0	382	2	466	0	6	1671	438	1	5205
Apprch %	0	0	25	75	19.6	80.1	0.2	0	44.9	0.2	54.8	0	0.3	79	20.7	0	
Total %	0	0	0	0.1	8.4	34.4	0.1	0	7.3	0	9	0	0.1	32.1	8.4	0	

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SPGHILLRD						MILLERTNPK					SPGHILLRD					MILLERTNPK					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	0	0	16	40	0	0	56	20	0	11	0	31	0	32	37	0	69	156
07:30 AM	0	0	0	0	0	25	52	0	0	77	40	1	10	0	51	0	33	49	0	82	210
07:45 AM	0	0	0	0	0	17	52	0	0	69	25	1	25	0	51	0	35	15	1	51	171
08:00 AM	0	0	0	0	0	4	39	0	0	43	17	0	5	0	22	0	29	5	0	34	99
Total Volume	0	0	0	0	0	62	183	0	0	245	102	2	51	0	155	0	129	106	1	236	636
% App. Total	0	0	0	0	0	25.3	74.7	0	0		65.8	1.3	32.9	0		0	54.7	44.9	0.4		
PHF	.000	.000	.000	.000	.000	.620	.880	.000	.000	.795	.638	.500	.510	.000	.780	.000	.921	.541	.250	.720	.757
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	15	79	0	0	98	9	0	14	0	23	0	74	7	0	81	215
05:15 PM	0	0	0	0	0	21	77	0	0	98	9	0	14	0	23	0	68	13	0	81	202
05:30 PM	0	0	0	0	0	12	77	0	0	89	13	0	12	0	25	0	68	13	0	81	195
05:45 PM	0	0	0	0	0	6	71	0	0	77	12	0	17	0	29	1	70	21	0	92	198
Total Volume	0	0	0	0	0	54	304	0	0	358	46	0	57	0	103	1	293	55	0	349	810
% App. Total	0	0	0	0	0	15.1	84.9	0	0		44.7	0	55.3	0		0.3	84	15.8	0		
PHF	.000	.000	.000	.000	.000	.643	.962	.000	.000	.913	.885	.000	.838	.000	.888	.250	.904	.855	.000	.918	.942

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File Name : No 14 Millertown Pk with South Mall Rd
Site Code : 00000000
Start Date : 4/4/2008
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Groups Printed- Unshifted

Start Time	SMALLRD				MILLET TOWN TI PK				SMALLRD				MILLET TOWN TI PK				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
07:15 AM	19	22	3	0	98	37	0	0	0	0	0	0	0	17	15	0	211
07:30 AM	24	28	6	1	109	48	1	0	0	0	0	0	0	27	14	0	258
07:45 AM	23	33	6	0	123	51	0	0	0	0	0	0	0	15	18	0	269
Total	66	83	15	1	330	136	1	0	0	0	0	0	0	59	47	0	738
08:00 AM	26	31	16	0	103	71	7	0	0	0	0	0	1	25	22	0	302
08:15 AM	39	37	5	0	112	62	0	0	0	0	0	0	0	42	27	1	325
08:30 AM	37	41	1	0	76	57	0	0	0	0	0	0	0	28	16	0	256
08:45 AM	34	34	5	0	71	42	0	0	0	0	0	0	0	30	20	0	236
Total	136	143	27	0	362	232	7	0	0	0	0	0	1	125	85	1	1119
09:00 AM	40	34	4	0	58	60	0	0	0	0	0	0	0	52	9	0	257
09:15 AM	46	24	5	0	59	74	0	0	0	2	0	0	0	35	16	0	261
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	86	58	9	0	117	134	0	0	0	2	0	0	0	87	25	0	518
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	41	32	14	1	75	94	1	0	0	0	0	0	1	68	16	0	343
Total	41	32	14	1	75	94	1	0	0	0	0	0	1	68	16	0	343
12:00 PM	68	29	12	0	76	88	2	0	0	0	0	0	0	80	28	0	383
12:15 PM	85	37	16	0	67	77	0	0	0	0	0	0	0	80	18	0	380
12:30 PM	67	35	13	0	94	92	2	0	0	0	0	0	0	99	25	0	427
12:45 PM	61	42	26	0	67	95	0	0	0	0	0	0	1	104	24	0	420
Total	281	143	67	0	304	352	4	0	0	0	0	0	1	363	95	0	1610
01:00 PM	65	32	23	0	88	100	2	0	0	0	0	0	0	84	25	0	419
01:15 PM	90	43	14	0	79	90	0	0	0	0	0	0	0	72	25	0	413
01:30 PM	67	39	9	0	100	94	1	0	0	0	0	0	0	75	21	0	406
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	222	114	46	0	267	284	3	0	0	0	0	0	0	231	71	0	1238
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	78	48	16	1	96	94	3	0	0	0	0	0	0	73	23	0	432
02:30 PM	89	48	13	0	90	106	0	0	0	0	0	0	0	82	24	0	452
02:45 PM	67	48	18	0	83	100	0	0	0	0	0	0	0	98	23	0	437
Total	234	144	47	1	269	300	3	0	0	0	0	0	0	253	70	0	1321
03:00 PM	88	61	24	0	88	110	0	0	0	0	0	0	0	99	22	0	492
03:15 PM	61	30	15	0	84	80	0	0	0	0	0	0	0	108	21	0	399
03:30 PM	95	51	13	0	103	97	5	0	0	0	0	0	0	110	22	0	496
03:45 PM	85	42	8	0	78	86	0	0	0	0	0	0	0	115	15	0	429
Total	329	184	60	0	353	373	5	0	0	0	0	0	0	432	80	0	1816
04:00 PM	76	54	25	0	80	115	0	0	0	0	0	0	0	108	22	0	480
04:15 PM	64	52	29	0	78	84	0	0	0	0	0	0	0	117	31	0	455
04:30 PM	61	47	20	0	64	100	0	0	0	0	0	0	0	106	27	0	425
04:45 PM	69	58	38	0	104	115	0	0	0	0	0	0	0	122	31	0	537
Total	270	211	112	0	326	414	0	0	0	0	0	0	0	453	111	0	1897

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	SMALLRD				MILLET TOWN TI PK				SMALLRD				MILLET TOWN TI PK				Int. Total
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
05:00 PM	63	55	35	0	97	108	0	0	0	0	0	0	0	121	29	0	508
05:15 PM	62	43	22	0	92	94	0	0	0	0	0	0	0	123	32	0	468
05:30 PM	78	49	11	0	109	125	0	0	0	0	0	0	0	139	26	0	537
05:45 PM	75	45	22	0	94	104	0	0	0	0	0	0	0	102	22	0	464
Total	278	192	90	0	392	431	0	0	0	0	0	0	0	485	109	0	1977
06:00 PM	68	41	36	0	105	89	1	0	0	0	0	0	0	116	20	0	476
Grand Total	2011	1345	523	3	2900	2839	25	0	0	2	0	0	3	2672	729	1	13053
Apprch %	51.8	34.6	13.5	0.1	50.3	49.3	0.4	0	0	100	0	0	0.1	78.5	21.4	0	
Total %	15.4	10.3	4	0	22.2	21.7	0.2	0	0	0	0	0	0	20.5	5.6	0	

	SMALLRD					MILLET TOWN TI PK					SMALLRD					MILLET TOWN TI PK					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	19	22	3	0	44	98	37	0	0	135	0	0	0	0	0	0	17	15	0	32	211
07:30 AM	24	28	6	1	59	109	48	1	0	158	0	0	0	0	0	0	27	14	0	41	258
07:45 AM	23	33	6	0	62	123	51	0	0	174	0	0	0	0	0	0	15	18	0	33	269
08:00 AM	26	31	16	0	73	103	71	7	0	181	0	0	0	0	0	1	25	22	0	48	302
Total Volume	92	114	31	1	238	433	207	8	0	648	0	0	0	0	0	1	84	69	0	154	1040
% App. Total	38.7	47.9	13	0.4		66.8	31.9	1.2	0		0	0	0	0		0.6	54.5	44.8	0		
PHF	.885	.864	.484	.250	.815	.880	.729	.286	.000	.895	.000	.000	.000	.000	.000	.250	.778	.784	.000	.802	.861

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

05:00 PM	63	55	35	0	153	92	94	0	0	186	0	0	0	0	0	0	123	32	0	155	468
05:15 PM	62	43	22	0	127	92	94	0	0	186	0	0	0	0	0	0	139	26	0	165	537
05:30 PM	78	49	11	0	138	109	125	0	0	234	0	0	0	0	0	0	102	22	0	124	464
05:45 PM	75	45	22	0	142	94	104	0	0	198	0	0	0	0	0	0	485	109	0	594	1977
Total Volume	278	192	90	0	560	392	431	0	0	823	0	0	0	0	0	0	81.6	18.4	0		
% App. Total	49.6	34.3	16.1	0		47.6	52.4	0	0		0	0	0	0		0	.872	.852	.000	.900	.920
PHF	.891	.873	.643	.000	.915	.899	.862	.000	.000	.879	.000	.000	.000	.000	.000	.000	.872	.852	.000	.900	.920

Your Company Name Here

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Your Phone Number : No 15 - I640 WB Off Rmp with Millertown Pk

Site Code : 00000001

Start Date : 3/31/2008

Page No : 1

Groups Printed- Unshifted

Start Time	Millertown Pk				I-640 WB Off Ramp				Millertown Pk								Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
07:00 AM	0	110	33	0	4	22	41	0	2	32	0	0	0	0	0	0	244
07:15 AM	0	133	56	3	10	23	39	0	1	23	0	0	0	0	0	0	288
07:30 AM	0	150	73	0	17	24	61	0	3	49	0	0	0	0	0	0	377
07:45 AM	0	125	65	0	15	48	43	0	6	42	0	0	0	0	0	0	344
Total	0	518	227	3	46	117	184	0	12	146	0	0	0	0	0	0	1253
08:00 AM	0	116	85	1	21	37	72	0	2	71	0	0	0	0	0	0	405
08:15 AM	0	135	71	0	18	28	63	0	6	46	0	0	0	0	0	0	367
08:30 AM	0	125	52	0	25	29	63	0	6	39	0	0	0	0	0	0	339
08:45 AM	0	124	54	0	7	34	51	0	9	75	0	0	0	0	0	0	354
Total	0	500	262	1	71	128	249	0	23	231	0	0	0	0	0	0	1465
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	114	45	0	24	47	70	0	28	85	0	0	0	0	0	0	413
11:15 AM	0	92	43	0	21	62	69	0	18	102	0	0	0	0	0	0	407
11:30 AM	0	131	42	0	23	51	76	0	22	108	0	0	0	0	0	0	453
11:45 AM	0	114	68	1	15	72	83	0	27	108	0	0	0	0	0	0	488
Total	0	451	198	1	83	232	298	0	95	403	0	0	0	0	0	0	1761
12:00 PM	0	105	48	0	13	75	92	0	19	101	0	0	0	0	0	0	453
12:15 PM	0	132	62	0	25	66	97	0	23	145	0	0	0	0	0	0	550
12:30 PM	0	128	46	0	26	63	76	0	26	122	0	0	0	0	0	0	487
12:45 PM	0	126	52	0	7	60	88	0	31	108	0	0	0	0	0	0	472
Total	0	491	208	0	71	264	353	0	99	476	0	0	0	0	0	0	1962
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	92	67	0	35	97	44	0	18	100	0	0	0	0	0	0	453
02:15 PM	0	130	51	0	20	77	116	0	25	110	0	0	0	0	13	0	542
02:30 PM	1	157	55	0	15	54	77	0	32	138	0	0	0	0	0	0	529
02:45 PM	1	104	51	0	17	64	89	0	21	143	0	0	0	0	0	0	490
Total	2	483	224	0	87	292	326	0	96	491	0	0	0	0	13	0	2014
03:00 PM	0	131	53	0	16	67	88	0	19	142	0	0	0	0	0	0	516
03:15 PM	0	145	54	0	24	67	122	0	27	134	2	0	0	0	0	0	575
03:30 PM	0	113	66	3	28	57	139	0	25	158	1	0	0	0	0	0	590
03:45 PM	0	138	45	0	28	84	191	0	25	184	0	0	0	0	0	0	695
Total	0	527	218	3	96	275	540	0	96	618	3	0	0	0	0	0	2376
04:00 PM	0	128	43	0	22	83	149	0	21	175	0	0	0	0	0	0	621
04:15 PM	1	143	64	0	40	84	160	0	23	147	0	0	0	0	0	0	662
04:30 PM	3	137	70	0	12	89	159	0	16	179	1	0	0	0	0	0	666
04:45 PM	1	141	70	0	16	94	175	0	25	203	5	0	0	0	0	0	730
Total	5	549	247	0	90	350	643	0	85	704	6	0	0	0	0	0	2679

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Your File Name : No 15 - I640 WB Off Rmp with Millertown Pk

Site Code : 00000001

Start Date : 3/31/2008

Page No : 2

Groups Printed- Unshifted

	Millertown Pk				I-640 WB Off Ramp				Millertown Pk								Int. Total
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
05:00 PM	9	135	46	0	30	90	154	0	15	216	0	0	0	0	0	0	695
05:15 PM	0	128	49	0	18	118	218	0	13	201	6	0	0	0	0	0	751
05:30 PM	0	154	68	1	40	125	95	0	22	247	4	0	0	0	0	0	756
05:45 PM	0	137	57	0	38	124	176	0	35	203	0	0	0	0	0	0	770
Total	9	554	220	1	126	457	643	0	85	867	10	0	0	0	0	0	2972
Grand Total	16	4073	1804	9	670	2115	3236	0	591	3936	19	0	0	0	13	0	16482
Apprch %	0.3	69	30.6	0.2	11.1	35.1	53.7	0	13	86.6	0.4	0	0	0	100	0	
Total %	0.1	24.7	10.9	0.1	4.1	12.8	19.6	0	3.6	23.9	0.1	0	0	0	0.1	0	

	Millertown Pk					I-640 WB Off Ramp					Millertown Pk										Int. Total
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	133	56	3	192	10	23	39	0	72	1	23	0	0	24	0	0	0	0	0	288
07:30 AM	0	150	73	0	223	17	24	61	0	102	3	49	0	0	52	0	0	0	0	0	377
07:45 AM	0	125	65	0	190	15	48	43	0	106	6	42	0	0	48	0	0	0	0	0	344
08:00 AM	0	116	85	1	202	21	37	72	0	130	2	71	0	0	73	0	0	0	0	0	405
Total Volume	0	524	279	4	807	63	132	215	0	410	12	185	0	0	197	0	0	0	0	0	1414
% App. Total	0	64.9	34.6	0.5		15.4	32.2	52.4	0		8.1	93.9	0	0		0	0	0	0		
PHF	.000	.873	.821	.333	.905	.750	.688	.747	.000	.788	.500	.851	.000	.000	.875	.000	.000	.000	.000	.000	.873

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

05:00 PM	9					18	118	218	0	354	13	201	6	0	220	0	0	0	0	0	751
05:15 PM	0	128	49	0	177	18	118	218	0	354	13	201	6	0	220	0	0	0	0	0	751
05:30 PM	0	154	68	1	223	40	125	95	0	260	22	247	4	0	273	0	0	0	0	0	756
05:45 PM	0	137	57	0	194	38	124	176	0	338	35	203	0	0	238	0	0	0	0	0	770
Total Volume	9	554	220	1	784	126	457	643	0	1226	85	867	10	0	962	0	0	0	0	0	2972
% App. Total	1.1	70.7	28.1	0.1		10.3	37.3	52.4	0		8.8	90.1	1	0		0	0	0	0		
PHF	.250	.899	.809	.250	.879	.788	.914	.737	.000	.866	.607	.878	.417	.000	.881	.000	.000	.000	.000	.000	.865

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File Name: No 16 Millertown Pk with Knox Ctr and Kenzil way

Site Code : 00000000

Start Date : 4/21/2008

Page No : 1

Groups Printed- Unshifted

	Millertown Pk				Kinzel Way				Millertown Pk				Knox Ctr Ent-Exit				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00 AM	6	174	5	0	25	3	6	0	6	51	14	0	4	5	5	0	304
07:15 AM	18	191	9	0	28	2	8	0	5	61	14	0	2	0	6	0	344
07:30 AM	16	222	14	0	31	2	9	0	1	61	22	0	6	3	10	0	397
07:45 AM	21	192	18	0	40	4	9	0	19	80	31	0	5	4	5	0	428
Total	61	779	46	0	124	11	32	0	31	253	81	0	17	12	26	0	1473
08:00 AM	13	173	11	0	30	7	8	0	10	61	18	0	3	3	6	0	343
08:15 AM	11	127	10	0	30	3	7	0	6	66	18	0	2	5	1	0	286
08:30 AM	18	103	12	0	34	5	18	0	13	54	19	0	4	4	0	0	284
08:45 AM	16	110	12	0	35	5	7	0	15	59	20	0	10	5	4	0	298
Total	58	513	45	0	129	20	40	0	44	240	75	0	19	17	11	0	1211
11:00 AM	9	81	32	0	38	12	14	0	40	93	45	0	28	18	24	0	434
11:15 AM	15	71	25	0	44	13	19	0	23	94	63	0	20	14	24	0	425
11:30 AM	18	87	27	0	41	12	23	0	35	83	63	0	24	27	24	0	464
11:45 AM	17	78	30	0	63	15	21	0	36	75	51	0	28	18	28	0	460
Total	59	317	114	0	186	52	77	0	134	345	222	0	100	77	100	0	1783
12:00 PM	19	104	21	0	57	12	23	0	26	86	53	0	24	20	27	0	472
12:15 PM	10	81	27	0	41	15	20	1	28	105	63	0	36	17	37	0	481
12:30 PM	14	98	12	0	57	24	20	0	30	99	52	0	23	29	26	0	484
12:45 PM	15	93	27	0	71	15	29	0	35	79	50	0	36	23	39	0	512
Total	58	376	87	0	226	66	92	1	119	369	218	0	119	89	129	0	1949
02:00 PM	10	95	16	0	42	14	26	0	27	107	56	0	20	23	27	0	463
02:15 PM	15	89	20	0	72	20	14	1	24	111	60	0	24	21	32	0	503
02:30 PM	14	93	13	0	69	14	27	0	24	117	57	0	28	18	37	0	511
02:45 PM	11	93	20	0	79	13	23	0	28	104	75	2	30	25	21	0	524
Total	50	370	69	0	262	61	90	1	103	439	248	2	102	87	117	0	2001
03:00 PM	18	84	19	0	60	15	33	0	31	113	61	0	32	18	40	1	525
03:15 PM	14	74	17	0	63	13	19	0	34	123	68	0	30	18	41	0	514
03:30 PM	23	82	29	0	62	15	30	0	25	134	74	0	30	9	25	0	538
03:45 PM	12	84	36	0	67	14	36	0	36	152	78	0	25	18	32	0	590
Total	67	324	101	0	252	57	118	0	126	522	281	0	117	63	138	1	2167
04:00 PM	12	78	34	0	74	12	30	0	45	136	55	0	42	12	41	1	572
04:15 PM	14	101	27	0	58	21	28	0	31	152	70	0	36	24	38	0	600
04:30 PM	14	86	20	0	64	13	42	0	39	160	74	0	27	27	43	0	609
04:45 PM	15	82	46	0	59	12	35	0	35	177	75	0	33	22	48	0	639
Total	55	347	127	0	255	58	135	0	150	625	274	0	138	85	170	1	2420
05:00 PM	16	95	24	1	57	16	46	0	31	156	73	0	34	31	42	0	622
05:15 PM	14	88	27	0	75	18	27	0	31	164	84	1	40	27	33	0	629
05:30 PM	23	87	36	0	50	18	30	0	18	157	46	0	43	22	37	0	567
05:45 PM	9	88	36	0	47	12	38	0	19	167	58	0	39	25	48	0	586
Total	62	358	123	1	229	64	141	0	99	644	261	1	156	105	160	0	2404
Grand Total	470	3384	712	1	1663	389	725	2	806	3437	1660	3	768	535	851	2	15408
Apprch %	10.3	74.1	15.6	0	59.8	14	26.1	0.1	13.6	58.2	28.1	0.1	35.6	24.8	39.5	0.1	
Total %	3.1	22	4.6	0	10.8	2.5	4.7	0	5.2	22.3	10.8	0	5	3.5	5.5	0	

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File Name : No 16 Millertown Pk with Knox Ctr and Kenzil way

Site Code : 00000000

Start Date : 4/21/2008

Page No : 2

	Millertown Pk					Kinzel Way					Millertown Pk					Knox Ctr Ent-Exit					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	18	191	9	0	218	28	2	8	0	38	5	61	14	0	80	2	0	6	0	8	344
07:30 AM	16	222	14	0	252	31	2	9	0	42	1	61	22	0	84	6	3	10	0	19	397
07:45 AM	21	192	18	0	231	40	4	9	0	53	19	80	31	0	130	5	4	5	0	14	428
08:00 AM	13	173	11	0	197	30	7	8	0	45	10	61	18	0	89	3	3	6	0	12	343
Total Volume	68	778	52	0	898	129	15	34	0	178	35	263	85	0	383	16	10	27	0	53	1512
% App. Total	7.6	86.6	5.8	0		72.5	8.4	19.1	0		9.1	68.7	22.2	0		30.2	18.9	50.9	0		
PHF	.810	.876	.722	.000	.891	.806	.536	.944	.000	.840	.461	.822	.685	.000	.737	.667	.625	.675	.000	.697	.883
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	16	95		1				46			31					31					
05:15 PM	14	88	27	0	129	75	18	27	0	120	31	164	84	1	280	40	27	33	0	100	629
05:30 PM	23	87	36	0	146	50	18	30	0	98	18	157	46	0	221	43	22	37	0	102	567
05:45 PM	9	88	36	0	133	47	12	38	0	97	19	167	58	0	244	39	25	48	0	112	586
Total Volume	62	358	123	1	544	229	64	141	0	434	99	644	261	1	1005	156	105	160	0	421	2404
% App. Total	11.4	65.8	22.6	0.2		52.8	14.7	32.5	0		9.9	64.1	28	0.1		37.1	24.9	38	0		
PHF	.674	.942	.854	.250	.932	.763	.889	.766	.000	.904	.798	.984	.777	.250	.897	.907	.847	.833	.000	.940	.955

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File Name : No 17 Millertown Pk with Loves Crk Rd
Site Code : 00000000
Start Date : 4/15/2008
Page No : 1

Groups Printed- Unshifted

	LOVE CREEK				MJLLER TOWN P				LOVE CREEK				MJLLER TOWN P				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00 AM	0	0	3	0	21	151	0	0	21	1	11	0	0	40	12	0	260
07:15 AM	0	0	8	0	34	177	0	0	24	0	6	0	2	50	11	0	312
07:30 AM	1	4	7	0	40	196	0	0	28	0	19	0	0	45	11	0	351
07:45 AM	0	0	7	0	40	241	0	0	26	2	12	0	0	65	10	0	403
Total	1	4	25	0	135	765	0	0	99	3	48	0	2	200	44	0	1326
08:00 AM	0	1	5	0	40	170	0	0	16	3	22	0	1	75	16	0	349
08:15 AM	1	0	5	0	23	120	0	0	32	0	19	0	2	72	11	0	285
08:30 AM	0	0	6	0	14	116	0	0	26	2	17	0	4	48	12	0	245
08:45 AM	2	3	9	0	26	112	0	0	22	2	7	0	5	74	10	0	272
Total	3	4	25	0	103	518	0	0	96	7	65	0	12	269	49	0	1151
11:00 AM	0	4	5	0	14	89	0	0	27	5	11	0	4	73	15	0	247
11:15 AM	1	6	16	0	14	85	0	0	23	5	19	0	3	69	16	0	257
11:30 AM	1	3	11	0	12	77	0	0	31	1	5	0	4	94	23	0	262
11:45 AM	1	2	7	0	12	101	0	0	35	3	19	0	3	96	21	0	300
Total	3	15	39	0	52	352	0	0	116	14	54	0	14	332	75	0	1066
12:00 PM	2	4	11	0	14	93	1	0	35	4	11	0	8	109	16	0	308
12:15 PM	2	5	10	0	17	100	0	0	48	2	19	0	4	91	29	0	327
12:30 PM	0	4	15	0	7	78	0	0	29	5	15	0	5	94	29	0	281
12:45 PM	5	2	10	0	17	82	4	0	28	6	16	0	9	100	29	0	308
Total	9	15	46	0	55	353	5	0	140	17	61	0	26	394	103	0	1224
02:00 PM	2	5	11	0	19	86	1	0	34	3	12	0	4	103	30	0	310
02:15 PM	5	4	6	0	19	66	1	0	28	7	22	0	7	117	28	0	310
02:30 PM	3	4	10	0	21	83	1	0	18	2	16	0	2	111	30	0	301
02:45 PM	2	5	13	0	15	87	1	0	32	5	15	0	6	110	24	0	315
Total	12	18	40	0	74	322	4	0	112	17	65	0	19	441	112	0	1236
03:00 PM	5	9	11	0	35	84	1	0	25	3	19	0	2	129	25	0	348
03:15 PM	3	2	17	0	19	85	0	0	39	6	16	0	6	133	16	0	342
03:30 PM	6	9	11	0	22	82	1	0	29	9	24	0	11	136	17	0	357
03:45 PM	4	4	8	0	18	78	0	0	31	4	35	0	8	166	22	0	378
Total	18	24	47	0	94	329	2	0	124	22	94	0	27	564	80	0	1425
04:00 PM	10	6	7	0	17	110	0	0	32	2	30	0	9	150	33	0	406
04:15 PM	9	6	11	0	21	95	1	0	28	13	24	0	5	180	30	0	423
04:30 PM	3	5	11	0	21	81	1	0	35	6	31	0	7	182	27	0	410
04:45 PM	9	6	15	0	25	108	0	0	32	13	33	0	7	192	20	0	460
Total	31	23	44	0	84	394	2	0	127	34	118	0	28	704	110	0	1699
05:00 PM	6	8	9	0	14	91	0	0	26	8	34	0	9	213	19	0	437
05:15 PM	7	7	16	0	18	105	0	0	34	5	25	0	9	230	23	0	479
05:30 PM	8	7	12	0	13	91	0	0	27	6	22	0	13	200	17	0	416
05:45 PM	9	12	11	0	19	100	1	0	33	6	21	0	8	197	19	0	436
Total	30	34	48	0	64	387	1	0	120	25	102	0	39	840	78	0	1768
Grand Total	107	137	314	0	661	3420	14	0	934	139	607	0	167	3744	651	0	10895
Apprch %	19.2	24.6	56.3	0	16.1	83.5	0.3	0	55.6	8.3	36.1	0	3.7	82.1	14.3	0	
Total %	1	1.3	2.9	0	6.1	31.4	0.1	0	8.6	1.3	5.6	0	1.5	34.4	6	0	

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Start Date : 4/15/2008
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	LOVE CREEK					MJLLER TOWN P					LOVE CREEK					MJLLER TOWN P					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	8	0	8	34	177	0	0	211	24	0	6	0	30	2	50	11	0	63	312
07:30 AM	1	4	7	0	12	40	196	0	0	236	28	0	19	0	47	0	45	11	0	56	351
07:45 AM	0	0	7	0	7	40	241	0	0	281	26	2	12	0	40	0	65	10	0	75	403
08:00 AM	0	1	5	0	6	40	170	0	0	210	16	3	22	0	41	1	75	16	0	92	349
Total Volume	1	5	27	0	33	154	784	0	0	938	94	5	59	0	158	3	235	48	0	286	1415
% App. Total	3	15.2	81.8	0		16.4	83.6	0	0		59.5	3.2	37.3	0		1	82.2	16.8	0		
PHF	.250	.313	.844	.000	.688	.963	.813	.000	.000	.835	.839	.417	.670	.000	.840	.375	.783	.750	.000	.777	.878

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

05:00 PM	6	8	9	0	23	14	91	0	0	105	26	8	34	0	68	9	230	23	0	262	479
05:15 PM	7	7	16	0	30	18	105	0	0	123	34	5	25	0	64	13	200	17	0	230	416
05:30 PM	8	7	12	0	27	13	91	0	0	104	27	6	22	0	55	8	197	19	0	224	436
05:45 PM	9	12	11	0	32	19	100	1	0	120	33	6	21	0	60	8	197	19	0	224	436
Total Volume	30	34	48	0	112	64	387	1	0	452	120	25	102	0	247	39	840	78	0	957	1768
% App. Total	26.8	30.4	42.9	0		14.2	85.8	0.2	0		48.6	10.1	41.3	0		4.1	87.8	8.2	0		
PHF	.833	.708	.750	.000	.875	.842	.921	.250	.000	.919	.882	.781	.750	.000	.908	.750	.913	.848	.000	.913	.923

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Site Code : 00000000

Start Date : 4/16/2008

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Groups Printed- Unshifted

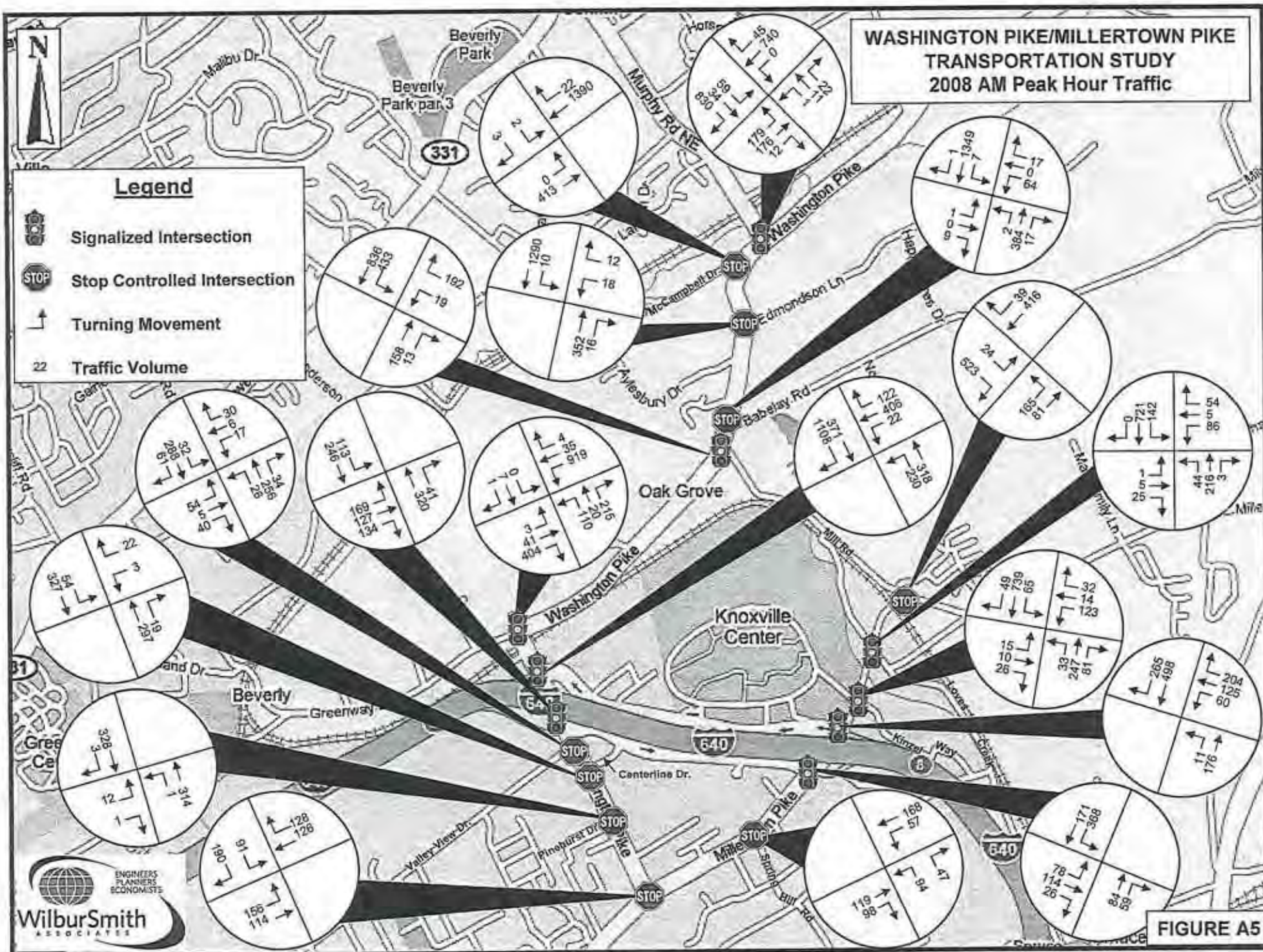
	MILL ROAD				MILLER TOWN P				MILL ROAD				MILLER TOWN P				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00 AM	4	0	123	0	0	76	6	0	0	0	0	0	31	16	0	0	256
07:15 AM	5	0	133	0	0	102	6	0	0	0	0	0	45	17	0	0	308
07:30 AM	6	0	130	0	0	131	15	0	0	0	0	0	51	15	0	0	348
07:45 AM	10	0	159	0	0	129	15	0	0	0	0	0	41	21	0	0	375
Total	25	0	545	0	0	438	42	0	0	0	0	0	168	69	0	0	1287
08:00 AM	5	0	146	0	0	90	6	0	0	0	0	0	42	35	0	0	324
08:15 AM	2	0	131	0	0	65	6	0	0	0	0	0	84	27	0	0	315
08:30 AM	2	0	108	0	0	53	7	0	0	0	0	0	43	29	0	0	242
08:45 AM	3	0	103	0	0	68	5	0	0	0	0	0	43	31	0	0	253
Total	12	0	488	0	0	276	24	0	0	0	0	0	212	122	0	0	1134
11:00 AM	1	0	58	0	0	41	2	0	0	0	0	0	42	30	0	0	174
11:15 AM	8	0	78	0	0	35	6	0	0	0	0	0	64	39	0	0	230
11:30 AM	9	0	75	0	0	42	5	0	0	0	0	0	60	36	0	0	227
11:45 AM	4	0	65	0	0	50	1	0	0	0	0	0	48	28	0	0	196
Total	22	0	276	0	0	168	14	0	0	0	0	0	214	133	0	0	827
12:00 PM	5	0	76	0	0	43	4	0	0	0	0	0	65	41	0	0	234
12:15 PM	6	0	64	0	0	35	3	0	0	0	0	0	59	46	0	0	213
12:30 PM	4	0	88	0	0	42	8	0	0	0	0	0	81	53	0	0	276
12:45 PM	4	0	76	0	0	36	8	0	0	0	0	0	78	40	0	0	242
Total	19	0	304	0	0	156	23	0	0	0	0	0	283	180	0	0	965
02:00 PM	7	0	75	0	0	47	7	0	0	0	0	0	107	37	0	0	280
02:15 PM	7	0	50	0	0	43	4	0	0	0	0	0	99	61	0	0	264
02:30 PM	8	0	76	0	0	46	5	0	0	0	0	0	83	54	0	0	272
02:45 PM	7	0	83	0	0	36	10	0	0	0	0	0	105	61	0	0	302
Total	29	0	284	0	0	172	26	0	0	0	0	0	394	213	0	0	1118
03:00 PM	10	0	60	0	0	44	2	0	0	0	0	0	104	58	0	0	278
03:15 PM	5	0	81	0	0	41	5	0	0	0	0	0	91	77	0	0	300
03:30 PM	3	0	81	0	0	42	4	0	0	0	0	0	144	71	0	0	345
03:45 PM	3	0	60	0	0	39	9	0	0	0	0	0	151	80	0	0	342
Total	21	0	282	0	0	166	20	0	0	0	0	0	490	286	0	0	1265
04:00 PM	13	0	70	0	0	41	12	0	0	0	0	0	136	82	0	0	354
04:15 PM	6	0	95	0	0	47	7	0	0	0	0	0	129	77	0	0	361
04:30 PM	6	0	72	0	0	45	3	0	0	0	0	0	117	72	0	0	315
04:45 PM	10	0	92	0	0	50	13	0	0	0	0	0	143	90	0	0	398
Total	35	0	329	0	0	183	35	0	0	0	0	0	525	321	0	0	1428
05:00 PM	3	0	62	0	0	55	11	0	0	0	0	0	157	99	0	0	387
05:15 PM	4	0	63	0	0	77	5	0	0	0	0	0	143	94	0	0	386
05:30 PM	14	0	75	0	0	61	9	0	0	0	0	0	161	96	1	0	417
05:45 PM	10	0	65	0	0	60	14	0	0	0	0	0	135	85	0	0	369
Total	31	0	265	0	0	253	39	0	0	0	0	0	596	374	1	0	1559
Grand Total	194	0	2773	0	0	1812	223	0	0	0	0	0	2882	1698	1	0	9583
Apprch %	6.5	0	93.5	0	0	89	11	0	0	0	0	0	62.9	37.1	0	0	
Total %	2	0	28.9	0	0	18.9	2.3	0	0	0	0	0	30.1	17.7	0	0	

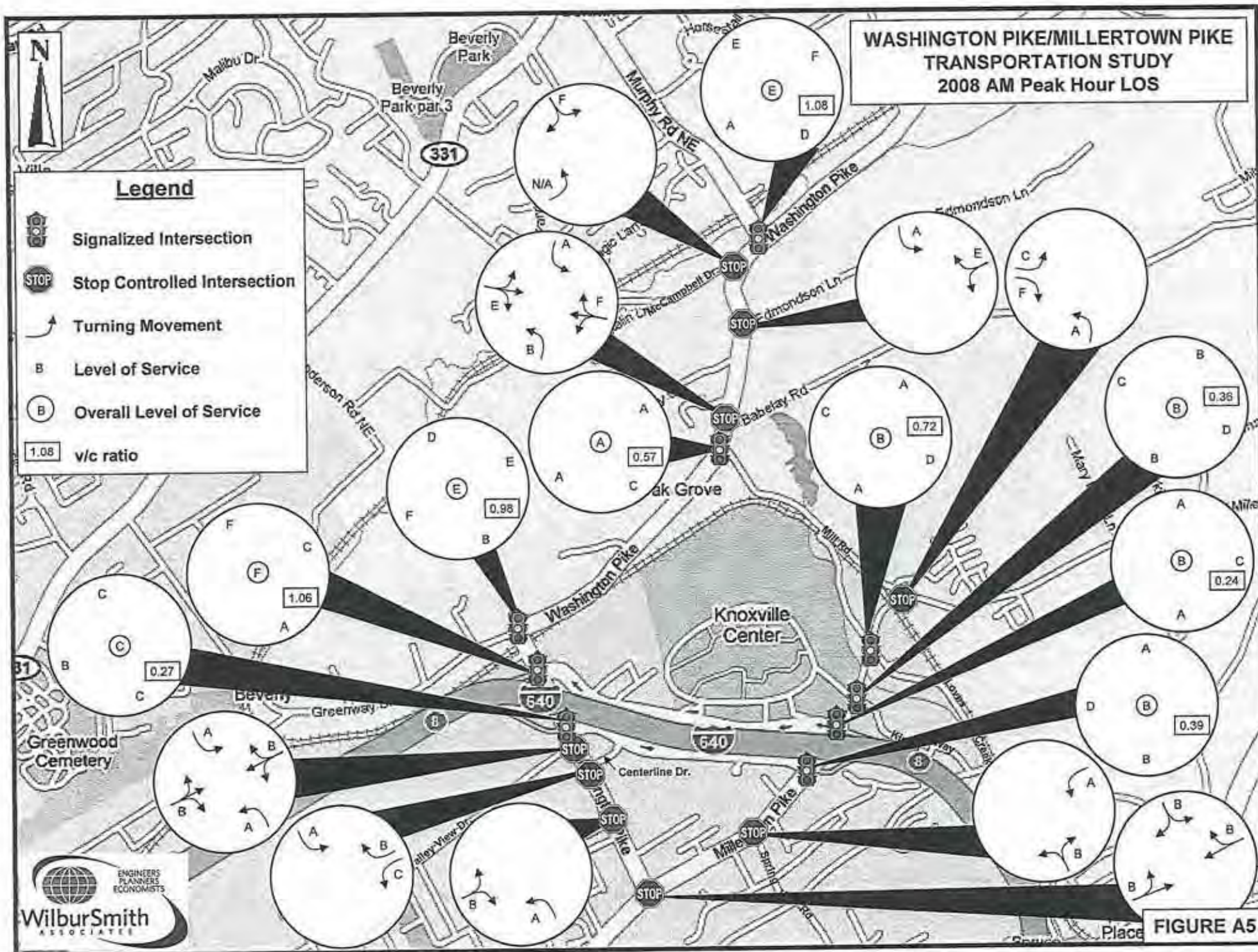
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	MILL ROAD					MILLER TOWN P					MILL ROAD					MILLER TOWN P					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	5	0	133	0	138	0	102	6	0	108	0	0	0	0	0	45	17	0	0	62	308
07:30 AM	6	0	130	0	136	0	131	15	0	146	0	0	0	0	0	51	15	0	0	66	348
07:45 AM	10	0	159	0	169	0	129	15	0	144	0	0	0	0	0	41	21	0	0	62	375
08:00 AM	5	0	146	0	151	0	90	6	0	96	0	0	0	0	0	42	35	0	0	77	324
Total Volume	26	0	568	0	594	0	452	42	0	494	0	0	0	0	0	179	88	0	0	267	1355
% App. Total	4.4	0	85.6	0		0	91.5	8.5	0		0	0	0	0		67	33	0	0		
PHF	.650	.000	.893	.000	.879	.000	.883	.700	.000	.846	.000	.000	.000	.000	.000	.877	.629	.000	.000	.867	.903
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	3	0	62	0	65	0	55	11	0	66	0	0	0	0	0	157	99	0	0		
05:15 PM	4	0	63	0	67	0	77	5	0	82	0	0	0	0	0	143	94	0	0	237	386
05:30 PM	14	0	75	0	89	0	61	9	0	70	0	0	0	0	0	161	96	1	0	258	417
05:45 PM	10	0	65	0	75	0	60	14	0	74	0	0	0	0	0	135	85	0	0	220	369
Total Volume	31	0	265	0	296	0	253	39	0	292	0	0	0	0	0	596	374	1	0	971	1559
% App. Total	10.5	0	89.5	0		0	86.6	13.4	0		0	0	0	0		61.4	38.5	0.1	0		
PHF	.554	.000	.893	.000	.831	.000	.821	.696	.000	.890	.000	.000	.000	.000	.000	.925	.944	.250	.000	.941	.935





Timings
22: Murphy Road & Washington Pike

2008 AM Existing
Washington & Millertown Pike Study



Lane Group	NBL	NBT	SBL	SBT	SBR	NEL	NET	SWT
Lane Configurations		↔		↔	↔	↔	↔	↔
Volume (vph)	1	11	59	34	830	179	176	740
Turn Type	Perm		Perm		pm+ov	pm+pt		
Protected Phases		2		6	7	7	4	8
Permitted Phases	2		6		6	4		
Detector Phase	2	2	6	6	7	7	4	8
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	8.0	8.0	20.0	20.0
Total Split (s)	20.0	20.0	20.0	20.0	35.0	35.0	80.0	45.0
Total Split (%)	20.0%	20.0%	20.0%	20.0%	35.0%	35.0%	80.0%	45.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	4.0	3.0	4.0	3.0	3.0	3.0	3.0
Lead/Lag					Lead	Lead		Lag
Lead-Lag Optimize?								
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated

Splits and Phases: 22: Murphy Road & Washington Pike

↔ e2	↔ e4
20s	80s
↔ e6	↔ e7
20s	85s
	↔ e8
	45s

Queues
22: Murphy Road & Washington Pike

2008 AM Existing
Washington & Millertown Pike Study





















Lane Group	NBT	SBT	SBR	NEL	NET	SWT
Lane Group Flow (vph)	57	101	902	213	224	872
v/c Ratio	0.25	0.57	1.05	0.30	0.15	1.12
Control Delay	21.2	53.9	66.9	10.9	2.2	100.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.2	53.9	66.9	10.9	2.2	100.0
Queue Length 50th (ft)	12	62	~602	39	22	~645
Queue Length 95th (ft)	23	111	#842	94	36	#883
Internal Link Dist (ft)	209	5075			203	483
Turn Bay Length (ft)						
Base Capacity (vph)	301	240	862	717	1502	778
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.42	1.05	0.30	0.15	1.12

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

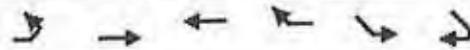
HCM Signalized Intersection Capacity Analysis 22: Murphy Road & Washington Pike

2008 AM Existing
Washington & Millertown Pike Study

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	1	11	22	59	34	830	179	176	12	0	740	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	3.0	3.0	3.0			3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00			1.00	
Frt		0.91			1.00	0.85	1.00	0.99			0.99	
Flt Protected		1.00			0.97	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		1697			1806	1583	1770	1845			1848	
Flt Permitted		0.99			0.81	1.00	0.09	1.00			1.00	
Satd. Flow (perm)		1685			1504	1583	166	1845			1848	
Peak-hour factor, PHF	0.60	0.60	0.60	0.92	0.92	0.92	0.84	0.84	0.84	0.90	0.90	0.90
Adj. Flow (vph)	2	18	37	64	37	902	213	210	14	0	822	50
RTOR Reduction (vph)	0	33	0	0	0	41	0	2	0	0	2	0
Lane Group Flow (vph)	0	24	0	0	101	861	213	222	0	0	870	0
Turn Type	Perm		Perm		pm+ov		pm+pt		Perm			
Protected Phases	2		6		7		7		8			
Permitted Phases	2		6		6		4		8			
Actuated Green, G (s)	11.7		11.7		47.0		80.3		41.0			
Effective Green, g (s)	11.7		11.7		49.0		81.3		42.0			
Actuated g/C Ratio	0.12		0.12		0.49		0.81		0.42			
Clearance Time (s)	4.0		4.0		4.0		4.0		4.0			
Vehicle Extension (s)	3.0		3.0		3.0		3.0		3.0			
Lane Grp Cap (vph)	197		176		823		717		1500			
v/s Ratio Prot					0.38		0.11		0.12			
v/s Ratio Perm	0.01		0.07		0.16		0.13					
v/c Ratio	0.12		0.57		1.05		0.30		0.15			
Uniform Delay, d1	39.6		41.8		25.5		13.6		2.0			
Progression Factor	1.00		1.00		1.00		1.13		0.91			
Incremental Delay, d2	1.3		12.9		44.0		0.2		0.0			
Delay (s)	40.8		54.7		69.5		15.6		1.9			
Level of Service	D		D		E		B		A			
Approach Delay (s)	40.8		68.0				8.6					
Approach LOS	D		E				A		F			
Intersection Summary												
HCM Average Control Delay	68.1			HCM Level of Service			E					
HCM Volume to Capacity ratio	1.08											
Actuated Cycle Length (s)	100.0			Sum of lost time (s)			6.0					
Intersection Capacity Utilization	106.4%			ICU Level of Service			G					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 23: Washington Pike & McCampbell Drive

2008 AM Existing
Washington & Millertown Pike Study



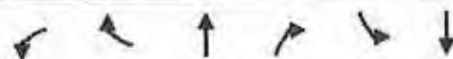
Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations	←	↑	↑		↘	
Volume (veh/h)	0	413	1390	22	2	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	459	1544	24	2	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			283			
pX, platoon unblocked	0.59				0.59	0.59
vC, conflicting volume	1569				2016	1557
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1617				2378	1597
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				90	96
cM capacity (veh/h)	236				22	77

Direction Lane #	EB 1	EB 2	WB 1	SE 1
Volume Total	0	459	1569	6
Volume Left	0	0	0	2
Volume Right	0	0	24	3
cSH	1700	1700	1700	39
Volume to Capacity	0.00	0.27	0.92	0.14
Queue Length 95th (ft)	0	0	0	11
Control Delay (s)	0.0	0.0	0.0	112.6
Lane LOS				F
Approach Delay (s)	0.0		0.0	112.6
Approach LOS				F

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis 24: Edmonds Road & Washington Pike

2008 AM Existing
Washington & Millertown Pike Study





















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	←	←	↑	↑	←	←
Volume (veh/h)	18	12	352	16	10	1290
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	20	13	391	18	11	1433
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1856	400			409	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1856	400			409	
IC, single (s)	6.4	6.2			4.1	
IC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	75	98			99	
cM capacity (veh/h)	80	650			1150	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	33	409	1444
Volume Left	20	0	11
Volume Right	13	18	0
cSH	124	1700	1150
Volume to Capacity	0.27	0.24	0.01
Queue Length 95th (ft)	25	0	1
Control Delay (s)	44.6	0.0	0.6
Lane LOS	E		A
Approach Delay (s)	44.6	0.0	0.6
Approach LOS	E		

Intersection Summary			
Average Delay		1.2	
Intersection Capacity Utilization		85.9%	ICU Level of Service E
Analysis Period (min)		15	











HCM Unsignalized Intersection Capacity Analysis 25: Babelay Road & Washington Pike

2008 AM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	0	9	64	0	17	2	384	17	7	1349	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	0	10	71	0	19	2	427	19	8	1499	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								687				
pX, platoon unblocked												
vC, conflicting volume	1965	1965	1499	1965	1956	436	1500			446		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1965	1965	1499	1965	1956	436	1500			446		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	93	0	100	97	100			99		
cM capacity (veh/h)	45	62	150	44	63	620	447			1115		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	11	90	2	446	8	1500						
Volume Left	1	71	2	0	8	0						
Volume Right	10	19	0	19	0	1						
cSH	122	54	447	1700	1115	1700						
Volume to Capacity	0.09	1.66	0.00	0.26	0.01	0.88						
Queue Length 95th (ft)	7	211	0	0	1	0						
Control Delay (s)	37.5	486.5	13.1	0.0	8.3	0.0						
Lane LOS	E	F	B		A							
Approach Delay (s)	37.5	486.5	0.1		0.0							
Approach LOS	E	F										
Intersection Summary												
Average Delay			21.5									
Intersection Capacity Utilization			89.0%	ICU Level of Service						E		
Analysis Period (min)			15									

Timings
26: Mill Road & Washington Pike





2008 AM Existing
Washington & Millertown Pike Study

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Volume (vph)	19	192	158	433	836
Turn Type	pm+ov			pm+pt	
Protected Phases	4	1	2	1	6
Permitted Phases		4		6	
Detector Phase	4	1	2	1	6
Switch Phase					
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	30.0	25.0	45.0	25.0	70.0
Total Split (s)	30.0	25.0	45.0	25.0	70.0
Total Split (%)	30.0%	25.0%	45.0%	25.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag	Lead	
Lead-Lag Optimize?					
Recall Mode	None	None	C-Min	None	C-Min

Intersection Summary

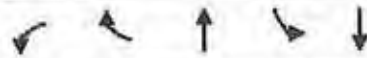
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 25 (25%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 26: Mill Road & Washington Pike

 a1	 a2	 a4
25 s	45 s	80 s
 a6		
70 s		

Queues

26: Mill Road & Washington Pike

2008 AM Existing
Washington & Millertown Pike Study

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	23	229	206	481	929
v/c Ratio	0.17	0.45	0.16	0.45	0.54
Control Delay	45.1	6.2	7.8	2.2	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	6.2	7.8	2.2	3.1
Queue Length 50th (ft)	14	0	34	0	0
Queue Length 95th (ft)	36	39	90	m74	m209
Internal Link Dist (ft)	913		316		607
Turn Bay Length (ft)					
Base Capacity (vph)	443	577	1276	1108	1720
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.05	0.40	0.16	0.43	0.54

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis 26: Mill Road & Washington Pike

2008 AM Existing
Washington & Millertown Pike Study

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	19	192	158	13	433	836
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Flt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	1843		1770	1863
Flt Permitted	0.95	1.00	1.00		0.58	1.00
Satd. Flow (perm)	1770	1583	1843		1088	1863
Peak-hour factor, PHF	0.84	0.84	0.83	0.83	0.90	0.90
Adj. Flow (vph)	23	229	190	16	481	929
RTOR Reduction (vph)	0	184	2	0	0	0
Lane Group Flow (vph)	23	45	204	0	481	929
Turn Type	pm+ov				pm+pt	
Protected Phases	4	1	2		1	6
Permitted Phases		4			6	
Actuated Green, G (s)	3.3	17.6	64.4		84.7	84.7
Effective Green, g (s)	4.3	19.6	65.4		85.7	85.7
Actuated g/C Ratio	0.04	0.20	0.65		0.86	0.86
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	76	389	1205		1037	1597
v/s Ratio Prot	c0.01	0.02	0.11		0.07	c0.50
v/s Ratio Perm		0.01			0.33	
v/c Ratio	0.30	0.12	0.17		0.46	0.58
Uniform Delay, d1	46.4	33.1	6.7		1.6	2.0
Progression Factor	1.00	1.00	1.00		1.24	1.29
Incremental Delay, d2	2.2	0.1	0.3		0.1	0.4
Delay (s)	48.6	33.2	7.0		2.1	3.1
Level of Service	D	C	A		A	A
Approach Delay (s)	34.6		7.0			2.7
Approach LOS	C		A			A
Intersection Summary						
HCM Average Control Delay			7.5		HCM Level of Service	A
HCM Volume to Capacity ratio			0.57			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			55.7%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Timings

27: Greenway Drive & Washington Pike

2008 AM Existing
Washington & Millertown Pike Study

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↗
Volume (vph)	3	41	404	919	35	4	110	20	215	7	1
Turn Type	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		pm+ov		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	8	1
Permitted Phases	6		6	2		2	4		4		8
Detector Phase	1	6	7	5	2	3	7	4	5	8	1
Switch Phase											
Minimum Initial (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	3.0	4.0	3.0
Minimum Split (s)	12.0	21.0	15.0	45.0	21.0	15.0	15.0	15.0	45.0	21.0	12.0
Total Split (s)	12.0	23.0	24.0	56.0	67.0	24.0	24.0	17.0	56.0	17.0	12.0
Total Split (%)	10.0%	19.2%	20.0%	46.7%	55.8%	20.0%	20.0%	14.2%	46.7%	14.2%	10.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	4.0	3.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?											
Recall Mode	None	C-Min	None	None	C-Min	None	None	None	None	None	None

Intersection Summary

Cycle Length: 120













Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow, Master Intersection

Natural Cycle: 145

Control Type: Actuated-Coordinated

Splits and Phases: 27: Greenway Drive & Washington Pike

  	  	  	  
12s	67s	24s	17s
56s	23s	24s	17s

Queues

27: Greenway Drive & Washington Pike

2008 AM Existing
Washington & Millertown Pike Study

























Lane/Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	4	56	553	1081	41	5	128	23	250	12	2
v/c Ratio	0.02	0.33	0.98	1.02	0.03	0.00	0.27	0.05	0.19	0.05	0.01
Control Delay	21.0	55.4	70.8	52.4	9.8	4.8	33.8	33.3	2.8	52.7	30.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	55.4	70.8	52.4	9.8	4.8	33.8	33.3	2.8	52.7	30.0
Queue Length 50th (ft)	2	41	419	636	9	0	81	14	23	4	0
Queue Length 95th (ft)	5	65	425	#995	30	5	117	35	74	9	4
Internal Link Dist (ft)		662			903			649		594	
Turn Bay Length (ft)	100		250	350		300	250				100
Base Capacity (vph)	257	311	567	1065	1199	1323	478	504	1331	413	181
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.18	0.98	1.02	0.03	0.00	0.27	0.05	0.19	0.03	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 27: Greenway Drive & Washington Pike

2008 AM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	41	404	919	35	4	110	20	215	0	7	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.0	3.0	3.0	4.0	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583		3539	1583
Flt Permitted	0.73	1.00	1.00	0.46	1.00	1.00	0.49	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1360	1863	1583	855	1863	1583	909	1863	1583		3539	1583
Peak-hour factor, PHF	0.73	0.73	0.73	0.85	0.85	0.85	0.86	0.86	0.86	0.56	0.56	0.56
Adj. Flow (vph)	4	56	553	1081	41	5	128	23	250	0	12	2
RTOR Reduction (vph)	0	0	0	0	0	2	0	0	0	0	0	2
Lane Group Flow (vph)	4	56	553	1081	41	3	128	23	250	0	12	0
Turn Type	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases	6		6	2		2	4		4	8		8
Actuated Green, G (s)	6.2	5.0	33.0	73.4	67.2	68.3	36.6	30.5	93.9		3.6	4.8
Effective Green, g (s)	10.2	7.0	35.0	75.4	69.2	70.3	38.6	32.5	97.9		5.6	8.8
Actuated g/C Ratio	0.08	0.06	0.29	0.63	0.58	0.59	0.32	0.27	0.82		0.05	0.07
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	127	109	514	1036	1074	980	508	505	1331		165	156
v/s Ratio Prot	0.00	0.03	c0.26	c0.57	0.02	0.00	0.06	0.01	0.10		0.00	0.00
v/s Ratio Perm	0.00		0.09	c0.09		0.00	c0.02		0.06			0.00
v/c Ratio	0.03	0.51	1.08	1.04	0.04	0.00	0.25	0.05	0.19		0.07	0.00
Uniform Delay, d1	50.4	54.8	42.5	21.8	11.0	10.3	29.8	32.3	2.4		54.7	51.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	16.2	61.6	40.0	0.1	0.0	0.3	0.0	0.1		0.2	0.0
Delay (s)	50.5	71.1	104.1	61.7	11.1	10.3	30.1	32.3	2.5		54.9	51.5
Level of Service	D	E	F	E	B	B	C	C	A		D	D
Approach Delay (s)		100.8			59.7			13.0			54.4	
Approach LOS		F			E			B			D	
Intersection Summary												
HCM Average Control Delay			62.6				HCM Level of Service		E			
HCM Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)		3.0			
Intersection Capacity Utilization			89.3%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

Timings
28: I-640 WB Ent & Washington Pike

2008 AM Existing
Washington & Millertown Pike Study



Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations	4↑	↑	↑	↑↑	↑↑	↑
Volume (vph)	406	122	230	318	371	1108
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Detector Phase	4	4	1	2	2	2
Switch Phase						
Minimum Initial (s)	4.0	4.0	3.0	4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	8.0	9.0	9.0	9.0
Total Split (s)	27.0	27.0	14.0	49.0	49.0	49.0
Total Split (%)	30.0%	30.0%	15.6%	54.4%	54.4%	54.4%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 65 (72%), Referenced to phase 2:NBSB and 6:, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 28: I-640 WB Ent & Washington Pike

← e1	↑↓ e2	↘ e4
14s	49s	27s

Queues

28: I-640 WB Ent & Washington Pike

2008 AM Existing
Washington & Millertown Pike Study

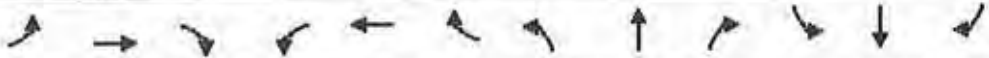
Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	481	137	240	332	442	1319
v/c Ratio	0.62	0.30	0.34	0.17	0.22	1.34
Control Delay	35.0	6.8	5.7	2.7	11.1	182.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.0	6.8	5.7	2.7	11.1	182.2
Queue Length 50th (ft)	129	0	19	7	64	~948
Queue Length 95th (ft)	168	42	67	11	91	#1103
Internal Link Dist (ft)	172			918	649	
Turn Bay Length (ft)			75			100
Base Capacity (vph)	941	523	712	1976	1976	981
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.26	0.34	0.17	0.22	1.34

Intersection Summary

- Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 28: I-640 WB Ent & Washington Pike

2008 AM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				22	4↑	122	230	318	0	0	371	1108
Volume (vph)	0	0	0	1900	406	122	230	318	0	0	371	1108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Util. Factor					0.95	1.00	1.00	0.95			0.95	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3530	1583	1770	3539			3539	1583
Flt Permitted					1.00	1.00	0.47	1.00			1.00	1.00
Satd. Flow (perm)					3530	1583	870	3539			3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.89	0.89	0.89	0.90	0.90	0.90	0.84	0.84	0.84
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	94%	94%	94%	100%	100%	100%
Adj. Flow (vph)	0	0	0	25	456	137	240	332	0	0	442	1319
RTOR Reduction (vph)	0	0	0	0	0	107	0	0	0	0	0	97
Lane Group Flow (vph)	0	0	0	0	481	30	240	332	0	0	442	1222
Turn Type				Split		Perm	pm+pt					Perm
Protected Phases				4	4		1	2			2	
Permitted Phases						4	2					2
Actuated Green, G (s)					17.8	17.8	57.2	48.2			48.2	48.2
Effective Green, g (s)					19.8	19.8	61.2	50.2			50.2	50.2
Actuated g/C Ratio					0.22	0.22	0.68	0.56			0.56	0.56
Clearance Time (s)					5.0	5.0	5.0	5.0			5.0	5.0
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					777	348	702	1974			1974	883
v/s Ratio Prot					c0.14		c0.04	0.09			0.12	
v/s Ratio Perm						0.02	0.19					c0.77
v/c Ratio					0.62	0.09	0.34	0.17			0.22	1.38
Uniform Delay, d1					31.7	27.9	5.4	9.7			10.1	19.9
Progression Factor					1.00	1.00	0.89	0.23			1.00	1.00
Incremental Delay, d2					1.5	0.1	0.3	0.2			0.3	179.9
Delay (s)					33.2	28.0	5.1	2.5			10.3	199.8
Level of Service					C	C	A	A			B	F
Approach Delay (s)		0.0			32.0			3.6			152.2	
Approach LOS		A			C			A			F	
Intersection Summary												
HCM Average Control Delay			98.2			HCM Level of Service			F			
HCM Volume to Capacity ratio			1.06									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			102.4%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

Timings
29: South Mall Road & Washington Pike

2008 AM Existing
Washington & Millertown Pike Study



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	169	127	134	320	41	113	246
Turn Type	Split		Perm		Perm	pm+pt	
Protected Phases	4	4		2		1	2
Permitted Phases			4		2	2	
Detector Phase	4	4	4	2	2	1	2
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	9.0	21.0
Total Split (s)	36.0	36.0	36.0	38.0	38.0	16.0	38.0
Total Split (%)	40.0%	40.0%	40.0%	42.2%	42.2%	17.8%	42.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	4.0	3.0	3.0	3.0	3.0
Lead/Lag				Lag	Lag	Lead	Lag
Lead-Lag Optimize?							
Recall Mode	C-Max	C-Max	C-Max	Min	Min	None	Min

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 65 (72%), Referenced to phase 4:EBTL; Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 29: South Mall Road & Washington Pike

e1	e2	e4
16%	98%	38%

Queues
29: South Mall Road & Washington Pike


2008 AM Existing
Washington & Millertown Pike Study



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	105	217	146	451	58	147	319
v/c Ratio	0.12	0.12	0.16	0.57	0.14	0.40	0.40
Control Delay	12.2	11.5	3.0	33.3	7.9	21.6	33.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	11.5	3.0	33.3	7.9	21.6	33.9
Queue Length 50th (ft)	30	31	0	121	0	68	97
Queue Length 95th (ft)	70	59	32	115	16	100	121
Internal Link Dist (ft)		260		170			918
Turn Bay Length (ft)	300		300		200	250	
Base Capacity (vph)	874	1808	911	1376	651	383	1376
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.12	0.16	0.33	0.09	0.38	0.23
Intersection Summary							

HCM Signalized Intersection Capacity Analysis 29: South Mall Road & Washington Pike

















2008 AM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↗	↗					↗↗	↗	↰	↗↗	
Volume (vph)	169	127	134	0	0	0	0	320	41	113	246	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.0					3.0	3.0	3.0	3.0	
Lane Util. Factor	0.91	0.91	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.98	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3330	1583					3539	1583	1770	3539	
Flt Permitted	0.95	0.98	1.00					1.00	1.00	0.31	1.00	
Satd. Flow (perm)	1610	3330	1583					3539	1583	571	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.90	0.90	0.90	0.71	0.71	0.71	0.77	0.77	0.77
Adj. Flow (vph)	184	138	146	0	0	0	0	451	58	147	319	0
RTOR Reduction (vph)	0	0	68	0	0	0	0	0	45	0	0	0
Lane Group Flow (vph)	105	217	78	0	0	0	0	451	13	147	319	0
Turn Type	Split		Perm						Perm	pm+pt		
Protected Phases	4	4						2		1	2	
Permitted Phases			4						2	2		
Actuated Green, G (s)	46.9	46.9	46.9					18.2	18.2	28.1	18.2	
Effective Green, g (s)	48.9	48.9	47.9					20.2	20.2	32.1	20.2	
Actuated g/C Ratio	0.54	0.54	0.53					0.22	0.22	0.36	0.22	
Clearance Time (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	875	1809	843					794	355	362	794	
v/s Ratio Prot	c0.07	0.07						c0.13		c0.05	0.09	
v/s Ratio Perm			0.05						0.01	0.09		
v/c Ratio	0.12	0.12	0.09					0.57	0.04	0.41	0.40	
Uniform Delay, d1	10.0	10.0	10.4					31.0	27.3	20.7	29.7	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.07	1.12	
Incremental Delay, d2	0.3	0.1	0.2					0.9	0.0	0.7	0.3	
Delay (s)	10.3	10.2	10.6					32.0	27.3	23.0	33.7	
Level of Service	B	B	B					C	C	C	C	
Approach Delay (s)		10.3			0.0			31.4			30.3	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM Average Control Delay	24.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

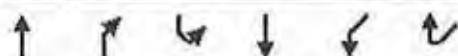
HCM Unsignalized Intersection Capacity Analysis 30: Valley View Dr & Washington Pike

2008 AM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	54	5	40	17	6	30	26	256	34	32	288	61
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	60	6	44	19	7	33	29	284	38	36	320	68
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)											250	
Upstream signal (ft)												
pX, platoon unblocked	0.94	0.94	0.94	0.94	0.94		0.94					
vC, conflicting volume	662	805	194	639	820	161	388			322		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	502	655	2	478	671	161	209			322		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	84	98	96	95	98	96	98			97		
cM capacity (veh/h)	385	341	1012	400	334	855	1272			1234		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	110	59	171	180	196	228						
Volume Left	60	19	29	0	36	0						
Volume Right	44	33	0	38	0	68						
cSH	509	555	1272	1700	1234	1700						
Volume to Capacity	0.22	0.11	0.02	0.11	0.03	0.13						
Queue Length 95th (ft)	20	9	2	0	2	0						
Control Delay (s)	14.0	12.3	1.5	0.0	1.7	0.0						
Lane LOS	B	B	A		A							
Approach Delay (s)	14.0	12.3	0.7		0.8							
Approach LOS	B	B										
Intersection Summary												
Average Delay			3.0									
Intersection Capacity Utilization			39.4%	ICU Level of Service		A						
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 31: Washington Pike & Centerline Drive

2008 AM Existing
Washington & Millertown Pike Study



Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↕		↕	↕	↕	↕
Volume (veh/h)	297	19	54	327	3	22
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	330	21	60	363	3	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)				578		
pX, platoon unblocked					0.93	
vC, conflicting volume			351		824	341
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			351		774	341
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		99	97
cM capacity (veh/h)			1208		325	702
Direction, Lane #	NB 1	SB 1	SB 2	SW 1	SW 2	
Volume Total	351	60	363	3	24	
Volume Left	0	60	0	3	0	
Volume Right	21	0	0	0	24	
cSH	1700	1208	1700	325	702	
Volume to Capacity	0.21	0.05	0.21	0.01	0.03	
Queue Length 95th (ft)	0	4	0	1	3	
Control Delay (s)	0.0	8.1	0.0	16.2	10.3	
Lane LOS		A		C	B	
Approach Delay (s)	0.0	1.2		11.0		
Approach LOS				B		
Intersection Summary						
Average Delay		1.0				
Intersection Capacity Utilization		33.4%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 32: Pinehurst Dr. & Washington Pike

2008 AM Existing
Washington & Millertown Pike Study



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Volume (veh/h)	12	1	1	314	328	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	13	1	1	349	364	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	717	366	368			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	717	366	368			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	100	100			
cM capacity (veh/h)	396	679	1191			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	14	350	368
Volume Left	13	1	0
Volume Right	1	0	3
cSH	409	1191	1700
Volume to Capacity	0.04	0.00	0.22
Queue Length 95th (ft)	3	0	0
Control Delay (s)	14.1	0.0	0.0
Lane LOS	B	A	
Approach Delay (s)	14.1	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization		27.4%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis 33: Millertown Pike & Washington Pike

2008 AM Existing
Washington & Millertown Pike Study



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↰		↰	
Sign Control		Stop	Stop		Stop	
Volume (vph)	156	114	126	128	91	190
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	173	127	140	142	101	211

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	300	282	312
Volume Left (vph)	173	0	101
Volume Right (vph)	0	142	211
Hadj (s)	0.15	-0.27	-0.31
Departure Headway (s)	5.3	4.9	5.1
Degree Utilization, x	0.44	0.39	0.44
Capacity (veh/h)	644	688	659
Control Delay (s)	12.4	11.0	12.0
Approach Delay (s)	12.4	11.0	12.0
Approach LOS	B	B	B

Intersection Summary			
Delay		11.8	
HCM Level of Service		B	
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis 39: Millertown Pike & Springhill Road

2008 AM Existing
Washington & Millertown Pike Study



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	↑
Volume (veh/h)	119	98	57	168	94	47
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	132	109	63	187	104	52
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			241		500	187
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			241		500	187
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		79	94
cM capacity (veh/h)			1325		505	855

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	241	250	157
Volume Left	0	63	104
Volume Right	109	0	52
cSH	1700	1325	585
Volume to Capacity	0.14	0.05	0.27
Queue Length 95th (ft)	0	4	27
Control Delay (s)	0.0	2.3	13.4
Lane LOS		A	B
Approach Delay (s)	0.0	2.3	13.4
Approach LOS			B

Intersection Summary			
Average Delay		4.1	
Intersection Capacity Utilization		42.3%	ICU Level of Service A
Analysis Period (min)		15	

Timings

43: Millertown Pike & Loves Creek Road

2008 AM Existing
Washington & Millertown Pike Study



Lane Group	NBL	NBT	SBL	SBT	SEL	SET	NWL	NWT
Lane Configurations		↔	↔	↔		↔		↔
Volume (vph)	44	216	142	721	1	5	86	5
Turn Type	Perm		pm+pt		Perm		Perm	
Protected Phases		2	1	6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	9.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	50.0	50.0	16.0	66.0	24.0	24.0	24.0	24.0
Total Split (%)	55.6%	55.6%	17.8%	73.3%	26.7%	26.7%	26.7%	26.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	None	C-Min	None	None	Min	Min

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow, Master Intersection
 Natural Cycle: 60
 Control Type: Actuated-Coordinated

Splits and Phases: 43: Millertown Pike & Loves Creek Road

16s	50s	24s
66s		24s

Queues

43: Millertown Pike & Loves Creek Road

2008 AM Existing
Washington & Millertown Pike Study

Lane Group	NBT	SBL	SBT	SET	NWT
Lane Group Flow (vph)	313	206	1045	37	185
v/c Ratio	0.36	0.25	0.75	0.11	0.63
Control Delay	6.7	4.5	11.8	13.4	37.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	4.5	11.8	13.4	37.0
Queue Length 50th (ft)	29	28	283	3	81
Queue Length 95th (ft)	63	41	285	24	117
Internal Link Dist (ft)	835		552	525	539
Turn Bay Length (ft)					
Base Capacity (vph)	859	850	1397	408	367
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.36	0.24	0.75	0.09	0.50

Intersection Summary

HCM Signalized Intersection Capacity Analysis 43: Millertown Pike & Loves Creek Road

2008 AM Existing
Washington & Millertown Pike Study

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕		↙	↘			↕			↕	
Volume (vph)	44	216	3	142	721	0	1	5	25	86	5	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0		3.0	3.0			3.0			3.0	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frt		1.00		1.00	1.00			0.89			0.95	
Flt Protected		0.99		0.95	1.00			1.00			0.97	
Satd. Flow (prot)		1844		1770	1863			1657			1718	
Flt Permitted		0.77		0.53	1.00			0.99			0.83	
Satd. Flow (perm)		1433		982	1863			1648			1472	
Peak-hour factor, PHF	0.84	0.84	0.84	0.69	0.69	0.69	0.84	0.84	0.84	0.78	0.78	0.78
Adj. Flow (vph)	52	257	4	206	1045	0	1	6	30	110	6	69
RTOR Reduction (vph)	0	0	0	0	0	0	0	25	0	0	25	0
Lane Group Flow (vph)	0	313	0	206	1045	0	0	13	0	0	160	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		51.9		65.5	65.5			14.5			14.5	
Effective Green, g (s)		53.9		67.5	67.5			16.5			16.5	
Actuated g/C Ratio		0.60		0.75	0.75			0.18			0.18	
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		858		829	1397			302			270	
v/s Ratio Prot				0.03	c0.56							
v/s Ratio Perm		0.22		0.16				0.01			c0.11	
v/c Ratio		0.36		0.25	0.75			0.04			0.59	
Uniform Delay, d1		9.3		3.7	6.4			30.2			33.7	
Progression Factor		0.50		1.00	1.00			1.00			1.00	
Incremental Delay, d2		1.2		0.2	3.7			0.1			3.4	
Delay (s)		5.8		3.9	10.1			30.3			37.1	
Level of Service		A		A	B			C			D	
Approach Delay (s)		5.8			9.1			30.3			37.1	
Approach LOS		A			A			C			D	
Intersection Summary												
HCM Average Control Delay			11.9			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			6.0			
Intersection Capacity Utilization			70.9%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Timings
44: Knoxville Ctr. Ent/Exit & Millertown Pike

2008 AM Existing
Washington & Millertown Pike Study



Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↰	↱	↱	↰	↱	↱	↰	↱	↱
Volume (vph)	10	26	123	14	32	33	247	81	65	739	49
Turn Type	pm+ov		Split		pm+ov	pm+pt		pm+ov	Prot		pm+ov
Protected Phases	4	5	3	3	1	5	2	3	1	6	4
Permitted Phases		4			3	2		2			6
Detector Phase	4	5	3	3	1	5	2	3	1	6	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	8.0	8.0	9.0	9.0	8.0	8.0	9.0	9.0	9.0
Total Split (s)	13.0	14.0	13.0	13.0	14.0	14.0	50.0	13.0	14.0	50.0	13.0
Total Split (%)	14.4%	15.6%	14.4%	14.4%	15.6%	15.6%	55.6%	14.4%	15.6%	55.6%	14.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Max	None	None	C-Max	None

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 82 (91%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 40
 Control Type: Actuated-Coordinated

Splits and Phases: 44: Knoxville Ctr. Ent/Exit & Millertown Pike

↰ ø1	↱ ø2	↰ ø3	↱ ø4
14s	50s	13s	13s
↰ ø5	↱ ø6		
14s	50s		

Queues

44: Knoxville Ctr. Ent/Exit & Millertown Pike

2008 AM Existing
Washington & Millertown Pike Study

Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	35	37	82	81	38	45	334	109	73	830	55
v/c Ratio	0.19	0.11	0.46	0.45	0.10	0.09	0.30	0.09	0.21	0.38	0.05
Control Delay	39.5	9.8	46.4	45.9	6.7	6.4	15.1	4.2	36.7	10.2	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	9.8	46.4	45.9	6.7	6.4	15.1	4.2	36.7	10.2	0.9
Queue Length 50th (ft)	19	0	46	46	0	7	121	0	21	102	0
Queue Length 95th (ft)	36	14	87	87	16	m22	175	13	m29	167	m3
Internal Link Dist (ft)	752			313			473			835	
Turn Bay Length (ft)			300		300			200	200		200
Base Capacity (vph)	201	395	187	189	402	528	1126	1212	420	2179	1131
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.09	0.44	0.43	0.09	0.09	0.30	0.09	0.17	0.38	0.05

Intersection Summary

m. Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis 44: Knoxville Ctr. Ent/Exit & Millertown Pike

2008 AM Existing
Washington & Millertown Pike Study

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations		↰	↱	↰	↱	↰	↰	↱	↱	↰	↱	↰
Volume (vph)	15	10	26	123	14	32	33	247	81	65	739	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.97	0.95	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1808	1583	1681	1702	1583	1770	1863	1583	3433	3539	1583
Flt Permitted		0.97	1.00	0.95	0.96	1.00	0.29	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1808	1583	1681	1702	1583	538	1863	1583	3433	3539	1583
Peak-hour factor, PHF	0.70	0.70	0.70	0.84	0.84	0.84	0.74	0.74	0.74	0.89	0.89	0.89
Adj. Flow (vph)	21	14	37	146	17	38	45	334	109	73	830	55
RTOR Reduction (vph)	0	0	31	0	0	30	0	0	34	0	0	18
Lane Group Flow (vph)	0	35	6	82	81	8	45	334	75	73	830	37
Turn Type	Split	pm+ov		Split	pm+ov		pm+pt	pm+ov		Prot	pm+ov	
Protected Phases	4	4	5	3	3	1	5	2	3	1	6	4
Permitted Phases		4			3		2		2		6	
Actuated Green, G (s)		5.9	11.1	7.6	7.6	13.8	55.5	50.3	57.9	6.2	51.3	57.2
Effective Green, g (s)		7.9	15.1	9.6	9.6	17.8	59.5	52.3	61.9	8.2	53.3	61.2
Actuated g/C Ratio		0.09	0.17	0.11	0.11	0.20	0.66	0.58	0.69	0.09	0.59	0.68
Clearance Time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		159	318	179	182	313	454	1083	1142	313	2096	1076
v/s Ratio Prot		c0.02	0.00	c0.05	0.05	0.00	0.01	0.18	0.01	c0.02	c0.23	0.00
v/s Ratio Perm			0.00			0.00	0.06		0.04			0.02
v/c Ratio		0.22	0.02	0.46	0.45	0.02	0.10	0.31	0.07	0.23	0.40	0.03
Uniform Delay, d1		38.2	31.3	37.8	37.7	29.1	5.7	9.6	4.6	38.0	9.8	4.7
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.23	1.33	3.55	0.98	0.94	1.03
Incremental Delay, d2		0.7	0.0	1.9	1.7	0.0	0.1	0.7	0.0	0.3	0.4	0.0
Delay (s)		38.9	31.3	39.6	39.4	29.1	7.1	13.5	16.3	37.4	9.6	4.9
Level of Service		D	C	D	D	C	A	B	B	D	A	A
Approach Delay (s)		35.0		37.6		13.5		11.5				
Approach LOS		C		D		B		B				

Intersection Summary

HCM Average Control Delay	16.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Timings
45: I-640 WB Ent & Millertown Pike

2008 AM Existing
Washington & Millertown Pike Study



Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	↑
Volume (vph)	125	204	11	176	498	265
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	2	
Permitted Phases		4	2		2	2
Detector Phase	4	4	2	2	2	2
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	21.0	21.0	21.0	21.0
Total Split (s)	18.0	18.0	72.0	72.0	72.0	72.0
Total Split (%)	20.0%	20.0%	80.0%	80.0%	80.0%	80.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Min	C-Min	C-Min	C-Min

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 19 (21%), Referenced to phase 2:NBSB, Start of Yellow
Natural Cycle: 40
Control Type: Actuated-Coordinated

Splits and Phases: 45: I-640 WB Ent & Millertown Pike

↑↑ p2	← p4
72s	18s

Queues
45: I-640 WB Ent & Millertown Pike

2008 AM Existing
Washington & Millertown Pike Study




Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	234	258	16	259	553	294
v/c Ratio	0.45	0.56	0.02	0.09	0.20	0.23
Control Delay	37.2	9.6	4.2	3.2	3.5	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.2	9.6	4.2	3.2	3.5	1.2
Queue Length 50th (ft)	64	0	1	8	40	9
Queue Length 95th (ft)	83	38	10	37	61	21
Internal Link Dist (ft)	601			683	473	
Turn Bay Length (ft)		600	300			
Base Capacity (vph)	599	486	647	2791	2791	1311
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.53	0.02	0.09	0.20	0.22

Intersection Summary

HCM Signalized Intersection Capacity Analysis 45: I-640 WB Ent & Millertown Pike

2008 AM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑	↓	↑↑			↑↑	↑
Volume (vph)	0	0	0	60	125	204	11	176	0	0	498	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Util. Factor					0.95	1.00	1.00	0.95			0.95	1.00
Flt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3483	1583	1770	3539			3539	1583
Flt Permitted					0.98	1.00	0.44	1.00			1.00	1.00
Satd. Flow (perm)					3483	1583	820	3539			3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.79	0.79	0.79	0.68	0.68	0.68	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	76	158	258	16	259	0	0	553	294
RTOR Reduction (vph)	0	0	0	0	0	219	0	0	0	0	0	64
Lane Group Flow (vph)	0	0	0	0	234	39	16	259	0	0	553	230
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					4			2			2	
Permitted Phases				4		4	2				2	2
Actuated Green, G (s)					11.5	11.5	68.5	68.5			68.5	68.5
Effective Green, g (s)					13.5	13.5	70.5	70.5			70.5	70.5
Actuated g/C Ratio					0.15	0.15	0.78	0.78			0.78	0.78
Clearance Time (s)					5.0	5.0	5.0	5.0			5.0	5.0
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					522	237	642	2772			2772	1240
v/s Ratio Prot								0.07			0.16	
v/s Ratio Perm					0.07	0.02	0.02					0.15
v/c Ratio					0.45	0.16	0.02	0.09			0.20	0.19
Uniform Delay, d1					34.9	33.3	2.2	2.3			2.5	2.5
Progression Factor					1.00	1.00	1.51	1.24			1.22	1.97
Incremental Delay, d2					0.6	0.3	0.1	0.1			0.2	0.3
Delay (s)					35.5	33.7	3.3	2.9			3.2	5.2
Level of Service					D	C	A	A			A	A
Approach Delay (s)		0.0			34.5			2.9			3.9	
Approach LOS		A			C			A			A	
Intersection Summary												
HCM Average Control Delay			13.1		HCM Level of Service						B	
HCM Volume to Capacity ratio			0.24									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)						6.0	
Intersection Capacity Utilization			40.0%		ICU Level of Service						A	
Analysis Period (min)			15									
c Critical Lane Group												

Timings
46: South Mall Road & Millertown Pike

2008 AM Existing
Washington & Millertown Pike Study



Lane Group	EBL	EBT	EBR	NET	NER	SWL	SWT
Lane Configurations	↰	↑	↱	↕	↱	↰	↕
Volume (vph)	78	114	26	84	59	368	171
Turn Type	Perm		Perm		Perm	pm+pt	
Protected Phases		4		2		1	2
Permitted Phases	4		4		2	2	
Detector Phase	4	4	4	2	2	1	2
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	9.0	21.0
Total Split (s)	24.0	24.0	24.0	50.0	50.0	16.0	50.0
Total Split (%)	26.7%	26.7%	26.7%	55.6%	55.6%	17.8%	55.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag				Lag	Lag	Lead	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 20 (22%), Referenced to phase 2: NESW, Start of Yellow
 Natural Cycle: 55
 Control Type: Actuated-Coordinated

Splits and Phases: 46: South Mall Road & Millertown Pike

↰ p1	↱ p2	↕ p4
16 s	50 s	24 s

Queues

46: South Mall Road & Millertown Pike





















2008 AM Existing
Washington & Millertown Pike Study

Lane Group	EBL	EBT	EBR	NET	NER	SWL	SWT
Lane Group Flow (vph)	95	139	32	105	74	409	190
v/c Ratio	0.35	0.48	0.12	0.06	0.10	0.38	0.12
Control Delay	36.4	39.6	12.0	17.3	6.0	4.9	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.4	39.6	12.0	17.3	6.0	4.9	19.5
Queue Length 50th (ft)	49	73	0	16	0	31	40
Queue Length 95th (ft)	81	111	20	37	23	71	66
Internal Link Dist (ft)		347		1273			683
Turn Bay Length (ft)			300		300	300	
Base Capacity (vph)	413	435	394	1937	900	1089	1937
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.32	0.08	0.05	0.08	0.38	0.10

Intersection Summary

HCM Signalized Intersection Capacity Analysis 46: South Mall Road & Millertown Pike

2008 AM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	78	114	26	0	0	0	0	84	59	368	171	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583					3539	1583	1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.69	1.00	
Satd. Flow (perm)	1770	1863	1583					3539	1583	1277	3539	
Peak-hour factor, PHF	0.82	0.82	0.82	0.90	0.90	0.90	0.80	0.80	0.80	0.90	0.90	0.90
Adj. Flow (vph)	95	139	32	0	0	0	0	105	74	409	190	0
RTOR Reduction (vph)	0	0	27	0	0	0	0	0	40	0	0	0
Lane Group Flow (vph)	95	139	5	0	0	0	0	105	34	409	190	0
Turn Type	Perm		Perm						Perm	pm+pt		
Protected Phases		4						2		1	2	
Permitted Phases	4		4						2	2		
Actuated Green, G (s)	12.0	12.0	12.0					39.9	39.9	63.0	39.9	
Effective Green, g (s)	14.0	14.0	14.0					41.9	41.9	67.0	41.9	
Actuated g/C Ratio	0.16	0.16	0.16					0.47	0.47	0.74	0.47	
Clearance Time (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	275	290	246					1648	737	1088	1648	
v/s Ratio Prot		c0.07						0.03		c0.10	0.05	
v/s Ratio Perm	0.05		0.00						0.02	c0.17		
v/c Ratio	0.35	0.48	0.02					0.06	0.05	0.38	0.12	
Uniform Delay, d1	33.9	34.7	32.2					13.2	13.1	3.8	13.6	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.14	1.15	
Incremental Delay, d2	0.8	1.3	0.0					0.1	0.1	0.2	0.1	
Delay (s)	34.7	35.9	32.2					13.3	13.3	4.6	15.7	
Level of Service	C	D	C					B	B	A	B	
Approach Delay (s)		35.0			0.0			13.3			8.1	
Approach LOS		D			A			B			A	
Intersection Summary												
HCM Average Control Delay	15.9			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.39											
Actuated Cycle Length (s)	90.0			Sum of lost time (s)			9.0					
Intersection Capacity Utilization	40.0%			ICU Level of Service			A					
Analysis Period (min)	15											
c - Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 47: Millertown Pike & Mill Road

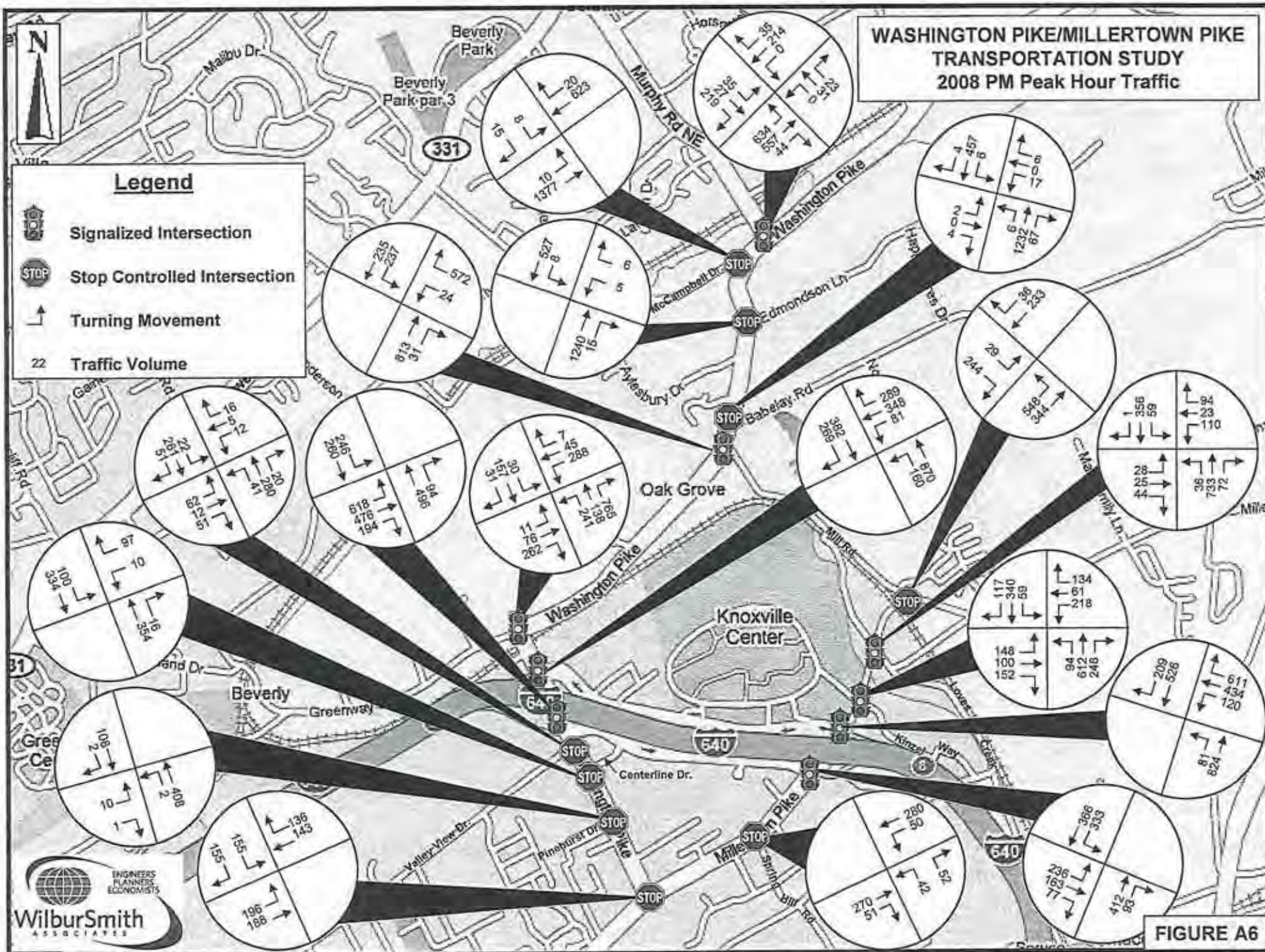
2008 AM Existing
Washington & Millertown Pike Study



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	←	↑	↑		←	↑
Volume (veh/h)	165	81	416	39	24	523
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	183	90	462	43	27	581
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		924				
pX, platoon unblocked						
vC, conflicting volume	506				941	484
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	506				941	484
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
IF (s)	2.2				3.5	3.3
p0 queue free %	83				89	0
cM capacity (veh/h)	1059				242	583

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	183	90	506	27	581
Volume Left	183	0	0	27	0
Volume Right	0	0	43	0	581
cSH	1059	1700	1700	242	583
Volume to Capacity	0.17	0.05	0.30	0.11	1.00
Queue Length 95th (ft)	16	0	0	9	366
Control Delay (s)	9.1	0.0	0.0	21.7	63.1
Lane LOS	A			C	F
Approach Delay (s)	6.1		0.0	61.3	
Approach LOS				F	

Intersection Summary					
Average Delay		28.1			
Intersection Capacity Utilization		63.3%	ICU Level of Service	B	
Analysis Period (min)		15			



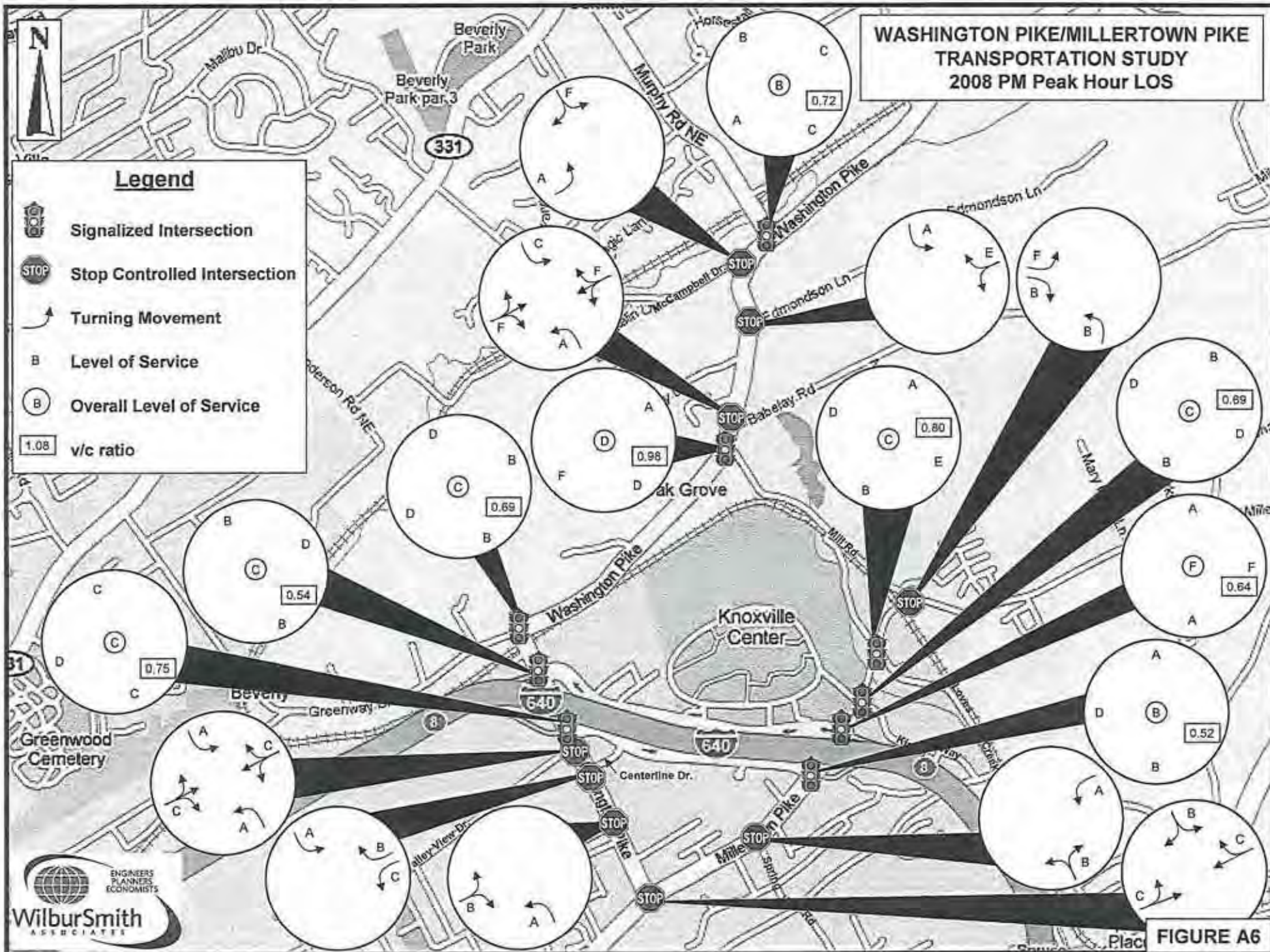


FIGURE A6

Timings
22: Murphy Road & Washington Pike

2008 PM Existing
Washington & Millertown Pike Study

	↑	↙	↓	↘	↗	↖	
Lane Group	NBT	SBL	SBT	SBR	NEL	NET	SWT
Lane Configurations	↕		↕	↗	↖	↗	↕
Volume (vph)	31	35	27	219	634	557	214
Turn Type		Perm		pm+ov	pm+pt		
Protected Phases	2		6	7	7	4	8
Permitted Phases		6		6	4		
Detector Phase	2	6	6	7	7	4	8
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	8.0	8.0	20.0	20.0
Total Split (s)	20.0	20.0	20.0	25.0	25.0	45.0	20.0
Total Split (%)	30.8%	30.8%	30.8%	38.5%	38.5%	69.2%	30.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	3.0	4.0	3.0	3.0	3.0	3.0
Lead/Lag				Lead	Lead		Lag
Lead-Lag Optimize?							
Recall Mode	C-Min	C-Min	C-Min	None	None	None	None

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 65
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated

Splits and Phases: 22: Murphy Road & Washington Pike

↑ e2	↗ e4	
20s	45s	
↓ e5	↖ e7	↖ e8
20s	25s	20s

Queues
22: Murphy Road & Washington Pike

2008 PM Existing
Washington & Millertown Pike Study





















Lane Group	NBT	SBT	SBR	NEL	NET	SWT
Lane Group Flow (vph)	90	82	288	746	707	312
v/c Ratio	0.28	0.34	0.25	0.81	0.52	0.71
Control Delay	18.0	28.4	1.2	19.0	5.6	31.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	28.4	1.2	19.0	5.6	31.5
Queue Length 50th (ft)	19	30	0	160	78	106
Queue Length 95th (ft)	29	53	11	#362	152	155
Internal Link Dist (ft)	209	5075			156	483
Turn Bay Length (ft)						
Base Capacity (vph)	461	365	1160	922	1347	487
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.22	0.25	0.81	0.52	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 22: Murphy Road & Washington Pike





2008 PM Existing
Washington & Millertown Pike Study

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0 ✓	31 ✓	23 ✓	35 ✓	27 ✓	219 ✓	634 ✓	557 ✓	44 ✓	0	214	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	3.0	3.0	3.0			3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00			1.00	
Frt		0.94			1.00	0.85	1.00	0.99			0.98	
Flt Protected		1.00			0.97	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		1757			1812	1583	1770	1842			1827	
Flt Permitted		1.00			0.80	1.00	0.24	1.00			1.00	
Satd. Flow (perm)		1757			1483	1583	453	1842			1827	
Peak-hour factor, PHF	0.60	0.60	0.60	0.76	0.76	0.76	0.85	0.85	0.85	0.80	0.80	0.80
Adj. Flow (vph)	0	52	38	46	36	288	746	655	52	0	268	44
RTOR Reduction (vph)	0	32	0	0	0	107	0	3	0	0	9	0
Lane Group Flow (vph)	0	58	0	0	82	181	746	704	0	0	303	0
Turn Type	Perm			Perm			pm+ov	pm+pt		Perm		
Protected Phases	2			6			7	7	4	8		
Permitted Phases	2			6			6	4		8		
Actuated Green, G (s)	10.6			10.6			38.8	46.4	46.4	14.2		
Effective Green, g (s)	10.6			10.6			40.8	47.4	47.4	15.2		
Actuated g/C Ratio	0.16			0.16			0.63	0.73	0.73	0.23		
Clearance Time (s)	4.0			4.0			4.0	4.0	4.0	4.0		
Vehicle Extension (s)	3.0			3.0			3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	287			242			1067	922	1343	427		
v/s Ratio Prot	0.03						0.08	c0.36	0.38	0.17		
v/s Ratio Perm				c0.06			0.04	c0.23				
v/c Ratio	0.20			0.34			0.17	0.81	0.52	0.71		
Uniform Delay, d1	23.5			24.1			5.0	9.6	3.9	22.9		
Progression Factor	1.00			1.00			1.00	1.00	1.00	1.00		
Incremental Delay, d2	1.6			3.8			0.1	5.3	0.4	5.3		
Delay (s)	25.1			27.9			5.1	14.9	4.2	28.2		
Level of Service	C			C			A	B	A	C		
Approach Delay (s)	25.1			10.2					9.7	28.2		
Approach LOS	C ✓			B ✓					A ✓	C ✓		
Intersection Summary												
HCM Average Control Delay			13.0			HCM Level of Service		B ✓				
HCM Volume to Capacity ratio			0.72 ✓									
Actuated Cycle Length (s)			65.0			Sum of lost time (s)		7.0				
Intersection Capacity Utilization			68.5%			ICU Level of Service		C				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 23: Washington Pike & McCampbell Drive

2008 PM Existing
Washington & Millertown Pike Study



Movement	SBR	SBR2	SEL	SER	NEL2	NEL
Lane Configurations						
Volume (veh/h)	623 ✓	20 ✓	8 ✓	15 ✓	10 ✓	1377 ✓
Sign Control	Free		Stop			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	692	22	9	17	11	1530
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					None
Median storage (veh)						
Upstream signal (ft)	236					
pX, platoon unblocked			0.86	0.86	0.86	
vC, conflicting volume			2256	703	714	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2380	572	585	
tC, single (s)			6.4	6.2	4.1	
tC, 2 stage (s)						
tF (s)			3.5	3.3	2.2	
p0 queue free %			72	96	99	
cM capacity (veh/h)			32	446	850	

Direction, Lane #	SB:1	SE:1	NE:1	NE:2
Volume Total	714	26	11	1530
Volume Left	0	9	11	0
Volume Right	22	17	0	0
cSH	1700	81	850	1700
Volume to Capacity	0.42	0.31	0.01	0.90
Queue Length 95th (ft)	0	29	1	0
Control Delay (s)	0.0	68.4	9.3	0.0
Lane LOS		F ✓	A ✓	
Approach Delay (s)	0.0	68.4	0.1	
Approach LOS		F		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	86.3%	ICU Level of Service	E
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis 24: Edmonds Road & Washington Pike

2008 PM Existing
Washington & Millertown Pike Study

EDMONDSON LANE



















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	R
Volume (veh/h)	5 ✓	6 ✓	1240 ✓	15 ✓	8 ✓	527 ✓
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	7	1378	17	9	586
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1989	1386			1394	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1989	1386			1394	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	96			98	
cM capacity (veh/h)	66	175			490	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	12	1394	594
Volume Left	6	0	9
Volume Right	7	17	0
cSH	100	1700	490
Volume to Capacity	0.12	0.82	0.02
Queue Length 95th (ft)	10	0	1
Control Delay (s)	46.1	0.0	0.5
Lane LOS	E ✓		A ✓
Approach Delay (s)	46.1	0.0	0.5
Approach LOS	E		

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		76.2%	ICU Level of Service D
Analysis Period (min)		15	











HCM Unsignalized Intersection Capacity Analysis 25: Babelay Road & Washington Pike

2008 PM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2 ✓	0 ✓	4 ✓	17 ✓	0 ✓	6 ✓	6 ✓	1232 ✓	67 ✓	6 ✓	457 ✓	4 ✓
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	2	0	4	19	0	7	7	1369	74	7	508	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								687				
pX, platoon unblocked	0.58	0.58		0.58	0.58	0.58				0.58		
vC, conflicting volume	1912	1980	510	1945	1945	1406	512			1443		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2214	2331	510	2270	2270	1337	512			1402		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	87	100	99	0	100	94	99			98		
cM capacity (veh/h)	17	21	563	16	23	108	1053			281		
Direction/Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	7	26	7	1443	7	512						
Volume Left	2	19	7	0	7	0						
Volume Right	4	7	0	74	0	4						
cSH	47	21	1053	1700	281	1700						
Volume to Capacity	0.14	1.24	0.01	0.85	0.02	0.30						
Queue Length 95th (ft)	11	86	0	0	2	0						
Control Delay (s)	93.6	551.6	8.4	0.0	18.1	0.0						
Lane LOS	F ✓	F ✓	A ✓		C ✓							
Approach Delay (s)	93.6	551.6	0.0		0.2							
Approach LOS	F	F										
Intersection Summary												
Average Delay	7.4											
Intersection Capacity Utilization	78.9%											
ICU Level of Service	D											
Analysis Period (min)	15											

Timings
26: Mill Road & Washington Pike





2008 PM Existing
Washington & Millertown Pike Study

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Volume (vph)	24	572	813	237	235
Turn Type	pm+ov		pm+pt		
Protected Phases	4	1	2	1	6
Permitted Phases		4		6	
Detector Phase	4	1	2	1	6
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	10.0	22.0	10.0	22.0
Total Split (s)	30.0	25.0	45.0	25.0	70.0
Total Split (%)	30.0%	25.0%	45.0%	25.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag	Lead	
Lead-Lag Optimize?					
Recall Mode	None	None	C-Min	None	C-Min

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 25 (25%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated

Splits and Phases: 26: Mill Road & Washington Pike

 p1	 p2	 p4
25 s	45 s	30 s
 p6		
70 s		

Queues
26: Mill Road & Washington Pike

2008 PM Existing
Washington & Millertown Pike Study














Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	29	689	879	282	280
v/c Ratio	0.20	0.94	1.04	0.40	0.17
Control Delay	45.5	44.7	70.0	13.6	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	45.5	44.7	70.0	13.6	1.9
Queue Length 50th (ft)	18	356	~643	78	28
Queue Length 95th (ft)	41	435	#920	135	46
Internal Link Dist (ft)	913		316		607
Turn Bay Length (ft)					
Base Capacity (vph)	443	736	849	712	1650
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.07	0.94	1.04	0.40	0.17

Intersection Summary

- # Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

























HCM Signalized Intersection Capacity Analysis 26: Mill Road & Washington Pike

2008 PM Existing
Washington & Millertown Pike Study

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	24	572	813	31	237	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	1854		1770	1863
Flt Permitted	0.95	1.00	1.00		0.08	1.00
Satd. Flow (perm)	1770	1583	1854		154	1863
Peak-hour factor, PHF	0.83	0.83	0.96	0.96	0.84	0.84
Adj. Flow (vph)	29	689	847	32	282	280
RTOR Reduction (vph)	0	37	1	0	0	0
Lane Group Flow (vph)	29	652	878	0	282	280
Turn Type	pm+ov			pm+pt		
Protected Phases	4	1	2		1	6
Permitted Phases		4			6	
Actuated Green, G (s)	4.9	39.7	42.3		83.1	83.1
Effective Green, g (s)	5.9	41.7	43.3		84.1	84.1
Actuated g/C Ratio	0.06	0.42	0.43		0.84	0.84
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	104	739	803		708	1567
v/s Ratio Prot	0.02	0.32	0.47		0.14	0.15
v/s Ratio Perm		0.10			0.19	
v/c Ratio	0.28	0.88	1.09		0.40	0.18
Uniform Delay, d1	45.0	26.9	28.4		17.2	1.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.5	12.0	60.3		0.4	0.2
Delay (s)	46.5	38.9	88.6		17.6	1.7
Level of Service	D	D	F		B	A
Approach Delay (s)	39.2		88.6			9.7
Approach LOS	D		F			A
Intersection Summary						
HCM Average Control Delay	51.6			HCM Level of Service	D	
HCM Volume to Capacity ratio	0.98					
Actuated Cycle Length (s)	100.0			Sum of lost time (s)	10.0	
Intersection Capacity Utilization	88.4%			ICU Level of Service	E	
Analysis Period (min)	15					
c Critical Lane Group						

Timings
27: Greenway Drive & Washington Pike

2008 PM Existing
Washington & Millertown Pike Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	76	262	288	45	7	241	138	765	30	157	31
Turn Type	pm+pt		pm+ov	pm+pt		Free	pm+pt		pm+ov	pm+pt		Free
Protected Phases	1	6	7	5	2		7	4	5	3	8	
Permitted Phases	6		6	2		Free	4		4	8		Free
Detector Phase	1	6	7	5	2		7	4	5	3	8	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		21.0	21.0	21.0	21.0	21.0	
Total Split (s)	22.0	28.0	33.0	22.0	28.0	0.0	33.0	27.0	22.0	33.0	27.0	0.0
Total Split (%)	20.0%	25.5%	30.0%	20.0%	25.5%	0.0%	30.0%	24.5%	20.0%	30.0%	24.5%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Min	None	None	C-Min		None	None	None	None	None	

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow, Master Intersection
 Natural Cycle: 85
 Control Type: Actuated-Coordinated

Splits and Phases: 27: Greenway Drive & Washington Pike

 ø1	 ø2	 ø3	 ø4
22s	20s	33s	27s
 ø5	 ø6	 ø7	 ø8
24s	23s	33s	27s

Queues

27: Greenway Drive & Washington Pike

























2008 PM Existing
Washington & Millertown Pike Study

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	12	84	288	343	54	8	268	153	850	34	176	35
v/c Ratio	0.04	0.40	0.54	0.37	0.05	0.01	0.54	0.29	0.70	0.12	0.43	0.02
Control Delay	18.5	50.2	32.0	14.1	14.4	0.0	30.4	32.4	13.1	23.4	48.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.5	50.2	32.0	14.1	14.4	0.0	30.4	32.4	13.1	23.4	48.0	0.0
Queue Length 50th (ft)	3	56	165	112	15	0	145	91	310	16	61	0
Queue Length 95th (ft)	14	102	211	193	45	0	187	134	584	32	93	0
Internal Link Dist (ft)		662			903			649			594	
Turn Bay Length (ft)	100		250	350		300	250			150		100
Base Capacity (vph)	457	423	639	918	1065	1583	552	527	1208	577	772	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.20	0.45	0.37	0.05	0.01	0.49	0.29	0.70	0.06	0.23	0.02

Intersection Summary

HCM Signalized Intersection Capacity Analysis 27: Greenway Drive & Washington Pike

2008 PM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	76	262	288	45	7	241	138	765	30	157	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	3539	1583
Flt Permitted	0.72	1.00	1.00	0.45	1.00	1.00	0.45	1.00	1.00	0.66	1.00	1.00
Satd. Flow (perm)	1345	1863	1583	832	1863	1583	847	1863	1583	1229	3539	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.84	0.84	0.84	0.90	0.90	0.90	0.89	0.89	0.89
Adj. Flow (vph)	12	84	288	343	54	8	268	153	850	34	176	35
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	12	84	288	343	54	8	268	153	850	34	176	35
Turn Type	pm+pt		pm+ov	pm+pt		Free	pm+pt		pm+ov	pm+pt		Free
Protected Phases	1	6	7	5	2		7	4	5	3	8	
Permitted Phases	6		6	2		Free	4		4	8		Free
Actuated Green, G (s)	9.7	8.4	29.4	61.2	54.9	110.0	38.8	29.1	76.9	17.5	12.8	110.0
Effective Green, g (s)	13.7	10.4	31.4	63.2	56.9	110.0	40.8	31.1	80.9	21.5	14.8	110.0
Actuated g/C Ratio	0.12	0.09	0.29	0.57	0.52	1.00	0.37	0.28	0.74	0.20	0.13	1.00
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	180	176	509	903	964	1583	507	527	1207	273	476	1583
v/s Ratio Prot	0.00	0.05	0.11	0.17	0.03		0.11	0.08	0.32	0.01	0.05	
v/s Ratio Perm	0.01		0.07	0.05		0.01	0.09		0.22	0.02		0.02
v/c Ratio	0.07	0.48	0.57	0.38	0.06	0.01	0.53	0.29	0.70	0.12	0.37	0.02
Uniform Delay, d1	42.5	47.2	33.5	12.5	13.2	0.0	25.8	30.8	8.0	36.3	43.4	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	9.0	1.4	0.3	0.1	0.0	1.0	0.3	1.9	0.2	0.5	0.0
Delay (s)	42.7	56.2	34.9	12.8	13.3	0.0	26.8	31.1	9.9	36.5	43.8	0.0
Level of Service	D	E	C	B	B	A	C	C	A	D	D	A
Approach Delay (s)		39.8			12.6			16.0			36.6	
Approach LOS		D✓			B✓			B✓			D✓	
Intersection Summary												
HCM Average Control Delay		21.6				HCM Level of Service		C✓				
HCM Volume to Capacity ratio		0.69✓										
Actuated Cycle Length (s)		110.0				Sum of lost time (s)		7.0				
Intersection Capacity Utilization		64.7%				ICU Level of Service		C				
Analysis Period (min)		15										
c Critical Lane Group												

Timings
28: I-640 WB Ent & Washington Pike

2008 PM Existing
Washington & Millertown Pike Study



Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↑	↑↱	↰	↑↑	↑↑	↑↱
Volume (vph)	348	289	160	870	382	269
Turn Type		Perm	pm+pt			Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Detector Phase	4	4	1	2	2	2
Switch Phase						
Minimum Initial (s)	4.0	4.0	3.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	41.0	41.0	17.0	57.0	57.0	57.0
Total Split (%)	35.7%	35.7%	14.8%	49.6%	49.6%	49.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 115
 Actuated Cycle Length: 115
 Offset: 14 (12%), Referenced to phase 2:NBSB, Start of Yellow
 Natural Cycle: 50
 Control Type: Actuated-Coordinated

Splits and Phases: 28: I-640 WB Ent & Washington Pike

↰ e1	↑↱ e2	↰ e4
17s	57s	41s

Queues

28: I-640 WB Ent & Washington Pike


2008 PM Existing
Washington & Millertown Pike Study

Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	464	318	174	946	424	299
v/c Ratio	0.50	0.75	0.26	0.48	0.22	0.34
Control Delay	36.7	49.7	8.8	18.0	14.6	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.7	49.7	8.8	18.0	14.6	17.2
Queue Length 50th (ft)	152	215	42	215	80	117
Queue Length 95th (ft)	186	295	83	323	131	213
Internal Link Dist (ft)	172			918	649	
Turn Bay Length (ft)			75			100
Base Capacity (vph)	1159	523	697	1964	1964	879
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.61	0.25	0.48	0.22	0.34

Intersection Summary

HCM Signalized Intersection Capacity Analysis 28: I-640 WB Ent & Washington Pike

2008 PM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔↔	↗	↖	↕			↕	↗
Volume (vph)	0	0	0	81✓	348	289✓	160✓	870✓	0	0✓	382✓	269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.0	3.0	3.0	3.0				
Lane Util. Factor					0.95	1.00	1.00	0.95				
Frt					1.00	0.85	1.00	1.00				
Flt Protected					0.99	1.00	0.95	1.00				
Satd. Flow (prot)					3508	1583	1770	3539				
Flt Permitted					0.99	1.00	0.47	1.00				
Satd. Flow (perm)					3508	1583	877	3539				
Peak-hour factor, PHF	0.90	0.90	0.90	0.99	0.91	0.91	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	82	382	318	174	946	0	0	424	299
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	464	318	174	946	0	0	424	299
Turn Type				Split		Perm	pm+pt					Perm
Protected Phases				4	4		1	2			2	
Permitted Phases						4	2					2
Actuated Green, G (s)					28.7	28.7	71.3	61.8			61.8	61.8
Effective Green, g (s)					30.7	30.7	75.3	63.8			63.8	63.8
Actuated g/C Ratio					0.27	0.27	0.65	0.55			0.55	0.55
Clearance Time (s)					5.0	5.0	5.0	5.0			5.0	5.0
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					936	423	664	1963			1963	878
v/s Ratio Prot					0.13		c0.03	c0.27			0.12	
v/s Ratio Perm						c0.20	0.15					0.19
v/c Ratio					0.50	0.75	0.26	0.48			0.22	0.34
Uniform Delay, d1					35.6	38.7	7.7	15.6			12.9	14.1
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					0.4	7.4	0.2	0.8			0.3	1.1
Delay (s)					36.0	46.0	7.9	16.4			13.2	15.1
Level of Service					D	D	A	B			B	B
Approach Delay (s)		0.0			40.1			15.1			14.0	
Approach LOS		A			D✓			B✓			B✓	
Intersection Summary												
HCM Average Control Delay			22.2									
HCM Volume to Capacity ratio			0.54 ✓									
Actuated Cycle Length (s)			115.0									
Intersection Capacity Utilization			71.6%									
Analysis Period (min)			15									
c Critical Lane Group												
HCM Level of Service											C✓	
Sum of lost time (s)											9.0	
ICU Level of Service											C	

Timings
29: South Mall Road & Washington Pike

2008 PM Existing
Washington & Millertown Pike Study



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	618	476	194	496	94	246	260
Turn Type	Perm		Perm		Perm	pm+pt	
Protected Phases		4		2		1	2
Permitted Phases	4		4		2	2	
Detector Phase	4	4	4	2	2	1	2
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	15.0	21.0
Total Split (s)	49.0	49.0	49.0	44.0	44.0	17.0	44.0
Total Split (%)	44.5%	44.5%	44.5%	40.0%	40.0%	15.5%	40.0%
Yellow Time (s)	4.0	4.0	4.0	4.5	4.5	4.0	4.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5	1.0	1.5
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	5.0	4.0	4.0	3.0	4.0
Lead/Lag				Lag	Lag	Lead	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 57 (52%), Referenced to phase 2:NBSB, Start of Yellow
 Natural Cycle: 65
 Control Type: Actuated-Coordinated

Splits and Phases: 29: South Mall Road & Washington Pike

p1	p2	p4
17%	44%	49%

Queues
29: South Mall Road & Washington Pike

2008 PM Existing
Washington & Millertown Pike Study






















Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	657	506	206	605	115	270	286
v/c Ratio	0.93	0.36	0.33	0.46	0.19	0.61	0.22
Control Delay	51.9	23.7	24.9	27.6	24.9	20.8	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.9	23.7	24.9	27.6	24.9	20.8	24.3
Queue Length 50th (ft)	428	127	99	171	55	102	72
Queue Length 95th (ft)	#657	170	159	198	89	156	105
Internal Link Dist (ft)		260		170			918
Turn Bay Length (ft)	300		300		200	250	
Base Capacity (vph)	724	1448	633	1329	595	450	1329
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.35	0.33	0.46	0.19	0.60	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



















HCM Signalized Intersection Capacity Analysis 29: South Mall Road & Washington Pike

2008 PM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	618	476	194	0	0	0	0	496	94	246	260	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0					4.0	4.0	3.0	4.0	
Lane Util. Factor	1.00	0.95	1.00					0.95	1.00	1.00	0.95	
Flt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583					3539	1583	1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.31	1.00	
Satd. Flow (perm)	1770	3539	1583					3539	1583	583	3539	
Peak-hour factor, PHF	0.94	0.94	0.94	0.90	0.90	0.90	0.82	0.82	0.82	0.91	0.91	0.91
Adj. Flow (vph)	657	506	206	0	0	0	0	605	115	270	286	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	657	506	206	0	0	0	0	605	115	270	286	0
Turn Type	Perm		Perm					Perm		pm+pt		
Protected Phases		4						2		1	2	
Permitted Phases	4		4						2	2		
Actuated Green, G (s)	42.1	42.1	42.1					39.3	39.3	50.9	39.3	
Effective Green, g (s)	44.1	44.1	43.1					41.3	41.3	54.9	41.3	
Actuated g/C Ratio	0.40	0.40	0.39					0.38	0.38	0.50	0.38	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0	5.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	710	1419	620					1329	594	438	1329	
v/s Ratio Prot		0.14						0.17		0.08	0.08	
v/s Ratio Perm	0.37		0.13						0.07	0.23		
v/c Ratio	0.93	0.36	0.33					0.46	0.19	0.62	0.22	
Uniform Delay, d1	31.4	23.0	23.4					25.9	23.1	17.1	23.3	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2	17.9	0.2	0.3					1.1	0.7	2.6	0.4	
Delay (s)	49.3	23.2	23.7					27.0	23.9	19.7	23.7	
Level of Service	D	C	C					C	C	B	C	
Approach Delay (s)		35.8			0.0			26.5			21.7	
Approach LOS		D ✓			A			C ✓			C ✓	
Intersection Summary												
HCM Average Control Delay		30.3										
HCM Volume to Capacity ratio		0.75 ✓										
Actuated Cycle Length (s)		110.0								10.0		
Intersection Capacity Utilization		71.6%										
Analysis Period (min)		15										
c Critical Lane Group												













HCM Unsignalized Intersection Capacity Analysis 30: Valley View Dr & Washington Pike

2008 PM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	62 ✓	12 ✓	51 ✓	12 ✓	5 ✓	16 ✓	41 ✓	280 ✓	20 ✓	22	261 ✓	51 ✓
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	69	13	57	13	6	18	46	311	22	24	290	57
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											250	
pX, platoon unblocked	0.94	0.94	0.94	0.94	0.94		0.94					
vC, conflicting volume	606	763	290	816	809	167	347			333		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	549	716	212	771	764	167	272			333		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	81	96	92	94	98	98	96			98		
cM capacity (veh/h)	363	314	745	233	294	848	1210			1223		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	139	37	201	178	314	57						
Volume Left	69	13	46	0	24	0						
Volume Right	57	18	0	22	0	57						
cSH	451	377	1210	1700	1223	1700						
Volume to Capacity	0.31	0.10	0.04	0.10	0.02	0.03						
Queue Length 95th (ft)	32	8	3	0	2	0						
Control Delay (s)	16.5	15.6	2.1	0.0	0.8	0.0						
Lane LOS	C ✓	C ✓	A ✓		A ✓							
Approach Delay (s)	16.5	15.6	1.1		0.7							
Approach LOS	C	C										
Intersection Summary												
Average Delay			3.8									
Intersection Capacity Utilization			45.2%			ICU Level of Service			A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 31: Centerline Drive & Washington Pike

2008 PM Existing
Washington & Millertown Pike Study

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	10 ✓	97 ✓	354 ✓	16 ✓	100 ✓	334 ✓
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	108	393	18	111	371
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)						697
pX, platoon unblocked	1.00					
vC, conflicting volume	996	402			411	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	995	402			411	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	83			90	
cM capacity (veh/h)	245	648			1148	
Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2	
Volume Total	11	108	411	111	371	
Volume Left	11	0	0	111	0	
Volume Right	0	108	18	0	0	
cSH	245	648	1700	1148	1700	
Volume to Capacity	0.05	0.17	0.24	0.10	0.22	
Queue Length 95th (ft)	4	15	0	8	0	
Control Delay (s)	20.4	11.7	0.0	8.5	0.0	
Lane LOS	C	B		A		
Approach Delay (s)	12.5		0.0	2.0		
Approach LOS	B					
Intersection Summary						
Average Delay			2.4			
Intersection Capacity Utilization			38.5%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 32: Pinehurst Dr. & Washington Pike

2008 PM Existing
Washington & Millertown Pike Study



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑	↑	
Volume (veh/h)	10	1	2	408	108	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	1	2	453	120	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	579	121	122			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	579	121	122			
IC, single (s)	6.4	6.2	4.1			
IC, 2 stage (s)						
IF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	477	930	1465			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	12	456	122
Volume Left	11	2	0
Volume Right	1	0	2
cSH	499	1465	1700
Volume to Capacity	0.02	0.00	0.07
Queue Length 95th (ft)	2	0	0
Control Delay (s)	12.4	0.1	0.0
Lane LOS	B	A	
Approach Delay (s)	12.4	0.1	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	33.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis 33: Millertown Pike & Washington Pike

2008 PM Existing
Washington & Millertown Pike Study



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↰		↰	
Sign Control		Stop	Stop		Stop	
Volume (vph)	196 ✓	188 ✓	143 ✓	136 ✓	155 ✓	155 ✓
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	218	209	159	151	172	172

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	427	310	344
Volume Left (vph)	218	0	172
Volume Right (vph)	0	151	172
Hadj (s)	0.14	-0.26	-0.17
Departure Headway (s)	5.6	5.4	5.7
Degree Utilization, x	0.66	0.46	0.54
Capacity (veh/h)	623	629	590
Control Delay (s)	18.9	13.0	15.3
Approach Delay (s)	18.9	13.0	15.3
Approach LOS	C	B	C

Intersection Summary			
Delay		16.0	
HCM Level of Service		C	
Intersection Capacity Utilization		64.7%	ICU Level of Service C
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis 39: Millertown Pike & Springhill Road

2008 PM Existing
Washington & Millertown Pike Study



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩	↩	↩	↩	↩	↩
Volume (veh/h)	270 ✓	51 ✓	50 ✓	280 ✓	42 ✓	52 ✓
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	300	57	56	311	47	58
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			357		751	328
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			357		751	328
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		87	92
cM capacity (veh/h)			1202		361	713

Direction/Lane #	EB 1	WB 1	NB 1
Volume Total	357	367	104
Volume Left	0	56	47
Volume Right	57	0	58
cSH	1700	1202	497
Volume to Capacity	0.21	0.05	0.21
Queue Length 95th (ft)	0	4	20
Control Delay (s)	0.0	1.6	14.2
Lane LOS		A ✓	B ✓
Approach Delay (s)	0.0	1.6	14.2
Approach LOS			B

Intersection Summary			
Average Delay		2.5	
Intersection Capacity Utilization		50.3%	ICU Level of Service A
Analysis Period (min)		15	

Timings
43: Millertown Pike & Loves Creek Road

2008 PM Existing
Washington & Millertown Pike Study



Lane Group	NBL	NBT	SBL	SBT	SEL	SET	NWL	NWT
Lane Configurations		↕	↙	↗		↕		↕
Volume (vph)	36	733	59	356	28	25	110	23
Turn Type	Perm		pm+pt		Perm		Perm	
Protected Phases		2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	67.0	67.0	18.0	85.0	25.0	25.0	25.0	25.0
Total Split (%)	60.9%	60.9%	16.4%	77.3%	22.7%	22.7%	22.7%	22.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	2.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	None	C-Min	Min	Min	None	None

Intersection Summary

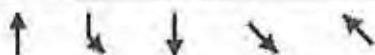
Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 85 (77%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
 Natural Cycle: 75
 Control Type: Actuated-Coordinated

Splits and Phases: 43: Millertown Pike & Loves Creek Road

↙ ø1	↗ ø2	↙ ø4
18%	67%	25%
↘ ø5		↘ ø8
85%		25%

Queues
43: Millertown Pike & Loves Creek Road

2008 PM Existing
Washington & Millertown Pike Study



Lane Group	NBT	SBL	SBT	SET	NWT
Lane Group Flow (vph)	967	66	397	114	252
v/c Ratio	0.81	0.14	0.28	0.36	0.92
Control Delay	11.3	4.1	5.1	30.1	77.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	4.1	5.1	30.1	77.4
Queue Length 50th (ft)	227	10	77	48	157
Queue Length 95th (ft)	268	20	112	95	312
Internal Link Dist (ft)	835		552	525	539
Turn Bay Length (ft)					
Base Capacity (vph)	1200	557	1395	321	277
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.81	0.12	0.28	0.36	0.91

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 43: Millertown Pike & Loves Creek Road

2008 PM Existing
Washington & Millertown Pike Study

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕		↕	↕			↕			↕	
Volume (vph)	36	733	72	59	356	1	28	25	44	110	23	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0		2.0	3.0			3.0			3.0	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frt		0.99		1.00	1.00			0.94			0.94	
Flt Protected		1.00		0.95	1.00			0.99			0.98	
Satd. Flow (prot)		1837		1770	1862			1723			1717	
Flt Permitted		0.97		0.26	1.00			0.84			0.72	
Satd. Flow (perm)		1787		488	1862			1470			1272	
Peak-hour factor, PHF	0.87	0.87	0.87	0.90	0.90	0.90	0.85	0.85	0.85	0.90	0.90	0.90
Adj. Flow (vph)	41	843	83	66	396	1	33	29	52	122	26	104
RTOR Reduction (vph)	0	2	0	0	0	0	0	27	0	0	23	0
Lane Group Flow (vph)	0	965	0	66	397	0	0	87	0	0	229	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		71.0		80.4	80.4			19.6			19.6	
Effective Green, g (s)		73.0		82.4	82.4			21.6			21.6	
Actuated g/C Ratio		0.66		0.75	0.75			0.20			0.20	
Clearance Time (s)		5.0		4.0	5.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		1186		452	1395			289			250	
v/s Ratio Prot				0.01	c0.21							
v/s Ratio Perm		c0.54		0.10				0.06			c0.18	
v/c Ratio		0.81		0.15	0.28			0.30			0.91	
Uniform Delay, d1		13.5		5.5	4.4			37.7			43.3	
Progression Factor		0.46		1.00	1.00			1.00			1.00	
Incremental Delay, d2		4.3		0.1	0.5			0.6			34.7	
Delay (s)		10.5		5.7	4.9			38.3			78.0	
Level of Service		B		A	A			D			E	
Approach Delay (s)		10.5			5.0			38.3			78.0	
Approach LOS		B	✓		A	✓		D	✓		E	✓
Intersection Summary												
HCM Average Control Delay			20.3			HCM Level of Service					C ^v	
HCM Volume to Capacity ratio			0.80	✓								
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			93.5%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Timings

44: Knoxville Ctr. Ent/Exit & Millertown Pike

2008 PM Existing
Washington & Millertown Pike Study



Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↰	↰	↱	↰	↱	↱	↰	↱	↱
Volume (vph)	100	152	218	61	134	94	612	248	59	340	117
Turn Type	pm+ov		Split		pt+ov	pm+pt		pm+ov	Prot		pm+ov
Protected Phases	4	5	3	3	3	5	2	3	1	6	4
Permitted Phases		4				2		2			6
Detector Phase	4	5	3	3	3	5	2	3	1	6	4
Switch Phase											
Minimum Initial (s)	4.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	4.0	4.0
Minimum Split (s)	9.0	8.0	8.0	8.0		8.0	8.0	8.0	8.0	9.0	9.0
Total Split (s)	22.0	17.0	21.0	21.0	38.0	17.0	50.0	21.0	17.0	50.0	22.0
Total Split (%)	20.0%	15.5%	19.1%	19.1%	34.5%	15.5%	45.5%	19.1%	15.5%	45.5%	20.0%
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lead	Lead	Lead		Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	None	None	None	None		None	C-Max	None	None	C-Max	None

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 65 (59%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 60
 Control Type: Actuated-Coordinated

Splits and Phases: 44: Knoxville Ctr. Ent/Exit & Millertown Pike

↰ e1	↱ e2	↰ e3	↱ e4
17s	50s	21s	22s
↰ e5	↱ e6		
17s	50s		

Queues

44: Knoxville Ctr. Ent/Exit & Millertown Pike

2008 PM Existing

Washington & Millertown Pike Study



Lane/Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	275	169	152	158	149	104	680	276	66	378	130
v/c Ratio	0.86	0.36	0.62	0.63	0.39	0.18	0.77	0.27	0.21	0.23	0.13
Control Delay	69.5	32.6	55.0	55.4	22.9	9.3	26.1	8.1	50.3	14.7	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0
Total Delay	69.5	32.6	55.0	55.4	22.9	9.3	28.5	8.1	50.3	14.7	4.5
Queue Length 50th (ft)	192	94	105	109	58	26	373	72	21	74	17
Queue Length 95th (ft)	#341	151	176	182	96	m40	m462	m77	m37	m102	m30
Internal Link Dist (ft)	752			313			473			835	
Turn Bay Length (ft)			300		300			200	200		200
Base Capacity (vph)	322	526	275	281	461	644	885	1054	437	1675	1032
Starvation Cap Reductn	0	0	0	0	0	0	104	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.32	0.55	0.56	0.32	0.16	0.87	0.26	0.15	0.23	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

44: Knoxville Ctr. Ent/Exit & Millertown Pike

2008 PM Existing
Washington & Millertown Pike Study

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱	↰	↱	↰	↰	↱	↱	↰↱	↰↱	↰
Volume (vph)	148	100	152	218	61	134	94	612	248	59	340	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.97	0.95	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00	0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1809	1583	1681	1721	1583	1770	1863	1583	3433	3539	1583
Flt Permitted		0.97	1.00	0.95	0.97	1.00	0.48	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1809	1583	1681	1721	1583	900	1863	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	164	111	169	242	68	149	104	680	276	66	378	130
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	275	169	152	158	149	104	680	276	66	378	130
Turn Type	Split		pm+ov	Split		pt+ov	pm+pt		pm+ov	Prot		pm+ov
Protected Phases	4	4	5	3	3	3	1	2	3	1	6	4
Permitted Phases			4				2		2			6
Actuated Green, G (s)		17.5	25.8	14.1	14.1	22.2	58.6	50.3	64.4	8.1	50.1	67.6
Effective Green, g (s)		19.5	29.8	16.1	16.1	26.2	62.6	52.3	68.4	10.1	52.1	71.6
Actuated g/C Ratio		0.18	0.27	0.15	0.15	0.24	0.57	0.48	0.62	0.09	0.47	0.65
Clearance Time (s)		5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		321	472	246	252	377	594	886	1028	315	1676	1030
v/s Ratio Prot		c0.15	c0.03	0.09	c0.09	0.09	0.02	c0.37	0.04	0.02	0.11	0.02
v/s Ratio Perm			0.07				0.08		0.14			0.06
v/c Ratio		0.86	0.36	0.62	0.63	0.40	0.18	0.77	0.27	0.21	0.23	0.13
Uniform Delay, d1		43.9	32.4	44.1	44.1	35.2	10.9	23.8	9.4	46.3	17.1	7.3
Progression Factor		1.00	1.00	1.00	1.00	1.00	0.88	0.88	0.90	1.07	0.80	1.02
Incremental Delay, d2		19.6	0.5	4.6	4.8	0.7	0.1	3.4	0.1	0.3	0.3	0.1
Delay (s)		63.4	32.8	48.6	48.9	35.9	9.7	24.5	8.6	49.6	14.0	7.5
Level of Service		E	C	D	D	D	A	C	A	D	B	A
Approach Delay (s)		51.8			44.6			18.9			16.6	
Approach LOS		D	✓		D	✓		B	✓		B	✓

Intersection Summary			
HCM Average Control Delay	28.8	HCM Level of Service	C ✓
HCM Volume to Capacity ratio	0.69 ✓		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Timings
45: I-640 WB Ent & Millertown Pike

2008 PM Existing
Washington & Millertown Pike Study



Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	↑
Volume (vph)	434	611	81	824	526	209
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	2	
Permitted Phases		4	2		2	2
Detector Phase	4	4	2	2	2	2
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	9.0	21.0	21.0	21.0	21.0
Total Split (s)	27.0	27.0	83.0	83.0	83.0	83.0
Total Split (%)	24.5%	24.5%	75.5%	75.5%	75.5%	75.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 102 (93%), Referenced to phase 2:NBSB, Start of Yellow
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 45: I-640 WB Ent & Millertown Pike

 83s	 27s
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Queues

45: I-640 WB Ent & Millertown Pike

2008 PM Existing
Washington & Millertown Pike Study

Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	668	736	86	877	566	225
v/c Ratio	0.87	1.41	0.15	0.34	0.22	0.19
Control Delay	55.4	220.3	3.1	3.5	4.3	3.6
Queue Delay	0.0	34.4	0.0	0.0	0.0	0.0
Total Delay	55.4	254.7	3.1	3.5	4.3	3.6
Queue Length 50th (ft)	241	~571	4	22	45	26
Queue Length 95th (ft)	282	#701	m19	70	56	41
Internal Link Dist (ft)	601			683	473	
Turn Bay Length (ft)		600	300			
Base Capacity (vph)	764	522	573	2574	2574	1163
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	27	0	137	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.87	1.49	0.15	0.36	0.22	0.19

Intersection Summary

- Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis 45: I-640 WB Ent & Millertown Pike

2008 PM Existing
Washington & Millertown Pike Study



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑	↑	↑↑			↑↑	↑
Volume (vph)	0	0	0	120✓	434✓	611✓	81✓	824✓	0	0	526✓	209✓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Util. Factor					0.95	1.00	1.00	0.95			0.95	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3501	1583	1770	3539			3539	1583
Flt Permitted					0.99	1.00	0.42	1.00			1.00	1.00
Satd. Flow (perm)					3501	1583	788	3539			3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.83	0.83	0.83	0.94	0.94	0.94	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	145	523	736	86	877	0	0	566	225
RTOR Reduction (vph)	0	0	0	0	0	177	0	0	0	0	0	12
Lane Group Flow (vph)	0	0	0	0	668	559	86	877	0	0	566	213
Turn Type				Split		Perm	Perm					Perm
Protected Phases				4	4			2			2	
Permitted Phases						4	2				2	2
Actuated Green, G (s)					22.0	22.0	78.0	78.0			78.0	78.0
Effective Green, g (s)					24.0	24.0	80.0	80.0			80.0	80.0
Actuated g/C Ratio					0.22	0.22	0.73	0.73			0.73	0.73
Clearance Time (s)					5.0	5.0	5.0	5.0			5.0	5.0
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					764	345	573	2574			2574	1151
v/s Ratio Prot					0.19			c0.25			0.16	
v/s Ratio Perm						c0.35	0.11					0.13
v/c Ratio					0.87	1.62	0.15	0.34			0.22	0.19
Uniform Delay, d1					41.5	43.0	4.6	5.4			4.9	4.7
Progression Factor					1.00	1.00	0.53	0.57			0.83	0.86
Incremental Delay, d2					10.9	292.5	0.5	0.4			0.2	0.3
Delay (s)					52.4	335.5	3.0	3.4			4.2	4.4
Level of Service					D	F	A	A			A	A
Approach Delay (s)		0.0			200.8			3.4			4.3	
Approach LOS		A			F✓			A✓			A✓	
Intersection Summary												
HCM Average Control Delay			91.4									
HCM Volume to Capacity ratio			0.64✓									
Actuated Cycle Length (s)			110.0									
Intersection Capacity Utilization			67.3%									
Analysis Period (min)			15									
c Critical Lane Group												

Timings
46: South Mall Road & Millertown Pike

2008 PM Existing
Washington & Millertown Pike Study



Lane Group	EBL	EBT	EBR	NET	NER	SWL	SWT
Lane Configurations	←	↑	↑	↑↑	↑	←	↑↑
Volume (vph)	236	163	77	412	93	333	366
Turn Type	Perm		Perm		Perm	pm+pt	
Protected Phases		4		2		1	2
Permitted Phases	4		4		2	2	1
Detector Phase	4	4	4	2	2	1	2
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	9.0	21.0
Total Split (s)	27.0	27.0	27.0	66.0	66.0	17.0	66.0
Total Split (%)	24.5%	24.5%	24.5%	60.0%	60.0%	15.5%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag				Lag	Lag	Lead	Lag
Lead-Lag Optimize?							
Recall Mode	Min	Min	Min	C-Min	C-Min	None	C-Min

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 105 (95%), Referenced to phase 2:NESW, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 46: South Mall Road & Millertown Pike

e1	e2	e4
17 s	66 s	27 s

Queues
46: South Mall Road & Millertown Pike

2008 PM Existing
Washington & Millertown Pike Study



Lane Group	EBL	EBT	EBR	NET	NER	SWL	SWT
Lane Group Flow (vph)	271	187	89	434	98	378	416
v/c Ratio	0.69	0.46	0.26	0.27	0.14	0.47	0.16
Control Delay	48.5	39.7	35.5	21.7	22.2	7.6	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.5	39.7	35.5	21.7	22.2	7.6	2.6
Queue Length 50th (ft)	178	116	52	96	39	42	18
Queue Length 95th (ft)	235	161	86	173	94	m88	m26
Internal Link Dist (ft)		347		1273			683
Turn Bay Length (ft)			300		300	300	
Base Capacity (vph)	423	445	378	2049	917	805	3002
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.42	0.24	0.21	0.11	0.47	0.14

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis 46: South Mall Road & Millertown Pike

2008 PM Existing
Washington & Millertown Pike Study

	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Movement	←	→	↗	←	→	↗	←	→	↗	←	→	↗
Lane Configurations	↗	↑	↗					↑↑	↑	↗	↑↑	
Volume (vph)	236 ✓	163 ✓	77 ✓	0	0	0	0	412 ✓	93 ✓	333 ✓	366 ✓	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583					3539	1583	1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.44	1.00	
Satd. Flow (perm)	1770	1863	1583					3539	1583	825	3539	
Peak-hour factor, PHF	0.87	0.87	0.87	0.90	0.90	0.90	0.95	0.95	0.95	0.88	0.88	0.88
Adj. Flow (vph)	271	187	89	0	0	0	0	434	98	378	416	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	271	187	89	0	0	0	0	434	98	378	416	0
Turn Type	Perm		Perm						Perm	pm+pt		
Protected Phases		4						2		1	2	
Permitted Phases	4		4						2	2	1	
Actuated Green, G (s)	22.2	22.2	22.2					48.2	48.2	72.8	72.8	
Effective Green, g (s)	24.2	24.2	24.2					50.2	50.2	76.8	76.8	
Actuated g/C Ratio	0.22	0.22	0.22					0.46	0.46	0.70	0.70	
Clearance Time (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	389	410	348					1615	722	805	2567	
v/s Ratio Prot		0.10						0.12		c0.11	0.07	
v/s Ratio Perm	c0.15		0.06						0.06	c0.21	0.04	
v/c Ratio	0.70	0.46	0.26					0.27	0.14	0.47	0.16	
Uniform Delay, d1	39.5	37.2	35.5					18.5	17.3	6.6	5.6	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.91	0.46	
Incremental Delay, d2	5.4	0.8	0.4					0.4	0.4	0.4	0.0	
Delay (s)	44.9	38.0	35.8					18.9	17.7	6.4	2.6	
Level of Service	D	D	D					B	B	A	A	
Approach Delay (s)		41.1			0.0			18.7			4.4	
Approach LOS		D ✓			A			B ✓			A ✓	
Intersection Summary												
HCM Average Control Delay		19.2										
HCM Volume to Capacity ratio		0.52 ✓										
Actuated Cycle Length (s)		110.0										
Intersection Capacity Utilization		67.3%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 47: Millertown Pike & Mill Road

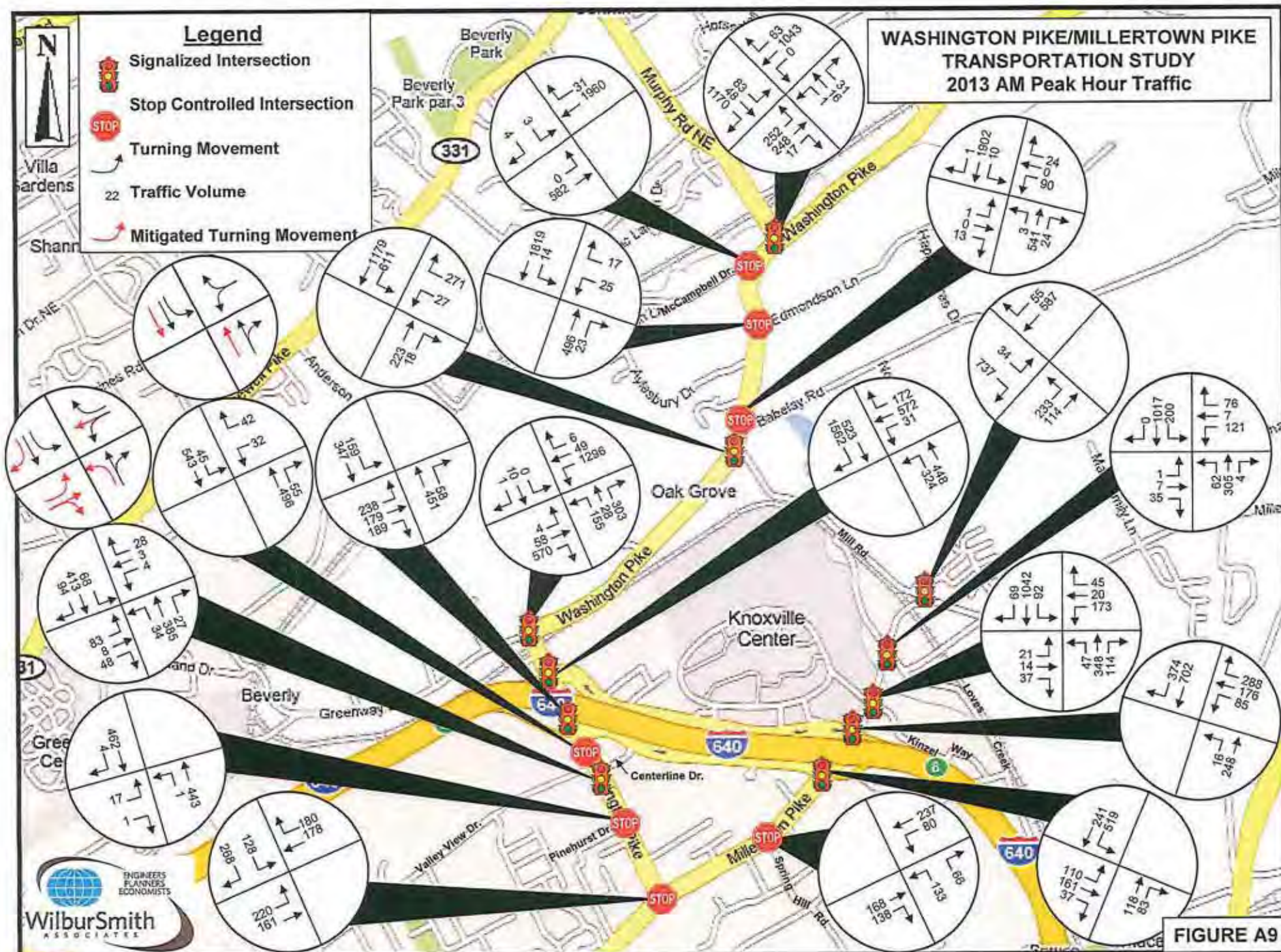
2008 PM Existing
Washington & Millertown Pike Study

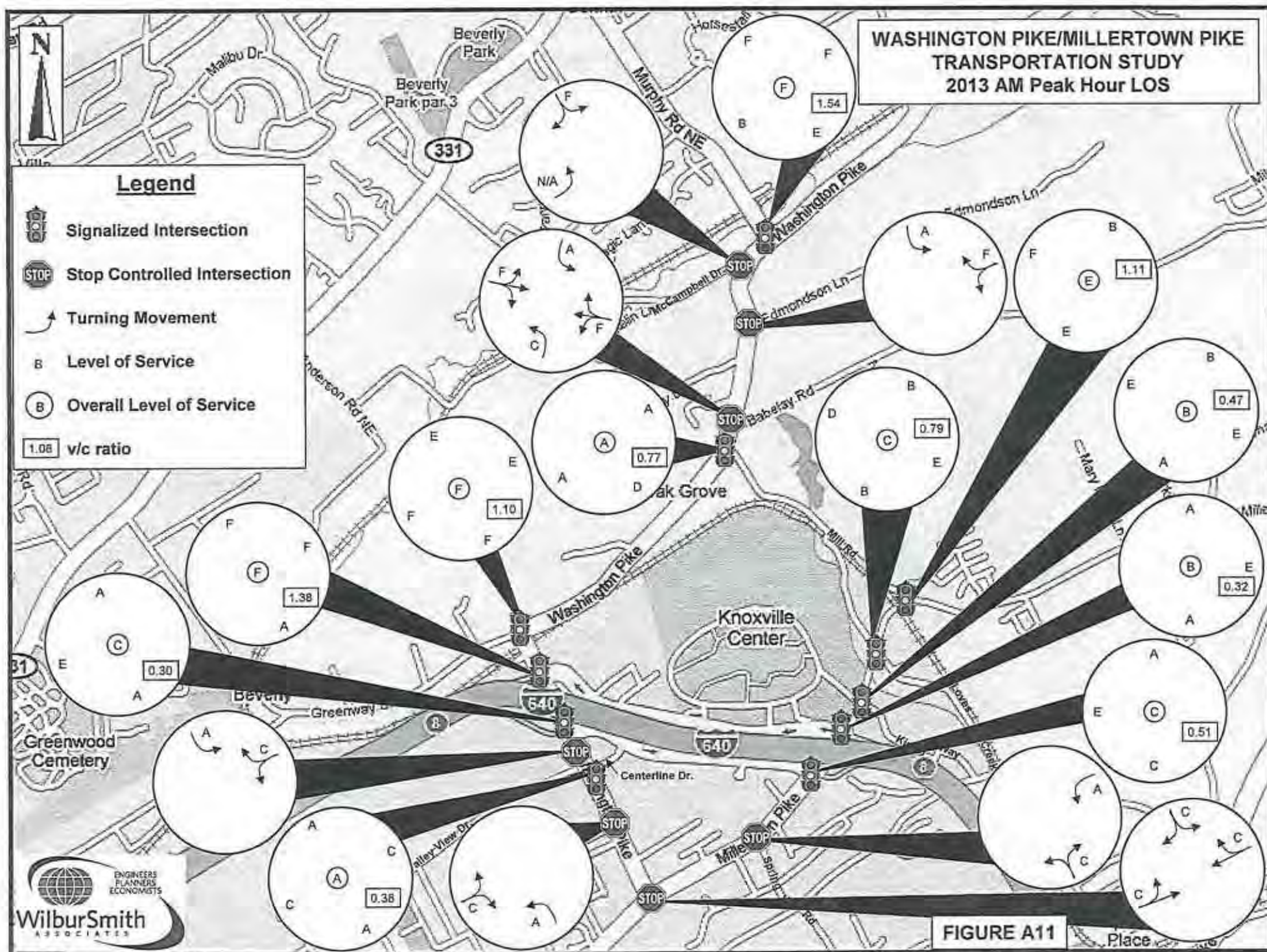


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑	↱		↰	↱
Volume (veh/h)	548 ✓	344 ✓	233 ✓	36	29 ✓	244 ✓
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	609	382	259	40	32	271
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		924				
pX, platoon unblocked						
vC, conflicting volume	299				1879	279
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	299				1879	279
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	52				21	64
cM capacity (veh/h)	1262				41	760

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	609	382	299	32	271
Volume Left	609	0	0	32	0
Volume Right	0	0	40	0	271
cSH	1262	1700	1700	41	760
Volume to Capacity	0.48	0.22	0.18	0.79	0.36
Queue Length 95th (ft)	68	0	0	75	41
Control Delay (s)	10.5	0.0	0.0	231.5	12.3
Lane LOS	B	✓		F	✓ B
Approach Delay (s)	6.4		0.0	35.6	
Approach LOS				E	


Intersection Summary					
Average Delay		10.8			
Intersection Capacity Utilization		58.1%	ICU Level of Service		B
Analysis Period (min)		15			





HCM Signalized Intersection Capacity Analysis 22: Murphy Road & Washington Pike

2013 AM Existing
Washington & Millertown Pike Study

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Volume (vph)	1	16	31	83	48	1170	252	248	17	0	1043	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	3.0	3.0	3.0			3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00			1.00	
Frt		0.91			1.00	0.85	1.00	0.99			0.99	
Flt Protected		1.00			0.97	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		1700			1805	1583	1770	1845			1848	
Flt Permitted		1.00			0.74	1.00	0.06	1.00			1.00	
Satd. Flow (perm)		1695			1387	1583	110	1845			1848	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1	18	34	92	53	1300	280	276	19	0	1159	70
RTOR Reduction (vph)	0	30	0	0	0	17	0	2	0	0	2	0
Lane Group Flow (vph)	0	23	0	0	145	1283	280	293	0	0	1227	0
Turn Type	Perm			Perm		pm+ov	pm+pt			Perm		
Protected Phases		2			6	7	7	4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)		16.0			16.0	69.0	121.0	121.0			64.0	
Effective Green, g (s)		16.0			16.0	71.0	122.0	122.0			65.0	
Actuated g/C Ratio		0.11			0.11	0.49	0.84	0.84			0.45	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)		187			153	808	711	1552			828	
v/s Ratio Prot						c0.59	0.15	0.16			c0.66	
v/s Ratio Perm		0.01			0.10	0.22	0.19					
v/c Ratio		0.12			0.95	1.59	0.39	0.19			1.48	
Uniform Delay, d1		58.2			64.1	37.0	26.7	2.2			40.0	
Progression Factor		1.00			1.00	1.00	0.96	0.82			1.00	
Incremental Delay, d2		0.3			56.6	270.5	0.4	0.3			223.5	
Delay (s)		58.5			120.7	307.5	25.9	2.1			263.5	
Level of Service		E			F	F	C	A			F	
Approach Delay (s)		58.5			288.8			13.7			263.5	
Approach LOS		E ✓			F ✓			B ✓			F ✓	
Intersection Summary												
HCM Average Control Delay		227.8										
HCM Volume to Capacity ratio		1.54 ✓										
Actuated Cycle Length (s)		145.0							6.0			
Intersection Capacity Utilization		144.5%							H			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 23: McCampbell Drive & Washington Pike

2013 AM Existing
Washington & Millertown Pike Study



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		Y	↑	↑	
Volume (veh/h)	3	4	0	582	1960	31
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	4	0	647	2178	34
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					245	
pX, platoon unblocked	0.55	0.55	0.55			
vC, conflicting volume	2842	2195	2212			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3920	2753	2784			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	69	100			
cM capacity (veh/h)	2	14	78			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	8	0	647	2212
Volume Left	3	0	0	0
Volume Right	4	0	0	34
cSH	4	1700	1700	1700
Volume to Capacity	1.94	0.00	0.38	1.30
Queue Length 95th (ft)	49	0	0	0
Control Delay (s)	2025.7	0.0	0.0	0.0
Lane LOS	F			
Approach Delay (s)	2025.7	0.0		0.0
Approach LOS	F			

Intersection Summary			
Average Delay		5.5	
Intersection Capacity Utilization		115.0%	ICU Level of Service H
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis 24: Edmonds Road & Washington Pike

2013 AM Existing
Washington & Millertown Pike Study

EDMONDS ROAD LANE



















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	WT	WT	WT	WT	WT	WT
Volume (veh/h)	25 ✓	17 ✓	496 ✓	23 ✓	14 ✓	1819 ✓
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	19	551	26	16	2021
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2616	564			577	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2616	564			577	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	96			98	
cM capacity (veh/h)	26	525			997	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	47	577	2037
Volume Left	28	0	16
Volume Right	19	26	0
cSH	43	1700	997
Volume to Capacity	1.09	0.34	0.02
Queue Length 95th (ft)	111	0	1
Control Delay (s)	314.8	0.0	0.1
Lane LOS	F ✓		A ✓
Approach Delay (s)	314.8	0.0	0.1
Approach LOS	F		

Intersection Summary			
Average Delay		5.6	
Intersection Capacity Utilization		116.9%	ICU Level of Service H
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis 25: Babelay Road & Washington Pike

2013 AM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	✓1	0	✓13	90	0	24	✓3	✓541	✓24	✓10	✓1902	✓1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	0	14	100	0	27	3	601	27	11	2113	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							TWLTL			None		
Median storage veh							2					
Upstream signal (ft)							687					
pX, platoon unblocked	0.96	0.96		0.96	0.96	0.96				0.96		
vC, conflicting volume	2771	2771	2114	2771	2758	614	2114			628		
vC1, stage 1 conf vol	2136	2136		621	621							
vC2, stage 2 conf vol	634	634		2150	2137							
vCu, unblocked vol	2829	2829	2114	2830	2816	573	2114			587		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
IF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	77	0	100	95	99			99		
cM capacity (veh/h)	62	84	64	44	81	496	258			944		
Direction Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	16	127	3	628	11	2114						
Volume Left	1	100	3	0	11	0						
Volume Right	14	27	0	27	0	1						
cSH	64	54	258	1700	944	1700						
Volume to Capacity	0.24	2.33	0.01	0.37	0.01	1.24						
Queue Length 95th (ft)	21	319	1	0	1	0						
Control Delay (s)	78.8	771.5	19.1	0.0	8.9	0.0						
Lane LOS	F	F	C		A							
Approach Delay (s)	78.8	771.5	0.1		0.0							
Approach LOS	F	F										
Intersection Summary												
Average Delay	34.2											
Intersection Capacity Utilization	119.9%											
Analysis Period (min)	15											
ICU Level of Service H												

Queues
26: Mill Road & Washington Pike

2013 AM Existing
Washington & Millertown Pike Study









Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	30	301	268	679	1310
v/c Ratio	0.28	0.47	0.22	0.64	0.77
Control Delay	70.4	6.3	8.9	2.0	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	70.4	6.3	8.9	2.0	4.4
Queue Length 50th (ft)	28	0	106	80	333
Queue Length 95th (ft)	63	67	80	m74	m201
Internal Link Dist (ft)	913		316		607
Turn Bay Length (ft)				400	
Base Capacity (vph)	305	771	1226	1140	1707
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.10	0.39	0.22	0.60	0.77

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis 26: Mill Road & Washington Pike

201
Washington & Ml

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	27	271	223	18	671	1179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Friction	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	1844		1770	1863
Flt Permitted	0.95	1.00	1.00		0.54	1.00
Satd. Flow (perm)	1770	1583	1844		1007	1863
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	30	301	248	20	679	1310
RTOR Reduction (vph)	0	226	1	0	0	0
Lane Group Flow (vph)	30	75	267	0	679	1310
Turn Type	pm+ov				pm+pt	
Protected Phases	4	1	2		1	6
Permitted Phases		4			6	
Actuated Green, G (s)	5.5	34.1	92.9		127.5	127.5
Effective Green, g (s)	6.5	36.1	93.9		128.5	128.5
Actuated g/C Ratio	0.04	0.25	0.65		0.89	0.89
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	79	449	1194		1048	1651
v/s Ratio Prot	0.02	0.03	0.14		0.13	0.70
v/s Ratio Perm		0.01			0.44	
v/c Ratio	0.38	0.17	0.22		0.65	0.79
Uniform Delay, d1	67.3	42.7	10.5		2.2	3.2
Progression Factor	1.00	1.00	0.81		0.97	0.95
Incremental Delay, d2	3.0	0.2	0.3		0.1	0.4
Delay (s)	70.3	42.8	8.9		2.3	3.4
Level of Service	E	D	A		A	A
Approach Delay (s)	45.3		8.9			3.0
Approach LOS	D		A			A
Intersection Summary						
HCM Average Control Delay			9.0		HCM Level of Service	A
HCM Volume to Capacity ratio			0.77			
Actuated Cycle Length (s)			145.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			73.7%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Queues

27: Greenway Drive & Washington Pike

2013 AM Existing
Washington & Millertown Pike Study

























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	4	64	633	1440	54	7	172	31	337	11	1
v/c Ratio	0.01	0.15	1.09	1.07	0.03	0.01	0.97	0.15	0.70	0.06	0.01
Control Delay	22.5	45.1	94.1	61.5	4.1	3.5	118.2	54.0	21.2	65.3	49.0
Queue Delay	0.0	0.0	11.8	11.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	45.1	105.9	72.8	4.1	3.5	118.2	54.0	21.2	65.3	49.0
Queue Length 50th (ft)	2	48	~459	~1141	5	0	~196	29	80	5	0
Queue Length 95th (ft)	9	91	#701	#1606	m22	m2	#270	m47	107	16	6
Internal Link Dist (ft)		662			903			649		594	
Turn Bay Length (ft)	100		250	350		300	250				100
Base Capacity (vph)	830	440	579	1340	1545	1303	177	213	480	293	132
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	15	33	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.15	1.12	1.10	0.03	0.01	0.97	0.15	0.70	0.04	0.01

Intersection Summary

- Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis 27: Greenway Drive & Washington Pike

2013 AM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	58	570	1296	49	6	155	28	303	0	10	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.0	3.0	3.0	4.0	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583		3539	1583
Flt Permitted	0.72	1.00	1.00	0.63	1.00	1.00	0.53	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1345	1863	1583	1169	1863	1583	980	1863	1583		3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	64	633	1440	54	7	172	31	337	0	11	1
RTOR Reduction (vph)	0	0	222	0	0	2	0	0	291	0	0	1
Lane Group Flow (vph)	4	64	411	1440	54	5	172	31	46	0	11	0
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Actuated Green, G (s)	30.3	29.2	29.2	117.4	111.3	111.3	17.6	17.6	17.6		2.6	2.6
Effective Green, g (s)	34.3	31.2	30.2	119.4	113.3	112.3	19.6	19.6	19.6		4.6	4.6
Actuated g/C Ratio	0.24	0.22	0.21	0.82	0.78	0.77	0.14	0.14	0.14		0.03	0.03
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	327	401	330	1316	1456	1226	198	252	214		112	50
v/s Ratio Prot	0.00	0.03		c0.64	0.03		c0.07	0.02			0.00	
v/s Ratio Perm	0.00		c0.26	0.26		0.00	c0.05		0.03			0.00
v/c Ratio	0.01	0.16	1.25	1.09	0.04	0.00	0.87	0.12	0.21		0.10	0.00
Uniform Delay, d1	42.4	46.2	57.4	12.5	3.6	3.7	60.4	55.1	55.8		68.2	68.0
Progression Factor	1.00	1.00	1.00	1.44	1.18	1.29	0.95	0.95	2.41		1.00	1.00
Incremental Delay, d2	0.0	0.9	133.8	51.9	0.0	0.0	30.1	0.2	0.5		0.4	0.0
Delay (s)	42.4	47.1	191.2	69.9	4.2	4.8	87.6	52.7	135.2		68.6	68.0
Level of Service	D	D	F	E	A	A	F	D	F		E	E
Approach Delay (s)		177.2			67.3			115.3			68.5	
Approach LOS		F			E			F			E	
Intersection Summary												
HCM Average Control Delay			104.7			HCM Level of Service			F			
HCM Volume to Capacity ratio			1.10									
Actuated Cycle Length (s)			145.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			120.4%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

28: I-640 WB Ent & Washington Pike

2013 AM Existing

Washington & Millertown Pike Study



Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	670	191	360	498	581	1736
v/c Ratio	1.38	0.52	0.55	0.18	0.21	1.42
Control Delay	226.6	16.3	8.3	3.2	1.7	206.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	3.7
Total Delay	226.6	16.3	8.3	3.2	1.7	210.5
Queue Length 50th (ft)	~440	17	40	38	36	~2191
Queue Length 95th (ft)	#567	95	69	49	m14	m#1986
Internal Link Dist (ft)	172			918	649	
Turn Bay Length (ft)			75			100
Base Capacity (vph)	487	366	657	2709	2709	1223
Starvation Cap Reductn	0	0	0	0	0	7
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.38	0.52	0.55	0.18	0.21	1.43

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.













95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis 28: I-640 WB Ent & Washington Pike

2013 AM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔↔	↗	↖	↕			↕	↗
Volume (vph)	0	0	0	31	572	172	324	448	0	0	523	1562
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Util. Factor					0.95	1.00	1.00	0.95			0.95	1.00
Flt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3530	1583	1770	3539			3539	1583
Flt Permitted					1.00	1.00	0.42	1.00			1.00	1.00
Satd. Flow (perm)					3530	1583	778	3539			3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	34	636	191	360	498	0	0	581	1736
RTOR Reduction (vph)	0	0	0	0	0	147	0	0	0	0	0	11
Lane Group Flow (vph)	0	0	0	0	670	44	360	498	0	0	581	1725
Turn Type				Split		Perm	pm+pt					Perm
Protected Phases				4	4		1	2			2	
Permitted Phases						4	2					2
Actuated Green, G (s)					18.0	18.0	112.0	109.0			109.0	109.0
Effective Green, g (s)					20.0	20.0	116.0	111.0			111.0	111.0
Actuated g/C Ratio					0.14	0.14	0.80	0.77			0.77	0.77
Clearance Time (s)					5.0	5.0	5.0	5.0			5.0	5.0
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					487	218	657	2709			2709	1212
v/s Ratio Prot					c0.19		c0.02	0.14			0.16	
v/s Ratio Perm						0.03	0.42					c1.09
v/c Ratio					1.38	0.20	0.55	0.18			0.21	1.42
Uniform Delay, d1					62.5	55.4	4.4	4.6			4.8	17.0
Progression Factor					1.00	1.00	1.40	0.66			0.34	0.51
Incremental Delay, d2					181.7	0.5	0.9	0.1			0.1	192.0
Delay (s)					244.2	55.9	7.0	3.2			1.7	200.6
Level of Service					F	E	A	A			A	F
Approach Delay (s)		0.0			202.4			4.8			150.8	
Approach LOS		A			F			A			F	
Intersection Summary												
HCM Average Control Delay		130.7										
HCM Volume to Capacity ratio		1.38										
Actuated Cycle Length (s)		145.0										
Intersection Capacity Utilization		141.4%										
Analysis Period (min)		15										
c Critical Lane Group												
HCM Level of Service										F		
Sum of lost time (s)										9.0		
ICU Level of Service										H		

Queues

29: South Mall Road & Washington Pike

2013 AM Existing
Washington & Millertown Pike Study

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	150	313	210	501	64	177	386
v/c Ratio	0.60	0.61	0.51	0.21	0.06	0.24	0.16
Control Delay	66.8	61.8	10.8	10.4	2.8	2.2	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.8	61.8	10.8	10.4	2.8	2.2	6.0
Queue Length 50th (ft)	147	154	0	88	0	10	54
Queue Length 95th (ft)	217	196	70	148	21	m41	m94
Internal Link Dist (ft)		260		170			918
Turn Bay Length (ft)	300		300			250	
Base Capacity (vph)	544	1125	665	2379	1085	853	2379
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.28	0.32	0.21	0.06	0.21	0.16

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis 29: South Mall Road & Washington Pike

2013 AM F
Washington & Millertown

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↱	↱					↱↱	↱	↰	↱↱	
Volume (vph)	238	179	189	0	0	0	0	451	58	159	347	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.0					3.0	3.0	3.0	3.0	
Lane Util. Factor	0.91	0.91	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.98	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3330	1583					3539	1583	1770	3539	
Flt Permitted	0.95	0.98	1.00					1.00	1.00	0.44	1.00	
Satd. Flow (perm)	1610	3330	1583					3539	1583	826	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	264	199	210	0	0	0	0	501	64	177	386	0
RTOR Reduction (vph)	0	0	179	0	0	0	0	0	21	0	0	0
Lane Group Flow (vph)	150	313	31	0	0	0	0	501	43	177	386	0
Turn Type	Split		Perm						Perm	pm+pt		
Protected Phases	4	4						2		1	2	
Permitted Phases			4						2	2		
Actuated Green, G (s)	20.4	20.4	20.4					95.4	95.4	109.6	95.4	
Effective Green, g (s)	22.4	22.4	21.4					97.4	97.4	113.6	97.4	
Actuated g/C Ratio	0.15	0.15	0.15					0.67	0.67	0.78	0.67	
Clearance Time (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	249	514	234					2377	1063	753	2377	
v/s Ratio Prot	0.09	c0.09						0.14		c0.03	0.11	
v/s Ratio Perm			0.02						0.03	c0.16		
v/c Ratio	0.60	0.61	0.13					0.21	0.04	0.24	0.16	
Uniform Delay, d1	57.1	57.2	53.7					9.1	8.0	3.9	8.8	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.40	0.60	
Incremental Delay, d2	4.1	2.0	0.3					0.2	0.1	0.2	0.1	
Delay (s)	61.2	59.3	54.0					9.3	8.1	1.7	5.4	
Level of Service	E	E	D					A	A	A	A	
Approach Delay (s)		58.1			0.0			9.2			4.2	
Approach LOS		E			A			A			A	
Intersection Summary												
HCM Average Control Delay			25.9									HCM Level of Service C
HCM Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			145.0							9.0		Sum of lost time (s)
Intersection Capacity Utilization			141.4%							H		ICU Level of Service
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 30: Gas Station & Washington Pike

2013 AM Existing
Washington & Millertown Pike Study

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑			↑↑
Volume (veh/h)	32 ✓	42 ✓	496 ✓	55 ✓	45 ✓	543 ✓
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	36	47	551	61	50	603
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			328			250
pX, platoon unblocked	0.96					
vC, conflicting volume	983	306			612	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	908	306			612	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	93			95	
cM capacity (veh/h)	251	690			963	
Direction Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	82	367	245	251	402	
Volume Left	36	0	0	50	0	
Volume Right	47	0	61	0	0	
cSH	393	1700	1700	963	1700	
Volume to Capacity	0.21	0.22	0.14	0.05	0.24	
Queue Length 95th (ft)	19	0	0	4	0	
Control Delay (s)	16.6	0.0	0.0	2.2	0.0	
Lane LOS	C ✓			A ✓		
Approach Delay (s)	16.6	0.0		0.8		
Approach LOS	C ✓					
Intersection Summary						
Average Delay		1.4				
Intersection Capacity Utilization		46.1%		ICU Level of Service	A	
Analysis Period (min)		15				

Queues

31: Washington Pike & Centerline Drive

2013 AM Existing

Washington & Millertown Pike Study
























Lane Group	NBL	NBT	SBL	SBT	SBR	NEL	NET	SWT	SWR
Lane Group Flow (vph)	38	458	76	459	104	92	62	7	31
v/c Ratio	0.06	0.36	0.13	0.35	0.09	0.37	0.23	0.04	0.16
Control Delay	7.1	7.5	7.4	7.6	2.4	26.8	10.8	24.2	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	7.5	7.4	7.6	2.4	26.8	10.8	24.2	12.3
Queue Length 50th (ft)	3	44	6	44	0	31	3	2	0
Queue Length 95th (ft)	21	176	36	177	20	64	29	12	21
Internal Link Dist (ft)		931		68			572	634	
Turn Bay Length (ft)									
Base Capacity (vph)	586	1289	588	1300	1136	472	472	483	445
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.36	0.13	0.35	0.09	0.19	0.13	0.01	0.07

Intersection Summary

HCM Signalized Intersection Capacity Analysis 31: Washington Pike & Centerline Drive

2013 AM Existing
Washington & Millertown Pike Study

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	34 ✓	385 ✓	27 ✓	68 ✓	413 ✓	94 ✓	83 ✓	8 ✓	48 ✓	4 ✓	3 ✓	28 ✓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.87			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.97	1.00
Satd. Flow (prot)	1770	1844		1770	1863	1583	1770	1624			1811	1583
Flt Permitted	0.45	1.00		0.45	1.00	1.00	0.95	1.00			0.97	1.00
Satd. Flow (perm)	840	1844		842	1863	1583	1770	1624			1811	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	428	30	76	459	104	92	9	53	4	3	31
RTOR Reduction (vph)	0	2	0	0	0	38	0	46	0	0	0	30
Lane Group Flow (vph)	38	456	0	76	459	66	92	16	0	0	7	1
Turn Type	Perm			Perm		Perm	Split			Split		Perm
Protected Phases			2			6	4		4	8		8
Permitted Phases	2			6		6						8
Actuated Green, G (s)	37.8	37.8		37.8	37.8	37.8	7.4	7.4			2.8	2.8
Effective Green, g (s)	37.8	37.8		37.8	37.8	37.8	7.4	7.4			2.8	2.8
Actuated g/C Ratio	0.63	0.63		0.63	0.63	0.63	0.12	0.12			0.05	0.05
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	529	1162		530	1174	997	218	200			85	74
v/s Ratio Prot		c0.25			0.25		c0.05	0.01			c0.00	
v/s Ratio Perm	0.05			0.09		0.04						0.00
v/c Ratio	0.07	0.39		0.14	0.39	0.07	0.42	0.08			0.08	0.02
Uniform Delay, d1	4.3	5.5		4.5	5.4	4.3	24.3	23.3			27.4	27.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2	0.3	1.0		0.6	1.0	0.1	1.3	0.2			0.4	0.1
Delay (s)	4.6	6.5		5.1	6.4	4.4	25.6	23.4			27.8	27.4
Level of Service	A	A		A	A	A	C	C			C	C
Approach Delay (s)		6.3			5.9			24.8			27.5	
Approach LOS		A ✓			A ✓			C ✓			C ✓	

Intersection Summary												
HCM Average Control Delay		8.9		HCM Level of Service		A ✓						
HCM Volume to Capacity ratio		0.38 ✓										
Actuated Cycle Length (s)		60.0		Sum of lost time (s)		12.0						
Intersection Capacity Utilization		46.9%		ICU Level of Service		A						
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 32: Pinehurst Dr. & Washington Pike

2013 AM Existing
Washington & Millertown Pike Study

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Volume (veh/h)	17	1	1	443	462	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	19	1	1	492	513	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)					1011	
Upstream signal (ft)						
pX, platoon unblocked	0.98	0.98	0.98			
vC, conflicting volume	1010	516	518			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	998	491	493			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
IF (s)	3.5	3.3	2.2			
p0 queue free %	93	100	100			
cM capacity (veh/h)	263	564	1044			
Direction/Lane #	EB 1	NB 1	SB 1			
Volume Total	20	493	518			
Volume Left	19	1	0			
Volume Right	1	0	4			
cSH	271	1044	1700			
Volume to Capacity	0.07	0.00	0.30			
Queue Length 95th (ft)	6	0	0			
Control Delay (s)	19.3	0.0	0.0			
Lane LOS	C	A				
Approach Delay (s)	19.3	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay		0.4				
Intersection Capacity Utilization		34.6%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 33: Millertown Pike & Washington Pike

2013 AM Existing
Washington & Millertown Pike Study



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↱		↰	↱
Sign Control		Stop	Stop		Stop	
Volume (vph)	220	161	178	180	128	268
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	244	179	198	200	142	298

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	423	398	440
Volume Left (vph)	244	0	142
Volume Right (vph)	0	200	298
Hadj (s)	0.15	-0.27	-0.31
Departure Headway (s)	6.2	5.9	5.9
Degree Utilization, x	0.73	0.65	0.72
Capacity (veh/h)	553	580	582
Control Delay (s)	24.2	19.1	22.9
Approach Delay (s)	24.2	19.1	22.9
Approach LOS	C	C	C

Intersection Summary			
Delay		22.1	
HCM Level of Service		C	
Intersection Capacity Utilization		74.6%	ICU Level of Service D
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis 39: Millertown Pike & Springhill Road

2013 AM Existing
Washington & Millertown Pike Study

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶			↶	↶	↶
Volume (veh/h)	168 ✓	138 ✓	80 ✓	237 ✓	133 ✓	66 ✓
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	187	153	89	263	148	73
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			340		704	263
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			340		704	263
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		60	91
cM capacity (veh/h)			1219		374	775
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	340	352	221			
Volume Left	0	89	148			
Volume Right	153	0	73			
cSH	1700	1219	451			
Volume to Capacity	0.20	0.07	0.49			
Queue Length 95th (ft)	0	6	66			
Control Delay (s)	0.0	2.6	20.4			
Lane LOS		A ✓	C ✓			
Approach Delay (s)	0.0	2.6	20.4			
Approach LOS			C			
Intersection Summary						
Average Delay		5.9				
Intersection Capacity Utilization		55.6%	ICU Level of Service		B	
Analysis Period (min)		15				

Queues

43: Millertown Pike & Loves Creek Road

2013 AM Existing

Washington & Millertown Pike Study




















Lane Group	NBT	SBL	SBT	SET	NWT
Lane Group Flow (vph)	412	222	1130	48	226
v/c Ratio	0.59	0.30	0.79	0.14	0.83
Control Delay	12.5	5.8	15.7	18.0	75.4
Queue Delay	0.0	0.0	3.1	0.0	0.0
Total Delay	12.5	5.8	18.8	18.0	75.4
Queue Length 50th (ft)	81	52	585	7	188
Queue Length 95th (ft)	197	81	849	44	#298
Internal Link Dist (ft)	835		552	525	539
Turn Bay Length (ft)					
Base Capacity (vph)	698	751	1437	384	309
Starvation Cap Reductn	0	0	207	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.59	0.30	0.92	0.13	0.73

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 43: Millertown Pike & Loves Creek Road

2013 AM Existing
Washington & Millertown Pike Study

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	62	305	4	200	1017	0	1	7	35	121	7	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0		3.0	3.0			3.0			3.0	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frt		1.00		1.00	1.00			0.89			0.95	
Flt Protected		0.99		0.95	1.00			1.00			0.97	
Satd. Flow (prot)		1845		1770	1863			1657			1718	
Flt Permitted		0.54		0.49	1.00			1.00			0.78	
Satd. Flow (perm)		1005		912	1863			1651			1375	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	69	339	4	222	1130	0	1	8	39	134	8	84
RTOR Reduction (vph)	0	0	0	0	0	0	0	32	0	0	15	0
Lane Group Flow (vph)	0	412	0	222	1130	0	0	16	0	0	211	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		98.8		109.8	109.8			25.2			25.2	
Effective Green, g (s)		100.8		111.8	111.8			27.2			27.2	
Actuated g/C Ratio		0.70		0.77	0.77			0.19			0.19	
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		699		751	1436			310			258	
v/s Ratio Prot				0.02	c0.61							
v/s Ratio Perm		0.41		0.21				0.01			c0.15	
v/c Ratio		0.59		0.30	0.79			0.05			0.82	
Uniform Delay, d1		11.4		5.0	9.7			48.3			56.5	
Progression Factor		0.71		1.00	1.00			1.00			1.00	
Incremental Delay, d2		3.5		0.2	4.4			0.1			17.7	
Delay (s)		11.6		5.2	14.1			48.4			74.2	
Level of Service		B		A	B			D			E	
Approach Delay (s)		11.6			12.6			48.4			74.2	
Approach LOS		B	✓		B	✓		D	✓		E	✓

Intersection Summary

HCM Average Control Delay	20.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79 ✓		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	94.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues

44: Knoxville Ctr. Ent/Exit & Millertown Pike

2013 AM Existing
Washington & Millertown Pike Study
























Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	39	41	106	108	50	52	387	127	102	1158	77
v/c Ratio	0.30	0.15	0.55	0.56	0.14	0.15	0.32	0.10	0.38	0.48	0.06
Control Delay	68.6	15.4	71.0	71.1	8.7	5.2	11.6	1.8	77.6	7.8	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Total Delay	68.6	15.4	71.0	71.1	8.7	5.2	12.0	1.8	77.6	7.8	0.3
Queue Length 50th (ft)	36	0	101	103	0	14	165	0	51	159	1
Queue Length 95th (ft)	74	35	163	166	28	15	216	32	m62	268	m1
Internal Link Dist (ft)	752			313			473			835	
Turn Bay Length (ft)			300		300			200	200		200
Base Capacity (vph)	154	277	290	293	355	349	1214	1357	294	2430	1236
Starvation Cap Reductn	0	0	0	0	0	0	434	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.15	0.37	0.37	0.14	0.15	0.50	0.09	0.35	0.48	0.06

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis 44: Knoxville Ctr. Ent/Exit & Millertown Pike

2013 AM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21 ✓	14 ✓	37 ✓	173 ✓	20 ✓	45 ✓	47 ✓	348 ✓	114 ✓	92 ✓	1042 ✓	69 ✓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.97	0.95	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1809	1583	1681	1702	1583	1770	1863	1583	3433	3539	1583
Flt Permitted		0.97	1.00	0.95	0.96	1.00	0.20	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1809	1583	1681	1702	1583	375	1863	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	16	41	192	22	50	52	387	127	102	1158	77
RTOR Reduction (vph)	0	0	36	0	0	40	0	0	30	0	0	19
Lane Group Flow (vph)	0	39	5	106	108	10	52	387	97	102	1158	58
Turn Type	Split	pm+ov		Split	pm+ov		pm+pt	pm+ov		Prot	pm+ov	
Protected Phases	4	4	5	3	3	1	5	2	3	1	6	4
Permitted Phases		4			3		2	2			6	
Actuated Green, G (s)		8.6	14.0	14.5	14.5	24.0	97.8	92.4	106.9	9.5	96.5	105.1
Effective Green, g (s)		10.6	18.0	16.5	16.5	28.0	101.8	94.4	110.9	11.5	98.5	109.1
Actuated g/C Ratio		0.07	0.12	0.11	0.11	0.19	0.70	0.65	0.76	0.08	0.68	0.75
Clearance Time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		132	229	191	194	306	334	1213	1243	272	2404	1191
v/s Ratio Prot		c0.02	0.00	0.06	c0.06	0.00	0.01	0.21	0.01	c0.03	c0.33	0.00
v/s Ratio Perm			0.00			0.00	0.10		0.05			0.03
v/c Ratio		0.30	0.02	0.55	0.56	0.03	0.16	0.32	0.08	0.38	0.48	0.05
Uniform Delay, d1		63.7	55.8	60.8	60.8	47.5	7.7	11.1	4.3	63.3	11.1	4.6
Progression Factor		1.00	1.00	1.00	1.00	1.00	0.73	0.88	2.33	1.19	0.62	0.37
Incremental Delay, d2		1.3	0.0	3.5	3.4	0.0	0.2	0.7	0.0	0.6	0.5	0.0
Delay (s)		64.9	55.8	64.2	64.2	47.5	5.8	10.4	10.0	75.9	7.3	1.7
Level of Service		E	E	E	E	D	A	B	A	E	A	A
Approach Delay (s)		60.2			61.1			9.9			12.2	
Approach LOS		E ✓			E ✓			A ✓			✓ B	
Intersection Summary												
HCM Average Control Delay		19.1		HCM Level of Service				B ✓				
HCM Volume to Capacity ratio		0.47 ✓										
Actuated Cycle Length (s)		145.0		Sum of lost time (s)				9.0				
Intersection Capacity Utilization		54.1%		ICU Level of Service				A				
Analysis Period (min)		15										
c Critical Lane Group												

Queues

45: I-640 WB Ent & Millertown Pike

2013 AM Existing
Washington & Millertown Pike Study

Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	290	320	18	276	780	416
v/c Ratio	0.59	0.64	0.03	0.10	0.27	0.30
Control Delay	63.1	11.7	0.6	0.4	3.3	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.3
Total Delay	63.1	11.7	0.6	0.4	3.6	1.2
Queue Length 50th (ft)	136	0	0	3	61	0
Queue Length 95th (ft)	180	89	1	5	120	24
Internal Link Dist (ft)	601			683	473	
Turn Bay Length (ft)		600	300			
Base Capacity (vph)	1417	834	521	2897	2897	1371
Starvation Cap Reductn	0	0	0	0	1219	445
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.38	0.03	0.10	0.46	0.45
Intersection Summary						

HCM Signalized Intersection Capacity Analysis 45: I-640 WB Ent & Millertown Pike

201:
Washington & N



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR		
Lane Configurations					↑↑	↑	↓	↑↑			
Volume (vph)	0	0	0	85	176	288	16	248	0	0	T 702 374
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.0	3.0	3.0	3.0			3.0 3.0
Lane Util. Factor					0.95	1.00	1.00	0.95			0.95 1.00
Frt					1.00	0.85	1.00	1.00			1.00 0.85
Flt Protected					0.98	1.00	0.95	1.00			1.00 1.00
Satd. Flow (prot)					3483	1583	1770	3539			3539 1583
Flt Permitted					0.98	1.00	0.34	1.00			1.00 1.00
Satd. Flow (perm)					3483	1583	637	3539			3539 1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90 0.90
Adj. Flow (vph)	0	0	0	94	196	320	18	276	0	0	780 416
RTOR Reduction (vph)	0	0	0	0	0	275	0	0	0	0	0 75
Lane Group Flow (vph)	0	0	0	0	290	45	18	276	0	0	780 341
Turn Type				Perm		Perm	Perm				Perm
Protected Phases					4			2			2
Permitted Phases				4		4	2				2 2
Actuated Green, G (s)					18.3	18.3	116.7	116.7			116.7 116.7
Effective Green, g (s)					20.3	20.3	118.7	118.7			118.7 118.7
Actuated g/C Ratio					0.14	0.14	0.82	0.82			0.82 0.82
Clearance Time (s)					5.0	5.0	5.0	5.0			5.0 5.0
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0 3.0
Lane Grp Cap (vph)					488	222	521	2897			2897 1296
v/s Ratio Prot								0.08			0.22
v/s Ratio Perm					0.08	0.03	0.03				0.22
v/c Ratio					0.59	0.20	0.03	0.10			0.27 0.26
Uniform Delay, d1					58.5	55.2	2.5	2.6			3.1 3.0
Progression Factor					1.00	1.00	0.13	0.13			0.94 1.29
Incremental Delay, d2					1.9	0.5	0.1	0.1			0.2 0.4
Delay (s)					60.4	55.6	0.4	0.4			3.1 4.4
Level of Service					E	E	A	A			A A
Approach Delay (s)		0.0			57.9			0.4			3.5
Approach LOS		A			E			A			A

Intersection Summary

HCM Average Control Delay	18.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

46: South Mall Road & Millertown Pike

2013 AM Existing
Washington & Millertown Pike Study

Lane Group	EBL	EBT	EBR	NET	NER	SWL	SWT
Lane Group Flow (vph)	122	179	41	131	92	577	268
v/c Ratio	0.47	0.66	0.15	0.10	0.14	0.48	0.20
Control Delay	61.8	69.5	15.2	34.3	8.3	2.8	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Delay	61.8	69.5	15.2	34.3	8.3	2.9	28.0
Queue Length 50th (ft)	107	162	0	42	0	3	87
Queue Length 95th (ft)	167	234	34	82	47	86	130
Internal Link Dist (ft)		347		1273			683
Turn Bay Length (ft)			300		300	300	
Base Capacity (vph)	403	424	392	1331	653	1271	1331
Starvation Cap Reductn	0	0	0	0	0	80	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.42	0.10	0.10	0.14	0.48	0.20

Intersection Summary

HCM Signalized Intersection Capacity Analysis 46: South Mall Road & Millertown Pike

2013 AM Existing
Washington & Millertown Pike Study

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	110	161	37	0	0	0	0	118	83	519	241	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583					3539	1583	1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.66	1.00	
Satd. Flow (perm)	1770	1863	1583					3539	1583	1232	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	122	179	41	0	0	0	0	131	92	577	268	0
RTOR Reduction (vph)	0	0	35	0	0	0	0	0	57	0	0	0
Lane Group Flow (vph)	122	179	6	0	0	0	0	131	35	577	268	0
Turn Type	Perm		Perm						Perm	pm+pt		
Protected Phases		4						2		1	2	
Permitted Phases	4		4						2	2		
Actuated Green, G (s)	19.2	19.2	19.2					52.5	52.5	110.8	52.5	
Effective Green, g (s)	21.2	21.2	21.2					54.5	54.5	114.8	54.5	
Actuated g/C Ratio	0.15	0.15	0.15					0.38	0.38	0.79	0.38	
Clearance Time (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	259	272	231					1330	595	1199	1330	
v/s Ratio Prot		c0.10						0.04		c0.20	0.08	
v/s Ratio Perm	0.07		0.00						0.02	c0.18		
v/c Ratio	0.47	0.66	0.03					0.10	0.06	0.48	0.20	
Uniform Delay, d1	56.8	58.5	53.1					29.3	28.9	4.7	30.6	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.34	0.80	
Incremental Delay, d2	1.4	5.7	0.0					0.1	0.2	0.3	0.3	
Delay (s)	58.1	64.1	53.1					29.5	29.1	1.9	24.8	
Level of Service	E	E	D					C	C	A	C	
Approach Delay (s)		60.7			0.0			29.3			9.2	
Approach LOS		E ✓			A			C ✓			✓ A	
Intersection Summary												
HCM Average Control Delay		24.8										
HCM Volume to Capacity ratio		0.51										
Actuated Cycle Length (s)		145.0							9.0			
Intersection Capacity Utilization		52.4%							A			
Analysis Period (min)		15										
c Critical Lane Group												

Queues

47: Millertown Pike & Mill Road

2013 AM Existing

Washington & Millertown Pike Study



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	259	127	713	38	819
v/c Ratio	1.10	0.12	0.67	0.06	1.10
Control Delay	114.9	11.2	20.2	22.6	87.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	114.9	11.2	20.2	22.6	87.4
Queue Length 50th (ft)	~209	39	328	17	~540
Queue Length 95th (ft)	#371	67	464	40	#781
Internal Link Dist (ft)		212	1004	276	
Turn Bay Length (ft)					
Base Capacity (vph)	235	1067	1057	660	746
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.10	0.12	0.67	0.06	1.10

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 47: Millertown Pike & Mill Road

2013 AM Existing
Washington & Millertown Pike Study



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	←	↑	↑		←	↑
Volume (vph)	233	114	587	55	34	737
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1863	1841		1770	1583
Flt Permitted	0.22	1.00	1.00		0.95	1.00
Satd. Flow (perm)	410	1863	1841		1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	259	127	652	61	38	819
RTOR Reduction (vph)	0	0	3	0	0	156
Lane Group Flow (vph)	259	127	710	0	38	663
Turn Type	Perm				Perm	
Protected Phases		4	8		6	
Permitted Phases	4					6
Actuated Green, G (s)	62.0	62.0	62.0		40.0	40.0
Effective Green, g (s)	63.0	63.0	63.0		41.0	41.0
Actuated g/C Ratio	0.57	0.57	0.57		0.37	0.37
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	235	1067	1054		660	590
v/s Ratio Prot		0.07	0.39		0.02	
v/s Ratio Perm	c0.63					c0.42
v/c Ratio	1.10	0.12	0.67		0.06	1.12
Uniform Delay, d1	23.5	10.8	16.3		22.1	34.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	88.8	0.1	1.7		0.2	76.3
Delay (s)	112.3	10.8	18.1		22.3	110.8
Level of Service	F	B	B		C	F
Approach Delay (s)		78.9	18.1		106.8	
Approach LOS		E	B		F	

Intersection Summary			
HCM Average Control Delay	69.0	HCM Level of Service	E
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues

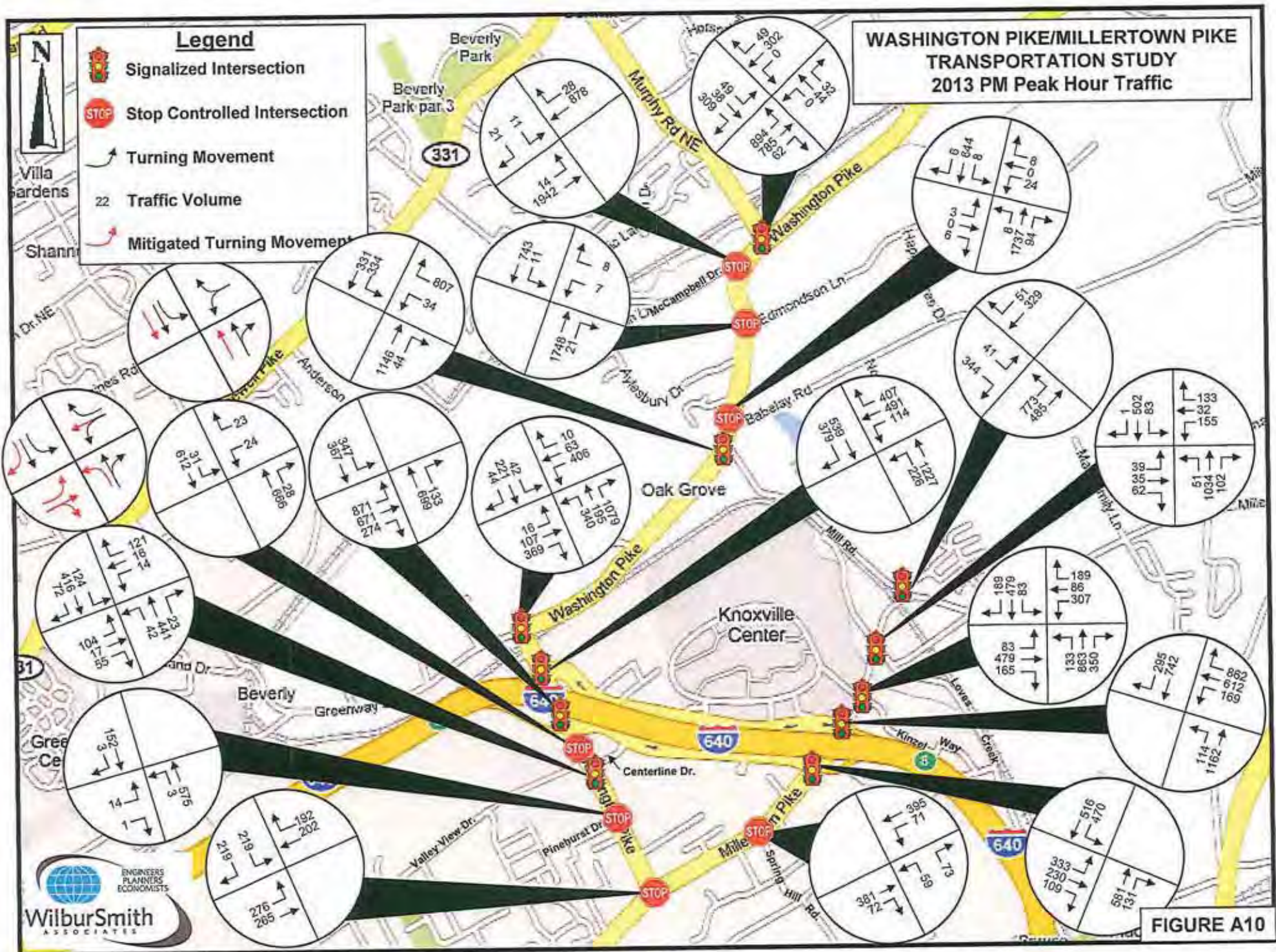
22: Murphy Road & Washington Pike

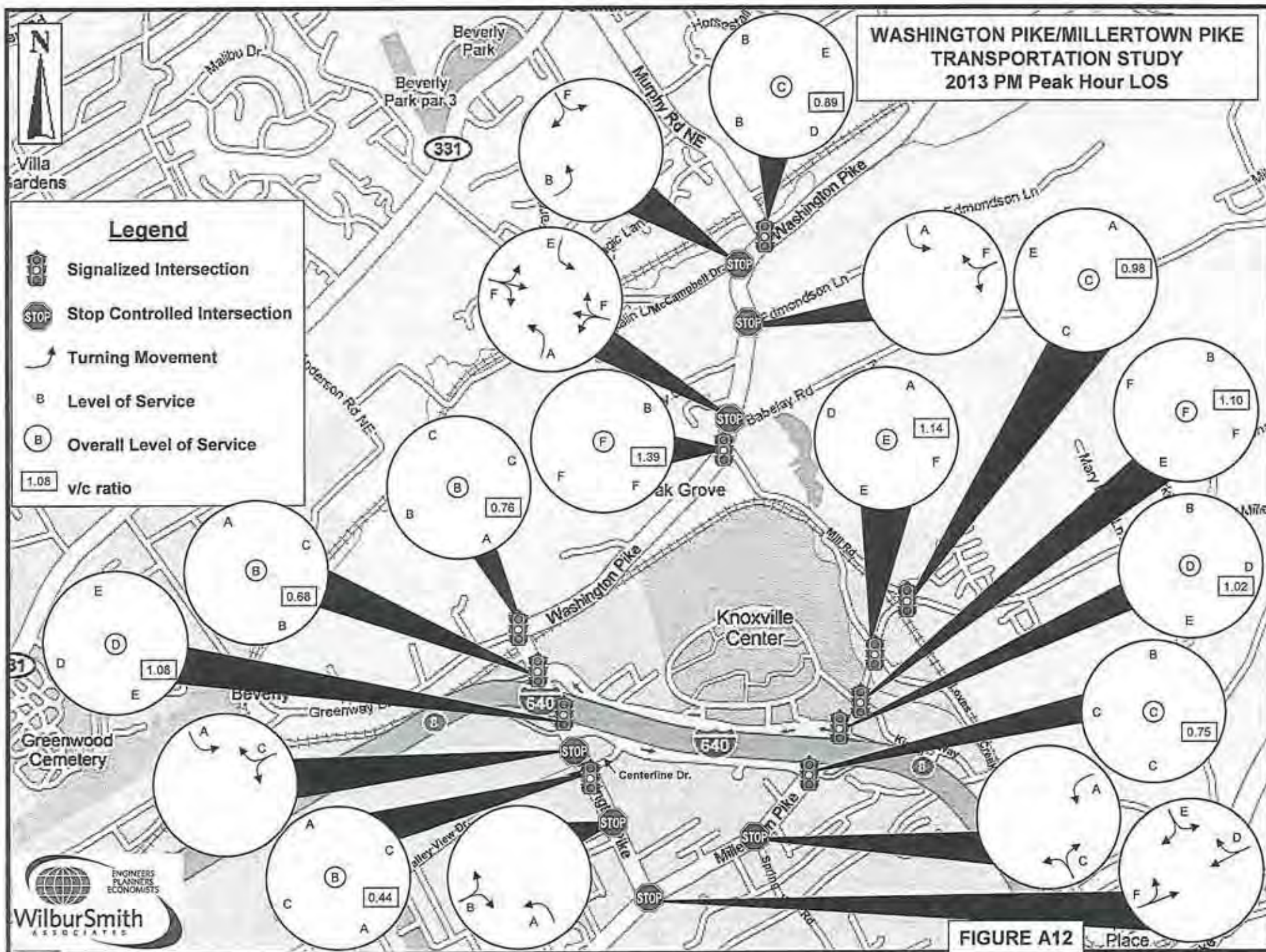
2013 AM Existing
Washington & Millertown Pike Study

Lane Group	NBT	SBT	SBR	NEL	NET	SWT
Lane Group Flow (vph)	53	145	1300	280	295	1229
v/c Ratio	0.24	0.95	1.58	0.39	0.19	1.48
Control Delay	30.1	123.2	293.4	21.9	2.0	254.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.1	123.2	293.4	21.9	2.0	254.1
Queue Length 50th (ft)	16	138	~1736	128	35	~1604
Queue Length 95th (ft)	61	#281	#2007	219	45	#1872
Internal Link Dist (ft)	209	5075			165	483
Turn Bay Length (ft)						
Base Capacity (vph)	217	153	824	711	1553	830
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.95	1.58	0.39	0.19	1.48

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.





Queues

22: Murphy Road & Washington Pike

2013 PM Existing

Washington & Millertown Pike Study





















Lane Group	NBT	SBT	SBR	NEL	NET	SWT
Lane Group Flow (vph)	85	96	343	993	941	390
v/c Ratio	0.37	0.60	0.29	0.94	0.62	0.91
Control Delay	33.5	59.6	3.6	35.1	6.2	66.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	59.6	3.6	35.1	6.2	66.4
Queue Length 50th (ft)	35	62	38	511	171	250
Queue Length 95th (ft)	81	115	68	#917	353	#461
Internal Link Dist (ft)	209	5075			156	483
Turn Bay Length (ft)						
Base Capacity (vph)	328	239	1168	1059	1508	427
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.40	0.29	0.94	0.62	0.91

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 22: Murphy Road & Washington Pike

2013 PM Existing
Washington & Millertown Pike Study

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0 ✓	44✓	32✓	49✓	38✓	309✓	894✓	785✓	62 ✓	0	302✓	49 ✓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	3.0	3.0	3.0			3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00			1.00	
Frt		0.94			1.00	0.85	1.00	0.99			0.98	
Flt Protected		1.00			0.97	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		1756			1812	1583	1770	1842			1828	
Flt Permitted		1.00			0.74	1.00	0.15	1.00			1.00	
Satd. Flow (perm)		1756			1382	1583	276	1842			1828	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	49	36	54	42	343	993	872	69	0	336	54
RTOR Reduction (vph)	0	26	0	0	0	46	0	2	0	0	5	0
Lane Group Flow (vph)	0	59	0	0	96	297	993	939	0	0	385	0
Turn Type	Perm			Perm			pm+ov		pm+pt		Perm	
Protected Phases	2						6		7		4	
Permitted Phases	2			6			6		4		8	
Actuated Green, G (s)	12.0						12.0		69.1		84.1	
Effective Green, g (s)	12.0						12.0		71.1		85.1	
Actuated g/C Ratio	0.12						0.12		0.68		0.82	
Clearance Time (s)	4.0						4.0		4.0		4.0	
Vehicle Extension (s)	3.0						3.0		3.0		3.0	
Lane Grp Cap (vph)	202						159		1127		1059	
v/s Ratio Prot	0.03								0.15		c0.52	
v/s Ratio Perm							c0.07		0.04		c0.24	
v/c Ratio	0.29						0.60		0.26		0.94	
Uniform Delay, d1	42.2						43.8		6.4		17.7	
Progression Factor	1.00						1.00		1.00		1.00	
Incremental Delay, d2	0.8						6.3		0.1		14.8	
Delay (s)	43.0						50.1		6.5		32.6	
Level of Service	D						D		A		C	
Approach Delay (s)	43.0						16.0				18.8	
Approach LOS	D ✓						B ✓				B ✓	
Intersection Summary												
HCM Average Control Delay	25.2			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.89✓											
Actuated Cycle Length (s)	104.1			Sum of lost time (s)			7.0					
Intersection Capacity Utilization	89.8%			ICU Level of Service			E					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 23: Washington Pike & McCampbell Drive

2013 PM Existing
Washington & Millertown Pike Study



Movement	SBR	SBR2	SEL	SER	NEL2	NEL
Lane Configurations						
Volume (veh/h)	878 ✓	28 ✓	11 ✓	21 ✓	14 ✓	1942 ✓
Sign Control	Free		Stop			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	976	31	12	23	16	2158
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					None
Median storage veh						
Upstream signal (ft)	236					
pX, platoon unblocked			0.80	0.80	0.80	
vC, conflicting volume			3180	991	1007	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			3600	864	883	
tC, single (s)			6.4	6.2	4.1	
tC, 2 stage (s)						
tF (s)			3.5	3.3	2.2	
p0 queue free %			0	92	97	
cM capacity (veh/h)			5	283	613	

Direction, Lane #	SB 1	SE 1	NE 1	NE 2
Volume Total	1007	36	16	2158
Volume Left	0	12	16	0
Volume Right	31	23	0	0
cSH	1700	13	613	1700
Volume to Capacity	0.59	2.68	0.03	1.27
Queue Length 95th (ft)	0	132	2	0
Control Delay (s)	0.0	1338.1	11.0	0.0
Lane LOS		F ✓	B ✓	
Approach Delay (s)	0.0	1338.1	0.1	
Approach LOS		F		

Intersection Summary			
Average Delay		14.8	
Intersection Capacity Utilization		117.6%	ICU Level of Service H
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis 24: Edmonds Road & Washington Pike

2013 PM Existing
Washington & Millertown Pike Study

EDMONDS ROAD LANE





















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	7	8	1748	21	11	743
Volume (veh/h)	7	8	1748	21	11	743
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	8	9	1942	23	12	826
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2804	1954			1966	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2804	1954			1966	
iC, single (s)	6.4	6.2			4.1	
iC, 2 stage (s)						
iF (s)	3.5	3.3			2.2	
p0 queue free %	60	89			96	
cM capacity (veh/h)	19	80			295	

Direction / Lane #	WB 1	NB 1	SB 1
Volume Total	17	1966	838
Volume Left	8	0	12
Volume Right	9	23	0
cSH	32	1700	295
Volume to Capacity	0.51	1.16	0.04
Queue Length 95th (ft)	42	0	3
Control Delay (s)	200.1	0.0	1.7
Lane LOS	F		A
Approach Delay (s)	200.1	0.0	1.7
Approach LOS	F		

Intersection Summary		
Average Delay	1.7	
Intersection Capacity Utilization	103.3%	ICU Level of Service G
Analysis Period (min)	15	

HCM Unsignalized Intersection Capacity Analysis 25: Babelay Road & Washington Pike

2013 PM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3 ✓	0 ✓	6 ✓	24 ✓	0 ✓	8 ✓	8 ✓	1737 ✓	94 ✓	8 ✓	644 ✓	6 ✓
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	0	7	27	0	9	9	1930	104	9	716	7
Pedestrians								3				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								4.0				
Percent Blockage								0				
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								687				
pX, platoon unblocked	0.51	0.51		0.51	0.51	0.51				0.51		
vC, conflicting volume	2693	2789	722	2743	2740	1982	722			2034		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3829	4016	722	3926	3920	2441	722			2543		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	98	0	100	57	99			90		
cM capacity (veh/h)	1	1	426	1	1	21	880			90		
Direction/Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	10	36	9	2034	9	722						
Volume Left	3	27	9	0	9	0						
Volume Right	7	9	0	104	0	7						
cSH	2	1	880	1700	90	1700						
Volume to Capacity	6.21	34.38	0.01	1.20	0.10	0.42						
Queue Length 95th (ft)	Err	Err	1	0	8	0						
Control Delay (s)	Err	Err	9.1	0.0	49.5	0.0						
Lane LOS	F ✓	F ✓	A ✓		E ✓							
Approach Delay (s)	Err	Err	0.0		0.6							
Approach LOS	F	F										
Intersection Summary												
Average Delay	161.7											
Intersection Capacity Utilization	108.1%											
Analysis Period (min)	15											
ICU Level of Service	G											

Queues
26: Mill Road & Washington Pike

2013 PM Existing
Washington & Millertown Pike Study

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	38	897	1322	371	368
v/c Ratio	0.27	1.40	1.37	0.60	0.22
Control Delay	51.4	215.5	205.5	28.5	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	51.4	215.5	205.5	28.5	2.0
Queue Length 50th (ft)	26	~836	~1242	176	41
Queue Length 95th (ft)	58	#1082	#1522	#297	73
Internal Link Dist (ft)	913		316		607
Turn Bay Length (ft)					
Base Capacity (vph)	274	643	962	617	1659
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	1.40	1.37	0.60	0.22

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 26: Mill Road & Washington Pike

2013 PM Existing
Washington & Millertown Pike Study



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	34 ✓	807 ✓	1146 ✓	44 ✓	334 ✓	331 ✓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	1853		1770	1863
Flt Permitted	0.95	1.00	1.00		0.07	1.00
Satd. Flow (perm)	1770	1583	1853		125	1863
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	897	1273	49	371	368
RTOR Reduction (vph)	0	25	2	0	0	0
Lane Group Flow (vph)	38	872	1320	0	371	368
Turn Type	pm+ov			pm+pt		
Protected Phases	4	1	2		1	6
Permitted Phases		4			6	
Actuated Green, G (s)	5.4	38.4	53.6		92.6	92.6
Effective Green, g (s)	6.4	40.4	54.6		93.6	93.6
Actuated g/C Ratio	0.06	0.37	0.50		0.85	0.85
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	103	653	920		615	1585
v/s Ratio Prot	0.02	c0.41	c0.71		0.19	0.20
v/s Ratio Perm		0.14			0.33	
v/c Ratio	0.37	1.33	1.44		0.60	0.23
Uniform Delay, d1	49.9	34.8	27.7		26.7	1.5
Progression Factor	1.00	1.00	1.47		1.00	1.00
Incremental Delay, d2	2.2	161.0	200.3		1.7	0.3
Delay (s)	52.1	195.8	240.9		28.3	1.9
Level of Service	D	F	F		C	A
Approach Delay (s)	190.0		240.9			15.2
Approach LOS	F ✓		F ✓			B ✓

Intersection Summary			
HCM Average Control Delay	169.3	HCM Level of Service	✓ F
HCM Volume to Capacity ratio	1.39 ✓		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	121.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Queues

27: Greenway Drive & Washington Pike

2013 PM Existing
Washington & Millertown Pike Study

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	18	119	410	451	70	11	378	217	1199	47	246	49
v/c Ratio	0.06	0.50	0.26	0.72	0.10	0.01	0.60	0.28	0.76	0.10	0.24	0.03
Control Delay	19.4	51.3	0.4	30.7	20.3	0.0	14.6	17.6	14.5	17.4	33.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.4	51.3	0.4	30.7	20.3	0.0	14.6	17.6	14.5	17.4	33.7	0.0
Queue Length 50th (ft)	7	79	0	209	26	0	165	118	496	17	72	0
Queue Length 95th (ft)	19	134	0	312	59	0	278	m201	518	39	118	0
Internal Link Dist (ft)		662			903			649			594	
Turn Bay Length (ft)	100		250	350		300	250			150		100
Base Capacity (vph)	460	305	1583	639	734	1583	661	779	1583	618	1008	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.39	0.26	0.71	0.10	0.01	0.57	0.28	0.76	0.08	0.24	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis 27: Greenway Drive & Washington Pike

2013 PM Existing
Washington & Millertown Pike Study

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16 ✓	107 ✓	369 ✓	406 ✓	63 ✓	10 ✓	340 ✓	195 ✓	1079 ✓	42 ✓	221 ✓	44 ✓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	3.0	3.0	2.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	3539	1583
Flt Permitted	0.71	1.00	1.00	0.46	1.00	1.00	0.48	1.00	1.00	0.62	1.00	1.00
Satd. Flow (perm)	1325	1863	1583	853	1863	1583	891	1863	1583	1160	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	119	410	451	70	11	378	217	1199	47	246	49
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	18	119	410	451	70	11	378	217	1199	47	246	49
Turn Type	pm+pt		Free	pm+pt		Free	pm+pt		Free	pm+pt		Free
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		Free	2		Free	4		Free	8		Free
Actuated Green, G (s)	17.8	15.1	110.0	49.0	41.3	110.0	51.0	40.0	110.0	32.4	26.4	110.0
Effective Green, g (s)	21.8	17.1	110.0	51.0	43.3	110.0	53.0	42.0	110.0	36.4	28.4	110.0
Actuated g/C Ratio	0.20	0.16	1.00	0.46	0.39	1.00	0.48	0.38	1.00	0.33	0.26	1.00
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	282	290	1583	653	733	1583	602	711	1583	428	914	1583
v/s Ratio Prot	0.00	0.06		0.19	0.04		0.12	0.12		0.01	0.07	
v/s Ratio Perm	0.01		0.26	0.13		0.01	0.18		0.76	0.03		0.03
v/c Ratio	0.06	0.41	0.26	0.69	0.10	0.01	0.63	0.31	0.76	0.11	0.27	0.03
Uniform Delay, d1	35.7	41.9	0.0	21.5	21.0	0.0	19.1	23.8	0.0	25.3	32.5	0.0
Progression Factor	1.00	1.00	1.00	1.04	0.93	1.00	0.61	0.70	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.9	0.4	3.1	0.1	0.0	1.7	0.9	2.8	0.1	0.7	0.0
Delay (s)	35.8	42.8	0.4	25.5	19.5	0.0	13.3	17.7	2.8	25.4	33.3	0.0
Level of Service	D	D	A	C	B	A	B	B	A	C	C	A
Approach Delay (s)		10.8			24.2			6.8			27.4	
Approach LOS		B ✓			C ✓			A ✓			C ✓	

Intersection Summary												
HCM Average Control Delay		12.6		HCM Level of Service		✓ B						
HCM Volume to Capacity ratio		0.76 ✓										
Actuated Cycle Length (s)		110.0		Sum of lost time (s)		0.0						
Intersection Capacity Utilization		64.1%		ICU Level of Service		C						
Analysis Period (min)		15										
c Critical Lane Group												

Queues
28: I-640 WB Ent & Washington Pike

2013 PM Existing
Washington & Millertown Pike Study















Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	673	452	251	1363	599	421
v/c Ratio	0.77	0.29	0.43	0.68	0.30	0.27
Control Delay	44.7	0.5	1.9	12.5	11.9	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.7	0.5	1.9	12.5	11.9	0.4
Queue Length 50th (ft)	228	0	23	342	116	0
Queue Length 95th (ft)	292	0	m26	m334	150	0
Internal Link Dist (ft)	172			918	649	
Turn Bay Length (ft)			75			100
Base Capacity (vph)	956	1583	591	1991	1991	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.29	0.42	0.68	0.30	0.27

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis 28: I-640 WB Ent & Washington Pike

2013 PM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑	↑	↑↑			↑↑	↑
Volume (vph)	0	0	0	114 ✓	491 ✓	407 ✓	226 ✓	1227 ✓	0	0	539 ✓	379 ✓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.0	2.0	3.0	3.0			3.0	2.0
Lane Util. Factor					0.95	1.00	1.00	0.95			0.95	1.00
Flt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3506	1583	1770	3539			3539	1583
Flt Permitted					0.99	1.00	0.38	1.00			1.00	1.00
Satd. Flow (perm)					3506	1583	700	3539			3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	127	546	452	251	1363	0	0	599	421
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	673	452	251	1363	0	0	599	421
Turn Type				Split		Free	pm+pt					Free
Protected Phases				4	4		1	2			2	
Permitted Phases						Free	2					Free
Actuated Green, G (s)					25.4	110.0	69.6	59.9			59.9	110.0
Effective Green, g (s)					27.4	110.0	73.6	61.9			61.9	110.0
Actuated g/C Ratio					0.25	1.00	0.67	0.56			0.56	1.00
Clearance Time (s)					5.0		5.0	5.0			5.0	
Vehicle Extension (s)					3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)					873	1583	582	1991			1991	1583
v/s Ratio Prot					c0.19		c0.05	c0.39			0.17	
v/s Ratio Perm						0.29	0.24					0.27
v/c Ratio					0.77	0.29	0.43	0.68			0.30	0.27
Uniform Delay, d1					38.4	0.0	7.4	17.1			12.7	0.0
Progression Factor					1.00	1.00	0.26	0.68			0.87	1.00
Incremental Delay, d2					4.3	0.5	0.0	0.2			0.4	0.4
Delay (s)					42.6	0.5	2.0	11.8			11.4	0.4
Level of Service					D	A	A	B			B	A
Approach Delay (s)		0.0			25.7			10.3			6.8	
Approach LOS		A			C ✓			B ✓			✓ A	
Intersection Summary												
HCM Average Control Delay			14.0									
HCM Volume to Capacity ratio			0.68 ✓									
Actuated Cycle Length (s)			110.0									
Intersection Capacity Utilization			93.8%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues
29: South Mall Road & Washington Pike

2013 PM Existing
Washington & Millertown Pike Study






















Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	968	746	304	777	148	386	408
v/c Ratio	1.06	0.41	0.32	0.97	0.09	1.12	0.51
Control Delay	72.8	17.0	2.6	67.2	0.1	111.6	40.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.8	17.0	2.6	67.2	0.1	111.6	40.6
Queue Length 50th (ft)	~750	162	0	287	0	~266	151
Queue Length 95th (ft)	#996	208	42	#413	0	#462	203
Internal Link Dist (ft)		260		170			918
Turn Bay Length (ft)	300		300		200	250	
Base Capacity (vph)	917	1834	955	804	1583	344	804
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.06	0.41	0.32	0.97	0.09	1.12	0.51

Intersection Summary

- Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis 29: South Mall Road & Washington Pike

2013 PM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	871✓	671✓	274✓	0	0	0	0	699✓	133✓	347	367	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0					4.0	2.0	3.0	4.0	
Lane Util. Factor	1.00	0.95	1.00					0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583					3539	1583	1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.16	1.00	
Satd. Flow (perm)	1770	3539	1583					3539	1583	298	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	968	746	304	0	0	0	0	777	148	386	408	0
RTOR Reduction (vph)	0	0	149	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	968	746	155	0	0	0	0	777	148	386	408	0
Turn Type	Perm		Perm						Free		pm+pt	
Protected Phases			4						2		1	
Permitted Phases	4		4						Free		2	
Actuated Green, G (s)	55.0	55.0	55.0					23.0	110.0	38.0	23.0	
Effective Green, g (s)	57.0	57.0	56.0					25.0	110.0	42.0	25.0	
Actuated g/C Ratio	0.52	0.52	0.51					0.23	1.00	0.38	0.23	
Clearance Time (s)	6.0	6.0	6.0					6.0		5.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	917	1834	806					804	1583	341	804	
v/s Ratio Prot		0.21						0.22		c0.17	0.12	
v/s Ratio Perm	c0.55		0.10						0.09	c0.26		
v/c Ratio	1.06	0.41	0.19					0.97	0.09	1.13	0.51	
Uniform Delay, d1	26.5	16.2	14.7					42.1	0.0	30.9	37.1	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.87	1.03	
Incremental Delay, d2	45.5	0.1	0.1					24.5	0.1	88.5	2.2	
Delay (s)	72.0	16.3	14.8					66.6	0.1	115.3	40.3	
Level of Service	E	B	B					E	A	F	D	
Approach Delay (s)		42.8		0.0				56.0			76.8	
Approach LOS		D ✓		A				✓E			✓E	
Intersection Summary												
HCM Average Control Delay			53.3	HCM Level of Service						D ✓		
HCM Volume to Capacity ratio			1.08✓									
Actuated Cycle Length (s)			110.0	Sum of lost time (s)				10.0				
Intersection Capacity Utilization			92.5%	ICU Level of Service				F				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 30: Gas Station & Washington Pike

2013 PM Existing
Washington & Millertown Pike Study



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑			↑↑
Volume (veh/h)	24 ✓	232 ✓	666 ✓	28 ✓	31 ✓	612 ✓
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	27	258	740	31	34	680
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			328			250
pX, platoon unblocked	0.90					
vC, conflicting volume	1164	386			771	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	967	386			771	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	58			96	
cM capacity (veh/h)	218	613			839	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	284	493	278	261	453
Volume Left	27	0	0	34	0
Volume Right	258	0	31	0	0
cSH	524	1700	1700	839	1700
Volume to Capacity	0.54	0.29	0.16	0.04	0.27
Queue Length 95th (ft)	80	0	0	3	0
Control Delay (s)	19.7	0.0	0.0	1.6	0.0
Lane LOS	C ✓			A ✓	
Approach Delay (s)	19.7	0.0		0.6	
Approach LOS	C				

Intersection Summary				
Average Delay		3.4		
Intersection Capacity Utilization		62.2%	ICU Level of Service	B
Analysis Period (min)		15		

Queues






















31: Washington Pike & Centerline Drive

2013 PM Existing
Washington & Millertown Pike Study

Lane Group	NBL	NBT	SBL	SBT	SBR	NEL	NET	SWT	SWR
Lane Group Flow (vph)	47	516	138	462	80	116	80	34	134
v/c Ratio	0.09	0.43	0.28	0.38	0.08	0.47	0.28	0.18	0.47
Control Delay	8.8	10.3	11.0	9.8	2.7	33.0	13.1	30.0	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	10.3	11.0	9.8	2.7	33.0	13.1	30.0	11.8
Queue Length 50th (ft)	8	111	27	96	0	47	7	14	0
Queue Length 95th (ft)	28	237	78	206	19	88	40	37	44
Internal Link Dist (ft)		931		68			332	634	
Turn Bay Length (ft)									
Base Capacity (vph)	531	1207	486	1215	1060	405	424	416	465
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.43	0.28	0.38	0.08	0.29	0.19	0.08	0.29
Intersection Summary									

HCM Signalized Intersection Capacity Analysis 31: Washington Pike & Centerline Drive

2013 PM Existing
Washington & Millertown Pike Study

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	42	441	23	124	416	72	104	17	55	14	16	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.89			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.98	1.00
Satd. Flow (prot)	1770	1849		1770	1863	1583	1770	1650			1820	1583
Flt Permitted	0.44	1.00		0.40	1.00	1.00	0.95	1.00			0.98	1.00
Satd. Flow (perm)	815	1849		744	1863	1583	1770	1650			1820	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	47	490	26	138	462	80	116	19	61	16	18	134
RTOR Reduction (vph)	0	2	0	0	0	31	0	54	0	0	0	122
Lane Group Flow (vph)	47	514	0	138	462	49	116	26	0	0	34	12
Turn Type	Perm			Perm		Perm	Split			Split		Perm
Protected Phases	2			6		6	4	4		8	8	
Permitted Phases	2			6		6						8
Actuated Green, G (s)	43.3	43.3		43.3	43.3	43.3	8.6	8.6			6.1	6.1
Effective Green, g (s)	43.3	43.3		43.3	43.3	43.3	8.6	8.6			6.1	6.1
Actuated g/C Ratio	0.62	0.62		0.62	0.62	0.62	0.12	0.12			0.09	0.09
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	504	1144		460	1152	979	217	203			159	138
v/s Ratio Prot		c0.28			0.25		c0.07	0.02			c0.02	
v/s Ratio Perm	0.06			0.19		0.03						0.01
v/c Ratio	0.09	0.45		0.30	0.40	0.05	0.53	0.13			0.21	0.08
Uniform Delay, d1	5.4	7.1		6.3	6.8	5.3	28.8	27.4			29.7	29.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2	0.4	1.3		1.7	1.0	0.1	2.5	0.3			0.7	0.3
Delay (s)	5.8	8.3		7.9	7.8	5.4	31.3	27.7			30.4	29.6
Level of Service	A	A		A	A	A	C	C			C	C
Approach Delay (s)		8.1			7.5			29.8			29.8	
Approach LOS		A ✓			A ✓			✓ C			✓ C	
Intersection Summary												
HCM Average Control Delay			12.8			HCM Level of Service			✓ B			
HCM Volume to Capacity ratio			0.44 ✓									
Actuated Cycle Length (s)			70.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			53.9%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 32: Pinehurst Dr. & Washington Pike

2013 PM Existing
Washington & Millertown Pike Study



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Volume (veh/h)	14	1	3	575	152	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	16	1	3	639	169	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					1011	
pX, platoon unblocked						
vC, conflicting volume	816	171	172			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	816	171	172			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	100	100			
cM capacity (veh/h)	346	873	1405			

Direction/Lane #	EB 1	NB 1	SB 1
Volume Total	17	642	172
Volume Left	16	3	0
Volume Right	1	0	3
cSH	360	1405	1700
Volume to Capacity	0.05	0.00	0.10
Queue Length 95th (ft)	4	0	0
Control Delay (s)	15.5	0.1	0.0
Lane LOS	C	A	
Approach Delay (s)	15.5	0.1	0.0
Approach LOS	C		

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		42.6%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis 33: Millertown Pike & Washington Pike

2013 PM Existing
Washington & Millertown Pike Study



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↱		↰	↱
Sign Control		Stop	Stop		Stop	
Volume (vph)	276 ✓	265 ✓	202 ✓	192 ✓	219 ✓	219 ✓
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	307	294	224	213	243	243

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	601	438	487
Volume Left (vph)	307	0	243
Volume Right (vph)	0	213	243
Hadj (s)	0.14	-0.26	-0.17
Departure Headway (s)	6.7	6.5	6.6
Degree Utilization, x	1.13	0.79	0.89
Capacity (veh/h)	537	542	533
Control Delay (s)	103.3	29.6	41.5
Approach Delay (s)	103.3	29.6	41.5
Approach LOS	F	D	E

Intersection Summary		
Delay	62.4	
HCM Level of Service	F	
Intersection Capacity Utilization	87.2%	ICU Level of Service E
Analysis Period (min)	15	

HCM Unsignalized Intersection Capacity Analysis 39: Millertown Pike & Springhill Road

2013 PM Existing
Washington & Millertown Pike Study



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩	↩	↩	↩	↩	↩
Volume (veh/h)	381 ✓	72 ✓	71 ✓	395 ✓	59 ✓	73 ✓
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	423	80	79	439	66	81
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			503		1060	463
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			503		1060	463
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
IF (s)			2.2		3.5	3.3
p0 queue free %			93		71	86
cM capacity (veh/h)			1061		230	599

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	503	518	147
Volume Left	0	79	66
Volume Right	80	0	81
cSH	1700	1061	348
Volume to Capacity	0.30	0.07	0.42
Queue Length 95th (ft)	0	6	50
Control Delay (s)	0.0	2.1	22.6
Lane LOS		A	C
Approach Delay (s)	0.0	2.1	22.6
Approach LOS			C

Intersection Summary			
Average Delay		3.8	
Intersection Capacity Utilization		66.9%	ICU Level of Service C
Analysis Period (min)		15	

Queues

43: Millertown Pike & Loves Creek Road

2013 PM Existing
Washington & Millertown Pike Study


















Lane Group	NBT	SBL	SBT	SET	NWT
Lane Group Flow (vph)	1319	92	559	151	355
v/c Ratio	1.13	0.29	0.41	0.45	1.25
Control Delay	74.5	6.7	6.9	33.1	171.0
Queue Delay	2.9	0.0	0.0	0.0	0.0
Total Delay	77.4	6.7	6.9	33.1	171.0
Queue Length 50th (ft)	~1135	16	133	71	~297
Queue Length 95th (ft)	m#1005	30	188	135	#483
Internal Link Dist (ft)	835		552	525	539
Turn Bay Length (ft)					
Base Capacity (vph)	1168	319	1355	339	285
Starvation Cap Reductn	7	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.14	0.29	0.41	0.45	1.25

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis 43: Millertown Pike & Loves Creek Road

2013 PM Existing
Washington & Millertown Pike Study

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	51 ✓	1034 ✓	102 ✓	83 ✓	502 ✓	1 ✓	39 ✓	35 ✓	62 ✓	155 ✓	32 ✓	132 ✓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0		3.0	3.0			3.0			3.0	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frt		0.99		1.00	1.00			0.94			0.94	
Flt Protected		1.00		0.95	1.00			0.99			0.98	
Satd. Flow (prot)		1837		1770	1862			1723			1717	
Flt Permitted		0.96		0.18	1.00			0.82			0.68	
Satd. Flow (perm)		1760		330	1862			1430			1200	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	57	1149	113	92	558	1	43	39	69	172	36	147
RTOR Reduction (vph)	0	3	0	0	0	0	0	27	0	0	23	0
Lane Group Flow (vph)	0	1316	0	92	559	0	0	124	0	0	332	0
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		69.8		78.0	78.0			22.0			22.0	
Effective Green, g (s)		71.8		80.0	80.0			24.0			24.0	
Actuated g/C Ratio		0.65		0.73	0.73			0.22			0.22	
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		1149		308	1354			312			262	
v/s Ratio Prot				0.01	c0.30							
v/s Ratio Perm		c0.75		0.20				0.09			c0.28	
v/c Ratio		1.15		0.30	0.41			0.40			1.27	
Uniform Delay, d1		19.1		8.3	5.8			36.8			43.0	
Progression Factor		0.35		1.00	1.00			1.00			1.00	
Incremental Delay, d2		68.7		0.5	0.9			3.7			146.2	
Delay (s)		75.3		8.9	6.8			40.5			189.2	
Level of Service		E		A	A			D			F	
Approach Delay (s)		75.3			7.1			40.5			189.2	
Approach LOS		E ✓			A ✓			✓ D			✓ F	
Intersection Summary												
HCM Average Control Delay		71.6				HCM Level of Service		E ✓				
HCM Volume to Capacity ratio		1.14 ✓										
Actuated Cycle Length (s)		110.0				Sum of lost time (s)		9.0				
Intersection Capacity Utilization		124.9%				ICU Level of Service		H				
Analysis Period (min)		15										
c Critical Lane Group												

Queues

44: Knoxville Ctr. Ent/Exit & Millertown Pike

2013 PM Existing
Washington & Millertown Pike Study
























Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	624	183	215	222	210	148	959	389	92	532	210
v/c Ratio	1.20	0.26	1.28	1.29	0.51	0.34	1.11	0.40	0.59	0.34	0.18
Control Delay	142.4	5.2	204.4	207.6	7.7	20.0	89.7	13.4	71.6	16.2	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	136.9	0.0	0.0	0.0	0.0
Total Delay	142.4	5.2	204.4	207.6	7.7	20.0	226.6	13.4	71.6	16.2	0.6
Queue Length 50th (ft)	~535	5	~203	~210	0	0	~797	125	34	106	2
Queue Length 95th (ft)	#755	50	#363	#372	38	m0	m#796	m128	m55	m126	m5
Internal Link Dist (ft)	752			313			473			835	
Turn Bay Length (ft)			300		300			200	200		200
Base Capacity (vph)	521	710	168	172	410	434	864	971	156	1544	1196
Starvation Cap Reductn	0	0	0	0	0	0	189	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.20	0.26	1.28	1.29	0.51	0.34	1.42	0.40	0.59	0.34	0.18

Intersection Summary

- Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis 44: Knoxville Ctr. Ent/Exit & Millertown Pike

2013 PM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83 ✓	479✓	165✓	307✓	86✓	189✓	133✓	863✓	350✓	83✓	479✓	189✓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.97	0.95	1.00
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99	1.00	0.95	0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1849	1583	1681	1721	1583	1770	1863	1583	3433	3539	1583
Flt Permitted		0.99	1.00	0.95	0.97	1.00	0.35	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1849	1583	1681	1721	1583	657	1863	1583	3433	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	532	183	341	96	210	148	959	389	92	532	210
RTOR Reduction (vph)	0	0	110	0	0	179	0	0	38	0	0	59
Lane Group Flow (vph)	0	624	73	215	222	31	148	959	351	92	532	151
Turn Type	Split	pm+ov		Split	pt+ov		pm+pt	pm+ov		Prot	pm+ov	
Protected Phases	4	4	5	3	3	3 1	5	2	3	1	6	4
Permitted Phases		4					2	2			6	
Actuated Green, G (s)		29.0	35.0	9.0	9.0	12.0	55.0	49.0	58.0	3.0	46.0	75.0
Effective Green, g (s)		31.0	39.0	11.0	11.0	16.0	59.0	51.0	62.0	5.0	48.0	79.0
Actuated g/C Ratio		0.28	0.35	0.10	0.10	0.15	0.54	0.46	0.56	0.05	0.44	0.72
Clearance Time (s)		5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		521	604	168	172	230	433	864	935	156	1544	1137
v/s Ratio Prot		c0.34	0.01	0.13	c0.13	0.02	c0.02	c0.51	0.04	c0.03	0.15	0.04
v/s Ratio Perm			0.04				0.16		0.18			0.06
v/c Ratio		1.20	0.12	1.28	1.29	0.13	0.34	1.11	0.38	0.59	0.34	0.13
Uniform Delay, d1		39.5	23.9	49.5	49.5	41.0	13.6	29.5	13.3	51.5	20.6	4.8
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.51	1.39	1.44	1.13	0.76	0.90
Incremental Delay, d2		106.5	0.1	163.6	167.2	0.3	0.0	51.3	0.0	4.7	0.5	0.0
Delay (s)		146.0	24.0	213.1	216.7	41.2	20.6	92.2	19.2	63.1	16.0	4.4
Level of Service		F	C	F	F	D	C	F	B	E	B	A
Approach Delay (s)		118.3			158.5			66.2			18.3	
Approach LOS		F	✓		F	✓		E	✓		B	✓
Intersection Summary												
HCM Average Control Delay			82.5	HCM Level of Service		F✓						
HCM Volume to Capacity ratio			1.10 ✓									
Actuated Cycle Length (s)			110.0	Sum of lost time (s)		9.0						
Intersection Capacity Utilization			102.6%	ICU Level of Service		G						
Analysis Period (min)	15											
c Critical Lane Group												

Queues

45: I-640 WB Ent & Millertown Pike

2013 PM Existing

Washington & Millertown Pike Study




Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	868	958	127	1291	824	328
v/c Ratio	0.44	1.07	0.94	0.96	0.61	0.44
Control Delay	14.8	74.9	105.9	58.1	17.1	6.6
Queue Delay	0.0	261.3	0.0	2.9	0.0	0.0
Total Delay	14.8	336.2	105.9	60.9	17.1	6.6
Queue Length 50th (ft)	177	~749	95	507	192	55
Queue Length 95th (ft)	224	#998	m#208	#630	m208	m74
Internal Link Dist (ft)	601			683	473	
Turn Bay Length (ft)		600	300			
Base Capacity (vph)	1973	897	135	1351	1351	744
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	320	0	31	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	1.66	0.94	0.98	0.61	0.44

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis 45: I-640 WB Ent & Millertown Pike

2013 PM Existing
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑	↑	↑↑			↑↑	↑
Volume (vph)	0	0	0	169	612	862	114	1162	0	0	742	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Util. Factor					0.95	1.00	1.00	0.95			0.95	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3501	1583	1770	3539			3539	1583
Flt Permitted					0.99	1.00	0.19	1.00			1.00	1.00
Satd. Flow (perm)					3501	1583	354	3539			3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	188	680	958	127	1291	0	0	824	328
RTOR Reduction (vph)	0	0	0	0	0	4	0	0	0	0	0	140
Lane Group Flow (vph)	0	0	0	0	868	954	127	1291	0	0	824	188
Turn Type				Split		Perm	Perm					Perm
Protected Phases				4	4			2			2	
Permitted Phases						4	2				2	2
Actuated Green, G (s)					60.0	60.0	40.0	40.0			40.0	40.0
Effective Green, g (s)					62.0	62.0	42.0	42.0			42.0	42.0
Actuated g/C Ratio					0.56	0.56	0.38	0.38			0.38	0.38
Clearance Time (s)					5.0	5.0	5.0	5.0			5.0	5.0
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					1973	892	135	1351			1351	604
v/s Ratio Prot					0.25			c0.36			0.23	
v/s Ratio Perm						c0.60	0.36					0.12
v/c Ratio					0.44	1.07	0.94	0.96			0.61	0.31
Uniform Delay, d1					13.9	24.0	32.8	33.1			27.4	23.9
Progression Factor					1.00	1.00	1.35	1.30			0.56	0.64
Incremental Delay, d2					0.2	50.4	60.1	15.1			1.7	1.1
Delay (s)					14.1	74.4	104.4	58.0			16.9	16.3
Level of Service					B	E	F	E			B	B
Approach Delay (s)		0.0			45.7			62.2			16.7	
Approach LOS		A			D			E			B	
Intersection Summary												
HCM Average Control Delay			43.4									
HCM Volume to Capacity ratio			1.02									
Actuated Cycle Length (s)			110.0									
Intersection Capacity Utilization			92.2%									
Analysis Period (min)			15									
c Critical Lane Group												
HCM Level of Service								D				
Sum of lost time (s)								6.0				
ICU Level of Service								F				

Queues
46: South Mall Road & Millertown Pike

2013 PM Existing
Washington & Millertown Pike Study



Lane Group	EBL	EBT	EBR	NET	NER	SWL	SWT
Lane Group Flow (vph)	370	256	121	646	146	522	573
v/c Ratio	0.78	0.51	0.08	0.54	0.09	0.73	0.24
Control Delay	49.0	37.3	0.1	33.6	0.1	25.6	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.0	37.3	0.1	33.6	0.1	25.6	3.6
Queue Length 50th (ft)	238	151	0	198	0	130	29
Queue Length 95th (ft)	335	222	0	285	0	174	41
Internal Link Dist (ft)		347		1273			683
Turn Bay Length (ft)			300		300	300	
Base Capacity (vph)	547	576	1583	1200	1583	776	2399
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.44	0.08	0.54	0.09	0.67	0.24
Intersection Summary							

HCM Signalized Intersection Capacity Analysis 46: South Mall Road & Millertown Pike

2013 PM Existing
Washington & Millertown Pike Study

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↰	↑	↱					↰	↑	↱	↰	↱
Volume (vph)	333	230	109	0	0	0	0	581	131	470	516	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	2.0					3.0	2.0	3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00					0.95	1.00	1.00	0.95	
Flt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1583					3539	1583	1770	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.25	1.00	
Satd. Flow (perm)	1770	1863	1583					3539	1583	474	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	370	256	121	0	0	0	0	646	146	522	573	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	370	256	121	0	0	0	0	646	146	522	573	0
Turn Type	Perm		Free						Free	pm+pt		
Protected Phases		4						2		1	2	
Permitted Phases	4		Free						Free	2	1	
Actuated Green, G (s)	27.4	27.4	110.0					35.3	110.0	67.6	67.6	
Effective Green, g (s)	29.4	29.4	110.0					37.3	110.0	71.6	71.6	
Actuated g/C Ratio	0.27	0.27	1.00					0.34	1.00	0.65	0.65	
Clearance Time (s)	5.0	5.0						5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	473	498	1583					1200	1583	713	2400	
v/s Ratio Prot		0.14						0.18		c0.23	0.08	
v/s Ratio Perm	c0.21		0.08						0.09	c0.25	0.08	
v/c Ratio	0.78	0.51	0.08					0.54	0.09	0.73	0.24	
Uniform Delay, d1	37.3	34.2	0.0					29.4	0.0	13.9	7.9	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.41	0.46	
Incremental Delay, d2	8.2	0.9	0.1					1.7	0.1	3.3	0.0	
Delay (s)	45.6	35.1	0.1					31.1	0.1	23.0	3.7	
Level of Service	D	D	A					C	A	C	A	
Approach Delay (s)		34.6			0.0			25.4			12.9	
Approach LOS		C	✓		A			✓			✓	B
Intersection Summary												
HCM Average Control Delay		22.8										
HCM Volume to Capacity ratio		0.75	✓									
Actuated Cycle Length (s)		110.0							9.0			
Intersection Capacity Utilization		92.2%							F			
Analysis Period (min)		15										
c Critical Lane Group												

Queues

47: Millertown Pike & Mill Road

2013 PM Existing
Washington & Millertown Pike Study

Lane/Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	859	539	423	46	382
v/c Ratio	1.04	0.33	0.26	0.32	0.80
Control Delay	53.5	2.3	1.9	70.2	18.9
Queue Delay	0.9	0.0	0.0	0.0	0.0
Total Delay	54.4	2.3	1.9	70.2	18.9
Queue Length 50th (ft)	-892	54	37	44	0
Queue Length 95th (ft)	#1192	119	83	85	109
Internal Link Dist (ft)		212	1004	276	
Turn Bay Length (ft)					
Base Capacity (vph)	827	1637	1610	201	518
Starvation Cap Reductn	2	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.04	0.33	0.26	0.23	0.74

Intersection Summary

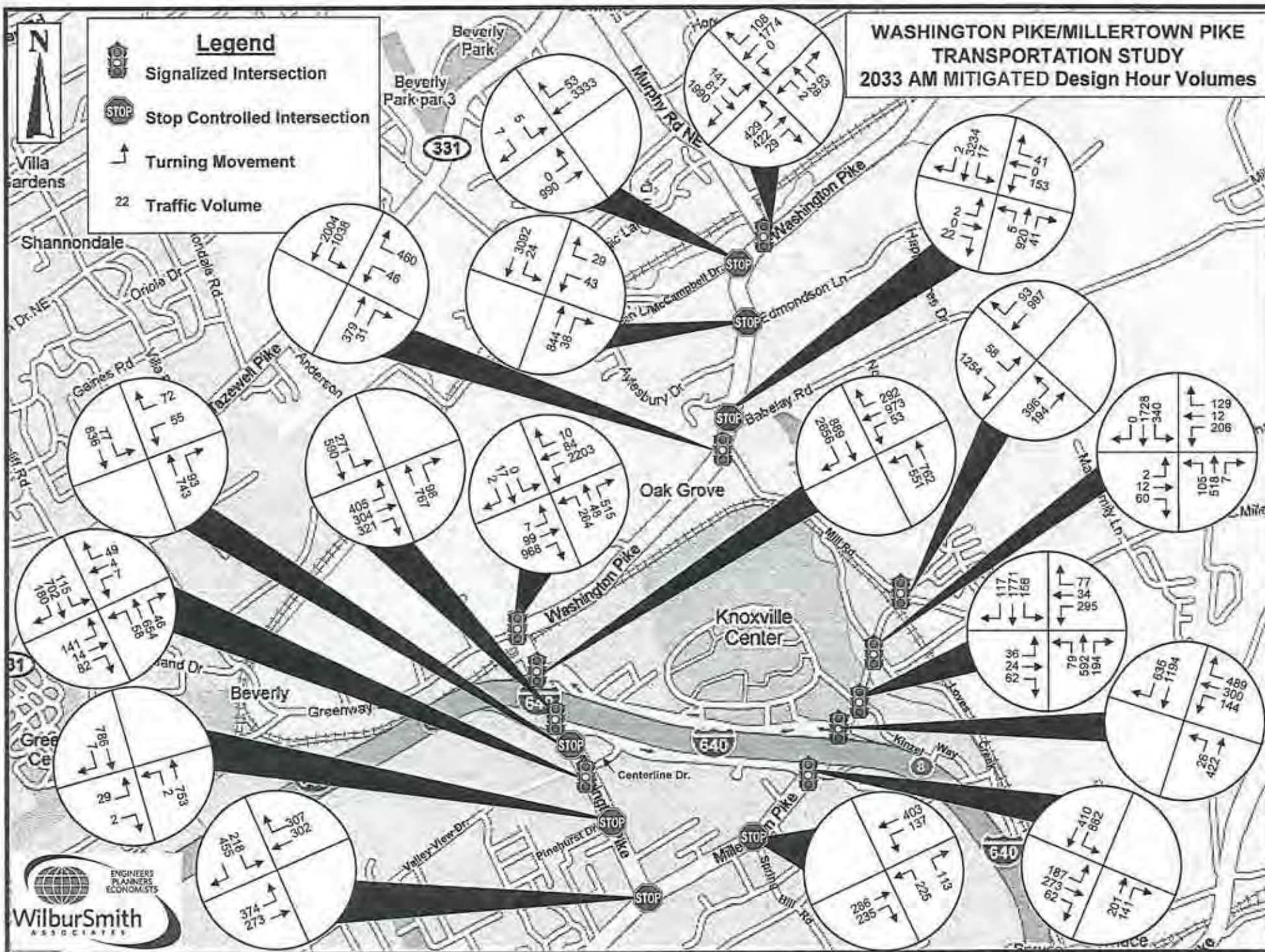
- Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

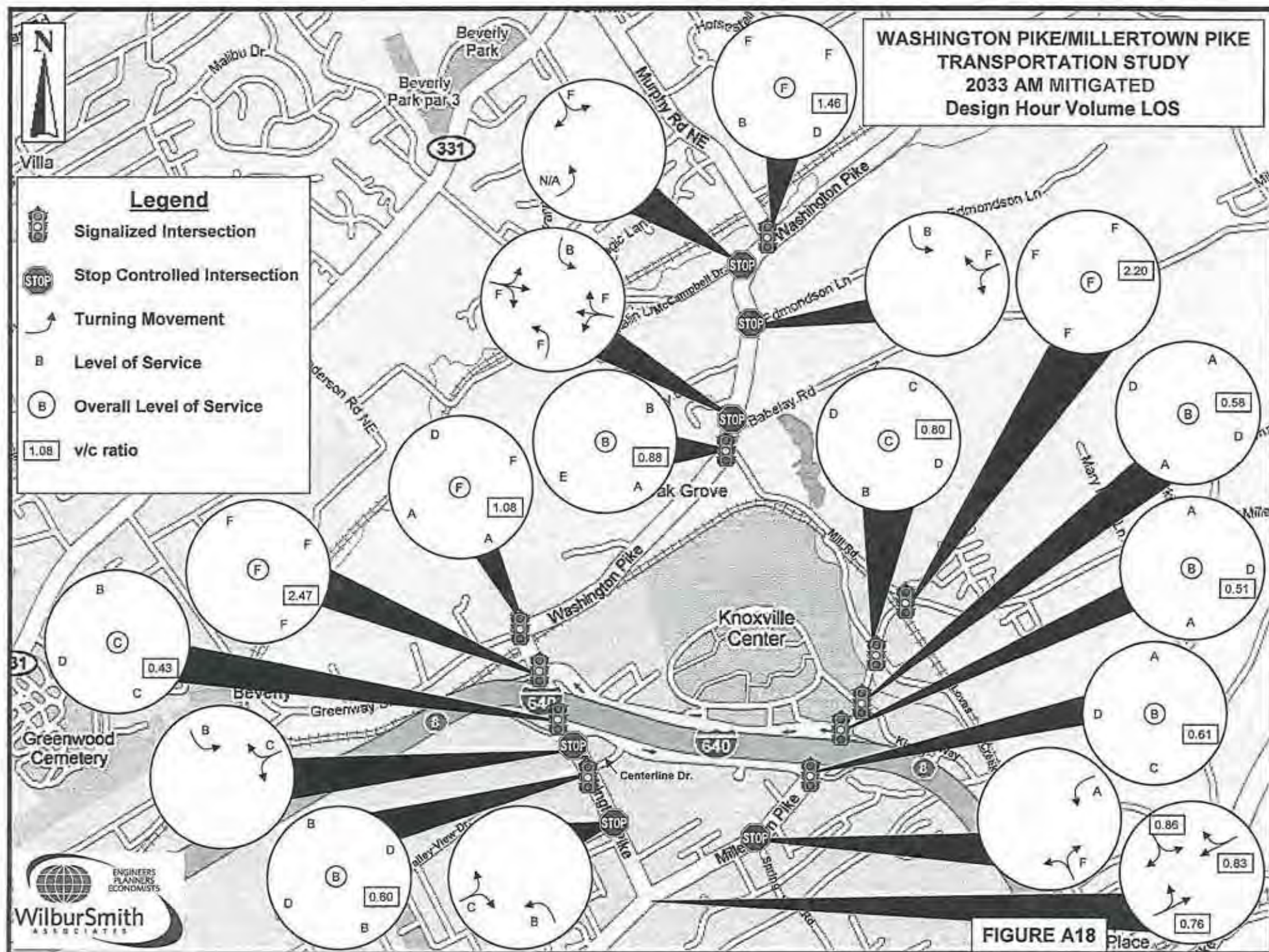
HCM Signalized Intersection Capacity Analysis 47: Millertown Pike & Mill Road

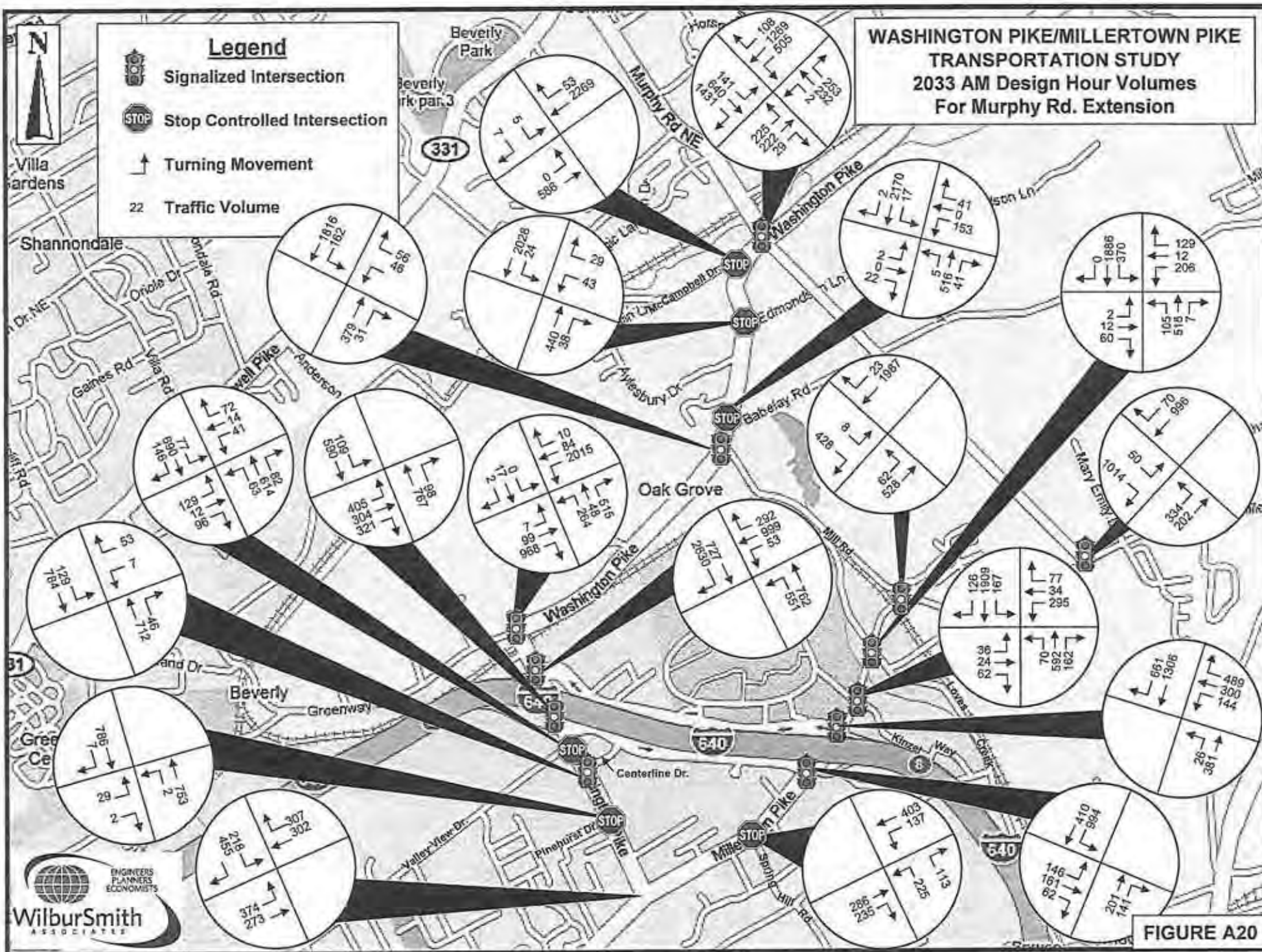
2013 PM Existing
Washington & Millertown Pike Study



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	←	↑	↑		←	↑
Volume (vph)	773	485	329	51	41	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1863	1829		1770	1583
Flt Permitted	0.51	1.00	1.00		0.95	1.00
Satd. Flow (perm)	941	1863	1829		1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	859	539	366	57	46	382
RTOR Reduction (vph)	0	0	3	0	0	351
Lane Group Flow (vph)	859	539	420	0	46	31
Turn Type	Perm				Perm	
Protected Phases		4	8		6	
Permitted Phases	4					6
Actuated Green, G (s)	130.8	130.8	130.8		11.2	11.2
Effective Green, g (s)	131.8	131.8	131.8		12.2	12.2
Actuated g/C Ratio	0.88	0.88	0.88		0.08	0.08
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	827	1637	1607		144	129
v/s Ratio Prot		0.29	0.23		c0.03	
v/s Ratio Perm	c0.91					0.02
v/c Ratio	1.04	0.33	0.26		0.32	0.24
Uniform Delay, d1	9.1	1.6	1.4		65.0	64.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	41.8	0.1	0.1		5.8	4.4
Delay (s)	50.9	1.7	1.5		70.7	68.9
Level of Service	D	A	A		E	E
Approach Delay (s)		31.9	1.5		69.1	
Approach LOS		C	A		E	
Intersection Summary						
HCM Average Control Delay		33.3		HCM Level of Service	C	✓
HCM Volume to Capacity ratio		0.98				
Actuated Cycle Length (s)		150.0		Sum of lost time (s)	6.0	
Intersection Capacity Utilization		76.6%		ICU Level of Service	D	
Analysis Period (min)		15				
c Critical Lane Group						























HCM Signalized Intersection Capacity Analysis 22: Murphy Road & Washington Pike

2033 AM Mitigated
Washington & Millertown Pike Study

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	2✓	(26)	53✓	141✓	81✓	1990✓	429✓	422✓	29✓	0✓	1774✓	108✓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	3.0	3.0	3.0			3.0	
Lane Util. Factor		1.00			1.00	0.88	1.00	0.95			0.95	
Frt		0.91			1.00	0.85	1.00	0.99			0.99	
Flt Protected		1.00			0.97	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		1696			1805	2787	1770	3505			3509	
Flt Permitted		0.99			0.69	1.00	0.08	1.00			1.00	
Satd. Flow (perm)		1688			1282	2787	141	3505			3509	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2	29	59	157	90	2211	477	469	32	0	1971	120
RTOR Reduction (vph)	0	49	0	0	0	1	0	4	0	0	4	0
Lane Group Flow (vph)	0	41	0	0	247	2210	477	497	0	0	2088	0
Turn Type	Perm		Perm		pm+ov		pm+pt		Perm			
Protected Phases	2		6		7		7		8			
Permitted Phases	2		6		6		4		8			
Actuated Green, G (s)	21.0		21.0		59.0		91.0		49.0			
Effective Green, g (s)	21.0		21.0		61.0		92.0		50.0			
Actuated g/C Ratio	0.18		0.18		0.51		0.77		0.42			
Clearance Time (s)	4.0		4.0		4.0		4.0		4.0			
Vehicle Extension (s)	3.0		3.0		3.0		3.0		3.0			
Lane Grp Cap (vph)	295		224		1486		638		1462			
v/s Ratio Prot					c0.48		0.24		c0.59			
v/s Ratio Perm	0.02		0.19		0.31		0.33					
v/c Ratio	0.14		1.10		1.49		0.75		1.43			
Uniform Delay, d1	41.9		49.5		29.5		30.0		35.0			
Progression Factor	1.00		1.00		1.00		1.00		1.00			
Incremental Delay, d2	0.2		90.3		222.9		4.8		196.6			
Delay (s)	42.1		139.8		252.4		34.8		231.6			
Level of Service	D		F		F		C		A			
Approach Delay (s)	42.1		241.1				18.9		231.6			
Approach LOS	D✓		F✓				B✓		F✓			
Intersection Summary												
HCM Average Control Delay	195.7				HCM Level of Service				F			
HCM Volume to Capacity ratio	1.46✓											
Actuated Cycle Length (s)	120.0				Sum of lost time (s)				6.0			
Intersection Capacity Utilization	136.8%				ICU Level of Service				H			
Analysis Period (min)	15											
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 23: Washington Pike & McCampbell Drive

2033 AM Mitigated
Washington & Millertown Pike Study



Movement	SBR	SBR2	SEL	SER	NEL2	NEL
Lane Configurations	FL		FL		FL	FL
Volume (veh/h)	3332	53	5	7	0	990
Sign Control	Free		Stop			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3702	59	6	8	0	1100
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None				Raised	
Median storage (veh)					1	
Upstream signal (ft)	407					
pX, platoon unblocked			0.59	0.59	0.59	
vC, conflicting volume			4282	1881	3761	
vC1, stage 1 conf vol			3732			
vC2, stage 2 conf vol			550			
vCu, unblocked vol			5170	1105	4288	
tC, single (s)			6.8	6.9	4.1	
tC, 2 stage (s)			5.8			
tF (s)			3.5	3.3	2.2	
p0 queue free %			0	94	100	
cM capacity (veh/h)			2	121	20	

Direction, Lane #	SB 1	SB 2	SE 1	NE 1	NE 2	NE 3
Volume Total	2468	1293	13	0	550	550
Volume Left	0	0	6	0	0	0
Volume Right	0	59	8	0	0	0
cSH	1700	1700	6	1700	1700	1700
Volume to Capacity	1.45	0.76	2.39	0.00	0.32	0.32
Queue Length 95th (ft)	0	0	69	0	0	0
Control Delay (s)	0.0	0.0	1854.1	0.0	0.0	0.0
Lane LOS			F			
Approach Delay (s)	0.0		1854.1	0.0		
Approach LOS			F			

Intersection Summary						
Average Delay		5.1				
Intersection Capacity Utilization		121.8%		ICU Level of Service		H
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 24: Edmonds Road & Washington Pike

2033 AM Mitigated
Washington & Millertown Pike Study

EDMONDS ROAD






















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	←	→	↑	→	←	↑
Volume (veh/h)	43	29	844	38	24	3092
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	48	32	938	42	27	3436
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2730	490			980	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2730	490			980	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	94			96	
cM capacity (veh/h)	16	524			700	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	80	625	355	27	1718	1718
Volume Left	48	0	0	27	0	0
Volume Right	32	0	42	0	0	0
cSH	26	1700	1700	700	1700	1700
Volume to Capacity	3.09	0.37	0.21	0.04	1.01	1.01
Queue Length 95th (ft)	Err	0	0	3	0	0
Control Delay (s)	Err	0.0	0.0	10.3	0.0	0.0
Lane LOS	F			B		
Approach Delay (s)	Err	0.0		0.1		
Approach LOS	F					

Intersection Summary						
Average Delay		176.9				
Intersection Capacity Utilization		96.3%		ICU Level of Service		F
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 25: Babelay Road & Washington Pike

2033 AM Mitigated
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2 ✓	0 ✓	22 ✓	153 ✓	0 ✓	41 ✓	5 ✓	920 ✓	41 ✓	17 ✓	3234 ✓	2 ✓
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	2	0	24	170	0	46	6	1022	46	19	3593	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)							687					
pX, platoon unblocked	0.90	0.90		0.90	0.90	0.90				0.90		
vC, conflicting volume	4200	4711	1798	2915	4689	534	3596			1068		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	4339	4910	1798	2905	4885	248	3596			844		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	65	0	100	93	91			97		
cM capacity (veh/h)	0	1	69	4	1	674	65			706		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	27	216	6	681	386	19	2396	1200				
Volume Left	2	170	6	0	0	19	0	0				
Volume Right	24	46	0	0	46	0	0	2				
cSH	4	5	65	1700	1700	706	1700	1700				
Volume to Capacity	6.19	45.60	0.09	0.40	0.23	0.03	1.41	0.71				
Queue Length 95th (ft)	Err	Err	7	0	0	2	0	0				
Control Delay (s)	Err	Err	65.9	0.0	0.0	10.2	0.0	0.0				
Lane LOS	F ✓	F ✓	F ✓			B						
Approach Delay (s)	Err	Err	0.3			0.1						
Approach LOS	F ✓	F ✓										
Intersection Summary												
Average Delay	491.4											
Intersection Capacity Utilization	113.8%											
Analysis Period (min)	15											
ICU Level of Service H												

Phasings
26: Mill Road & Washington Pike

2033 AM Mitigated
Washington & Millertown Pike Study



Lane Group	WBL	WBR	NBT	SBL	SBT
Protected Phases	4	1	2	1	6
Permitted Phases		4		6	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	10.0	22.0	10.0	22.0
Total Split (s)	22.0	75.0	23.0	75.0	98.0
Total Split (%)	18.3%	62.5%	19.2%	62.5%	81.7%
Maximum Green (s)	16.0	69.0	17.0	69.0	92.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lead/Lag		Lead	Lag	Lead	
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Max
Walk Time (s)	5.0		5.0		5.0
Flash Dont Walk (s)	11.0		11.0		11.0
Pedestrian Calls (#/hr)	0		0		0
90th %ile Green (s)	12.1	72.9	17.0	72.9	95.9
90th %ile Term Code	Gap	Max	Coord	Max	Coord
70th %ile Green (s)	10.2	74.8	17.0	74.8	97.8
70th %ile Term Code	Gap	Max	Coord	Max	Coord
50th %ile Green (s)	8.8	76.2	17.0	76.2	99.2
50th %ile Term Code	Gap	Max	Coord	Max	Coord
30th %ile Green (s)	7.4	77.6	17.0	77.6	100.6
30th %ile Term Code	Gap	Max	Coord	Max	Coord
10th %ile Green (s)	0.0	87.0	21.0	87.0	114.0
10th %ile Term Code	Skip	Gap	Coord	Gap	Coord

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 25 (21%), Referenced to phase 6:SBTL, Start of Green
 Control Type: Actuated-Coordinated

HCM Signalized Intersection Capacity Analysis 26: Mill Road & Washington Pike

2033 AM Mitigated
Washington & Millertown Pike Study

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑	↗	↘	↓
Volume (vph)	46	460	379	31	1038	2004
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.88	0.95		1.00	0.95
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	2787	3500		1770	3539
Flt Permitted	0.95	1.00	1.00		0.18	1.00
Satd. Flow (perm)	1770	2787	3500		330	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	51	511	421	34	1153	2227
RTOR Reduction (vph)	0	12	5	0	0	0
Lane Group Flow (vph)	51	499	450	0	1153	2227
Turn Type	pm+ov				pm+pt	
Protected Phases	4	1	2		1	6
Permitted Phases		4			6	
Actuated Green, G (s)	7.7	85.4	16.6		100.3	100.3
Effective Green, g (s)	8.7	87.4	17.6		101.3	101.3
Actuated g/C Ratio	0.07	0.73	0.15		0.84	0.84
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	128	2146	513		1223	2988
v/s Ratio Prot	c0.03	0.15	0.13		c0.62	0.63
v/s Ratio Perm		0.03			c0.18	
v/c Ratio	0.40	0.23	0.88		0.94	0.75
Uniform Delay, d1	53.2	5.3	50.1		15.4	3.9
Progression Factor	1.00	1.00	1.14		1.00	1.00
Incremental Delay, d2	2.0	0.1	15.3		14.1	1.7
Delay (s)	55.2	5.4	72.4		29.5	5.7
Level of Service	E	A	E		C	A
Approach Delay (s)	9.9		72.4			13.8
Approach LOS	A		E			B
Intersection Summary						
HCM Average Control Delay			19.4		HCM Level of Service	B
HCM Volume to Capacity ratio			0.88			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			84.8%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

Phasings

27: Greenway Drive & Washington Pike

2033 AM Mitigated
Washington & Millertown Pike Study



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	a3
Protected Phases	1	6		5	2		7	4	4	8		3
Permitted Phases	6		Free	2		Free	4		5		Free	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0		4.0
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0	21.0	21.0		21.0
Total Split (s)	21.0	21.0	0.0	57.0	57.0	0.0	21.0	21.0	21.0	21.0	0.0	21.0
Total Split (%)	17.5%	17.5%	0.0%	47.5%	47.5%	0.0%	17.5%	17.5%	17.5%	17.5%	0.0%	18%
Maximum Green (s)	16.0	16.0		52.0	52.0		16.0	16.0	16.0	16.0		16.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0		4.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0		1.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lag		Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0		3.0
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0		3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Recall Mode	None	Min		None	Min		None	C-Max	C-Max	C-Max		None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
90th %ile Green (s)	6.3	11.5		52.0	57.2		20.5	41.5	41.5	16.0		0.0
90th %ile Term Code	Gap	Gap		Max	Hold		Max	Coord	Coord	Coord		Skip
70th %ile Green (s)	0.0	10.1		52.0	67.1		21.9	42.9	42.9	16.0		0.0
70th %ile Term Code	Skip	Gap		Max	Hold		Max	Coord	Coord	Coord		Skip
50th %ile Green (s)	0.0	9.1		52.0	66.1		20.1	43.9	43.9	18.8		0.0
50th %ile Term Code	Skip	Gap		Max	Hold		Gap	Coord	Coord	Coord		Skip
30th %ile Green (s)	0.0	8.1		52.0	65.1		17.1	44.9	44.9	22.8		0.0
30th %ile Term Code	Skip	Gap		Max	Hold		Gap	Coord	Coord	Coord		Skip
10th %ile Green (s)	0.0	6.6		52.0	63.6		13.2	46.4	46.4	28.2		0.0
10th %ile Term Code	Skip	Gap		Max	Hold		Gap	Coord	Coord	Coord		Skip

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:NBTL and 8:SBTL, Start of Yellow, Master Intersection

Control Type: Actuated-Coordinated

HCM Signalized Intersection Capacity Analysis 27: Greenway Drive & Washington Pike

2033 AM Mitigated
Washington & Millertown Pike Study

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	98	968	2203	84	10	264	48	515	0	17	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	2.0
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	0.88		0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	1863	1583	1770	1863	2787		3539	1583
Flt Permitted	0.70	1.00	1.00	0.55	1.00	1.00	0.64	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1298	3539	1583	1998	1863	1583	1191	1863	2787		3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	8	109	1076	2448	93	11	293	53	572	0	19	2
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	115	0	0	0
Lane Group Flow (vph)	8	109	1076	2448	93	11	293	53	457	0	19	2
Turn Type	pm+pt		Free	pm+pt		Free	pm+pt		custom	pm+pt		Free
Protected Phases	1	6		5	2		7	4	4	3	8	
Permitted Phases	6		Free	2		Free	4		5	8		Free
Actuated Green, G (s)	14.4	13.1	120.0	70.1	63.8	120.0	39.9	39.9	91.9		16.3	120.0
Effective Green, g (s)	18.4	15.1	120.0	72.1	65.8	120.0	41.9	41.9	95.9		18.3	120.0
Actuated g/C Ratio	0.15	0.13	1.00	0.60	0.55	1.00	0.35	0.35	0.80		0.15	1.00
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	212	445	1583	1846	1022	1583	515	650	2297		540	1583
v/s Ratio Prot	0.00	0.03		c0.60	0.05		0.10	0.03	0.07		0.01	
v/s Ratio Perm	0.00		c0.68	c0.20		0.01	0.10		0.09			0.00
v/c Ratio	0.04	0.24	0.68	1.33	0.09	0.01	0.57	0.08	0.20		0.04	0.00
Uniform Delay, d1	43.3	47.3	0.0	21.1	12.9	0.0	30.5	26.2	2.9		43.3	0.0
Progression Factor	1.00	1.00	1.00	0.86	0.78	1.00	0.81	0.85	0.00		1.00	1.00
Incremental Delay, d2	0.1	0.3	2.4	149.7	0.0	0.0	1.4	0.2	0.0		0.1	0.0
Delay (s)	43.4	47.6	2.4	167.8	10.1	0.0	26.2	22.4	0.0		43.4	0.0
Level of Service	D	D	A	F	B	A	C	C	A		D	A
Approach Delay (s)		6.8			161.3			9.7			39.3	
Approach LOS		A			F			A			D	

Intersection Summary			
HCM Average Control Delay	91.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.08 ✓		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	3.0
Intersection Capacity Utilization	97.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Phasings
28: I-640 WB Ent & Washington Pike

2033 AM Mitigated
Washington & Millertown Pike Study




Lane/Group	WBT	WBR	NBL	NBT	SBT	SBR
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Minimum Initial (s)	4.0	4.0	3.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	30.0	30.0	11.0	79.0	79.0	79.0
Total Split (%)	25.0%	25.0%	9.2%	65.8%	65.8%	65.8%
Maximum Green (s)	25.0	25.0	6.0	74.0	74.0	74.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	25.0	25.0	6.0	74.0	74.0	74.0
90th %ile Term Code	Max	Max	Max	Coord	Coord	Coord
70th %ile Green (s)	25.0	25.0	6.0	74.0	74.0	74.0
70th %ile Term Code	Max	Max	Max	Coord	Coord	Coord
50th %ile Green (s)	25.0	25.0	6.0	74.0	74.0	74.0
50th %ile Term Code	Max	Max	Max	Coord	Coord	Coord
30th %ile Green (s)	25.0	25.0	6.0	74.0	74.0	74.0
30th %ile Term Code	Max	Max	Max	Coord	Coord	Coord
10th %ile Green (s)	25.0	25.0	6.0	74.0	74.0	74.0
10th %ile Term Code	Max	Max	Max	Coord	Coord	Coord

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 90 (75%), Referenced to phase 2:NBSB, Start of Yellow
 Control Type: Actuated-Coordinated

HCM Signalized Intersection Capacity Analysis 28: I-640 WB Ent & Washington Pike

2033 AM Mitigated
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑↑	↑	↑↑↑			↑↑↑	↑
Volume (vph)	0	0	0	53 ✓	973 ✓	292 ✓	551 ✓	762 ✓	0	0	889 ✓	2656 ✓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Util. Factor					0.95	0.88	1.00	0.91			0.91	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3530	2787	1770	5085			5085	1583
Flt Permitted					1.00	1.00	0.25	1.00			1.00	1.00
Satd. Flow (perm)					3530	2787	462	5085			5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	59	1081	324	612	847	0	0	988	2951
RTOR Reduction (vph)	0	0	0	0	0	178	0	0	0	0	0	3
Lane Group Flow (vph)	0	0	0	0	1140	146	612	847	0	0	988	2948
Turn Type				Split		Perm	pm+pt					Perm
Protected Phases				4	4		1	2			2	
Permitted Phases						4	2					2
Actuated Green, G (s)					25.0	25.0	80.0	74.0			74.0	74.0
Effective Green, g (s)					27.0	27.0	84.0	76.0			76.0	76.0
Actuated g/C Ratio					0.22	0.22	0.70	0.63			0.63	0.63
Clearance Time (s)					5.0	5.0	5.0	5.0			5.0	5.0
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					794	627	411	3221			3221	1003
v/s Ratio Prot					c0.32		c0.10	0.17			0.19	
v/s Ratio Perm						0.05	0.94					c1.86
v/c Ratio					1.44	0.23	1.49	0.26			0.31	2.94
Uniform Delay, d1					46.5	38.0	12.8	9.7			10.0	22.0
Progression Factor					1.00	1.00	3.78	1.02			0.33	0.40
Incremental Delay, d2					203.3	0.2	232.0	0.2			0.0	873.1
Delay (s)					249.8	38.2	280.5	10.1			3.3	881.9
Level of Service					F	D	F	B			A	F
Approach Delay (s)		0.0			203.0			123.5			661.5	
Approach LOS		A			F ✓			F ✓			F ✓	
Intersection Summary												
HCM Average Control Delay		449.3										
HCM Volume to Capacity ratio		2.47 ✓										
Actuated Cycle Length (s)		120.0										
Intersection Capacity Utilization		223.8%										
Analysis Period (min)		15										
c Critical Lane Group												

Phasings
29: South Mall Road & Washington Pike

2033 AM Mitigated
Washington & Millertown Pike Study



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Protected Phases		4		2		1	2
Permitted Phases	4		4		2	2	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	45.0	45.0	45.0	50.0	50.0	25.0	50.0
Total Split (%)	37.5%	37.5%	37.5%	41.7%	41.7%	20.8%	41.7%
Maximum Green (s)	39.0	39.0	39.0	44.0	44.0	19.0	44.0
Yellow Time (s)	4.0	4.0	4.0	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5	1.5	1.5
Lead/Lag				Lag	Lag	Lead	Lag
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	C-Max	C-Max	Max	C-Max
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
90th %ile Green (s)	32.0	32.0	32.0	44.0	44.0	26.0	44.0
90th %ile Term Code	Gap	Gap	Gap	Coord	Coord	MaxR	Coord
70th %ile Green (s)	26.7	26.7	26.7	44.0	44.0	31.3	44.0
70th %ile Term Code	Gap	Gap	Gap	Coord	Coord	MaxR	Coord
50th %ile Green (s)	23.8	23.8	23.8	44.0	44.0	34.2	44.0
50th %ile Term Code	Gap	Gap	Gap	Coord	Coord	MaxR	Coord
30th %ile Green (s)	20.8	20.8	20.8	44.0	44.0	37.2	44.0
30th %ile Term Code	Gap	Gap	Gap	Coord	Coord	MaxR	Coord
10th %ile Green (s)	16.8	16.8	16.8	44.0	44.0	41.2	44.0
10th %ile Term Code	Gap	Gap	Gap	Coord	Coord	MaxR	Coord

Intersection Summary

Cycle Length: 120





















Actuated Cycle Length: 120

Offset: 94 (78%), Referenced to phase 2:NBSB, Start of Yellow

Control Type: Actuated-Coordinated

HCM Signalized Intersection Capacity Analysis 29: South Mall Road & Washington Pike

2033 AM Mitigated
Washington & Millertown Pike Study

																	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR					
Lane Configurations																	
Volume (vph)	405 ✓	304/	321✓	0	0	0	0	767 ✓	98 ✓	271/	590 ✓	0					
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900					
Total Lost time (s)	4.0	4.0	5.0					4.0	4.0	4.0	4.0						
Lane Util. Factor	0.97	0.95	1.00					0.91	1.00	0.97	0.95						
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00						
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00						
Satd. Flow (prot)	3433	3539	1583					5085	1583	3433	3539						
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.24	1.00						
Satd. Flow (perm)	3433	3539	1583					5085	1583	866	3539						
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90					
Adj. Flow (vph)	450	338	357	0	0	0	0	852	109	301	656	0					
RTOR Reduction (vph)	0	0	283	0	0	0	0	0	67	0	0	0					
Lane Group Flow (vph)	450	338	74	0	0	0	0	852	42	301	656	0					
Turn Type	Perm		Perm					Perm		pm+pt							
Protected Phases			4					2		1 2							
Permitted Phases	4		4					2		2							
Actuated Green, G (s)	24.0	24.0	24.0					44.0	44.0	78.0	44.0						
Effective Green, g (s)	26.0	26.0	25.0					46.0	46.0	82.0	46.0						
Actuated g/C Ratio	0.22	0.22	0.21					0.38	0.38	0.68	0.38						
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0						
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0						
Lane Grp Cap (vph)	744	767	330					1949	607	1362	1357						
v/s Ratio Prot			0.10					0.17		c0.07	c0.19						
v/s Ratio Perm	c0.13		0.05						0.03	0.08							
v/c Ratio	0.60	0.44	0.23					0.44	0.07	0.22	0.48						
Uniform Delay, d1	42.4	40.7	39.5					27.4	23.4	7.3	28.0						
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.82	0.60						
Incremental Delay, d2	1.4	0.4	0.3					0.7	0.2	0.4	1.2						
Delay (s)	43.8	41.1	39.8					28.1	23.7	6.4	18.1						
Level of Service	D	D	D					C	C	A	B						
Approach Delay (s)			41.7	0.0				27.6		14.4							
Approach LOS			D ✓	A				C ✓		B ✓							
Intersection Summary																	
HCM Average Control Delay			28.8	HCM Level of Service		C ✓											
HCM Volume to Capacity ratio			0.43 ✓														
Actuated Cycle Length (s)			120.0	Sum of lost time (s)		12.0											
Intersection Capacity Utilization			225.3%	ICU Level of Service		H											
Analysis Period (min)			15														
c - Critical Lane Group																	

HCM Unsignalized Intersection Capacity Analysis 30: Gas Station &

2033 AM Mitigated
Washington & Millertown Pike Study



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↓		Y	↑↑
Volume (veh/h)	55	72	743	93	77	836
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	61	80	826	103	86	929
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLT		TWLT	
Median storage veh			2		2	
Upstream signal (ft)			454		250	
pX, platoon unblocked	0.86					
vC, conflicting volume	1513	464			929	
vC1, stage 1 conf vol	877					
vC2, stage 2 conf vol	636					
vCu, unblocked vol	1281	464			929	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	81	85			88	
cM capacity (veh/h)	320	545			732	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	141	550	379	86	464	464
Volume Left	61	0	0	86	0	0
Volume Right	80	0	103	0	0	0
cSH	417	1700	1700	732	1700	1700
Volume to Capacity	0.34	0.32	0.22	0.12	0.27	0.27
Queue Length 95th (ft)	37	0	0	10	0	0
Control Delay (s)	18.0	0.0	0.0	10.6	0.0	0.0
Lane LOS	C			B		
Approach Delay (s)	18.0	0.0		0.9		
Approach LOS	C					

Intersection Summary						
Average Delay		1.6				
Intersection Capacity Utilization		45.2%		ICU Level of Service		A
Analysis Period (min)		15				

Phasings
31: Valley View Dr &

2033 AM Mitigated
Washington & Millertown Pike Study



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Protected Phases	4	4	8			2		6	
Permitted Phases				8	2		6		6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	20.0	20.0	50.0	50.0	50.0	50.0	50.0
Total Split (%)	22.2%	22.2%	22.2%	22.2%	55.6%	55.6%	55.6%	55.6%	55.6%
Maximum Green (s)	16.0	16.0	16.0	16.0	46.0	46.0	46.0	46.0	46.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lead/Lag									
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min	C-Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0
90th %ile Green (s)	16.0	16.0	8.9	8.9	53.1	53.1	53.1	53.1	53.1
90th %ile Term Code	Max	Max	Gap	Gap	Coord	Coord	Coord	Coord	Coord
70th %ile Green (s)	15.3	15.3	6.8	6.8	55.9	55.9	55.9	55.9	55.9
70th %ile Term Code	Gap	Gap	Gap	Gap	Coord	Coord	Coord	Coord	Coord
50th %ile Green (s)	13.2	13.2	6.0	6.0	58.8	58.8	58.8	58.8	58.8
50th %ile Term Code	Gap	Gap	Gap	Gap	Coord	Coord	Coord	Coord	Coord
30th %ile Green (s)	11.1	11.1	5.5	5.5	61.4	61.4	61.4	61.4	61.4
30th %ile Term Code	Gap	Gap	Gap	Gap	Coord	Coord	Coord	Coord	Coord
10th %ile Green (s)	8.2	8.2	0.0	0.0	73.8	73.8	73.8	73.8	73.8
10th %ile Term Code	Gap	Gap	Skip	Skip	Coord	Coord	Coord	Coord	Coord

Intersection Summary

Cycle Length: 90










Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

HCM Signalized Intersection Capacity Analysis 31: Valley View Dr &

2033 AM Mitig
Washington & Millertown Pk

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	141	14	82	7	4	49	58	654	46	115	702	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.87			1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1625			1803	1583	1770	1844		1770	1863	1583
Flt Permitted	0.95	1.00			0.97	1.00	0.25	1.00		0.25	1.00	1.00
Satd. Flow (perm)	1770	1625			1803	1583	469	1844		472	1863	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	157	16	91	8	4	54	64	727	51	128	780	178
RTOR Reduction (vph)	0	78	0	0	0	51	0	2	0	0	0	60
Lane Group Flow (vph)	157	29	0	0	12	3	64	776	0	128	780	118
Turn Type	Split			Split		Perm	Perm			Perm		Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases						8	2			6		6
Actuated Green, G (s)	12.8	12.8			5.4	5.4	59.8	59.8		59.8	59.8	59.8
Effective Green, g (s)	12.8	12.8			5.4	5.4	59.8	59.8		59.8	59.8	59.8
Actuated g/C Ratio	0.14	0.14			0.06	0.06	0.66	0.66		0.66	0.66	0.66
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	252	231			108	95	312	1225		314	1238	1052
v/s Ratio Prot	c0.09	0.02			c0.01			c0.42			0.42	
v/s Ratio Perm						0.00	0.14			0.27		0.07
v/c Ratio	0.62	0.13			0.11	0.03	0.21	0.63		0.41	0.63	0.11
Uniform Delay, d1	36.3	33.7			40.0	39.8	5.9	8.7		6.9	8.7	5.5
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.7	0.2			0.5	0.1	1.5	2.5		3.9	2.4	0.2
Delay (s)	41.1	34.0			40.5	40.0	7.3	11.3		10.8	11.2	5.7
Level of Service	D	C			D	D	A	B		B	B	A
Approach Delay (s)		38.2			40.1			11.0			10.2	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM Average Control Delay	14.6	HCM Level of Service	B ✓
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis 32: Pinehurst Dr. & Washington Pike

2033 AM Mitigated
Washington & Millertown Pike Study

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	2	2	2	2	2	2
Volume (veh/h)	29	2	2	753	786	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	32	2	2	837	873	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLT	TWLT	
Median storage veh				2	2	
Upstream signal (ft)					885	
pX, platoon unblocked	0.71	0.71	0.71			
vC, conflicting volume	1718	877	881			
vC1, stage 1 conf vol	877					
vC2, stage 2 conf vol	841					
vCu, unblocked vol	1810	617	622			
IC, single (s)	6.4	6.2	4.1			
IC, 2 stage (s)	5.4					
IF (s)	3.5	3.3	2.2			
p0 queue free %	88	99	100			
cM capacity (veh/h)	279	346	676			
Direction/Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	34	2	837	881		
Volume Left	32	2	0	0		
Volume Right	2	0	0	8		
cSH	283	676	1700	1700		
Volume to Capacity	0.12	0.00	0.49	0.52		
Queue Length 95th (ft)	10	0	0	0		
Control Delay (s)	19.5	10.3	0.0	0.0		
Lane LOS	C	B				
Approach Delay (s)	19.5	0.0	0.0	0.0		
Approach LOS	C					
Intersection Summary						
Average Delay	0.4					
Intersection Capacity Utilization	51.8%			ICU Level of Service	A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
33: Millertown Pike & Washington Pike

2033 AM Mitigated
Washington & Millertown Pike Study



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Right Turn Channelized						
Volume (veh/h)	374 ✓	273 ✓	302 ✓	307 ✓	218 ✓	455 ✓
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	416	303	336	341	242	506
Approach Volume (veh/h)		719	677		748	
Crossing Volume (veh/h)		242	416		336	
High Capacity (veh/h)		1145	998		1064	
High v/c (veh/h)		0.63	0.68		0.70	
Low Capacity (veh/h)		944	812		871	
Low v/c (veh/h)		0.76	0.83		0.86	
Intersection Summary						
Maximum v/c High			0.70			
Maximum v/c Low			0.86			
Intersection Capacity Utilization			119.8%		ICU Level of Service	H

HCM Unsignalized Intersection Capacity Analysis 39: Millertown Pike & Springhill Road

2033 AM Mitigated
Washington & Millertown Pike Study












Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↑	↑	↑	↑
Volume (veh/h)	285 ✓	235 ✓	137 ✓	403 ✓	225 ✓	113 ✓
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	317	261	152	448	250	126
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLT			TWLT		
Median storage (veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			578		1199	447
vC1, stage 1 conf vol					447	
vC2, stage 2 conf vol					752	
vCu, unblocked vol			578		1199	447
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			85		30	79
cM capacity (veh/h)			996		357	611

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	578	152	448	376
Volume Left	0	152	0	250
Volume Right	261	0	0	126
cSH	1700	996	1700	415
Volume to Capacity	0.34	0.15	0.26	0.91
Queue Length 95th (ft)	0	13	0	242
Control Delay (s)	0.0	9.3	0.0	55.6
Lane LOS		A ✓		F ✓
Approach Delay (s)	0.0	2.4		55.6
Approach LOS				F

Intersection Summary			
Average Delay	14.4		
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

Phasings
43: Millertown Pike & Loves Creek Road

2033 AM Mitigated
Washington & Millertown Pike Study

									
Lane Group	NBL	NBT	NBR	SBL	SBT	SET	SER	NWL	NWT
Protected Phases	5	2		1	6	3		4	4
Permitted Phases	2		2	6			3		
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	20.0	20.0	9.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	9.0	56.0	56.0	24.0	71.0	20.0	20.0	20.0	20.0
Total Split (%)	7.5%	46.7%	46.7%	20.0%	59.2%	16.7%	16.7%	16.7%	16.7%
Maximum Green (s)	4.0	51.0	51.0	19.0	66.0	15.0	15.0	15.0	15.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None
Walk Time (s)									
Flash Dont Walk (s)									
Pedestrian Calls (#/hr)									
90th %ile Green (s)	4.0	51.0	51.0	19.0	66.0	9.9	9.9	20.1	20.1
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Gap	Gap	Max	Max
70th %ile Green (s)	4.0	51.0	51.0	19.0	66.0	7.3	7.3	22.7	22.7
70th %ile Term Code	Max	Coord	Coord	Max	Coord	Gap	Gap	Max	Max
50th %ile Green (s)	4.7	53.8	53.8	16.9	66.0	6.4	6.4	22.9	22.9
50th %ile Term Code	Max	Coord	Coord	Gap	Coord	Gap	Gap	Gap	Gap
30th %ile Green (s)	7.8	59.6	59.6	14.2	66.0	5.7	5.7	20.5	20.5
30th %ile Term Code	Max	Coord	Coord	Gap	Coord	Gap	Gap	Gap	Gap
10th %ile Green (s)	7.0	79.3	79.3	9.3	81.6	0.0	0.0	16.4	16.4
10th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Skip	Skip	Gap	Gap
Intersection Summary									
Cycle Length: 120									
Actuated Cycle Length: 120									
Offset: 44 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow									
Control Type: Actuated-Coordinated									

HCM Signalized Intersection Capacity Analysis 43: Millertown Pike & Loves Creek Road

2033 AM Mitigated
Washington & Millertown Pike Study

	↑	↑	↶	↷	↓	↶	↷	↶	↷	↶	↷	↶	↷
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR	
Lane Configurations	↶	↶	↶	↶	↶			↶	↶	↶	↶	↶	
Volume (vph)	105 ✓	518 ✓	7 ✓	340 ✓	1728 ✓	0	2 ✓	12 ✓	60 ✓	206 ✓	12 ✓	129 ✓	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0			3.0	4.0	3.0	3.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00	1.00	1.00		
Fr't	1.00	1.00	0.85	1.00	1.00			1.00	0.85	1.00	0.86		
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99	1.00	0.95	1.00		
Satd. Flow (prot)	1770	3539	1583	1770	3539			1850	1583	1770	1607		
Flt Permitted	0.07	1.00	1.00	0.35	1.00			0.99	1.00	0.95	1.00		
Satd. Flow (perm)	124	3539	1583	654	3539			1850	1583	1770	1607		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	117	576	8	378	1920	0	2	13	67	229	13	143	
RTOR Reduction (vph)	0	0	4	0	0	0	0	0	63	0	116	0	
Lane Group Flow (vph)	117	576	4	378	1920	0	0	15	4	229	40	0	
Turn Type	pm+pt		Perm	pm+pt			Split		Perm	Split			
Protected Phases	5	2		1	6		3	3		4	4		
Permitted Phases	2		2	6					3				
Actuated Green, G (s)	63.4	57.9	57.9	78.6	68.1			5.9	5.9	20.5	20.5		
Effective Green, g (s)	67.4	59.9	59.9	80.6	70.1			7.9	6.9	22.5	22.5		
Actuated g/C Ratio	0.56	0.50	0.50	0.67	0.58			0.07	0.06	0.19	0.19		
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0	5.0	5.0	5.0		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	173	1767	790	604	2067			122	91	332	301		
v/s Ratio Prot	c0.04	0.16		0.09	c0.54			c0.01		c0.13	0.02		
v/s Ratio Perm	0.34		0.00	0.33					0.00				
y/c Ratio	0.68	0.33	0.01	0.63	0.93			0.12	0.04	0.69	0.13		
Uniform Delay, d1	24.9	18.0	15.1	9.4	22.7			52.8	53.4	45.5	40.6		
Progression Factor	1.46	0.66	0.59	1.00	1.00			1.00	1.00	1.00	1.00		
Incremental Delay, d2	9.9	0.5	0.0	2.0	8.9			0.5	0.2	5.9	0.2		
Delay (s)	46.1	12.4	9.0	11.4	31.6			53.2	53.6	51.4	40.8		
Level of Service	D	B	A	B	C			D	D	D	D		
Approach Delay (s)		18.0			28.3			53.6			47.1		
Approach LOS		B ✓			C ✓			D ✓			D ✓		
Intersection Summary													
HCM Average Control Delay			28.9			HCM Level of Service			C ✓				
HCM Volume to Capacity ratio			0.80 ✓										
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			12.0				
Intersection Capacity Utilization			81.7%			ICU Level of Service			D				
Analysis Period (min)			15										
c - Critical Lane Group													

Phasings

44: Knoxville Ctr. Ent/Exit & Millertown Pike

2033 AM Mitigated
Washington & Millertown Pike Study

Lane/Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Minimum Initial (s)	6.0	10.0	6.0	6.0	10.0	6.0	6.0	15.0	6.0	6.0	15.0	6.0
Minimum Split (s)	11.0	20.0	11.0	11.0	20.0	11.0	11.0	20.0	11.0	11.0	20.0	11.0
Total Split (s)	11.0	20.0	13.0	15.0	24.0	14.0	13.0	71.0	15.0	14.0	72.0	11.0
Total Split (%)	9.2%	16.7%	10.8%	12.5%	20.0%	11.7%	10.8%	59.2%	12.5%	11.7%	60.0%	9.2%
Maximum Green (s)	6.0	15.0	8.0	10.0	19.0	9.0	8.0	66.0	10.0	9.0	67.0	6.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	None	None	None	C-Min	None	None	C-Min	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
90th %ile Green (s)	6.3	10.0	10.2	10.3	14.0	10.3	10.2	69.4	10.3	10.3	69.5	6.3
90th %ile Term Code	Max	Min	Gap	Max	Hold	Gap	Gap	Coord	Max	Gap	Coord	Max
70th %ile Green (s)	7.4	10.0	8.0	15.4	18.0	9.6	8.0	65.0	15.4	9.6	66.6	7.4
70th %ile Term Code	Gap	Min	Gap	Gap	Hold	Gap	Gap	Coord	Gap	Gap	Coord	Gap
50th %ile Green (s)	6.5	10.0	6.4	13.7	17.2	8.4	6.4	67.9	13.7	8.4	69.9	6.5
50th %ile Term Code	Gap	Min	Gap	Gap	Hold	Gap	Gap	Coord	Gap	Gap	Coord	Gap
30th %ile Green (s)	14.3	0.0	6.4	14.3	0.0	6.3	6.4	84.4	14.3	6.3	84.3	14.3
30th %ile Term Code	Hold	Skip	Gap	Gap	Skip	Gap	Gap	Coord	Gap	Gap	Coord	Hold
10th %ile Green (s)	11.6	0.0	6.0	11.6	0.0	6.0	6.0	87.4	11.6	6.0	87.4	11.6
10th %ile Term Code	Hold	Skip	Min	Gap	Skip	Min	Min	Coord	Gap	Min	Coord	Hold

Intersection Summary

Cycle Length: 120

























Actuated Cycle Length: 120

Offset: 9 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

HCM Signalized Intersection Capacity Analysis 44: Knoxville Ctr. Ent/Exit & Millertown Pike

2033 AM Mitigated
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36 ✓	24 ✓	62 ✓	295 ✓	34 ✓	77 ✓	79 ✓	592 ✓	194 ✓	156 ✓	1771 ✓	117 ✓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	3433	1863	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.73	1.00	1.00	0.54	1.00	1.00	0.06	1.00	1.00	0.37	1.00	1.00
Satd. Flow (perm)	1364	1863	1583	1944	1863	1583	119	5085	1583	682	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	40	27	69	328	38	86	88	658	216	173	1968	130
RTOR Reduction (vph)	0	0	16	0	0	70	0	0	54	0	0	36
Lane Group Flow (vph)	40	27	53	328	38	16	88	658	162	173	1968	94
Turn Type	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	15.2	6.0	13.4	23.0	9.9	18.0	80.2	72.8	85.9	81.6	73.5	82.7
Effective Green, g (s)	19.2	8.0	17.4	26.1	11.9	22.0	84.2	74.8	89.9	85.6	75.5	86.7
Actuated g/C Ratio	0.16	0.07	0.14	0.22	0.10	0.18	0.70	0.62	0.75	0.71	0.63	0.72
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0
Lane Grp Cap (vph)	256	124	269	610	185	330	213	3170	1226	578	3199	1183
v/s Ratio Prot	0.01	0.01	0.02	c0.07	0.02	0.00	c0.03	0.13	0.02	c0.03	c0.39	0.01
v/s Ratio Perm	0.01		0.02	c0.05		0.01	0.26		0.09	0.19		0.05
v/c Ratio	0.16	0.22	0.20	0.54	0.21	0.05	0.41	0.21	0.13	0.30	0.62	0.08
Uniform Delay, d1	43.3	53.0	45.1	40.7	49.7	40.4	11.1	9.8	4.2	5.6	13.5	4.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.86	0.71	1.23	0.45	0.43	0.05
Incremental Delay, d2	0.1	0.9	0.1	0.5	0.6	0.0	0.5	0.1	0.0	0.1	0.4	0.0
Delay (s)	43.4	53.9	45.3	41.1	50.3	40.4	21.0	7.1	5.2	2.6	6.3	0.3
Level of Service	D	D	D	D	D	D	C	A	A	A	A	A
Approach Delay (s)		46.4			41.8			7.9			5.6	
Approach LOS		D ✓			D ✓			A ✓			A ✓	
Intersection Summary												
HCM Average Control Delay	11.9			HCM Level of Service			B ✓					
HCM Volume to Capacity ratio	0.58 ✓											
Actuated Cycle Length (s)	120.0			Sum of lost time (s)			9.0					
Intersection Capacity Utilization	64.3%			ICU Level of Service			C					
Analysis Period (min)	15											
c Critical Lane Group												

Phasings
45: I-640 WB Ent & Millertown Pike

2033 AM Mitigated
Washington & Millertown Pike Study



Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Protected Phases	4	14	1	2	2	
Permitted Phases		14	2		2	2
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	9.0		8.0	21.0	21.0	21.0
Total Split (s)	24.0	41.0	17.0	79.0	79.0	79.0
Total Split (%)	20.0%	34.2%	14.2%	65.8%	65.8%	65.8%
Maximum Green (s)	19.0		13.0	74.0	74.0	74.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		0.0	1.0	1.0	1.0
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	None		None	C-Max	C-Max	C-Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	19.0		7.5	79.5	79.5	79.5
90th %ile Term Code	Max		Gap	Coord	Coord	Coord
70th %ile Green (s)	19.0		7.1	79.9	79.9	79.9
70th %ile Term Code	Max		Gap	Coord	Coord	Coord
50th %ile Green (s)	19.0		5.9	81.1	81.1	81.1
50th %ile Term Code	Max		Gap	Coord	Coord	Coord
30th %ile Green (s)	17.3		5.6	83.1	83.1	83.1
30th %ile Term Code	Gap		Gap	Coord	Coord	Coord
10th %ile Green (s)	14.3		5.5	86.2	86.2	86.2
10th %ile Term Code	Gap		Gap	Coord	Coord	Coord

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 81 (68%), Referenced to phase 2:NBSB, Start of Yellow

Control Type: Actuated-Coordinated

HCM Signalized Intersection Capacity Analysis 45: I-640 WB Ent & Millertown Pike

2033 AM Mitigated
Washington & Millertown Pike Study

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↑↑	↑	↑↑↑			↑↑↑	↑
Volume (vph)	0	0	0	144	300 ✓	489 ✓	26	422 ✓	0	0	1194 ✓	635 ✓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.0	2.0	2.0	3.0			3.0	3.0
Lane Util. Factor					0.91	0.88	1.00	0.91			0.91	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					5004	2787	1770	5085			5085	1583
Flt Permitted					0.98	1.00	0.17	1.00			1.00	1.00
Satd. Flow (perm)					5004	2787	318	5085			5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	160	333	543	29	469	0	0	1327	706
RTOR Reduction (vph)	0	0	0	0	0	416	0	0	0	0	0	130
Lane Group Flow (vph)	0	0	0	0	493	127	29	469	0	0	1327	576
Turn Type				Split	custom	pm+pt						Perm
Protected Phases				4	4	14	1	2			2	
Permitted Phases						14	2				2	2
Actuated Green, G (s)					17.7	29.0	88.3	82.0			82.0	82.0
Effective Green, g (s)					19.7	28.0	92.3	84.0			84.0	84.0
Actuated g/C Ratio					0.16	0.23	0.77	0.70			0.70	0.70
Clearance Time (s)					5.0		4.0	5.0			5.0	5.0
Vehicle Extension (s)					3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					821	650	345	3560			3560	1108
v/s Ratio Prot					c0.10	c0.05	0.01	0.09			0.26	
v/s Ratio Perm							0.06					c0.36
v/c Ratio					0.60	0.19	0.08	0.13			0.37	0.52
Uniform Delay, d1					46.5	36.9	3.7	5.9			7.3	8.5
Progression Factor					1.00	1.00	1.42	1.16			0.64	0.58
Incremental Delay, d2					1.2	0.1	0.1	0.1			0.2	1.4
Delay (s)					47.7	37.1	5.4	7.0			4.9	6.3
Level of Service					D	D	A	A			A	A
Approach Delay (s)		0.0			42.2			6.9			5.4	
Approach LOS		A			D ✓			A ✓			A	
Intersection Summary												
HCM Average Control Delay			16.3									
HCM Volume to Capacity ratio			0.51 ✓									
Actuated Cycle Length (s)			120.0						8.0			
Intersection Capacity Utilization			61.4%									
Analysis Period (min)			15									
c Critical Lane Group												

Phasings
46: South Mall Road & Millertown Pike

2033 AM Mitigated
Washington & Millertown Pike Study



Lane Group	EBL	EBT	EBR	NET	SWL	SWT
Protected Phases		4		2	1	2
Permitted Phases	4		4		2	1
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	9.0	21.0
Total Split (s)	44.0	44.0	44.0	27.0	49.0	27.0
Total Split (%)	36.7%	36.7%	36.7%	22.5%	40.8%	22.5%
Maximum Green (s)	39.0	39.0	39.0	22.0	44.0	22.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag				Lag	Lead	Lag
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	Min	Min	Min	C-Min	None	C-Min
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	37.1	37.1	37.1	24.1	43.8	24.1
90th %ile Term Code	Gap	Gap	Gap	Coord	Gap	Coord
70th %ile Green (s)	31.8	31.8	31.8	32.1	41.1	32.1
70th %ile Term Code	Gap	Gap	Gap	Coord	Gap	Coord
50th %ile Green (s)	27.6	27.6	27.6	40.6	36.8	40.6
50th %ile Term Code	Gap	Gap	Gap	Coord	Gap	Coord
30th %ile Green (s)	24.0	24.0	24.0	47.0	34.0	47.0
30th %ile Term Code	Gap	Gap	Gap	Coord	Gap	Coord
10th %ile Green (s)	18.9	18.9	18.9	55.9	30.2	55.9
10th %ile Term Code	Gap	Gap	Gap	Coord	Gap	Coord

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 106 (88%), Referenced to phase 2:NESW, Start of Yellow
 Control Type: Actuated-Coordinated

HCM Signalized Intersection Capacity Analysis 46: South Mall Road & Millertown Pike

2033 AM Mitigated
Washington & Millertown Pike Study

	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Movement												
Lane Configurations												
Volume (vph)	187	273	62	0	0	0	0	201	141	882	410	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Util. Factor	0.95	0.95	1.00					0.91		0.97	0.95	
Fr _t	1.00	1.00	0.85					0.94		1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1764	1583					4770		3433	3539	
Flt Permitted	0.95	1.00	1.00					1.00		0.47	1.00	
Satd. Flow (perm)	1681	1764	1583					4770		1714	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	208	303	69	0	0	0	0	223	157	980	456	0
RTOR Reduction (vph)	0	0	52	0	0	0	0	87	0	0	0	0
Lane Group Flow (vph)	187	324	17	0	0	0	0	293	0	980	456	0
Turn Type	Perm		Perm							pm+pt		
Protected Phases		4						2		1	2	
Permitted Phases	4		4							2	1	
Actuated Green, G (s)	27.9	27.9	27.9					39.9		77.1	77.1	
Effective Green, g (s)	29.9	29.9	29.9					41.9		81.1	81.1	
Actuated g/C Ratio	0.25	0.25	0.25					0.35		0.68	0.68	
Clearance Time (s)	5.0	5.0	5.0					5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	419	440	394					1666		1720	2480	
v/s Ratio Prot								0.06		c0.19	0.06	
v/s Ratio Perm	0.11	0.18	0.01							c0.20	0.06	
v/c Ratio	0.45	0.74	0.04					0.18		0.57	0.18	
Uniform Delay, d1	38.1	41.4	34.2					27.1		8.9	7.2	
Progression Factor	1.00	1.00	1.00					1.00		0.49	0.51	
Incremental Delay, d2	0.8	6.3	0.0					0.2		0.4	0.0	
Delay (s)	38.8	47.7	34.2					27.3		4.8	3.7	
Level of Service	D	D	C					C		A	A	
Approach Delay (s)		43.3			0.0			27.3			4.4	
Approach LOS		D ✓			A			C ✓			A ✓	
Intersection Summary												
HCM Average Control Delay		17.5						HCM Level of Service		B ✓		
HCM Volume to Capacity ratio		0.61										
Actuated Cycle Length (s)		120.0						Sum of lost time (s)		9.0		
Intersection Capacity Utilization		61.4%						ICU Level of Service		B		
Analysis Period (min)		15										
c Critical Lane Group												

Phasings
47: Millertown Pike & Mill Road

2033 AM Mitigated
Washington & Millertown Pike Study



Lane Group	EBL	EBT	WBT	SBL	SBR
Protected Phases		4	8	6	
Permitted Phases	4				6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	20.0	20.0	20.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	C-Min	C-Min
Walk Time (s)	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0
90th %ile Green (s)	16.0	16.0	16.0	16.0	16.0
90th %ile Term Code	Max	Max	Max	Coord	Coord
70th %ile Green (s)	16.0	16.0	16.0	16.0	16.0
70th %ile Term Code	Max	Max	Max	Coord	Coord
50th %ile Green (s)	16.0	16.0	16.0	16.0	16.0
50th %ile Term Code	Max	Max	Max	Coord	Coord
30th %ile Green (s)	16.0	16.0	16.0	16.0	16.0
30th %ile Term Code	Max	Max	Max	Coord	Coord
10th %ile Green (s)	16.0	16.0	16.0	16.0	16.0
10th %ile Term Code	Max	Max	Max	Coord	Coord

Intersection Summary

Cycle Length: 40
 Actuated Cycle Length: 40
 Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green
 Control Type: Actuated-Coordinated

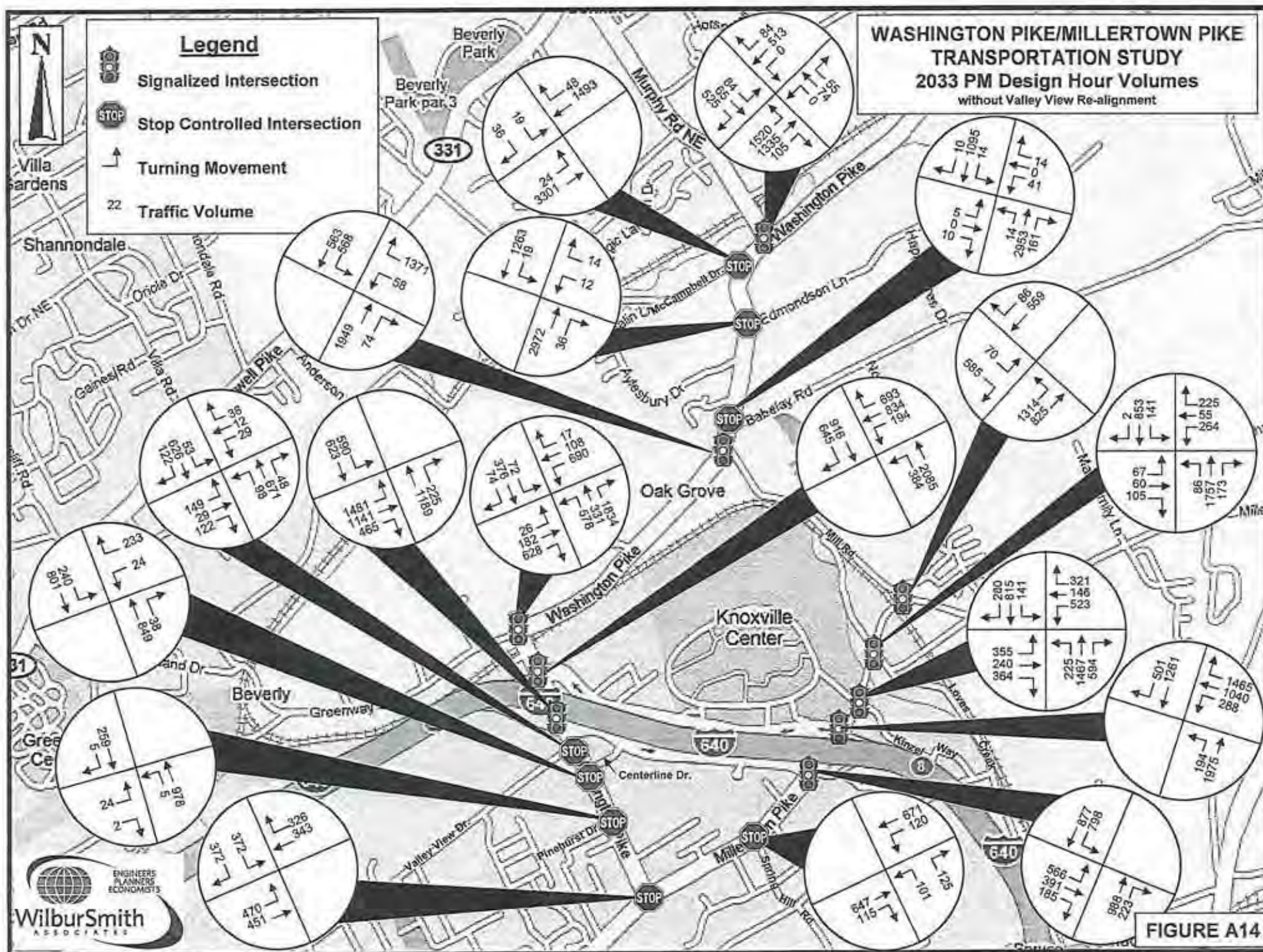
HCM Signalized Intersection Capacity Analysis 47: Millertown Pike & Mill Road

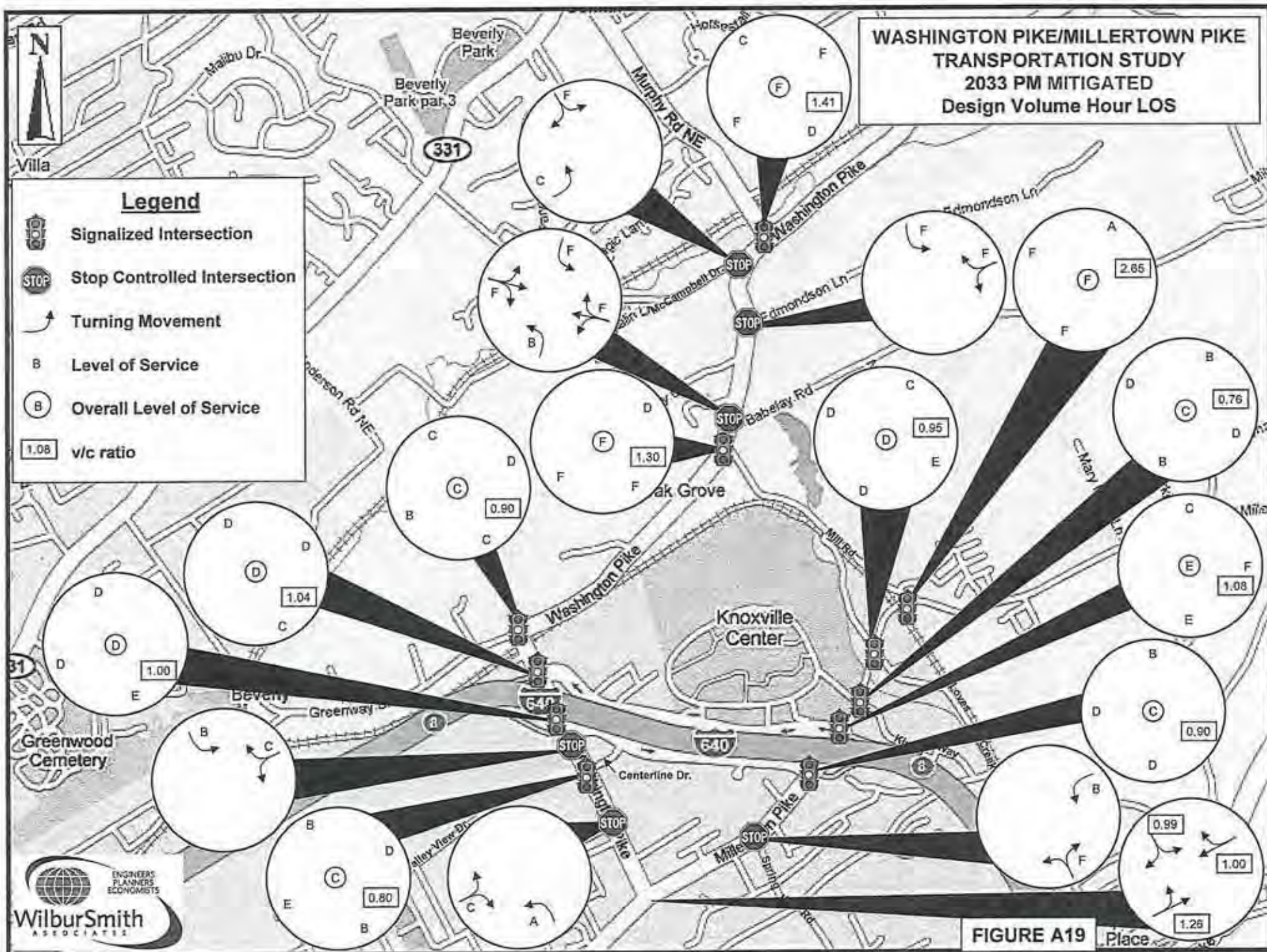
2033 AM Mitigated
Washington & Millertown Pike Study



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑	↱		↰	↱
Volume (vph)	396	194	997	93	58	1254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1863	1841		1770	1583
Flt Permitted	0.24	1.00	1.00		0.95	1.00
Satd. Flow (perm)	438	1863	1841		1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	440	216	1108	103	64	1393
RTOR Reduction (vph)	0	0	9	0	0	18
Lane Group Flow (vph)	440	216	1202	0	64	1375
Turn Type	Perm				Perm	
Protected Phases		4	8		6	
Permitted Phases	4					6
Actuated Green, G (s)	16.0	16.0	16.0		16.0	16.0
Effective Green, g (s)	17.0	17.0	17.0		17.0	17.0
Actuated g/C Ratio	0.42	0.42	0.42		0.42	0.42
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	186	792	782		752	673
v/s Ratio Prot		0.12	0.65		0.04	
v/s Ratio Perm	c1.00					c0.87
v/c Ratio	2.37	0.27	1.54		0.09	2.04
Uniform Delay, d1	11.5	7.5	11.5		6.9	11.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	630.8	0.2	248.3		0.2	474.3
Delay (s)	642.3	7.7	259.8		7.1	485.8
Level of Service	F	A	F		A	F
Approach Delay (s)		433.4	259.8		464.8	
Approach LOS		F	F		F	

Intersection Summary			
HCM Average Control Delay	383.9	HCM Level of Service	F
HCM Volume to Capacity ratio	2.20		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	142.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			





Timings
22: Murphy Road & Washington Pike

2033 PM Mitigated
Washington & Millertown Pike Study



Lane Group	NBT	SBL	SBT	SBR	NEL	NET	SWT
Lane Configurations							
Volume (vph)	74	84	65	525	1520	1335	513
Turn Type	Perm		pm+ov		pm+pt		
Protected Phases	2		6	7	7	4	8
Permitted Phases		6		6	4		
Detector Phase	2	6	6	7	7	4	8
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	8.0	8.0	20.0	20.0
Total Split (s)	20.0	20.0	20.0	65.0	65.0	85.0	20.0
Total Split (%)	19.0%	19.0%	19.0%	61.9%	61.9%	81.0%	19.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	3.0	4.0	3.0	3.0	3.0	3.0
Lead/Lag				Lead	Lead		Lag
Lead-Lag Optimize?							
Recall Mode	Min	Min	Min	None	None	None	None

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Splits and Phases: 22: Murphy Road & Washington Pike

p2	p4	
20 s	85 s	
p6	p7	p8
20 s	65 s	20 s

Queues
22: Murphy Road & Washington Pike

2033 PM Mitigated
Washington & Millertown Pike Study



Lane Group	NBT	SBT	SBR	NEL	NET	SWT
Lane Group Flow (vph)	143	165	583	1689	1600	663
v/c Ratio	0.49	1.01	0.27	1.51	0.58	1.16
Control Delay	38.3	119.7	3.4	256.8	5.6	127.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	119.7	3.4	256.8	5.6	127.6
Queue Length 50th (ft)	70	~114	47	~1551	179	~274
Queue Length 95th (ft)	133	#250	65	#1820	223	#392
Internal Link Dist (ft)	209	5075			327	483
Turn Bay Length (ft)						
Base Capacity (vph)	293	163	2180	1116	2739	574
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	1.01	0.27	1.51	0.58	1.16

Intersection Summary

- Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Phasings
22: Murphy Road & Washington Pike

2033 PM Mitigated
Washington & Millertown Pike Study



Lane Group	NBT	SBL	SBT	SBR	NEL	NET	SWT
Protected Phases	2		6	7	7	4	8
Permitted Phases		6		6	4		
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	8.0	8.0	20.0	20.0
Total Split (s)	22.0	22.0	22.0	68.0	68.0	88.0	20.0
Total Split (%)	20.0%	20.0%	20.0%	61.8%	61.8%	80.0%	18.2%
Maximum Green (s)	18.0	18.0	18.0	64.0	64.0	84.0	16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lead/Lag				Lead	Lead		Lag
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	Min	Min	Min	None	None	None	None
Walk Time (s)	5.0	5.0	5.0			5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)	0	0	0			0	0
90th %ile Green (s)	18.0	18.0	18.0	64.0	64.0	84.0	16.0
90th %ile Term Code	Max	Max	Max	Max	Max	Hold	Max
70th %ile Green (s)	18.0	18.0	18.0	64.0	64.0	84.0	16.0
70th %ile Term Code	Hold	Max	Max	Max	Max	Hold	Max
50th %ile Green (s)	18.0	18.0	18.0	64.0	64.0	84.0	16.0
50th %ile Term Code	Hold	Max	Max	Max	Max	Hold	Max
30th %ile Green (s)	18.0	18.0	18.0	64.0	64.0	84.0	16.0
30th %ile Term Code	Hold	Max	Max	Max	Max	Hold	Max
10th %ile Green (s)	17.1	17.1	17.1	64.0	64.0	84.0	16.0
10th %ile Term Code	Hold	Gap	Gap	Max	Max	Hold	Max

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 109.8

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 110

70th %ile Actuated Cycle: 110




















50th %ile Actuated Cycle: 110

30th %ile Actuated Cycle: 110

10th %ile Actuated Cycle: 109.1

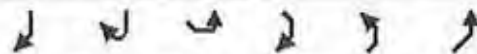
HCM Signalized Intersection Capacity Analysis 22: Murphy Road & Washington Pike

2033 PM Mitigated
Washington & Millertown Pike Study

													
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations													
Volume (vph)	0 ✓	74 ✓	55 ✓	84 ✓	65 ✓	525 ✓	1520 ✓	1335 ✓	105 ✓	0	513	84	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.0			4.0	3.0	3.0	3.0			3.0		
Lane Util. Factor		1.00			1.00	0.88	1.00	0.95			0.95		
Frt		0.94			1.00	0.85	1.00	0.99			0.98		
Flt Protected		1.00			0.97	1.00	0.95	1.00			1.00		
Satd. Flow (prot)		1755			1812	2787	1770	3500			3465		
Flt Permitted		1.00			0.58	1.00	0.20	1.00			1.00		
Satd. Flow (perm)		1755			1084	2787	373	3500			3465		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	0	82	61	93	72	583	1689	1483	117	0	570	93	
RTOR Reduction (vph)	0	24	0	0	0	3	0	5	0	0	12	0	
Lane Group Flow (vph)	0	119	0	0	165	580	1689	1595	0	0	651	0	
Turn Type	Perm		Perm		pm+ov		pm+pt		Perm				
Protected Phases	2		6		7		7		8				
Permitted Phases	2		6		6		4		8				
Actuated Green, G (s)	17.8		17.8		81.8		84.0		16.0				
Effective Green, g (s)	17.8		17.8		83.8		85.0		17.0				
Actuated g/C Ratio	0.16		0.16		0.76		0.77		0.15				
Clearance Time (s)	4.0		4.0		4.0		4.0		4.0				
Vehicle Extension (s)	3.0		3.0		3.0		3.0		3.0				
Lane Grp Cap (vph)	285		176		2203		1116		536				
v/s Ratio Prot	0.07				0.16		c0.90		0.19				
v/s Ratio Perm			c0.15		0.05		c0.28						
v/c Ratio	0.42		0.94		0.26		1.51		1.21				
Uniform Delay, d1	41.3		45.5		3.9		18.8		46.4				
Progression Factor	1.00		1.00		1.00		1.00		1.00				
Incremental Delay, d2	1.0		49.4		0.1		235.7		112.9				
Delay (s)	42.3		94.9		3.9		254.5		159.3				
Level of Service	D		F		A		F		F				
Approach Delay (s)	42.3		24.0				133.4		159.3				
Approach LOS	D ✓		C ✓				F ✓		E ✓				
Intersection Summary													
HCM Average Control Delay	117.3		HCM Level of Service		F								
HCM Volume to Capacity ratio	1.41 ✓												
Actuated Cycle Length (s)	109.8		Sum of lost time (s)		7.0								
Intersection Capacity Utilization	129.7%		ICU Level of Service		H								
Analysis Period (min)	15												
c Critical Lane Group													

HCM Unsignalized Intersection Capacity Analysis 23: Washington Pike & McCampbell Drive

2033 PM Mitigated
Washington & Millertown Pike Study



Movement	SBR	SBR2	SEL	SER	NEL2	NEL
Lane Configurations	TTT		TL		TL	TL
Volume (veh/h)	1493✓	48✓	19✓	36✓	24✓	3301✓
Sign Control	Free		Stop			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1659	53	21	40	27	3668
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None				Raised	
Median storage (veh)					1	
Upstream signal (ft)	407					
pX, platoon unblocked			0.85	0.85	0.85	
vC, conflicting volume			3573	856	1712	
vC1, stage 1 conf vol			1686			
vC2, stage 2 conf vol			1887			
vCu, unblocked vol			3671	490	1492	
tC, single (s)			6.8	6.9	4.1	
tC, 2 stage (s)			5.8			
tF (s)			3.5	3.3	2.2	
p0 queue free %			62	91	93	
cM capacity (veh/h)			56	448	381	

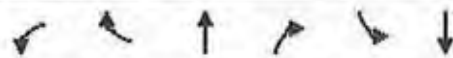
Direction, Lane #	SB 1	SB 2	SE 1	NE 1	NE 2	NE 3
Volume Total	1106	606	61	27	1834	1834
Volume Left	0	0	21	27	0	0
Volume Right	0	53	40	0	0	0
cSH	1700	1700	130	381	1700	1700
Volume to Capacity	0.65	0.36	0.47	0.07	1.08	1.08
Queue Length 95th (ft)	0	0	53	6	0	0
Control Delay (s)	0.0	0.0	54.9	15.2	0.0	0.0
Lane LOS			F ✓	C ✓		
Approach Delay (s)	0.0		54.9	0.1		
Approach LOS			F			

Intersection Summary						
Average Delay		0.7				
Intersection Capacity Utilization		104.2%		ICU Level of Service	G	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 24: Edmonds-Road & Washington Pike

2033 PM Mitigated
Washington & Millertown Pike Study

EDMONDSON LANE



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰		↕		↰	↕
Volume (veh/h)	12 ✓	14 ✓	2972 ✓	36 ✓	19 ✓	1263 ✓
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	13	16	3302	40	21	1403
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4066	1671			3342	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4066	1671			3342	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	82			74	
cM capacity (veh/h)	1	85			82	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	29	2201	1141	21	702	702
Volume Left	13	0	0	21	0	0
Volume Right	16	0	40	0	0	0
cSH	3	1700	1700	82	1700	1700
Volume to Capacity	10.00	1.29	0.67	0.26	0.41	0.41
Queue Length 95th (ft)	Err	0	0	23	0	0
Control Delay (s)	Err	0.0	0.0	63.5	0.0	0.0
Lane LOS	F			F		
Approach Delay (s)	Err	0.0		0.9		
Approach LOS	F					

Intersection Summary						
Average Delay		60.5				
Intersection Capacity Utilization		93.3%		ICU Level of Service		F
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 25: Babelay Road & Washington Pike

2033 PM Mitigated
Washington & Millertown Pike Study

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	0	10	41	0	14	14	2953	161	14	1095	10
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	0	11	46	0	16	16	3281	179	16	1217	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None		None		
Median storage (veh)												
Upstream signal (ft)								687				
pX, platoon unblocked	0.54	0.54		0.54	0.54	0.54				0.54		
vC, conflicting volume	2941	4744	614	4052	4661	1730	1228			3460		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2891	6211	614	4937	6057	662	1228			3847		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	97	0	100	93	97			44		
cM capacity (veh/h)	2	0	435	0	0	220	563			28		
Direction, Lane #												
	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	17	61	16	2187	1273	16	811	417				
Volume Left	6	46	16	0	0	16	0	0				
Volume Right	11	16	0	0	179	0	0	11				
cSH	6	0	563	1700	1700	28	1700	1700				
Volume to Capacity	2.83	985.50	0.03	1.29	0.75	0.56	0.48	0.25				
Queue Length 95th (ft)	82	Err	2	0	0	44	0	0				
Control Delay (s)	2004.9	Err	11.6	0.0	0.0	243.6	0.0	0.0				
Lane LOS	F	F	B			F						
Approach Delay (s)	2004.9	Err	0.1			3.0						
Approach LOS	F	F										
Intersection Summary												
Average Delay			135.2									
Intersection Capacity Utilization			99.7%		ICU Level of Service				F			
Analysis Period (min)			15									

Phasings
26: Mill Road & Washington Pike

2033 PM Mitigated
Washington & Millertown Pike Study



Lane Group	WBL	WBR	NBT	SBL	SBT
Protected Phases	4	1	2	1	6
Permitted Phases		4		6	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	10.0	22.0	10.0	22.0
Total Split (s)	22.0	30.0	58.0	30.0	88.0
Total Split (%)	20.0%	27.3%	52.7%	27.3%	80.0%
Maximum Green (s)	16.0	24.0	52.0	24.0	82.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lead/Lag		Lead	Lag	Lead	
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Max
Walk Time (s)	5.0		5.0		5.0
Flash Dont Walk (s)	11.0		11.0		11.0
Pedestrian Calls (#/hr)	0		0		0
90th %ile Green (s)	12.9	27.1	52.0	27.1	85.1
90th %ile Term Code	Gap	Max	Coord	Max	Coord
70th %ile Green (s)	10.8	29.2	52.0	29.2	87.2
70th %ile Term Code	Gap	Max	Coord	Max	Coord
50th %ile Green (s)	9.3	30.7	52.0	30.7	88.7
50th %ile Term Code	Gap	Max	Coord	Max	Coord
30th %ile Green (s)	7.9	32.1	52.0	32.1	90.1
30th %ile Term Code	Gap	Max	Coord	Max	Coord
10th %ile Green (s)	0.0	46.0	52.0	46.0	104.0
10th %ile Term Code	Skip	Max	Coord	Max	Coord

Intersection Summary

Cycle Length: 110







Actuated Cycle Length: 110

Offset: 42 (38%), Referenced to phase 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

HCM Signalized Intersection Capacity Analysis 26: Mill Road & Washington Pike

2033 PM Mitigated
Washington & Millertown Pike Study

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	58	1371	1949	74	568	563
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.88	0.95		1.00	0.95
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	2787	3520		1770	3539
Flt Permitted	0.95	1.00	1.00		0.07	1.00
Satd. Flow (perm)	1770	2787	3520		131	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	64	1523	2166	82	631	626
RTOR Reduction (vph)	0	2	3	0	0	0
Lane Group Flow (vph)	64	1521	2245	0	631	626
Turn Type	pm+ov			pm+pt		
Protected Phases	4	1	2		1	6
Permitted Phases		4			6	
Actuated Green, G (s)	8.2	41.2	50.8		89.8	89.8
Effective Green, g (s)	9.2	43.2	51.8		90.8	90.8
Actuated g/C Ratio	0.08	0.39	0.47		0.83	0.83
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	148	1221	1658		615	2921
v/s Ratio Prot	0.04	0.39	0.64		0.32	0.18
v/s Ratio Perm		0.16			0.53	
v/c Ratio	0.43	1.25	1.35		1.03	0.21
Uniform Delay, d1	47.9	33.4	29.1		33.8	2.0
Progression Factor	1.03	0.56	0.84		1.00	1.00
Incremental Delay, d2	0.9	113.9	161.6		43.1	0.2
Delay (s)	50.5	132.8	186.0		76.9	2.2
Level of Service	D	F	F		E	A
Approach Delay (s)	129.5		186.0			39.7
Approach LOS	F		F			D
Intersection Summary						
HCM Average Control Delay			132.3		HCM Level of Service	F
HCM Volume to Capacity ratio			1.30			
Actuated Cycle Length (s)			110.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			112.5%		ICU Level of Service	H
Analysis Period (min)			15			
c Critical Lane Group						

Phasings

27: Greenway Drive & Washington Pike

2033 PM Mitigated
Washington & Millertown Pike Study



Lane/Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	1	6		5	2		7	4	4	3	8	
Permitted Phases	6		Free	2		Free	4		5	8		Free
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0	21.0	21.0	21.0	
Total Split (s)	21.0	21.0	0.0	21.0	21.0	0.0	39.0	47.0	47.0	21.0	29.0	0.0
Total Split (%)	19.1%	19.1%	0.0%	19.1%	19.1%	0.0%	35.5%	42.7%	42.7%	19.1%	26.4%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		34.0	42.0	42.0	16.0	24.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	Min		None	Min		None	C-Max	C-Max	None	C-Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
90th %ile Green (s)	8.3	14.7		16.0	22.4		35.3	49.9	49.9	9.4	24.0	
90th %ile Term Code	Gap	Gap		Max	Hold		Max	Coord	Coord	Gap	Coord	
70th %ile Green (s)	7.4	12.9		16.0	21.5		37.1	53.0	53.0	8.1	24.0	
70th %ile Term Code	Gap	Gap		Max	Hold		Max	Coord	Coord	Gap	Coord	
50th %ile Green (s)	6.7	11.6		16.0	20.9		35.0	55.0	55.0	7.4	27.4	
50th %ile Term Code	Gap	Gap		Max	Hold		Gap	Coord	Coord	Gap	Coord	
30th %ile Green (s)	0.0	10.3		16.0	31.3		26.7	57.0	57.0	6.7	37.0	
30th %ile Term Code	Skip	Gap		Max	Hold		Gap	Coord	Coord	Gap	Coord	
10th %ile Green (s)	0.0	8.4		16.0	29.4		20.9	70.6	70.6	0.0	44.7	
10th %ile Term Code	Skip	Gap		Max	Hold		Gap	Coord	Coord	Skip	Coord	

Intersection Summary

Cycle Length: 110


Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 4:NBTL and 8:SBTL, Start of Yellow, Master Intersection

Control Type: Actuated-Coordinated

HCM Signalized Intersection Capacity Analysis 27: Greenway Drive & Washington Pike

2033 PM Mitigated
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Volume (vph)	26 ✓	182	628	690	108	17	578	331	1834	72	376	74 ✓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	0.88	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	1863	1583	1770	1863	2787	1770	3539	1583
Flt Permitted	0.68	1.00	1.00	0.43	1.00	1.00	0.35	1.00	1.00	0.54	1.00	1.00
Satd. Flow (perm)	1266	3539	1583	1539	1863	1583	645	1863	2787	1010	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	202	698	767	120	19	642	368	2038	80	418	82
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	285	0	0	0
Lane Group Flow (vph)	29	202	698	767	120	19	642	368	1753	80	418	82
Turn Type	pm+pt		Free	pm+pt		Free	pm+pt		custom	pm+pt		Free
Protected Phases	1	6		5	2		7	4	4	3	8	
Permitted Phases	6		Free	2		Free	4		5	8		Free
Actuated Green, G (s)	18.1	13.6	110.0	34.6	25.1	110.0	65.4	54.1	70.1	35.7	29.4	110.0
Effective Green, g (s)	22.1	15.6	110.0	36.6	27.1	110.0	67.4	56.1	74.1	39.7	31.4	110.0
Actuated g/C Ratio	0.20	0.14	1.00	0.33	0.25	1.00	0.61	0.51	0.67	0.36	0.29	1.00
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	284	502	1583	822	459	1583	733	950	1953	422	1010	1583
v/s Ratio Prot	0.01	0.06		c0.15	0.06		c0.26	0.20	c0.46	0.01	0.12	
v/s Ratio Perm	0.01		0.44	c0.16		0.01	0.27		0.17	0.05		0.05
v/c Ratio	0.10	0.40	0.44	0.93	0.26	0.01	0.88	0.39	0.90	0.19	0.41	0.05
Uniform Delay, d1	35.7	43.0	0.0	32.8	33.4	0.0	14.6	16.5	14.8	23.5	31.8	0.0
Progression Factor	1.00	1.00	1.00	0.94	0.92	1.00	2.35	1.16	1.83	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.5	0.9	17.2	0.3	0.0	5.2	0.5	2.6	0.2	1.3	0.1
Delay (s)	35.9	43.5	0.9	48.0	30.9	0.0	39.6	19.5	29.6	23.7	33.1	0.1
Level of Service	D	D	A	D	C	A	D	B	C	C	C	A
Approach Delay (s)		11.2			44.7			30.5			27.1	
Approach LOS		B ✓			D ✓			C ✓			C	
Intersection Summary												
HCM Average Control Delay		29.2										
HCM Volume to Capacity ratio		0.90 ✓										
Actuated Cycle Length (s)		110.0							3.0			
Intersection Capacity Utilization		83.2%							E			
Analysis Period (min)		15										
c Critical Lane Group												

Phasings
28: I-640 WB Ent & Washington Pike

2033 PM Mitigated
Washington & Millertown Pike Study















Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Minimum Initial (s)	4.0	4.0	3.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	39.0	39.0	17.0	54.0	54.0	54.0
Total Split (%)	35.5%	35.5%	15.5%	49.1%	49.1%	49.1%
Maximum Green (s)	34.0	34.0	12.0	49.0	49.0	49.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	34.0	34.0	12.0	49.0	49.0	49.0
90th %ile Term Code	Max	Max	Max	Coord	Coord	Coord
70th %ile Green (s)	34.0	34.0	12.0	49.0	49.0	49.0
70th %ile Term Code	Max	Max	Max	Coord	Coord	Coord
50th %ile Green (s)	34.0	34.0	12.0	49.0	49.0	49.0
50th %ile Term Code	Max	Max	Max	Coord	Coord	Coord
30th %ile Green (s)	34.0	34.0	12.0	49.0	49.0	49.0
30th %ile Term Code	Max	Max	Max	Coord	Coord	Coord
10th %ile Green (s)	34.0	34.0	12.0	49.0	49.0	49.0
10th %ile Term Code	Max	Max	Max	Coord	Coord	Coord

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 4 (4%), Referenced to phase 2:NBSB, Start of Yellow
Control Type: Actuated-Coordinated

HCM Signalized Intersection Capacity Analysis 28: I-640 WB Ent & Washington Pike

2033 PM Mitigated
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑↑	↑	↑↑↑			↑↑↑	↑
Volume (vph)	0	0	0	194 ✓	834 ✓	693 ✓	384 ✓	2085 ✓	0	0	916 ✓	645 ✓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Util. Factor					0.95	0.88	1.00	0.91			0.91	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3506	2787	1770	5085			5085	1583
Flt Permitted					0.99	1.00	0.20	1.00			1.00	1.00
Satd. Flow (perm)					3506	2787	379	5085			5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	216	927	770	427	2317	0	0	1018	717
RTOR Reduction (vph)	0	0	0	0	0	255	0	0	0	0	0	21
Lane Group Flow (vph)	0	0	0	0	1143	515	427	2317	0	0	1018	696
Turn Type				Split		Perm	pm+pt					Perm
Protected Phases				4	4		1	2			2	
Permitted Phases						4	2					2
Actuated Green, G (s)					34.0	34.0	61.0	49.0			49.0	49.0
Effective Green, g (s)					36.0	36.0	65.0	51.0			51.0	51.0
Actuated g/C Ratio					0.33	0.33	0.59	0.46			0.46	0.46
Clearance Time (s)					5.0	5.0	5.0	5.0			5.0	5.0
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					1147	912	401	2358			2358	734
v/s Ratio Prot					c0.33		c0.14	0.46			0.20	
v/s Ratio Perm						0.18	c0.49					0.44
v/c Ratio					1.00	0.56	1.06	0.98			0.43	0.95
Uniform Delay, d1					36.9	30.5	16.7	29.1			19.8	28.2
Progression Factor					1.00	1.00	0.79	0.70			1.25	1.16
Incremental Delay, d2					25.5	0.8	34.7	2.8			0.4	18.8
Delay (s)					62.5	31.3	47.9	23.3			25.1	51.5
Level of Service					E	C	D	C			C	D
Approach Delay (s)		0.0			49.9			27.1			36.0	
Approach LOS		A			D ✓			C ✓			D ✓	
Intersection Summary												
HCM Average Control Delay		36.4										HCM Level of Service D ✓
HCM Volume to Capacity ratio		1.04 ✓										
Actuated Cycle Length (s)		110.0										Sum of lost time (s) 9.0
Intersection Capacity Utilization		99.9%										ICU Level of Service F
Analysis Period (min)		15										
c Critical Lane Group												

Phasings
29: South Mall Road & Washington Pike

2033 PM Mitigated
Washington & Millertown Pike Study



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Protected Phases	4			2		1	
Permitted Phases	4			2		2	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	56.0	56.0	56.0	33.0	33.0	21.0	33.0
Total Split (%)	50.9%	50.9%	50.9%	30.0%	30.0%	19.1%	30.0%
Maximum Green (s)	50.0	50.0	50.0	27.0	27.0	15.0	27.0
Yellow Time (s)	4.0	4.0	4.0	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	1.5	1.5	1.5	1.5
Lead/Lag				Lag	Lag	Lead	Lag
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	C-Max	C-Max	Max	C-Max
Walk Time (s)							
Flash Dont Walk (s)							
Pedestrian Calls (#/hr)							
90th %ile Green (s)	50.0	50.0	50.0	27.0	27.0	15.0	27.0
90th %ile Term Code	Max	Max	Max	Coord	Coord	MaxR	Coord
70th %ile Green (s)	50.0	50.0	50.0	27.0	27.0	15.0	27.0
70th %ile Term Code	Max	Max	Max	Coord	Coord	MaxR	Coord
50th %ile Green (s)	50.0	50.0	50.0	27.0	27.0	15.0	27.0
50th %ile Term Code	Max	Max	Max	Coord	Coord	MaxR	Coord
30th %ile Green (s)	50.0	50.0	50.0	27.0	27.0	15.0	27.0
30th %ile Term Code	Max	Max	Max	Coord	Coord	MaxR	Coord
10th %ile Green (s)	50.0	50.0	50.0	27.0	27.0	15.0	27.0
10th %ile Term Code	Max	Max	Max	Coord	Coord	MaxR	Coord

Intersection Summary

Cycle Length: 110




















Actuated Cycle Length: 110

Offset: 36 (33%), Referenced to phase 2:NBSB, Start of Yellow

Control Type: Actuated-Coordinated











HCM Signalized Intersection Capacity Analysis 29: South Mall Road & Washington Pike

2033 PM Mitigated
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1481	1141	465	0	0	0	0	1189	225	590	623	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00					0.91	1.00	0.97	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3539	1583					5085	1583	3433	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.14	1.00	
Satd. Flow (perm)	3433	3539	1583					5085	1583	498	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1646	1268	517	0	0	0	0	1321	250	656	692	0
RTOR Reduction (vph)	0	0	220	0	0	0	0	0	18	0	0	0
Lane Group Flow (vph)	1646	1268	297	0	0	0	0	1321	232	656	692	0
Turn Type	Perm		Perm						Perm	pm+pt		
Protected Phases		4						2		1	2	
Permitted Phases	4		4						2	2		
Actuated Green, G (s)	50.0	50.0	50.0					27.0	27.0	42.0	27.0	
Effective Green, g (s)	52.0	52.0	51.0					29.0	29.0	46.0	29.0	
Actuated g/C Ratio	0.47	0.47	0.46					0.26	0.26	0.42	0.26	
Clearance Time (s)	6.0	6.0	6.0					6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1623	1673	734					1341	417	662	933	
v/s Ratio Prot		0.36						0.26		0.15	0.20	
v/s Ratio Perm	0.48		0.19						0.15	0.26		
v/c Ratio	1.01	0.76	0.40					0.99	0.56	0.99	0.74	
Uniform Delay, d1	29.0	23.8	19.5					40.3	34.9	31.5	37.1	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.65	0.87	
Incremental Delay, d2	25.9	2.0	0.4					21.3	5.3	30.8	4.7	
Delay (s)	54.9	25.8	19.8					61.6	40.2	51.3	36.9	
Level of Service	D	C	B					E	D	D	D	
Approach Delay (s)		38.9			0.0			58.2			43.9	
Approach LOS		D			A			E			D	
Intersection Summary												
HCM Average Control Delay	44.7			HCM Level of Service				D				
HCM Volume to Capacity ratio	1.00											
Actuated Cycle Length (s)	110.0			Sum of lost time (s)				12.0				
Intersection Capacity Utilization	99.9%			ICU Level of Service				F				
Analysis Period (min)	15											
c Critical Lane Group												






















HCM Unsignalized Intersection Capacity Analysis 30: Gas Station &

2033 PM Mitigated
Washington & Millertown Pike Study

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	41	38	820	77	53	748
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	46	42	911	86	59	831
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLT		TWLT	
Median storage (veh)			2		2	
Upstream signal (ft)					250	
pX, platoon unblocked	0.85					
vC, conflicting volume	1487	498			997	
vC1, stage 1 conf vol	954					
vC2, stage 2 conf vol	533					
vCu, unblocked vol	1214	498			997	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	85	92			91	
cM capacity (veh/h)	311	518			690	
Direction/Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	88	607	389	59	416	416
Volume Left	46	0	0	59	0	0
Volume Right	42	0	86	0	0	0
cSH	385	1700	1700	690	1700	1700
Volume to Capacity	0.23	0.36	0.23	0.09	0.24	0.24
Queue Length 95th (ft)	22	0	0	7	0	0
Control Delay (s)	17.1	0.0	0.0	10.7	0.0	0.0
Lane LOS	C			B		
Approach Delay (s)	17.1	0.0		0.7		
Approach LOS	C					
Intersection Summary						
Average Delay		1.1				
Intersection Capacity Utilization		43.1%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 31: Valley View Dr &




2033 PM Mitigated
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	178	25	97	24	28	205	70	779	38	179	704	134
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	198	28	108	27	31	228	78	866	42	199	782	149
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLT			TWLT	
Median storage (veh)								2			2	
Upstream signal (ft)											704	
pX, platoon unblocked	0.83	0.83	0.83	0.83	0.83		0.83					
vC, conflicting volume	2444	2243	782	2344	2371	887	931			908		
vC1, stage 1 conf vol	1180	1180		1042	1042							
vC2, stage 2 conf vol	1264	1063		1302	1329							
vCu, unblocked vol	2636	2394	637	2515	2548	887	816			908		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	55	73	0	49	34	88			73		
cM capacity (veh/h)	2	61	397	6	61	343	675			750		
Direction/Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3			
Volume Total	198	136	58	228	78	908	199	782	149			
Volume Left	198	0	27	0	78	0	199	0	0			
Volume Right	0	108	0	228	0	42	0	0	149			
cSH	2	187	11	343	675	1700	750	1700	1700			
Volume to Capacity	100.86	0.72	5.29	0.66	0.12	0.53	0.27	0.46	0.09			
Queue Length 95th (ft)	Err	115	Err	113	10	0	27	0	0			
Control Delay (s)	Err	62.6	Err	33.9	11.0	0.0	11.5	0.0	0.0			
Lane LOS	F	F	F	D	B		B					
Approach Delay (s)	5958.2		2050.2		0.9		2.0					
Approach LOS	F		F									
Intersection Summary												
Average Delay			941.6									
Intersection Capacity Utilization			79.7%			ICU Level of Service			D			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 32: Pinehurst Dr. & Washington Pike

2033 PM Existing
Washington & Millertown Pike Study



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	24	2	5	978	259	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	27	2	6	1087	288	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1388	291	293			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1388	291	293			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	83	100	100			
cM capacity (veh/h)	157	749	1268			
Direction Lane #	EB 1	NB 1	SB 1			
Volume Total	29	1092	293			
Volume Left	27	6	0			
Volume Right	2	0	6			
cSH	167	1268	1700			
Volume to Capacity	0.17	0.00	0.17			
Queue Length 95th (ft)	15	0	0			
Control Delay (s)	31.1	0.1	0.0			
Lane LOS	D	A				
Approach Delay (s)	31.1	0.1	0.0			
Approach LOS	D					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			65.4%	ICU Level of Service	C	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
33: Millertown Pike & Washington Pike

2033 PM Mitigated
Washington & Millertown Pike Study



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Right Turn Channelized						
Volume (veh/h)	470 ✓	451 ✓	343 ✓	326 ✓	372 ✓	372 ✓
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	522	501	381	362	413	413
Approach Volume (veh/h)		1023	743		827	
Crossing Volume (veh/h)		413	522		381	
High Capacity (veh/h)		1000	917		1026	
High v/c (veh/h)		1.02	0.81		0.81	
Low Capacity (veh/h)		814	740		837	
Low v/c (veh/h)		1.26	1.00		0.99	
Intersection Summary						
Maximum v/c High			1.02			
Maximum v/c Low			1.26			
Intersection Capacity Utilization			141.1%		ICU Level of Service	H

HCM Unsignalized Intersection Capacity Analysis 39: Millertown Pike & Springhill Road

2033 PM Mitigated
Washington & Millertown Pike Study



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩		↩	↩	↩	↩
Volume (veh/h)	647 ✓	122 ✓	120 ✓	671 ✓	101 ✓	125 ✓
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	719	136	133	746	112	139
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLT			TWLT		
Median storage (veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			854		1799	787
vC1, stage 1 conf vol					787	
vC2, stage 2 conf vol					1012	
vCu, unblocked vol			854		1799	787
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			83		55	65
cM capacity (veh/h)			785		247	392

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	854	133	746	251
Volume Left	0	133	0	112
Volume Right	136	0	0	139
cSH	1700	785	1700	310
Volume to Capacity	0.50	0.17	0.44	0.81
Queue Length 95th (ft)	0	15	0	167
Control Delay (s)	0.0	10.5	0.0	51.5
Lane LOS		B		F
Approach Delay (s)	0.0	1.6		51.5
Approach LOS				F

Intersection Summary			
Average Delay	7.2		
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

Phasings
43: Millertown Pike & Loves Creek Road

2033 PM Mitigated
Washington & Millertown Pike Study



Lane Group	NBL	NBT	NBR	SBL	SBT	SET	SER	NWL	NWT
Protected Phases	5	2		1	6	3		4	4
Permitted Phases	2		2	6			3		
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	20.0	20.0	9.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	9.0	61.0	61.0	9.0	61.0	20.0	20.0	20.0	20.0
Total Split (%)	8.2%	55.5%	55.5%	8.2%	55.5%	18.2%	18.2%	18.2%	18.2%
Maximum Green (s)	4.0	56.0	56.0	4.0	56.0	15.0	15.0	15.0	15.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None
Walk Time (s)									
Flash Dont Walk (s)									
Pedestrian Calls (#/hr)									
90th %ile Green (s)	4.0	56.0	56.0	4.0	56.0	15.0	15.0	15.0	15.0
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Max	Max	Max	Max
70th %ile Green (s)	4.0	56.0	56.0	4.0	56.0	15.0	15.0	15.0	15.0
70th %ile Term Code	Max	Coord	Coord	Max	Coord	Max	Max	Max	Max
50th %ile Green (s)	4.0	56.0	56.0	4.0	56.0	13.8	13.8	16.2	16.2
50th %ile Term Code	Max	Coord	Coord	Max	Coord	Gap	Gap	Max	Max
30th %ile Green (s)	4.0	56.0	56.0	4.0	56.0	11.7	11.7	18.3	18.3
30th %ile Term Code	Max	Coord	Coord	Max	Coord	Gap	Gap	Max	Max
10th %ile Green (s)	4.0	56.0	56.0	4.0	56.0	8.6	8.6	21.4	21.4
10th %ile Term Code	Max	Coord	Coord	Max	Coord	Gap	Gap	Max	Max

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 62 (56%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Control Type: Actuated-Coordinated

HCM Signalized Intersection Capacity Analysis 43: Millertown Pike & Loves Creek Road

2033 PM Mitigated
Washington & Millertown Pike Study

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	86 ✓	1757 ✓	173 ✓	141 ✓	853 ✓	2 ✓	67 ✓	60 ✓	105 ✓	264 ✓	55 ✓	225 ✓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0			3.0	4.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85	1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3538			1815	1583	1770	1638	
Flt Permitted	0.21	1.00	1.00	0.07	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (perm)	397	3539	1583	128	3538			1815	1583	1770	1638	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	96	1952	192	157	948	2	74	67	117	293	61	250
RTOR Reduction (vph)	0	0	67	0	0	0	0	0	102	0	131	0
Lane Group Flow (vph)	96	1952	125	157	950	0	0	141	15	293	180	0
Turn Type	pm+pt		Perm	pm+pt			Split		Perm	Split		
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2		2	6					3			
Actuated Green, G (s)	60.0	56.0	56.0	60.0	56.0			12.8	12.8	17.2	17.2	
Effective Green, g (s)	64.0	58.0	58.0	64.0	58.0			14.8	13.8	19.2	19.2	
Actuated g/C Ratio	0.58	0.53	0.53	0.58	0.53			0.13	0.13	0.17	0.17	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	306	1866	835	164	1865			244	199	309	286	
v/s Ratio Prot	0.02	c0.55		c0.05	0.27			c0.08		c0.17	0.11	
v/s Ratio Perm	0.17		0.08	0.50					0.01			
v/c Ratio	0.31	1.05	0.15	0.96	0.51			0.58	0.07	0.95	0.63	
Uniform Delay, d1	11.8	26.0	13.3	29.9	16.8			44.7	42.5	44.9	42.1	
Progression Factor	0.79	0.64	0.45	1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	30.4	0.2	57.0	1.0			3.3	0.2	37.2	4.3	
Delay (s)	9.6	47.0	6.3	86.9	17.8			48.0	42.6	82.1	46.4	
Level of Service	A	D	A	F	B			D	D	F	D	
Approach Delay (s)		41.9			27.6			45.5			63.7	
Approach LOS		D ✓			C ✓			D ✓			E ✓	
Intersection Summary												
HCM Average Control Delay			41.5			HCM Level of Service			D			
HCM Volume to Capacity ratio			0.95 ✓									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			93.3%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Phasings
44: Knoxville Ctr. Ent/Exit & Millertown Pike

2033 PM Mitigated
Washington & Millertown Pike Study



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Minimum Initial (s)	6.0	10.0	6.0	6.0	10.0	6.0	6.0	15.0	6.0	6.0	15.0	6.0
Minimum Split (s)	11.0	20.0	11.0	11.0	20.0	11.0	11.0	20.0	11.0	11.0	20.0	11.0
Total Split (s)	26.0	24.0	26.0	23.0	21.0	16.0	26.0	47.0	23.0	16.0	37.0	26.0
Total Split (%)	23.6%	21.8%	23.6%	20.9%	19.1%	14.5%	23.6%	42.7%	20.9%	14.5%	33.6%	23.6%
Maximum Green (s)	21.0	19.0	21.0	18.0	16.0	11.0	21.0	42.0	18.0	11.0	32.0	21.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	None	None	None	C-Min	None	None	C-Min	None
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
90th %ile Green (s)	21.0	19.0	20.7	18.0	16.0	11.0	20.7	42.0	18.0	11.0	32.3	21.0
90th %ile Term Code	Max	Max	Gap	Max	Max	Max	Gap	Coord	Max	Max	Coord	Max
70th %ile Green (s)	21.0	19.0	15.2	18.0	16.0	11.0	15.2	42.0	18.0	11.0	37.8	21.0
70th %ile Term Code	Max	Max	Gap	Max	Max	Max	Gap	Coord	Max	Max	Coord	Max
50th %ile Green (s)	21.0	19.0	12.7	18.0	16.0	9.8	12.7	43.2	18.0	9.8	40.3	21.0
50th %ile Term Code	Max	Max	Gap	Max	Hold	Gap	Gap	Coord	Max	Gap	Coord	Max
30th %ile Green (s)	20.9	18.4	10.7	16.9	14.4	7.9	10.7	46.8	16.9	7.9	44.0	20.9
30th %ile Term Code	Gap	Gap	Gap	Gap	Hold	Gap	Gap	Coord	Gap	Gap	Coord	Gap
10th %ile Green (s)	17.1	14.4	7.9	15.1	12.4	6.1	7.9	54.4	15.1	6.1	52.6	17.1
10th %ile Term Code	Gap	Gap	Gap	Gap	Hold	Gap	Gap	Coord	Gap	Gap	Coord	Gap

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 20 (18%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

HCM Signalized Intersection Capacity Analysis 44: Knoxville Ctr. Ent/Exit & Millertown Pike

2033 PM Mitigated
Washington & Millertown Pike Study

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑↑↑	↱	↰	↑↑↑	↱
Volume (vph)	355	240	364	523	146	321	225	1467	594	141	815	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	3433	1863	1583	1770	5085	1583	1770	5085	1583
Fit Permitted	0.35	1.00	1.00	0.26	1.00	1.00	0.20	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	658	1863	1583	926	1863	1583	381	5085	1583	172	5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	394	267	404	581	162	357	250	1630	660	157	906	311
RTOR Reduction (vph)	0	0	17	0	0	44	0	0	84	0	0	126
Lane Group Flow (vph)	394	267	387	581	162	313	250	1630	576	157	906	185
Turn Type	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	38.2	18.0	31.4	32.2	15.0	24.2	59.0	45.6	62.8	50.6	41.4	61.6
Effective Green, g (s)	42.2	20.0	35.4	36.2	17.0	28.2	61.8	47.6	66.8	54.6	43.4	65.6
Actuated g/C Ratio	0.38	0.18	0.32	0.33	0.15	0.26	0.56	0.43	0.61	0.50	0.39	0.60
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0
Lane Grp Cap (vph)	477	339	553	742	288	449	409	2200	1004	248	2006	987
v/s Ratio Prot	c0.17	0.14	c0.10	0.14	0.09	0.07	0.09	c0.32	0.10	0.06	0.18	0.04
v/s Ratio Perm	c0.15		0.15	0.12		0.13	0.26		0.26	0.25		0.08
v/c Ratio	0.83	0.79	0.70	0.78	0.56	0.70	0.61	0.74	0.57	0.63	0.45	0.19
Uniform Delay, d1	27.4	43.0	32.7	30.4	43.1	37.0	14.1	26.1	13.0	19.7	24.5	10.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.20	0.88	0.59	1.40	0.63	0.57
Incremental Delay, d2	10.7	11.5	3.1	5.0	2.5	3.8	0.2	0.2	0.0	3.2	0.6	0.0
Delay (s)	38.1	54.4	35.8	35.4	45.6	40.8	17.2	23.2	7.7	30.7	16.1	5.8
Level of Service	D	D	D	D	D	D	B	C	A	C	B	A
Approach Delay (s)		41.3			38.6			18.6			15.4	
Approach LOS		D ✓			D ✓			B ✓			✓ B	
Intersection Summary												
HCM Average Control Delay		25.5										
HCM Volume to Capacity ratio		0.76 ✓										
Actuated Cycle Length (s)		110.0										
Intersection Capacity Utilization		77.9%										
Analysis Period (min)		15										
c Critical Lane Group												

Phasings
45: I-640 WB Ent & Millertown Pike

2033 PM Mitigated
Washington & Millertown Pike Study



Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Protected Phases	4	14	1	2	2	
Permitted Phases		14	2		2	2
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0
Minimum Split (s)	9.0		8.0	21.0	21.0	21.0
Total Split (s)	33.0	62.0	29.0	48.0	48.0	48.0
Total Split (%)	30.0%	56.4%	26.4%	43.6%	43.6%	43.6%
Maximum Green (s)	28.0		25.0	43.0	43.0	43.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		0.0	1.0	1.0	1.0
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0		3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0		0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0		0.0	0.0	0.0	0.0
Recall Mode	None		None	C-Max	C-Max	C-Max
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	28.0		25.0	43.0	43.0	43.0
90th %ile Term Code	Max		Max	Coord	Coord	Coord
70th %ile Green (s)	28.0		25.0	43.0	43.0	43.0
70th %ile Term Code	Max		Max	Coord	Coord	Coord
50th %ile Green (s)	28.0		25.0	43.0	43.0	43.0
50th %ile Term Code	Max		Max	Coord	Coord	Coord
30th %ile Green (s)	28.0		25.0	43.0	43.0	43.0
30th %ile Term Code	Max		Max	Coord	Coord	Coord
10th %ile Green (s)	28.0		25.0	43.0	43.0	43.0
10th %ile Term Code	Max		Max	Coord	Coord	Coord

Intersection Summary

Cycle Length: 110













Actuated Cycle Length: 110

Offset: 51 (46%), Referenced to phase 2:NBSB, Start of Yellow

Control Type: Actuated-Coordinated

HCM Signalized Intersection Capacity Analysis 45: I-640 WB Ent & Millertown Pike

2033 PM Mitigated
Washington & Millertown Pike Study

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↑↑	↑	↑↑↑			↑↑↑	↑
Volume (vph)	0	0	0	288	1040	1465	194	1975	0	0	1261	501
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.0	2.0	2.0	3.0			3.0	3.0
Lane Util. Factor					0.91	0.88	1.00	0.91			0.91	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					5031	2787	1770	5085			5085	1583
Flt Permitted					0.99	1.00	0.09	1.00			1.00	1.00
Satd. Flow (perm)					5031	2787	166	5085			5085	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	320	1156	1628	216	2194	0	0	1401	557
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	115
Lane Group Flow (vph)	0	0	0	0	1476	1628	216	2194	0	0	1401	442
Turn Type				Split		custom	pm+pt					Perm
Protected Phases				4	4	14	1	2			2	
Permitted Phases						14	2				2	2
Actuated Green, G (s)					28.0	58.0	68.0	43.0			43.0	43.0
Effective Green, g (s)					30.0	57.0	72.0	45.0			45.0	45.0
Actuated g/C Ratio					0.27	0.52	0.65	0.41			0.41	0.41
Clearance Time (s)					5.0		4.0	5.0			5.0	5.0
Vehicle Extension (s)					3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					1372	1444	502	2080			2080	648
v/s Ratio Prot					0.29	c0.58	0.11	c0.43			0.28	
v/s Ratio Perm							0.18					0.28
v/c Ratio					1.08	1.13	0.43	1.05			0.67	0.68
Uniform Delay, d1					40.0	26.5	17.4	32.5			26.5	26.6
Progression Factor					1.00	1.00	0.68	0.85			0.98	0.95
Incremental Delay, d2					47.5	66.7	0.5	34.3			1.5	4.8
Delay (s)					87.5	93.2	12.3	62.0			27.4	30.0
Level of Service					F	F	B	E			C	C
Approach Delay (s)		0.0			90.5			57.5			28.1	
Approach LOS		A			F ✓			E ✓			C ✓	
Intersection Summary												
HCM Average Control Delay		63.5										
HCM Volume to Capacity ratio		1.08 ✓										
Actuated Cycle Length (s)		110.0										
Intersection Capacity Utilization		96.1%										
Analysis Period (min)		15										
c Critical Lane Group												
HCM Level of Service								E ✓				
Sum of lost time (s)								7.0				
ICU Level of Service								F				

Phasings
46: South Mall Road & Millertown Pike

2033 PM Mitigated
Washington & Millertown Pike Study



Lane Group	EBL	EBT	EBR	NET	SWL	SWT
Protected Phases		4		2	1	2
Permitted Phases	4		4		2	1
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	9.0	21.0
Total Split (s)	43.0	43.0	43.0	37.0	30.0	37.0
Total Split (%)	39.1%	39.1%	39.1%	33.6%	27.3%	33.6%
Maximum Green (s)	38.0	38.0	38.0	32.0	25.0	32.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag				Lag	Lead	Lag
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	Min	Min	Min	C-Min	None	C-Min
Walk Time (s)						
Flash Dont Walk (s)						
Pedestrian Calls (#/hr)						
90th %ile Green (s)	38.0	38.0	38.0	32.0	25.0	32.0
90th %ile Term Code	Max	Max	Max	Coord	Max	Coord
70th %ile Green (s)	38.0	38.0	38.0	32.0	25.0	32.0
70th %ile Term Code	Max	Max	Max	Coord	Max	Coord
50th %ile Green (s)	38.0	38.0	38.0	32.0	25.0	32.0
50th %ile Term Code	Max	Max	Max	Coord	Max	Coord
30th %ile Green (s)	37.8	37.8	37.8	32.0	25.2	32.0
30th %ile Term Code	Gap	Gap	Gap	Coord	Max	Coord
10th %ile Green (s)	30.6	30.6	30.6	40.1	24.3	40.1
10th %ile Term Code	Gap	Gap	Gap	Coord	Gap	Coord

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 101 (92%), Referenced to phase 2:NESW, Start of Yellow

Control Type: Actuated-Coordinated

HCM Signalized Intersection Capacity Analysis 46: South Mall Road & Millertown Pike

2033 PM Mitigated
Washington & Millertown Pike Study

	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↰	↰	↰					↰↰↰		↰↰	↰↰	
Volume (vph)	566	391	185	0	0	0	0	988	223	798	877	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Util. Factor	0.95	0.95	1.00					0.91		0.97	0.95	
Frt	1.00	1.00	0.85					0.97		1.00	1.00	
Flt Protected	0.95	0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1752	1583					4945		3433	3539	
Flt Permitted	0.95	0.99	1.00					1.00		0.11	1.00	
Satd. Flow (perm)	1681	1752	1583					4945		406	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	629	434	206	0	0	0	0	1098	248	887	974	0
RTOR Reduction (vph)	0	0	77	0	0	0	0	32	0	0	0	0
Lane Group Flow (vph)	522	541	129	0	0	0	0	1314	0	887	974	0
Turn Type	Perm	Perm	Perm							pm+pt		
Protected Phases		4						2		1	2	
Permitted Phases	4		4							2	1	
Actuated Green, G (s)	36.5	36.5	36.5					33.6		58.5	58.5	
Effective Green, g (s)	38.5	38.5	38.5					35.6		62.5	62.5	
Actuated g/C Ratio	0.35	0.35	0.35					0.32		0.57	0.57	
Clearance Time (s)	5.0	5.0	5.0					5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	588	613	554					1600		971	2107	
v/s Ratio Prot								0.27		c0.22	0.15	
v/s Ratio Perm	c0.31	0.31	0.08							c0.30	0.13	
v/c Ratio	0.89	0.88	0.23					0.82		0.91	0.46	
Uniform Delay, d1	33.7	33.6	25.3					34.3		30.6	13.9	
Progression Factor	1.00	1.00	1.00					1.00		0.53	0.58	
Incremental Delay, d2	15.1	14.1	0.2					4.9		9.6	0.1	
Delay (s)	48.8	47.7	25.5					39.1		25.8	8.2	
Level of Service	D	D	C					D		C	A	
Approach Delay (s)		44.5			0.0			39.1			16.6	
Approach LOS		D ✓			A			D ✓			B ✓	
Intersection Summary												
HCM Average Control Delay			31.3									
HCM Volume to Capacity ratio			0.90 ✓									
Actuated Cycle Length (s)			110.0									
Intersection Capacity Utilization			96.1%									
Analysis Period (min)			15									
c Critical Lane Group												
HCM Level of Service										C ✓		
Sum of lost time (s)										9.0		
ICU Level of Service										F		

HCM Signalized Intersection Capacity Analysis 47: Millertown Pike & Mill Road

2033 PM Mitigated
Washington & Millertown Pike Study






Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	1314	825	559	86	70	585
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1863	1829		1770	1583
Flt Permitted	0.33	1.00	1.00		0.95	1.00
Satd. Flow (perm)	624	1863	1829		1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1460	917	621	96	78	650
RTOR Reduction (vph)	0	0	4	0	0	331
Lane Group Flow (vph)	1460	917	713	0	78	319
Turn Type	Perm				Perm	
Protected Phases		4	8		6	
Permitted Phases	4					6
Actuated Green, G (s)	118.0	118.0	118.0		24.0	24.0
Effective Green, g (s)	119.0	119.0	119.0		25.0	25.0
Actuated g/C Ratio	0.79	0.79	0.79		0.17	0.17
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	495	1478	1451		295	264
v/s Ratio Prot		0.49	0.39		0.04	
v/s Ratio Perm	c2.34					c0.20
v/c Ratio	2.95	0.62	0.49		0.26	1.21
Uniform Delay, d1	15.5	6.3	5.3		54.5	62.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	882.7	0.8	0.3		2.2	124.0
Delay (s)	898.2	7.1	5.5		56.7	186.5
Level of Service	F	A	A		E	F
Approach Delay (s)		554.5	5.5		172.6	
Approach LOS		F	A		F	
Intersection Summary						
HCM Average Control Delay		378.7		HCM Level of Service		F
HCM Volume to Capacity ratio		2.65				
Actuated Cycle Length (s)		150.0		Sum of lost time (s)		6.0
Intersection Capacity Utilization		121.3%		ICU Level of Service		H
Analysis Period (min)		15				
c Critical Lane Group						

DEMOGRAPHICS

Legend**Proposed Park, Greenway and Recreation Facilities****General Vicinity**

-  Neighborhood Park
-  Community Park
-  District / Regional Park
-  District Recreation Center
-  Ridge Line Greenbelts
-  Greenways - Paved
-  Greenways - Soft / Natural Surface
-  Connectors

Specific Location

-  Neighborhood Park
-  Community Park
-  District / Regional Park
-  Recreation / Community Centers
-  Blueway Access Locations

Existing Park Facilities

-  Neighborhood Park
-  Community and District/Regional Parks
-  School Parks
-  Private / Quasi-public Parks
-  Open Space / Natural Areas
-  Golf Courses
-  Greenways
-  Blueway Access Locations
-  Blueway Rest Stops
-  Recreation / Community Centers

Other

-  Schools
-  Libraries
-  Streams
-  Planning Sector Boundary
-  Neighborhood Park Service Areas
-  City of Knoxville
-  Farragut
-  Knox County

East City Sector**Existing Park Recommendations**

Chestnut Square Park (formerly Union Square Park)—vacate the right-of-way of Curie Place and assimilate that land into the park. New sidewalks should be provided along with passive recreation opportunities such as picnic tables and benches.

Holston River Park—expand the park to the west along Riverside Drive, add access points to Boyd's Island and partner with UT for programs and uses that could be made available to the public on the island.

Skyline Park—repair the surface of the basketball courts and repair or replace the goals and benches.

Chilhowee Park—create daily use activities at this park, reopen the portion of the park south of Magnolia Avenue as a neighborhood park with active and passive recreation opportunities during non-event times with improved pedestrian access from surrounding neighborhoods.

Proposed Park Recommendations

Boyd's Island—acquire an easement from the State of Tennessee to access the island from Holston River Park.

East Burlington Park—obtain land for a new park location between Holston Drive and Skyline Drive, east of Dickson Street to serve the neighborhood.

Holston Hills Neighborhood Park—provide a neighborhood serving park, while this area is

served by a private golf course which provides golf, swimming and tennis to members there is a lack of public, neighborhood serving facilities.

Prosser Road Park—provide a neighborhood park on City owned parcel, consider a partnership with the Kiwanis club located across the street at 2330 and 2400 Prosser Road. If a partnership is established a community park could be created to serve multiple neighborhoods including: Plantation Hills, Woodland Terrace, Gillenwater, and others.

Greenway Recommendations

Holston River Greenway—connect to the existing James White Greenway and have a connection to the proposed Williams Creek Greenway. The path of the greenway would follow the river and would connect to the Holston Cutoff Greenway through Holston River Park onto Boyd's Bridge connecting to John Sevier Highway and Asheville Highway (in East County) with a connector to Chilhowee Middle School.

Chilhowee Connector—provide bike and pedestrian facilities with any road improvements to Holston Hills Drive and Chilhowee Drive.

Loves Creek Greenway—develop this portion of the greenway running from the Holston River northwest to Asheville Highway and I-40.

Williams Creek Greenway—follow the creek from the river through the Wee Golf Course and into the neighborhood ending at Austin East Magnet High School.

Knoxville Center District

Principles of new urbanism should be used to develop vacant parcels adjacent to Washington and Millertown Pikes, and to redevelop parcels where the existing low density residential land use is no longer appropriate. This neighborhood should contain public transit facilities, with the needs of daily life easily accessible by a 5-10 minute walk. Commerce can be integrated with residential uses, using the improved Washington and Millertown Pikes roadway to contain intensive uses within the triangle. For example, apartments can be allowed over stores. Buildings should successfully define public space, including streets, parks and squares. An architectural design code for the district should be developed in order to establish massing, fenestration (windows/entrances), materials, and roof pitch.

This is the type neighborhood that many of the residents envision living in, but with additional retail traffic, they worry that the transportation system will not function well. At the request of the City of Knoxville, the engineering firm Wilbur-Smith and Associates proposed a series of improvements for the Knoxville Center Mall area. Providing adequate road capacity for vehicles coming into the shopping center from outlying areas in the county was important in this study. Additional studies on circulation should be conducted at a micro-level, to improve the traffic flow between shopping centers and to increase pedestrian connectivity.

There are several issues related to new development around the Alice Bell-Spring Hill community. Questions include the potential to provide a connection between Centerline Drive and Spring Hill Road, the appropriateness of North and South Mall Road still being one way roads, and the best location for crosswalks and other pedestrian connections.



This intersection of Washington and Millertown Pike, currently a three-way stop, will soon consist of more lanes and a signal light. With several residential developments in the neighborhood, the movement of vehicles should not take precedence over the movement of pedestrians.



In a compact urban neighborhood, condominiums provide high enough density to support public transit facilities and neighborhood-serving retail establishments within walking distance, reducing the number of vehicle trips per day.

In general, these principles produce settings resembling American towns before World War II, including sidewalks, street trees and "main street" style shops. Human scale is the standard for buildings, with cars not taking precedence over human needs, including aesthetic needs. Civic buildings such as churches and libraries serve as landmarks. The street is the pre-eminent form of public space; building facades along the edge of the sidewalk enclose the street like walls of an outdoor room. Because streets differ in importance, scale, and quality, appropriate distinctions are expressed by physical design.

PROFILE OF GENERAL DEMOGRAPHIC CHARACTERISTICS: 2000

Geographic Area: East City

Total population	25,478	GROUP QUARTERS	
SEX AND AGE		Total population in group quarters	277
Male	11,699	Institutionalized	200
Female	13,779	Correctional institutions	0
		Nursing homes	200
Under 5 years	1,454	Noninstitutionalized	77
5 to 9 years	1,556	College (incl. college quarters off campus)	0
10 to 14 years	1,609	Military quarters	0
15 to 19 years	1,452	Other (Institutionalized and Noninstitutionalized)	77
20 to 24 years	1,434		
25 to 34 years	3,371	HOUSEHOLD BY TYPE	
35 to 44 years	3,820	Total households	11,282
45 to 54 years	3,617	Family households (families)	6,759
55 to 59 years	1,302	With own children under 18 years	2,711
60 to 64 years	1,121	Married-couple family	4,320
65 to 74 years	2,286	With own children under 18 years	1,464
75 to 84 years	1,778	Female householder, no husband present	1,990
85 years and over	678	With own children under 18 years	1,061
Median age (years, estimated)	40.3	Male householder, no wife present	449
		With own children under 18 years	186
18 years and over	19,961	Nonfamily households	4,523
21 years and over	19,119	Householder living alone	3,920
62 years and over	5,399	Householder 65 years and over, living alone	1,687
65 years and over	4,742		
		Unmarried-partner households	529
5 to 10 years	1,891		
11 to 13 years	949	Households with individuals under 18 years	3,176
14 to 18 years	1,546	Households with individuals 65 years and over	3,542
RACE		Average household size	2.23
One race	25,136	Average family size (estimated)	2.90
White	15,242		
Black or African American	9,573	HOUSING OCCUPANCY	
American Indian and Alaska Native	43	Total housing units	12,636
Asian	128	Occupied housing units	11,282
Native Hawaiian/Other Pac. Islander	2	Vacant housing units	1,354
Some other race	148	For seasonal, recreational, occasional use	22
Two or more races	342		
		Vacancy rate (percent)	10.7
HISPANIC OR LATINO			
Hispanic or Latino (of any race)	261	HOUSING TENURE	
Not Hispanic or Latino	25,217	Occupied housing units	11,282
		Owner-occupied housing units	7,354
		Renter-occupied housing units	3,928
		Avg. (est.) household size of owner-occupied units	2.29
		Avg. (est.) household size of renter-occupied units	2.32

Compiled by the Knoxville/Knox County Metropolitan Planning Commission, August 2001.

Source: U.S. Census Bureau, 2000 Census of Population and Housing: Summary File 1.

PROFILE OF SELECTED SOCIAL CHARACTERISTICS: 2000

Geographic Area: East City

SCHOOL ENROLLMENT

Population 3 years and over enrolled in school	5,680
Nursery school, preschool	355
Kindergarten	234
Elementary school (grades 1-8)	2,693
High school (grades 9-12)	1,375
College or graduate school	1,023

EDUCATIONAL ATTAINMENT

Population 25 years and over	18,039
Less than 9th grade	1,374
9th to 12th grade, no diploma	3,024
High school graduate (includes GED)	5,861
Some college, no degree	3,715
Associate degree	793
Bachelor's degree	2,056
Graduate or professional degree	1,216
Percent high school graduate or higher	75.6
Percent bachelor's degree or higher	18.1

MARITAL STATUS

Population 15 years and over	20,906
Never married	5,574
Now married (not separated)	9,479
Separated	607
Widowed	2,355
Female	1,968
Divorced	2,891
Female	1,951

DISABILITY STATUS OF THE CIVILIAN NONINSTITUTIONALIZED POPULATION

Population 5 to 20 years	5,012
With a disability	538
Population 21 to 64 years	14,388
With a disability	3,433
Percent employed	45.3
No disability	10,955
Percent employed	75.5
Population 65 years and over	4,529
With a disability	2,319

RESIDENCE IN 1995

Population 5 years and over	24,149
Same house in 1995	14,114
Different house in the U.S. in 1995	9,795
Same county	7,396
Different county	2,399
Same state	1,095
Different state	1,304
Elsewhere in 1995	240

NATIVITY AND PLACE OF BIRTH

Total population	25,528
Native	25,135
Born in United States	25,046
State of residence	19,219
Different state	5,827
Born outside United States	89
Foreign born	393
Entered 1990 to March 2000	194
Naturalized citizen	140
Not a citizen	253

REGION OF BIRTH OF FOREIGN BORN

Total (excluding born at sea)	393
Europe	86
Asia	110
Africa	0
Oceania	10
Latin America	168
Northern America	19

LANGUAGE SPOKEN AT HOME

Population 5 years and over	24,149
English only	23,390
Language other than English	759
Spanish	350
Other Indo-European languages	262
Asian and Pacific Island languages	104
Other	43

PROFILE OF SELECTED ECONOMIC CHARACTERISTICS: 2000

Geographic Area: East City

EMPLOYMENT STATUS		INCOME IN 1999	
Population 16 years and over	20,578	Households	11,263
In labor force	11,782	Less than \$10,000	1,765
Civilian labor force	11,782	\$10,000 to \$14,999	1,129
Employed	11,044	\$15,000 to \$24,999	2,174
Unemployed	738	\$25,000 to \$34,999	1,806
Percent of civilian labor force	6.3	\$35,000 to \$49,999	1,867
Armed Forces	0	\$50,000 to \$74,999	1,476
Not in labor force	8,796	\$75,000 to \$99,999	619
		\$100,000 to \$149,999	283
Females 16 years and over	11,546	\$150,000 to \$199,999	95
In labor force	5,965	\$200,000 or more	49
Civilian labor force	5,965	Mean household income (dollars)	36,486
Employed	5,595		
		With earnings	8,165
		With Social Security income	3,901
		Mean Social Security income (dollars)	10,321
		With Supplemental Security Income (SSI)	830
		Mean SSI (dollars)	5,703
		With public assistance income	515
		Mean public assistance income (dollars)	1,829
		With retirement income	2,334
		Mean retirement income (dollars)	13,259
		Families	6,791
		Less than \$10,000	669
		\$10,000 to \$14,999	506
		\$15,000 to \$24,999	1,146
		\$25,000 to \$34,999	1,103
		\$35,000 to \$49,999	1,308
		\$50,000 to \$74,999	1,150
		\$75,000 to \$99,999	531
		\$100,000 to \$149,999	267
		\$150,000 to \$199,999	68
		\$200,000 or more	43
		Mean family income (dollars)	43,472
		Per capita income (dollars)	16,364
		Mean earnings (dollars)	
		Male	28,025
		Female	20,259
		POVERTY STATUS IN 1999	
		Families	1,037
		With related children under 18 years	781
		With related children under 5 years	321
		Families with female householder, no husband present	709
		With related children under 18 years	580
		With related children under 5 years	246
		Individuals	4,788
		18 years and over	3,073
		65 years and over	618
COMMUTING TO WORK			
Workers 16 years and over	10,864		
Car, truck, or van (drove alone)	8,945		
Car, truck, or van (carpooled)	1,428		
Public transportation (including taxicab)	106		
Walked	64		
Other means	66		
Worked at home	255		
Mean travel time to work (minutes)	21.8		
Employed civilian population 16 years and over	11,044		
OCCUPATION			
Management, professional, related	3,154		
Service	2,057		
Sales and office	3,061		
Farming, fishing, forestry	8		
Construction, extraction, maintenance	919		
Production, transportation, material	1,845		
INDUSTRY			
Agriculture, forestry, fishing, mining	19		
Construction	570		
Manufacturing	1,228		
Wholesale trade	460		
Retail trade	1,420		
Transportation, warehousing, utilities	568		
Information	306		
Finance, insurance, real estate	553		
Professional, scientific, management	1,085		
Educational, health, social services	2,737		
Arts, entertainment, accommodation	988		
Other services	550		
Public administration	560		
CLASS OF WORKER			
Private wage and salary	8,105		
Government	2,148		
Self-employed	760		
Unpaid family workers	31		

Compiled by the Knoxville/Knox County Metropolitan Planning Commission, September 2002.

Source: U.S. Census Bureau, 2000 Census of Population and Housing: Summary File 3.

PROFILE OF SELECTED HOUSING CHARACTERISTICS: 2000

Geographic Area: East City

Total housing units	12,664	Occupied housing units	11,307
UNITS IN STRUCTURE		HOUSE HEATING FUEL	
1-unit, detached	9,399	Utility gas	4,603
1-unit, attached	376	Bottled, tank, or LP gas	130
2 units	605	Electricity	6,302
3 or 4 units	415	Fuel oil, kerosene, etc.	197
5 to 9 units	541	Coal or coke	16
10 to 19 units	373	Wood	44
20 or more units	883	Solar energy	0
Mobile home	66	Other fuel	15
Boat, RV, van, etc.	6	No fuel used	0
YEAR STRUCTURE BUILT		OCCUPANTS PER ROOM	
1999 to March 2000	74	1.00 or less	11,091
1995 to 1998	453	1.01 to 1.50	162
1990 to 1994	243	1.51 or more	54
1980 to 1989	814		
1970 to 1979	1,190	Specified owner-occupied units	7,058
1960 to 1969	2,130	VALUE	
1940 to 1959	5,938	Less than \$50,000	1,547
1939 or earlier	1,822	\$50,000 to \$99,999	4,193
ROOMS		\$100,000 to \$149,999	959
1 room	108	\$150,000 to \$199,999	273
2 rooms	376	\$200,000 to \$299,999	80
3 rooms	1,015	\$300,000 to \$499,999	6
4 rooms	2,387	\$500,000 to \$999,999	0
5 rooms	3,311	\$1,000,000 or more	0
6 rooms	2,339	Mean (dollars)	77,114
7 rooms	1,621	MORTGAGE STATUS AND SELECTED	
8 rooms	800	MONTHLY OWNER COSTS	
9 or more rooms	707	With a mortgage	4,267
Mean (rooms)	5.4	Less than \$300	96
Occupied housing units	11,307	\$300 to \$499	482
YEAR HOUSEHOLDER MOVED INTO UNIT		\$500 to \$699	1,279
1999 to March 2000	1,796	\$700 to \$999	1,377
1995 to 1998	3,042	\$1,000 to \$1,499	805
1990 to 1994	1,650	\$1,500 to \$1,999	184
1980 to 1989	1,501	\$2,000 or more	44
1970 to 1979	1,303	Not mortgaged	2,791
1969 or earlier	2,015	Specified renter-occupied units	3,895
VEHICLES AVAILABLE		GROSS RENT	
None	1,209	Less than \$200	486
1	4,787	\$200 to \$299	255
2	3,787	\$300 to \$499	1,410
3 or more	1,524	\$500 to \$749	1,222
Vehicles per household	1.6	\$750 to \$999	193
SELECTED CHARACTERISTICS		\$1,000 to \$1,499	5
Lacking complete plumbing facilities	21	\$1,500 or more	0
Lacking complete kitchen facilities	16	No cash rent	324
No telephone service	290	Mean (dollars)	410

Compiled by the Knoxville/Knox County Metropolitan Planning Commission, September 2002.

Source: U.S. Census Bureau, 2000 Census of Population and Housing: Summary File 3.

PROFILE OF GENERAL DEMOGRAPHIC CHARACTERISTICS: 2000

Geographic Area: Census Tract 43

Total population	2,028	GROUP QUARTERS	
SEX AND AGE		Total population in group quarters	39
Male	941	Institutionalized	39
Female	1,087	Correctional Institutions	0
		Nursing homes	39
Under 5 years	135	Noninstitutionalized	0
5 to 9 years	116	College (incl. college quarters off campus)	0
10 to 14 years	117	Military quarters	0
15 to 19 years	125	Other (Institutionalized and Noninstitutionalized)	0
20 to 24 years	165		
25 to 34 years	335	HOUSEHOLD BY TYPE	
35 to 44 years	299	Total households	895
45 to 54 years	258	Family households (families)	537
55 to 59 years	104	With own children under 18 years	237
60 to 64 years	87	Married-couple family	373
65 to 74 years	120	With own children under 18 years	150
75 to 84 years	112	Female householder, no husband present	136
85 years and over	55	With own children under 18 years	69
Median age (years)	35.7	Male householder, no wife present	28
		With own children under 18 years	18
18 years and over	1,590	Nonfamily households	358
21 years and over	1,506	Householder living alone	293
62 years and over	339	Householder 65 years and over, living alone	88
65 years and over	287		
		Unmarried-partner households	48
5 to 10 years	139	Households with individuals under 18 years	262
11 to 13 years	65	Households with individuals 65 years and over	200
14 to 18 years	121		
RACE		Average household size	2.22
One race	2,005	Average family size	2.83
White	1,705	HOUSING OCCUPANCY	
Black or African American	264	Total housing units	1,009
American Indian and Alaska Native	8	Occupied housing units	895
Asian	15	Vacant housing units	114
Native Hawaiian/Other Pac. Islander	1	For seasonal, recreational, occasional use	1
Some other race	12		
Two or more races	23	Vacancy rate (percent)	11.3
HISPANIC OR LATINO		HOUSING TENURE	
Hispanic or Latino (of any race)	21	Occupied housing units	895
Not Hispanic or Latino	2,007	Owner-occupied housing units	447
		Renter-occupied housing units	448
		Average household size of owner-occupied units	2.44
		Average household size of renter-occupied units	2.01

PROFILE OF SELECTED SOCIAL CHARACTERISTICS: 2000

Geographic Area: Census Tract 43

SCHOOL ENROLLMENT		RESIDENCE IN 1995	
Population 3 years and over enrolled in school	502	Population 5 years and over	1,949
Nursery school, preschool	8	Same house in 1995	839
Kindergarten	49	Different house in the U.S. in 1995	1,063
Elementary school (grades 1-8)	223	Same county	534
High school (grades 9-12)	111	Different county	529
College or graduate school	111	Same state	160
		Different state	369
		Elsewhere in 1995	47
EDUCATIONAL ATTAINMENT		NATIVITY AND PLACE OF BIRTH	
Population 25 years and over	1,419	Total population	2,070
Less than 9th grade	112	Native	1,984
9th to 12th grade, no diploma	218	Born in United States	1,971
High school graduate (includes GED)	459	State of residence	1,361
Some college, no degree	281	Different state	610
Associate degree	76	Born outside United States	13
Bachelor's degree	214	Foreign born	86
Graduate or professional degree	59	Entered 1990 to March 2000	43
Percent high school graduate or higher	76.7	Naturalized citizen	42
Percent bachelor's degree or higher	19.2	Not a citizen	44
MARITAL STATUS		REGION OF BIRTH OF FOREIGN BORN	
Population 15 years and over	1,662	Total (excluding born at sea)	86
Never married	412	Europe	25
Now married (not separated)	777	Asia	29
Separated	53	Africa	20
Widowed	165	Oceania	0
Female	127	Latin America	12
Divorced	255	Northern America	0
Female	203		
DISABILITY STATUS OF THE CIVILIAN NONINSTITUTIONALIZED POPULATION		LANGUAGE SPOKEN AT HOME	
Population 5 to 20 years	431	Population 5 years and over	1,949
With a disability	48	English only	1,858
Population 21 to 64 years	1,272	Language other than English	91
With a disability	337	Spanish	16
Percent employed	63.2	Other Indo-European languages	47
No disability	935	Asian and Pacific Island languages	9
Percent employed	81.1	Other	19
Population 65 years and over	201		
With a disability	111		

Geographic Area: Census Tract 43

Compiled by the Knoxville/Knox County Metropolitan Planning Commission, September 2002.
Source: U.S. Census Bureau, 2000 Census of Population and Housing: Summary File 3.

PROFILE OF SELECTED HOUSING CHARACTERISTICS: 2000

Geographic Area: Census Tract 43

Total housing units	1,015	Occupied housing units	899
UNITS IN STRUCTURE		HOUSE HEATING FUEL	
1-unit, detached	659	Utility gas	340
1-unit, attached	10	Bottled, tank, or LP gas	25
2 units	11	Electricity	500
3 or 4 units	6	Fuel oil, kerosene, etc.	29
5 to 9 units	93	Coal or coke	0
10 to 19 units	111	Wood	5
20 or more units	120	Solar energy	0
Mobile home	5	Other fuel	0
Boat, RV, van, etc.	0	No fuel used	0
YEAR STRUCTURE BUILT		OCCUPANTS PER ROOM	
1999 to March 2000	18	1.00 or less	894
1995 to 1998	59	1.01 to 1.50	5
1990 to 1994	122	1.51 or more	0
1980 to 1989	215		
1970 to 1979	97	Specified owner-occupied units	429
1960 to 1969	44	VALUE	
1940 to 1959	312	Less than \$50,000	68
1939 or earlier	148	\$50,000 to \$99,999	209
Median, owner-occupied (year)	1956	\$100,000 to \$149,999	81
Median, renter-occupied (year)	1981	\$150,000 to \$199,999	54
ROOMS		\$200,000 to \$299,999	17
1 room	6	\$300,000 to \$499,999	0
2 rooms	67	\$500,000 to \$999,999	0
3 rooms	111	\$1,000,000 or more	0
4 rooms	206	Median (dollars)	85,100
5 rooms	240		
6 rooms	144	MORTGAGE STATUS AND SELECTED	
7 rooms	93	MONTHLY OWNER COSTS	
8 rooms	62	With a mortgage	274
9 or more rooms	86	Less than \$300	0
Median (rooms)	5.0	\$300 to \$499	5
		\$500 to \$699	92
Occupied housing units	899	\$700 to \$999	90
YEAR HOUSEHOLDER MOVED INTO UNIT		\$1,000 to \$1,499	71
1999 to March 2000	302	\$1,500 to \$1,999	6
1995 to 1998	182	\$2,000 or more	10
1990 to 1994	85	Not mortgaged	155
1980 to 1989	151		
1970 to 1979	79	Specified renter-occupied units	458
1969 or earlier	100	GROSS RENT	
VEHICLES AVAILABLE		Less than \$200	39
None	73	\$200 to \$299	19
1	376	\$300 to \$499	148
2	291	\$500 to \$749	198
3 or more	159	\$750 to \$999	21
Vehicles per household	1.7	\$1,000 to \$1,499	14
		\$1,500 or more	0
SELECTED CHARACTERISTICS		No cash rent	19
Lacking complete plumbing facilities	0	Median (dollars)	519
Lacking complete kitchen facilities	0		
No telephone service	18		

Compiled by the Knoxville/Knox County Metropolitan Planning Commission, September 2002.

Source: U.S. Census Bureau, 2000 Census of Population and Housing: Summary File 3.

PROFILE OF GENERAL DEMOGRAPHIC CHARACTERISTICS: 2000

Geographic Area: Census Tract 43

Total population	2,028	GROUP QUARTERS	
SEX AND AGE		Total population in group quarters	39
Male	941	Institutionalized	39
Female	1,087	Correctional institutions	0
		Nursing homes	39
Under 5 years	135	Noninstitutionalized	0
5 to 9 years	116	College (incl. college quarters off campus)	0
10 to 14 years	117	Military quarters	0
15 to 19 years	125	Other (Institutionalized and Noninstitutionalized)	0
20 to 24 years	165		
25 to 34 years	335	HOUSEHOLD BY TYPE	
35 to 44 years	299	Total households	895
45 to 54 years	258	Family households (families)	537
55 to 59 years	104	With own children under 18 years	237
60 to 64 years	87	Married-couple family	373
65 to 74 years	120	With own children under 18 years	150
75 to 84 years	112	Female householder, no husband present	136
85 years and over	55	With own children under 18 years	69
Median age (years)	35.7	Male householder, no wife present	28
		With own children under 18 years	18
18 years and over	1,590	Nonfamily households	358
21 years and over	1,506	Householder living alone	293
62 years and over	339	Householder 65 years and over, living alone	88
65 years and over	287		
		Unmarried-partner households	48
5 to 10 years	139	Households with individuals under 18 years	262
11 to 13 years	65	Households with individuals 65 years and over	200
14 to 18 years	121		
RACE		Average household size	2.22
One race	2,005	Average family size	2.83
White	1,705	HOUSING OCCUPANCY	
Black or African American	264	Total housing units	1,009
American Indian and Alaska Native	8	Occupied housing units	895
Asian	15	Vacant housing units	114
Native Hawaiian/Other Pac. Islander	1	For seasonal, recreational, occasional use	1
Some other race	12		
Two or more races	23	Vacancy rate (percent)	11.3
HISPANIC OR LATINO		HOUSING TENURE	
Hispanic or Latino (of any race)	21	Occupied housing units	895
Not Hispanic or Latino	2,007	Owner-occupied housing units	447
		Renter-occupied housing units	448
		Average household size of owner-occupied units	2.44
		Average household size of renter-occupied units	2.01

PROFILE OF SELECTED SOCIAL CHARACTERISTICS: 2000

Geographic Area: Census Tract 43

SCHOOL ENROLLMENT		RESIDENCE IN 1995	
Population 3 years and over enrolled in school	502	Population 5 years and over	1,949
Nursery school, preschool	8	Same house in 1995	839
Kindergarten	49	Different house in the U.S. in 1995	1,063
Elementary school (grades 1-8)	223	Same county	534
High school (grades 9-12)	111	Different county	529
College or graduate school	111	Same state	160
		Different state	369
		Elsewhere in 1995	47
EDUCATIONAL ATTAINMENT		NATIVITY AND PLACE OF BIRTH	
Population 25 years and over	1,419	Total population	2,070
Less than 9th grade	112	Native	1,984
9th to 12th grade, no diploma	218	Born in United States	1,971
High school graduate (includes GED)	459	State of residence	1,361
Some college, no degree	281	Different state	610
Associate degree	76	Born outside United States	13
Bachelor's degree	214	Foreign born	86
Graduate or professional degree	59	Entered 1990 to March 2000	43
Percent high school graduate or higher	76.7	Naturalized citizen	42
Percent bachelor's degree or higher	19.2	Not a citizen	44
MARITAL STATUS		REGION OF BIRTH OF FOREIGN BORN	
Population 15 years and over	1,662	Total (excluding born at sea)	86
Never married	412	Europe	25
Now married (not separated)	777	Asia	29
Separated	53	Africa	20
Widowed	165	Oceania	0
Female	127	Latin America	12
Divorced	255	Northern America	0
Female	203		
DISABILITY STATUS OF THE CIVILIAN NONINSTITUTIONALIZED POPULATION		LANGUAGE SPOKEN AT HOME	
Population 5 to 20 years	431	Population 5 years and over	1,949
With a disability	48	English only	1,858
Population 21 to 64 years	1,272	Language other than English	91
With a disability	337	Spanish	16
Percent employed	63.2	Other Indo-European languages	47
No disability	935	Asian and Pacific Island languages	9
Percent employed	81.1	Other	19
Population 65 years and over	201		
With a disability	111		

PROFILE OF SELECTED ECONOMIC CHARACTERISTICS: 2000

Geographic Area: Census Tract 43

EMPLOYMENT STATUS		INCOME IN 1999	
Population 16 years and over	1,636	Households	887
In labor force	1,078	Less than \$10,000	111
Civilian labor force	1,078	\$10,000 to \$14,999	89
Employed	1,045	\$15,000 to \$24,999	184
Unemployed	33	\$25,000 to \$34,999	179
Percent of civilian labor force	3.1	\$35,000 to \$49,999	144
Armed Forces	0	\$50,000 to \$74,999	105
Not in labor force	558	\$75,000 to \$99,999	49
		\$100,000 to \$149,999	26
		\$150,000 to \$199,999	0
		\$200,000 or more	0
		Median household income (dollars)	28,201
		With earnings	719
		With Social Security income	191
		Mean Social Security income (dollars)	8,549
		With Supplemental Security Income (SSI)	51
		Mean SSI (dollars)	4,276
		With public assistance income	58
		Mean public assistance income (dollars)	2,059
		With retirement income	137
		Mean retirement income (dollars)	13,003
COMMUTING TO WORK			
Workers 16 years and over	1,026	Families	538
Car, truck, or van (drove alone)	788	Less than \$10,000	49
Car, truck, or van (carpooled)	191	\$10,000 to \$14,999	53
Public transportation (including taxicab)	6	\$15,000 to \$24,999	59
Walked	8	\$25,000 to \$34,999	123
Other means	16	\$35,000 to \$49,999	92
Worked at home	17	\$50,000 to \$74,999	94
Mean travel time to work (minutes)	22.2	\$75,000 to \$99,999	42
		\$100,000 to \$149,999	26
		\$150,000 to \$199,999	0
		\$200,000 or more	0
		Median family income (dollars)	32,455
		Per capita income (dollars)	15,025
		Median earnings (dollars)	
		Male	22,589
		Female	11,867
		POVERTY STATUS IN 1999	
		Families	61
		With related children under 18 years	39
		With related children under 5 years	7
		Families with female householder, no husband present	53
		With related children under 18 years	39
		With related children under 5 years	7
		Individuals	215
		18 years and over	149
		65 years and over	19
OCCUPATION			
Management, professional, related	298		
Service	248		
Sales and office	299		
Farming, fishing, forestry	0		
Construction, extraction, maintenance	71		
Production, transportation, material	129		
INDUSTRY			
Agriculture, forestry, fishing, mining	0		
Construction	55		
Manufacturing	111		
Wholesale trade	22		
Retail trade	174		
Transportation, warehousing, utilities	47		
Information	12		
Finance, insurance, real estate	50		
Professional, scientific, management	129		
Educational, health, social services	186		
Arts, entertainment, accommodation	124		
Other services	87		
Public administration	48		
CLASS OF WORKER			
Private wage and salary	762		
Government	153		
Self-employed	125		
Unpaid family workers	5		

Compiled by the Knoxville/Knox County Metropolitan Planning Commission, September 2002.

Source: U.S. Census Bureau, 2000 Census of Population and Housing: Summary File 3.

PROFILE OF SELECTED HOUSING CHARACTERISTICS: 2000

Geographic Area: Census Tract 43

Total housing units	1,015	Occupied housing units	899
UNITS IN STRUCTURE		HOUSE HEATING FUEL	
1-unit, detached	659	Utility gas	340
1-unit, attached	10	Bottled, tank, or LP gas	25
2 units	11	Electricity	500
3 or 4 units	6	Fuel oil, kerosene, etc.	29
5 to 9 units	93	Coal or coke	0
10 to 19 units	111	Wood	5
20 or more units	120	Solar energy	0
Mobile home	5	Other fuel	0
Boat, RV, van, etc.	0	No fuel used	0
YEAR STRUCTURE BUILT		OCCUPANTS PER ROOM	
1999 to March 2000	18	1.00 or less	894
1995 to 1998	59	1.01 to 1.50	5
1990 to 1994	122	1.51 or more	0
1980 to 1989	215		
1970 to 1979	97	Specified owner-occupied units	429
1960 to 1969	44	VALUE	
1940 to 1959	312	Less than \$50,000	68
1939 or earlier	148	\$50,000 to \$99,999	209
Median, owner-occupied (year)	1956	\$100,000 to \$149,999	81
Median, renter-occupied (year)	1981	\$150,000 to \$199,999	54
ROOMS		\$200,000 to \$299,999	17
1 room	6	\$300,000 to \$499,999	0
2 rooms	67	\$500,000 to \$999,999	0
3 rooms	111	\$1,000,000 or more	0
4 rooms	206	Median (dollars)	85,100
5 rooms	240	MORTGAGE STATUS AND SELECTED	
6 rooms	144	MONTHLY OWNER COSTS	
7 rooms	93	With a mortgage	274
8 rooms	62	Less than \$300	0
9 or more rooms	86	\$300 to \$499	5
Median (rooms)	5.0	\$500 to \$699	92
Occupied housing units	899	\$700 to \$999	90
YEAR HOUSEHOLDER MOVED INTO UNIT		\$1,000 to \$1,499	71
1999 to March 2000	302	\$1,500 to \$1,999	6
1995 to 1998	182	\$2,000 or more	10
1990 to 1994	85	Not mortgaged	155
1980 to 1989	151	Specified renter-occupied units	458
1970 to 1979	79	GROSS RENT	
1969 or earlier	100	Less than \$200	39
VEHICLES AVAILABLE		\$200 to \$299	19
None	73	\$300 to \$499	148
1	376	\$500 to \$749	198
2	291	\$750 to \$999	21
3 or more	159	\$1,000 to \$1,499	14
Vehicles per household	1.7	\$1,500 or more	0
SELECTED CHARACTERISTICS		No cash rent	19
Lacking complete plumbing facilities	0	Median (dollars)	519
Lacking complete kitchen facilities	0		
No telephone service	18		

KNOXVILLE, TN METROPOLITAN STATISTICAL AREA (MSA) POPULATION, 2000-2007

County	2007	2006	2005	2004	2003	2002	2001	2000	Estimates Base 2000	Census 2000
Anderson County	73,471	72,873	71,801	71,381	71,407	71,377	71,336	71,241	71,330	71,330
Blount County	119,855	117,934	115,261	113,120	111,139	109,552	107,953	106,225	105,823	105,823
Knox County	423,874	416,352	409,116	403,080	398,760	392,858	387,775	383,046	382,032	382,032
Loudon County	45,448	44,362	43,242	42,155	41,418	40,755	39,970	39,215	39,087	39,086
Union County	18,877	18,761	18,660	18,589	18,592	18,410	18,285	17,858	17,808	17,808
Knoxville MSA	681,525	670,282	658,080	648,325	641,316	632,952	625,319	617,585	616,080	616,079

Note:

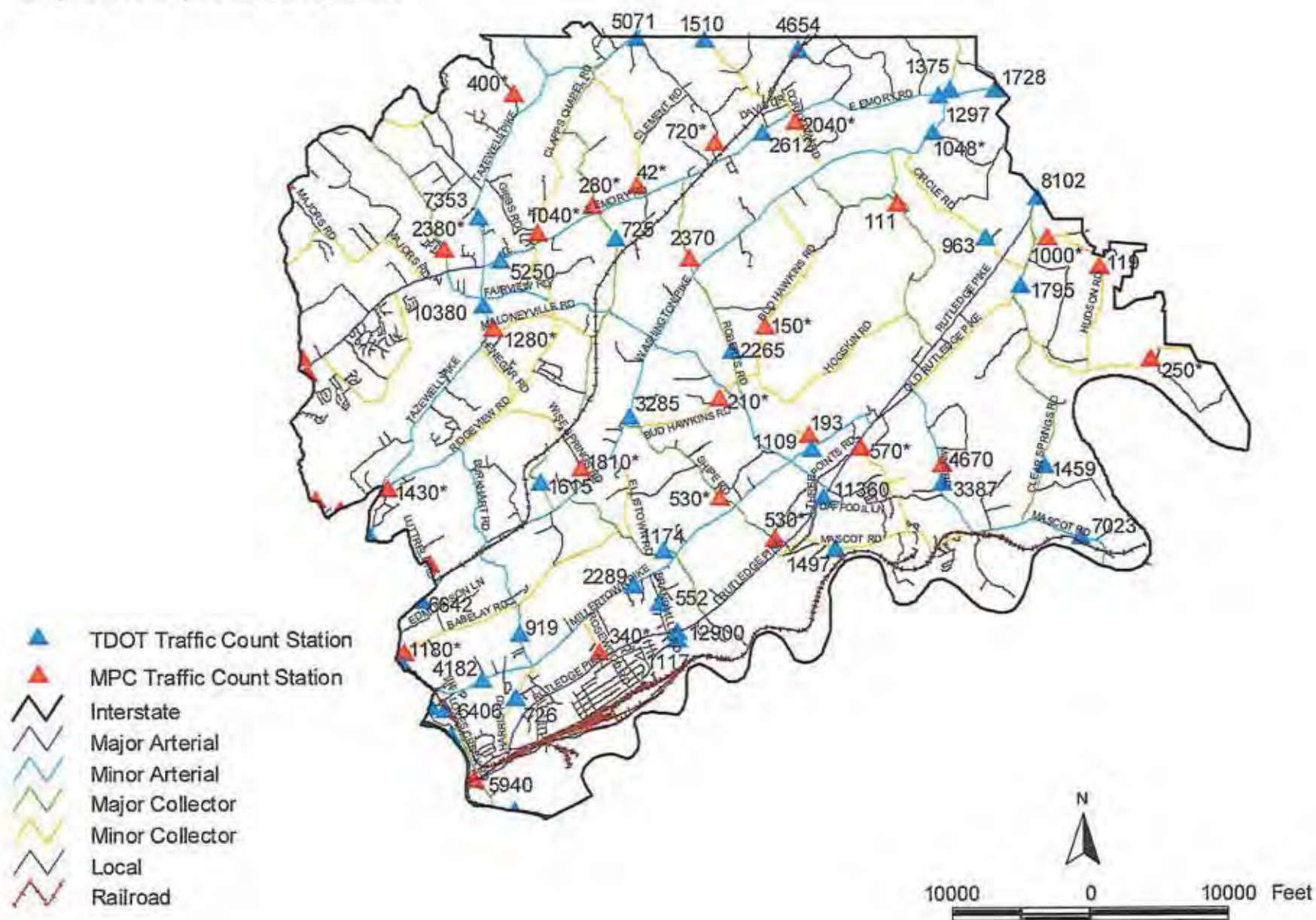
Metropolitan Statistical Area definition as of December, 2005. Totals for all years are based on the 2005 definition.

Source:

U.S. Census Bureau, *Population Estimates Program*. March 20, 2008.

Prepared by the Knoxville/Knox County Metropolitan Planning Commission, March 20, 2008.

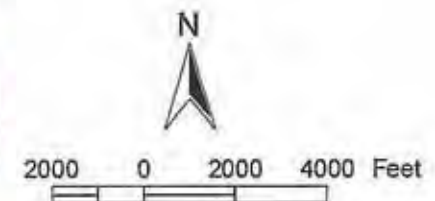
Map 8: Transportation System



Map 8
Community Facilities Plan

Legend

-  Knox County Schools
-  Library
-  Fire Station
-  Empowerment Zone Boundary
-  Additional Pedestrian Improvements
-  Potential Greenway
-  Existing Greenway
-  Existing Sidewalks
-  Interstates
-  Roads
-  Existing Bike Facilities
-  Proposed Park
-  Existing Park





Population and Growth Trends

[View East City Population Density Map](#)

- According to 2000 Census figures, population for the East City Sector declined by 400 persons, or 1.5%, almost reversing a trend of population decline.
- Population increased significantly in tracts 30 and 31.
- Population dropped significantly in tracts 19 and 32.
- In contrast, population in the sector decreased by 3,450 persons, or 11.8%, between 1980 and 1990.
- Only East City and Central City sectors experienced a decline in population between 1990 and 2000.
- East City's population is dense enough to support public transit in certain spots, as shown in Map 2.



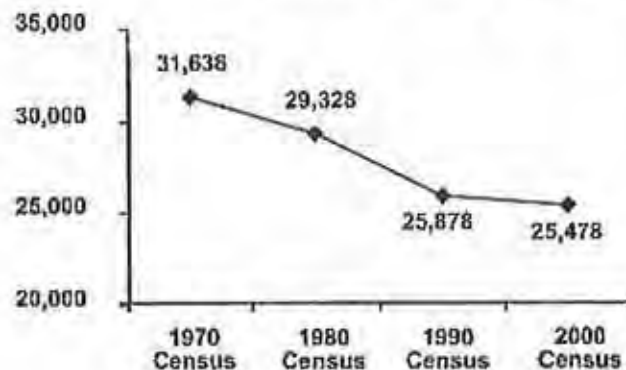
New apartments and condominiums in tracts 30 and 31 are adding the density needed to support healthy neighborhood-serving businesses, and creating demand for transportation alternatives such as pedestrian facilities and public transit.

Census Tracts in the East City Sector



Census tracts 16, 18, 19, 20, 31, 30, 31, 32, and 33 are in the East City Sector and are shown in gray.

Figure 1:
East City Sector Population Change, 1970-2000



*Block Group 2
Central Tract 43*

1-2000 population 111



Northeast County Sector Plan



Special Development Opportunity Areas

View Map 11: Development Concepts

Murphy Road: An Attractive Gateway into Northeast Knox County

Neighborhood commercial services at Washington Pike should connect by sidewalk to existing and future residential areas.

Road improvements include extension of Murphy Road to Mill Road, near Millertown Pike. This is proposed as a four-lane, divided highway with a raised median, sidewalks and signalized intersections to be located at Babelay Drive and Edmondson Lane. Aesthetic issues should be carefully considered, including landscaping along with the road improvements.



Portions of this low-lying area are flood prone and best suited for recreational uses.

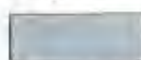



A low to medium density land use transition area will need to develop between the high intensity areas surrounding Knoxville Center Mall and existing large lot, single family homes near the extended portion of Murphy Road. Preserving the floodplain protection area around Loves Creek headwaters will limit future flooding in the area. These low-lying areas should be acquired by the county and used for recreational purposes. Acquiring easements for greenway connections and future community amenities should be done in coordination with right-of-way purchases for the road improvements.

The development opportunity illustrated in Figure 5 shows the general location of Murphy Road as it is proposed to be extended through the Babelay farm.

The parkland (in blue) is surrounded by a mix of housing types, with walking trail connections to the village center and to future greenways that are proposed along Loves Creek to the south, McAnnally Ridge to the east and Sharps Ridge to the west. As the area grows, additional public facilities, such as a fire department, may be needed, and could be located in the Village Center or a centrally located intersection such as Babelay Drive and the extended Murphy Road.



Legend

	Village commons, parkland and greenway trails		Low density residential
	Village center with mix of office, commercial, and civic uses		Medium density residential



Existing Land Use

[View Existing Land Use Map](#)

[View Existing Land Use Table](#)

In terms of acreage, most of the sector is single family residential. Because of land constraints and a lack of vacant land, there are few opportunities for large-scale land development and therefore few changes in land use. Emphasis is on achieving compatible infill housing and redeveloping commercial areas to meet the needs of a diverse population.

Residential Trends

1990-2000 The breakdown of new residential units in the past ten years includes 408 single family units, 53 multi-family, and 234 condominiums. The total number of net residential properties since 1990 is 702. Major developments include Laurel Place on Valley View Drive and Buffat Trace on Buffat Mill Road.



Laurel Place on Valley View Drive is within easy walking distance to many commercial establishments and other community amenities, but adequate pedestrian facilities are not available.

Commercial Trends

Since its construction in 1984, Knoxville Center (formerly East Towne Mall) has increased traffic and stimulated development in a significant portion of the sector. This mall and several surrounding commercial properties including Sam's Club, Kohl's, and Walmart, are not located within the sector but have a great deal of influence on the livability of adjacent East City neighborhoods. East Towne Crossing (Home Depot) and Isaiah's Landing (Lowe's, currently under construction) are within the East City Sector, in very close proximity to well-established residential areas.



The old Kmart building on Asheville Highway is in need of re-adaptation/renovation for a new type of use.

If market conditions favor further expansion of commercial establishments, this growth must occur in a way that is pedestrian friendly and does not disturb existing neighborhoods. Within the sector, existing commercially zoned property is available for redevelopment as an alternative

to creating new commercial areas. The highest shopping center vacancy rates in Knoxville/Knox County are found in East City, with rates approaching 20 percent. In many cases, vacant buildings will contribute to blight in the sector if they remain empty, with litter and illegal activities more likely to occur at these locations. If it is not possible to renovate the property to create a more "modern" shopping experience, re-adaptation of obsolete shopping center space for uses other than retail may be necessary.

Office Trends

Due in large part to a dominant, stable medical sector, the Central, East, and South City Sectors form a sub-market (excluding the downtown area) that outperforms all other sub-markets, with a 1.71 percent vacancy rate. Sixty-six total buildings are in the sub-market, which consists of some of Knoxville's older building stock. Out of 2,517,432 gross sq. ft., only 36,846 is estimated to be vacant. Vacancy in the county as a whole is 7.8 percent, with office space in some sub-markets over 10 percent vacant. Trends show that office space is migrating westward, with the highest percentage of new office space in the Pellissippi sub-market.

As a planning sector, East City Sector contains 96,808 gross sq. ft. of office space in nine buildings, with no vacant square footage reported. It has the lowest vacancy rate by sector. Among city sectors, the East City Sector has the least amount of gross office space to rent. Existing office space is concentrated along Magnolia Avenue.

Industrial Trends

Knoxville/Knox County has a total of 706 industrial buildings, with a vacancy rate of 5.4 percent, compared to the eight percent national average. Four small sub-markets, or clusters, dominate the local industrial supply. East Knoxville and Forks of the River are two of the dominant clusters, and have several large buildings. Together these two clusters have 165 buildings, representing 31 percent of the total industrial space in Knoxville/Knox County. The largest collection of warehouse footage in Knoxville/Knox County is found in the East Knoxville cluster. Portions of East City and Central City Sectors combine to form the East Knoxville cluster, which is located along the I-40 corridor, adjacent to the rail line just north of the interstate.

Local demand has been growing for suburban locations, with some tenants vacating older properties within the city. The estimated vacancy rate within the East Knoxville cluster is currently 10.9 percent, second only to the Central Avenue cluster, with a vacancy rate of 15.5 percent.

As a planning sector, the East City Sector has a 21.2 percent vacancy rate. To capitalize on Knoxville's overall shortage in industrial space, and to provide good jobs for area residents, efforts to revitalize industrial properties are underway as part of Knoxville's Empowerment Zone initiatives. Most of the vacant space in the East Knoxville cluster is over 20 years old.

Forks of the River Industrial Park, directly adjacent to East City Sector, is newer than the East Knoxville cluster but also has some aging buildings. Continued viability of the Forks of the River



Better access is needed to insure viability of Forks of the River Industrial Park as an employment center for East City residents. Large trucks disrupt neighborhood traffic on Boyd's Bridge Pike, Holston Hills Rd. and S. Chilhowee Dr. by using this bridge across Holston River as a short cut to and from the park.

Industrial Park is very important to the residents of East City sector. This industrial park has water and rail access, and is in close proximity to the Empowerment Zone. The park will provide jobs for residents of the sector and increase the stability of the entire community if properly maintained.

Some neighborhood streets, such as N. Chilhowee Drive and Holston Hills Road, experience cut through traffic—including large trucks—because of this industrial park's proximity. Roadway improvements to Governor John Sevier Highway, which is outside of the East City Sector, would increase the viability of the industrial park while reducing the instances of traffic cutting through residential neighborhoods.

**Table 3:
Existing Land Use Total—By Acre**

Rural Residential	610.5	596.8	5.9
Single Family Residential	3,432.9	3,471.7	34.6
Multifamily Residential	183.0	207.8	2.1
Commercial	246.8	326.8	3.3
Office	126.0	79.7	0.8
Industrial (Manufacturing)	100.6	206.5	2.1
Wholesale	*n/a	103.2	1.0
Transportation/Communications/Utilities	77.4	79.4	0.8
Public/Quasi Public Land	1,049.7	891.1	8.9
Agriculture, Forestry and Vacant Land	2,062.8	1,723.9	17.2
Public Parks	**n/a	432.4	4.3
Private Recreation	273.7	175.6	1.7
Under Construction/Other Uses/Unknown	163.2	10.6	0.1
Water	257.0	257.0	2.5
Right of Way/Open Space	1,460.4	1,481.9	14.7
Total	10,044.0	10,044.0	100

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KNOXVILLE AREA STATISTICS

*The Knoxville Metropolitan Statistical Area (MSA) refers to Anderson, Blount, Knox, Loudon, and Union counties.

CIVIC

Churches.....460

Golf Courses

Public - MSA*.....33
Public - Knox County.....13
Country Clubs.....5

Government

City of Knoxville:
Mayor; 9 Council members (4-year terms)
Knox County:
County Mayor; Board of 19 Commissioners
(4-year terms)

Historic Districts.....25

Hospital Systems (Knox County)

General Use.....8
Children's Hospital.....1
Beds, approximate number.....2,589

Libraries

Knox County Public Library
Size of Collection.....1,011,163
Branches.....19

Newspapers - circulation

The Knoxville News-Sentinel
Daily.....117,339
Sunday.....148,107
Weeklies, Biweeklies, and Monthlies
Total Number.....12

Park Area (approximate public acreage)

Knox County.....5,881

Radio and Television

Radio Stations.....20
Television Stations.....9

Theaters

Movie Screens.....102
Performance Theaters.....11
Dinner Theaters.....1

DEMOGRAPHICS

Building Permits - 2007 (city/county)

Total Number.....4,296
Total Value.....\$911,858,039

Dwelling Units (city/county)

2000 Census.....171,439
2007 estimate.....196,836

Education

College Graduates
(percent of population).....31
College/University Enrollment 2007-08
University of Tennessee.....26,000
Mississippi State Technical
Community College.....7,600
Schools
Public.....86
Private/Parochial.....46
Business/Vocational.....20

Housing - 2007 Median Sales Price

Knox County.....\$156,400
U.S.....\$217,800
Apartment Rent.....\$564

Population - (2000 Census)

City of Knoxville.....173,890
(2006).....182,337
Knox County (including city).....382,032
(2007).....423,874
MSA*.....616,079
(2007).....681,525
Knox County Median Age.....38

ECONOMY

Businesses - 2007

Knox County.....10,929
MSA*.....15,657

Cost of Living

(U.S. Average = 100).....86.0

Earnings - 2007 MSA*

Average All Industries
Per Hour.....\$17.45
Per Week.....\$698
Average Annual Pay.....\$36,296

Employment - 2007 MSA*

Annual Average.....342,630
Labor Force.....356,830
Unemployment.....4.0%

Hotel/Motel Rooms - 2007

Number.....8,234
Average Room Rate.....\$80
Occupancy Rate.....56.6%

Industrial Properties - 2007

Number of Buildings.....605
Total Square Feet (in millions).....32.1
Vacancy Rate.....11.1%

Manufacturing Establishments- 2007

Knox County.....493
MSA*.....812

Office Properties - 2007

Buildings.....556
Total sq. ft. (in millions).....20.8
Vacancy Rate.....12.6%
Average Rent (sq ft.).....\$14.78

Retail Establishments - 2007

Knox County.....7,689
MSA*.....2,422

Retail Sales (thousands) - 2006

Knox County.....\$8,910,315
Sales Per Capita.....\$21,021

Service Establishments - 2007

Knox County.....5,098
MSA*.....7,135

Shopping Centers - 2006

Number.....169
Total sq. ft. (in millions).....15.6
Vacancy Rate.....6.5%

Wholesale Establishments - 2007

Knox County.....922
MSA*.....1,251

TRANSPORTATION

Airlines

Allegiant Air, American Eagle, Continental
Express, Delta, Delta Connection, Northwest
AirLink, United Express, USAirways Express
Daily flights.....144

Air Services

Cargo services.....5
Freight (tons) 2007.....50,940

Air Passengers

.....1,821,581

Bus Terminals

Greyhound/Trailways.....1

Railroad Lines

CSX/Seaboard, Norfolk Southern.....2
Miles of Lines.....170

Water Transportation - 2007

Port of Knoxville (tons).....591,210
Barges Per Year.....276

Knoxville Area

KNOXVILLE-KNOX COUNTY
METROPOLITAN PLANNING COMMISSION
Suite 403 City County Building
400 Main Street
Knoxville, Tennessee 37902
865-215-2500
www.knoxmpc.org

Facts & Figures
2008



LOCATION AND CLIMATE

Founded in 1791, where the French, British and Holston Rivers meet to form the Tennessee River, Knoxville is the largest city in East Tennessee, encompassing the entire metropolitan area. The city's population is 183,000. It is located in a broad valley between the Cumberland Mountains to the northwest and the Great Smoky Mountains to the southeast. These two ranges afford an attractive natural setting and provide a moderate, four-season climate, with average monthly temperatures ranging from 38 degrees in January to 78 degrees in July. The City of Knoxville comprises 103.7 square miles of the 528-square mile total for Knox County. Downtown Knoxville is 936 feet above sea level.

LIVABILITY

Knoxville continually receives high honors for quality of life. As published in the 2007 Best Cities for Raising Families, Knoxville is the best medium-sized metropolitan area in the nation. Rankings are based on cost of living, housing cost, crime rate, education, climate, architecture, and diversity. Salary.com placed Knoxville third among all suburbs in the U.S. when it comes to good wages and low cost of living. According to the 2007 American Chamber of Commerce Researchers Association (ACCRA) Cost of Living (COLI) Index, which measures the relative price levels for consumer goods and services in metropolitan and nonmetropolitan areas where chambers agree to participate, Knoxville was the eighth best cooperative urban area in the country with a COLI index of 86.0. With the average of all participating cities equaling 100.0, this further solidifies Knoxville among the leading markets for low cost of living.

EDUCATION

Knox County operates 86 public schools including 43 elementary, elementary or intermediate, 14 middle, and 13 high schools, two vocational schools, and several specialized education centers. Included in the total are five magnet schools offering enhanced arts and science curriculum. Total enrollment in 2007 was \$2,915. The system employs 3,401 teachers, with an average classroom ratio of one teacher for every 15 students. In addition to public education, there are 46 private and parochial schools offering elementary and secondary instruction in Knox County.

Post-secondary education is available at 10 public and private higher education institutions in Knox County and the surrounding area. In 2006, The University of Tennessee, Knoxville, with an average enrollment of 26,000 students, was placed in the top 30 percent of national public universities ranking 45th among 144 public institutions by U.S. News and World Report. Four community colleges offer two-year, associate degree programs, and several vocational and technical institutions also serve the area.

ARTS AND CULTURE

The Knoxville Symphony, the Knoxville Opera Company, and the Tennessee Children's Dance Ensemble are among the many exceptional arts organizations in the city. Choral groups, dance companies, and 11 performance theaters, including the renovated Tennessee and Bijou Theaters, also promote the arts. Live entertainment includes touring Broadway productions, ice shows, concerts, and circuses. The Knoxville Museum of Art and the Emory Center for Arts and Culture feature changing exhibits throughout the year, while the area's libraries, historic sites, and museums, such as the Museum of Appalachia and the Braxton Cultural Center, celebrate Knoxville's heritage.

RECREATION AND TOURISM

Knox County has over 5,000 acres of state and recreation space, including 27 recreation centers, six senior citizen centers, the newly updated Knoxville Skatepark, 13 golf courses open to the public, and more than 60 miles of greenway and walking trails. Knoxville's Zoological Gardens and Jim's Nature Center attract visitors both young and old. Nearby is the Great Smoky Mountains National Park, the country's most visited, with over nine million guests in 2007. Visitors enjoy the natural beauty and leisure activities that can be found there and at the numerous other state parks, lakes, and resorts which dot the area.

For sports fans, Knoxville has much to offer. Nationally-ranked University of Tennessee varsity teams draw thousands of enthusiasts to football, basketball, and many other NCAA events each year. The Tennessee Smokies provide 6A minor league baseball in neighboring Sevier County, while the Knoxville Ice Bears bring minor league hockey to local fans. The city is also home to the Women's Basketball Hall of Fame.

Special seasonal events include the Dogwood Arts Festival and Rhythm Festival in the spring, Bandweek in the City concerts during summer months, Boonville in the fall, and Drenner's celebration Christmas in the City. Knoxville supports an active tourism and convention trade with a 500,000-square foot convention center located downtown at World's Fair Park. Other local facilities are a large civic coliseum/auditorium, two exhibition halls, and a 25,000-seat arena. Nestled downtown, Knoxville's Walker-sungated, radio station WOVX hosts a live radio broadcast weekend called "The Blue Plate Special" where nationally known artists perform for free. The radio station has been featured in The Bottom Gilder and Southern Living Magazine to national television on PBS and ABC World News Tonight with Peter Jennings.

CIVIC ORGANIZATIONS

The Knoxville Area Chamber Partnership has over 2,100 members who participate in economic development, general commerce, and community affairs. About 150 civic groups and 270 neighborhood associations are active in the city and county. United Way and Community Shares support many youth, family, and social service programs, and organizations such as the Community Action Committee and Child and Family Tennessee also offer local assistance. More than 400 churches, serving many faiths and denominations, meet the religious needs of the community.

COMMERCE AND INDUSTRY

Knoxville placed tenth and remained among one of the best cities in the country to do business according to the 2008 Forbes magazine rankings of the top 100 metros for business and careers. This recognition as one of the top metros is characteristic of a diverse market. Commerce and industry vary from the media success of Scripps Television Networks (HGTV, DTV, Food Network, GAC and Free Living), to Syco Corporation's (largest food service marketer and distributor in North America) regional warehouse and distribution center. In addition, many other local companies are recognized as national and global leaders, including Clayton Homes, Brunswick Corporation, Goody's Family Clothing, Bush Brothers, Pilot Corporation, and Rudy Tuesday.

Knox County has 11 business parks and a Technology Corridor to meet a wide range of corporate facility needs. In 2007, over 780 new jobs were created in Knox County and over \$80 million in new business investment. Across the metro area, new investment totaled \$447 million and netted 2,555 jobs.

Four regional malls and 169 shopping centers and factory outlets comprise the retail landscape of the Knoxville area. Overall retail sales in Knox County increased 8.6 percent from 2005 to 2006 with over \$8.9 billion, while the Knoxville MSA increased 7.4 percent and grossed over \$12.0 billion.

INCOME

In 2004, Knox County's per capita personal income was seventh highest in the state at \$33,963, a 3.5 percent increase from 2003. State and national increases were 3.9 percent, or \$32,172, and 6.5 percent, or \$36,716, respectively, during the same period. The annual growth rate of per capita income in Knox County over the past 10 years averaged 3.8 percent. Earnings of persons employed in Knox County increased 5.7 percent between 2005 and 2006.

LABOR FORCE AND EMPLOYMENT

The 2007 BLS labor force (full and part-time, non-farm wage and salary employees, and self-employed persons) in the Knoxville MSA was 316,830, with an average unemployment rate of 4.3 percent. Knox County reported a total labor force of 223,760 and 3.7 percent unemployment. Local rates were lower than the statewide average of 5.0 percent and the national level of 4.8 percent.

A diversified economy is credited for the stability of local employment and wages. Employment by industry (excluding self-employed) for the Knoxville MSA in 2007:

INDUSTRY	NUMBER	PERCENTAGE
Government	52,400	19.8
Retail Trade	46,800	13.8
Educational, Health Services	41,800	12.7
Professional, Business Services	39,700	11.7
Manufacturing	38,700	11.4
Durable goods	9,900	3.5
Non-durable goods	9,900	2.9
Leisure and Hospitality	36,400	10.4
Natural Resources, Mining, Construction	18,900	5.6
Financial Activities	17,500	5.1
Wholesale Trade	16,100	4.7
Other Services	18,000	4.2
Transportation, Utilities	11,900	3.4
Information	6,000	1.8
TOTAL	319,900	

Source: Commerce Department of Labor and Workforce Development

TAXES

Under Tennessee Constitutional law, residential property is assessed at 25% of appraised value, and commercial/industrial property is assessed at 40%. The current property tax rate for Knox County residents is \$2.69 per \$100 assessed value. The assessment in the City of Knoxville is \$5.50 per \$100. City residents pay both property taxes.

The state sales tax is 6% on food and food ingredients and 7% on all other tangible personal property. The local rate, applicable countywide, is 2.25%, bringing the total sales tax in Knox County to 8.25-9.25%. About 73% of the local portion goes to the Knox County School system, the remainder dedicated to the general funds of the city and county.

There is no personal income tax in Tennessee, but the state does levy a tax of 6% on stock dividends and bond interest over \$1,250 for single filers. Called the Hall Income Tax, it applies to both individuals and partnerships.

All businesses in Knox County must have an operating license. Establishments within the City of Knoxville must have both a city and county license. Business taxes are calculated on gross receipts and are assessed within one of four classes. Assessments range from 1/10 of 1% to 3/16 of 1%, depending on type of business. Many professional services and manufacturers are exempt from local business taxes but are responsible for the state's Professional Privilege Tax or Franchise and Excise Taxes. More information can be obtained from the Business Tax Office of the city at 865-215-2083 and the county at 865-215-2192. State tax information is available from the Department of Revenue, 615-253-0400.

TRANSPORTATION

An extensive transportation network connects Knoxville to the U.S. midwest. Forty percent of the nation's population is within 600 miles of Knoxville via I-40, I-75, and I-81, which meet in the metro area. The city is directly linked to the Great Lakes by the Interconnected Inland Water System and to the Gulf of Mexico by the Tennessee-Tombigbee Waterway. Barge shipping is facilitated by three local river terminals. Also serving the area are 124 truck lines, two railroads, and eight airlines. Knoxville Area Transit (KAT) provides around 26 public bus routes, operating 80 vehicles and carrying around 3.2 million passengers a year in the city. In 2004, KAT garnered the prestigious American Public Transportation Association's Outstanding Achievement Award and is scheduled to break ground in 2008 on its new downtown Knoxville Station Transit Center. It will have state-of-the-art customer amenities and serve as the major reconstruction hub for metropolitan Knoxville.

COMMUNICATIONS

Knoxville businesses and residents have access to leading-edge communications technology. Downtown and other local sites are served by BellSouth's high capacity fiber optic network. Comcast, Knology, and Charter offer digital cable and high speed Internet access. Knoxville is 5th in the country on Intel's list of cities with greatest wireless accessibility, offering 72 Wi-Fi locations. The advanced communication network has attracted the telecommunications divisions of 29 large corporations to Knoxville.

UTILITIES

In 2004, Knoxville was selected as one of 12 Solar American Cities designated by the U.S. Department of Energy, receiving \$200,000 to help make solar technology cost-competitive with conventional electricity sources. The Knoxville Utilities Board (KUB) provides natural gas, water and wastewater services and distributes electric power generated by the Tennessee Valley Authority throughout much of Knox County. Beyond KUB's service area, residents receive electricity from two local power companies, and water is supplied by six utility districts, five of which also provide wastewater treatment service.

Table 8: Transportation Improvements

Project Description	Time Frame
1. Washington Pike	
A. Greenway Drive to Murphy Road - four-lane, divided highway with sidewalks and raised median.	
Signalized intersections at Mill Road, Babelay Drive and Murphy Road.	5 years
B. Murphy Road to Luttrell Road - widen with shoulder improvements.	5 years
C. Luttrell Road to Roberts Road – turn lanes at intersections and widened shoulders to include space for bikers.	15 years
2. Murphy Road Extension	
A. Four-lane, divided highway with sidewalks and raised median from Washington Pike to realigned Mill Road.	
Signalized intersections at Washington Pike, Babelay Drive and Edmondson Lane, bridge over Norfolk Southern Railroad.	5 years
3. Millertown Pike	
A. From I-640 to (relocated) Loves Creek Road – six lane with sidewalks and median.	5 years
B. Loves Creek Road (relocated) to Mill Road - four lane divided highway with sidewalks and median.	5 years
4. Loves Creek Road	
A. Relocated to the east near Millertown Pike, closer to Norfolk Southern Railroad.	5 years
B. Loves Creek Road near Rutledge Pike, investigate environmentally sensitive alternatives for reducing traffic problems at the underpass.	5 years
5. Tazewell Pike and E. Emory Road Intersection (Harbison's Crossroads)	
Signalize intersection, include crosswalks for pedestrian access.	5 years
6. E. Emory Road	
A. Widen with sidewalks through Gibbs area, to Clapps Chapel Road, including pedestrian refuge islands at the intersection of Tazewell Pike and E. Emory Road.	15 years
B. Continued widening between Clapps Chapel Road to Corryton and Grainger County line.	15 years
7. Tazewell Pike	
A. Raised crosswalks for traffic calming at Fairview Road.	5 years
B. Widen from Murphy Road to Gibbs Road, four-lane with sidewalks and median.	15 years
C. Continued widening from Gibbs Road to Union County line, four-lane with sidewalks and median.	15 years
8. Carter Road/Brown Gap Road—improve with curb and gutter, add sidewalks.	5 years
9. Regional Beltway from I-75 North to I-40 East—feasibility study.	5 years
10. Corryton Road—improvements to narrow shoulders and sharp curves.	5 years
11. Davis Road—widen intersections to improve response time of emergency vehicles.	5 years



Northeast County Sector Plan



Special Development Opportunity Areas

[View Map 11: Development Concepts](#)

Farmers Market: A Genuine Civic Amenity*

Enhancing the Farmers Market property provides a good opportunity for the neighborhoods of Ritta, John Sevier and Alice Bell to share a library facility and other community needs by adding senior citizen services, recreation fields and greenway trail connections.

Community serving retail establishments should also be considered. The businesses should be pedestrian friendly and be accessible by the sidewalks planned along Washington Pike as part of the road improvement project. Creation of a small 'lifestyle center' in this area may be a good alternative, incorporating Farmers Market activities and additional specialty shopping.

The International Council of Shopping Centers defines a lifestyle center as an open-air mall with at least 50,000 square feet of specialty shops, one or more department stores and one or more sit-down restaurants. It has "nooks, crannies, shade, fountains and benches — a place to hang out while window shopping." Sometimes lifestyle centers look like 'community commons' or Main Street, and incorporate components of government. Future development at the site should not disturb the slope protection area.

*A Farmers Market study for Knox County was completed by MPC on July 25, 2003. Please see [Appendix A](#) for the Executive Summary.



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Future Land Use Plan

[View Future Land Use Plan Map](#)

The development plan includes proposals for land use and transportation improvements. The plan will serve as a guide for growth, and for making zoning and subdivision decisions for the East City Sector in the next 15 years.

In general, land use patterns are well established and growth can take place through infill and reinvestment, avoiding changes in land use. The following areas are in transition, and many need increased investment. They include predominantly non-residential components, but the community is supportive of the addition of quality, well-designed housing. Opportunities for vibrant, mixed-use communities are numerous.



Additional low and medium density residential development, such as Georgetown, should be established around the perimeter of the commercial core. Apartments and/or offices above first floor retail and flexible live/work units should also be included in appropriate locations.

Areas that are experiencing change

- Knoxville Center Neighborhood, including Washington Pike and Millertown Pike
- I-40 Industrial Corridor, N. Cherry Street to Rutledge Pike
- Empowerment Zone, including 5-Points, Magnolia Avenue and Chilhowee Park/Knoxville Zoo
- Broadway Commercial Corridor
- Asheville Highway/I-40 – Exit 394
- Burlington Business District
- Forks-of-the-River Industrial Park, adjacent to East City Sector

We propose a change in the future land use designation for three of these areas:

1. Empowerment Zone, including 5-Points, Magnolia Avenue and Chilhowee Park/Knoxville Zoo
2. Asheville Highway
3. Knoxville Center Neighborhood

Summary of changes:

1. Empowerment Zone, including 5-Points, Magnolia Avenue and Chilhowee

Park/Knoxville Zoo—Some privately owned commercial and single family residential property is slated for acquisition as part of the Long-Range Master Plan for Chilhowee Park, during Phase 2-5. For remaining parcels, mixed-use development, including vertical mixed-use, is recommended with emphasis on the character of development, to ensure compatibility with existing neighborhoods.

2. Asheville Highway—Additional office space should be allowed fronting Asheville Highway. These parcels should be designed and landscaped in a way that compliments adjacent residential properties.

3. Knoxville Town Center Neighborhood—The loss of low-density residential land is expected when the Washington—Millertown Pike roadway improvements are realized. The community's vision for this area is outlined in the special development opportunity portion of this plan. Changes in land use are outlined in the Land Use Plan Map.

(A) Recommended Development: Mixed-Use Development should be pedestrian friendly mixed use, including vertical mixed use, with a detailed development plan depicting lower intensity transition to south and west. Commercial, office and residential could be vertical. Development of property within the triangle, as well as contiguous properties, should be planned for as part of this concept.


(B) Conventional Development If property develops in a fashion similar to the Isaiah's Landing site, with a joint rezoning request, high intensity commercial development should occur "within" the triangle area: north side of Millertown Pike, east side of Washington Pike. Office/MDR will serve as buffer, providing a lower intensity transition to the south and west. The Memorial Wesleyan Church would serve as a stopping point for office development, west of the church should be residential.

(C) Least Preferred Development If redevelopment/rezoning occurs parcel by parcel with no overall developer (piecemeal), property with road frontage to Millertown and Washington Pike should be used for Office/MDR. This concept should only be followed if the property owners within the triangle do not reach an agreement with developers to consolidate the parcels.

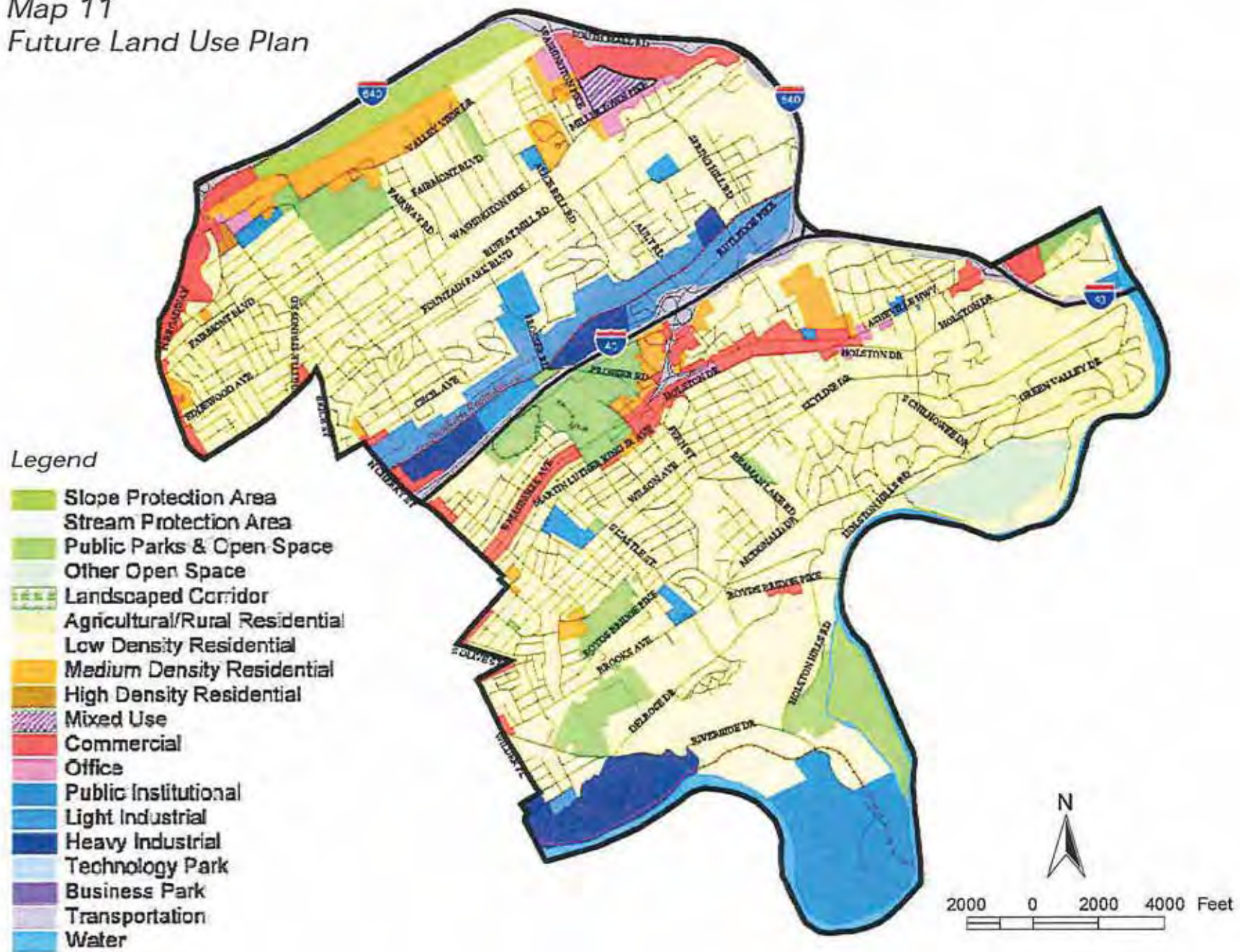
View maps for options A, B, and C above.

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Future Land Use Plan



3. Knoxville Town Center Neighborhood—The loss of low-density residential land is expected when the Washington—Millertown Pike roadway improvements are realized. The community's vision for this area is outlined in the special development opportunity portion of this plan. Changes in land use are outlined in the Land Use Plan Map.

(A) Recommended Development: Mixed-Use

Development should be pedestrian friendly mixed use, including vertical mixed use, with a detailed development plan depicting lower intensity transition to south and west. Commercial, office and residential could be vertical. Development of property within the triangle, as well as contiguous properties, should be planned for as part of this concept.



(A) Recommended Development: Mixed-Use

(B) Conventional Development

If property develops in a fashion similar to the Isaiah's Landing site, with a joint rezoning request, high intensity commercial development should occur "within" the triangle area: north side of Millertown Pike, east side of Washington Pike. Office/MDR will serve as buffer, providing a lower intensity transition to the south and west. The Memorial Wesleyan Church would serve as a stopping point for office development, west of the church should be residential.



(B) Conventional Development

(C) Least Preferred Development

If redevelopment/rezoning occurs parcel by parcel with no overall developer (piecemeal), property with road frontage to Millertown and Washington Pike should be used for Office/MDR. This concept should only be followed if the property owners within the triangle do not reach an agreement with developers to consolidate the parcels.



(C) Least Preferred Development

Legend for Maps A, B, and C

- Low Density Residential
- Medium Density Residential
- Mixed Use
- Commercial
- Office
- Public Institutional
- Transportation

residents want in this area. However, newer zones such as the TND-1 and TC-1 give developers considerable flexibility in exchange for pedestrian amenities and high-quality design.

Holston River Park Neighborhood/Marble Hill

This is one of the places that gives the East City Sector distinctive character, and it has some historical significance due to the wealth brought to the community through mining. While several residents of the East City Sector would like to see the entire ridge preserved as it is, this site offers an opportunity to balance conservation and development objectives, creating a better community in the process.

If adequate sewer capacity is obtained, this area should develop according to environmental assets, capabilities and limitations of the site. Land and slope conservation should be the central organizing principle of the development. The site serves as one building block within a community-wide system of open space, eventually leading to an interconnected network of protected land. The developer should design buildings and streets around public open space, providing pedestrian connections to the Holston River Park and Greenway. Connections should also be planned to open space on the opposite side of the ridge, where the landfill is located, because this site can be used for parks and recreation in the future.



At the end of this demolition landfill's operating life, the site can be reused as public recreational space.

Knoxville Center District

Principles of new urbanism should be used to develop vacant parcels adjacent to Washington and Millertown Pikes, and to redevelop parcels where the existing low density residential land use is no longer appropriate. This neighborhood should contain public transit facilities, with the needs of daily life easily accessible by a 5-10 minute walk. Commerce can be integrated with residential uses, using the improved Washington and Millertown Pikes roadway to contain intensive uses within the triangle. For example, apartments can be allowed over stores. Buildings should successfully define public space, including streets, parks and squares. An architectural design code for the district should be developed in order to establish massing, fenestration (windows/entrances), materials, and roof pitch.

This is the type neighborhood that many of the residents envision living in, but with additional retail traffic, they worry that the transportation



This intersection of Washington and Millertown Pike, currently a three-way stop, will soon consist of more lanes and a signal light. With several residential developments in the neighborhood, the movement of vehicles should not take precedence over the movement of pedestrians.

system will not function well. At the request of the City of Knoxville, the engineering firm Wilbur-Smith and Associates proposed a series of improvements for the Knoxville Center Mall area. Providing adequate road capacity for vehicles coming into the shopping center from outlying areas in the county was important in this study. Additional studies on circulation should be conducted at a micro-level, to improve the traffic flow between shopping centers and to increase pedestrian connectivity.

There are several issues related to new development around the Alice Bell-Spring Hill community. Questions include the potential to provide a connection between Centerline Drive and Spring Hill Road, the appropriateness of North and South Mall Road still being one way roads, and the best location for crosswalks and other pedestrian connections.



In a compact urban neighborhood, condominiums provide high enough density to support public transit facilities and neighborhood-serving retail establishments within walking distance, reducing the number of vehicle trips per day.

In general, these principles produce settings resembling American towns before World War II, including sidewalks, street trees and "main street" style shops. Human scale is the standard for buildings, with cars not taking precedence over human needs, including aesthetic needs. Civic buildings such as churches and libraries serve as landmarks. The street is the pre-eminent form of public space; building facades along the edge of the sidewalk enclose the street like walls of an outdoor room. Because streets differ in importance, scale, and quality, appropriate distinctions are expressed by physical design.

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community groups participated, including residential property owners, business owners, farmers and developers. Meetings were held in Gibbs, Corryton, Ritta and Skaggston.

The difficult questions and issues discussed sometimes produced contradictory statements. A great need exists for better infrastructure in many parts of northeast Knox County, but with that investment comes additional subdivisions, more traffic and business expansion. For decades, the land use plan for this sector has called for rural, agricultural uses with land reserved for future growth. Some feel that the time for growth has arrived, while others are reluctant to see change take place.

While development pressures increase, lack of adequate infrastructure in appropriate locations continues to be a major barrier to quality development. Coordination of roadway improvements with sanitary sewer extensions is necessary before any significant changes in land use are realized. This coordination should take place as soon as possible. The current pattern of agricultural parcels being developed at one unit per acre has several long-term negative impacts. Sprawling development adds to traffic congestion, uses land inefficiently, pollutes the air, and endangers ground water sources. It also fosters an auto-based lifestyle that is harmful to the health of both adults and children.



The agricultural heritage of the region is still strong in many parts of northeast Knox County.



Local residents review a historic map.

Better-planned communities with houses, schools, shops, and workplaces within walking distance are needed and many residents are looking to the traditional neighborhood development patterns as a solution. They do not want the sector to become an anchorless, car-bound suburb. The classic rural village settlement provides another good example for the future, with development clustered around preserved open space.

The conventional suburban development model is at odds with the rural landscape of northeast Knox County, and should not become the predominant building pattern. The conventional suburban approach results in the entire parcel being covered with house lots and subdivision streets. As one parcel after another is eventually developed, the formerly open landscape evolves into a network of wall-to-wall subdivisions.

Some homeowners have relocated to northeast Knox County in order to escape west Knoxville. While this trend of people leaving the suburbs "wanting to live with nature right in their own back door" creates a new set of problems related to exurban growth, the message is clear. New development should respect the sector's landscape and heritage, not destroy the very qualities that make it a desirable place to live.



Walkable neighborhoods provide a safe way to reach parks and schools.

Critical Issues

- Lack of public facilities including parks, libraries, and community centers
- Need for new elementary and middle schools
- Timing of road and other community improvements
- Increasing pressure to develop
- Lack of control over utility decisions
- Quality of future growth
- Preserving beauty and history of northeast Knox County
- Future of Knox County Detention Facility
- Future of General Shale property

Major Resources

- Proximity to I-40 and I-640
- Three Ridges Golf Course
- Active community groups
- Holston River
- Scenic vistas
- Rural heritage
- Significant historic sites
- Farmers Market
- Relatively large parcels of developable land
- Rutledge Pike as a development corridor

Development Constraints

- Steep slopes: House Mountain, Copper Ridge, Beaver Ridge, McAnnally Ridge and

Significant Changes Since Last Update

- Increased pressure for agricultural areas to be rezoned
- Adoption of Growth Policy Plan
- Improvements to Rutledge Pike

Community Goals

- Make decisions that limit sprawl and encourage quality development
- Identify locations for additional housing options, including condos, apartments and assisted living facilities
- Determine appropriate locations for commercial areas
- Encourage continued agricultural production by conserving prime farmland
- Preserve open space with future development
- Protect and seek recognition for numerous historic sites within the sector
- Implement planned improvements to roads, schools and parks
- Plan schools for future growth
- Insure adequate drainage measures
- Protect watershed areas and groundwater resources, including springs and wells
- Provide adequate biking and pedestrian facilities
- Create safe neighborhood access, especially to schools
- Better utilize the Farmers Market as a community resource

- Black Oak Ridge
- Flood prone areas: Beaver Creek, Flat Creek, Murphy Creek and Holston River floodway
- Several sinkholes
- Public transportation rights-of-way: rail and interstate



Recent improvements provide additional highway capacity on Rutledge Pike.



Millertown Meadows, a new subdivision near Knoxville Center Mall.



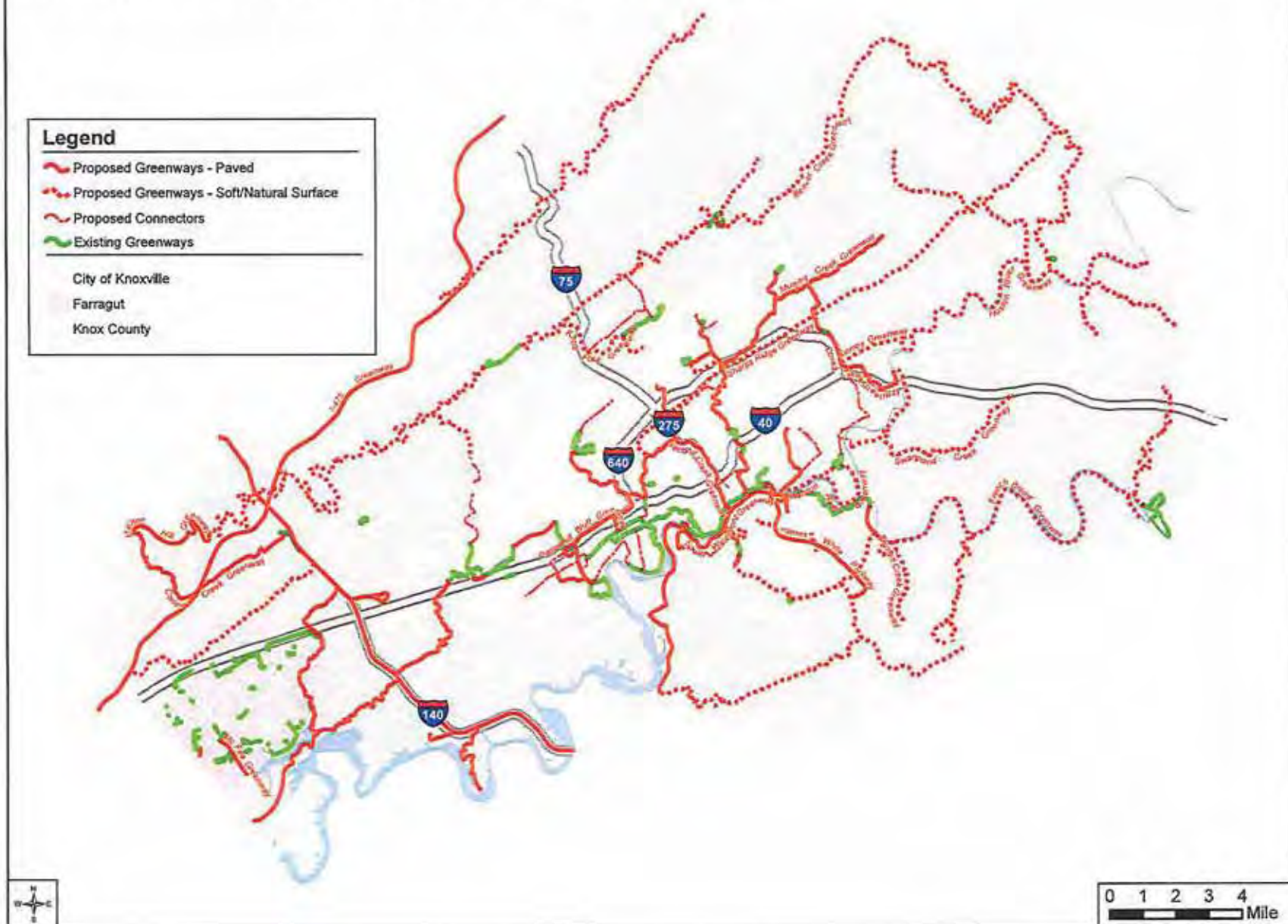
Eastbridge Industrial Park in Mascot provides jobs for many local residents.

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Countywide Proposed and Existing Greenways



Map 8
Community Facilities Plan

Legend

-  Knox County Schools
-  Library
-  Fire Station
-  Empowerment Zone Boundary
-  Additional Pedestrian Improvements
-  Potential Greenway
-  Existing Greenway
-  Existing Sidewalks
-  Interstates
-  Roads
-  Existing Bike Facilities
-  Proposed Park
-  Existing Park

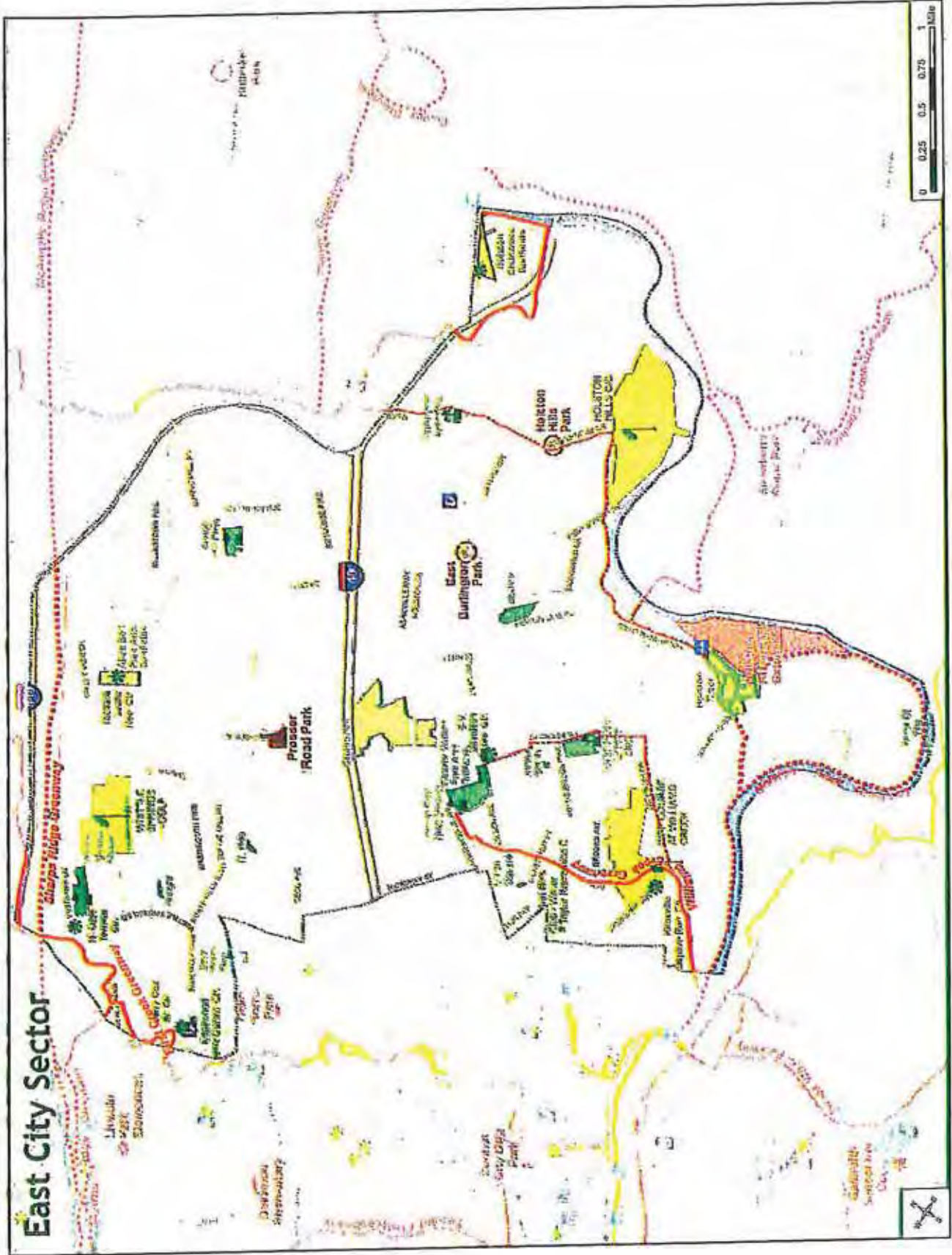


Table 8: Transportation Improvements

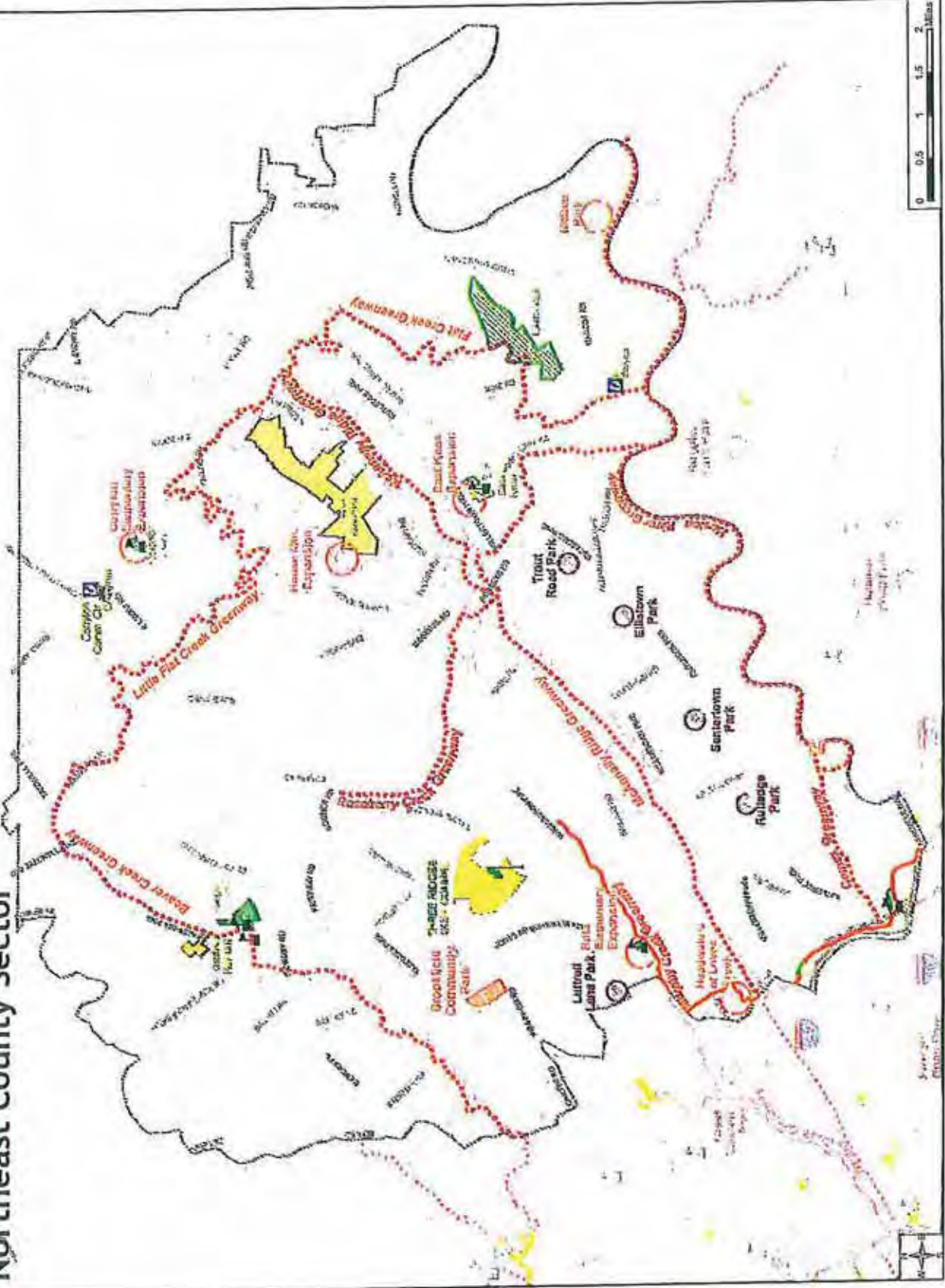
Project Description	Time Frame
A. Valley View Drive—improve road, widen in certain areas, add sidewalk	15 yrs.
B. Washington Pike—improve to a 4 lane boulevard with median and street trees, add sidewalk	5 yrs.
C. Millertown Pike—improve to a 4 lane boulevard with median and street trees, add sidewalk	5 yrs.
D. S. Chilhowee Drive—add traffic calming solutions where needed to reduce speed	5 yrs.
E. Spring Hill Road—improve road, upgrade lanes, if possible make less steep, add curb and sidewalk	15 yrs.
F. Buffat Mill Road — study stop sign locations, add traffic calming where needed, add sidewalks	5 yrs.
G. Castle Street/Pickering Street—improve road, upgrade lanes, add curb and sidewalk	5 yrs.
H. Fern Street/Beaman Lake Rd.—improve road, upgrade lanes, add curb and sidewalks	15 yrs.
I. Fountain Park Blvd.—Traffic calming to reduce traffic cutting through from Buffat Mill to Cecil/N. Cherry	5 yrs.

Map 9
Transportation Improvements





Northeast County Sector



CRASH DATA

06/04/2008

ROUTE FEATURE DESCRIPTION LISTING KNOX County - 01289

Page 1 of 4

COUNTY: KNOX

COUNTY NO. 47

ROUTE: 01289

SPECIAL CASE: None

CTY SEQ: 1

LOG MILE	ITEM CODE	ROUTE FEATURE	DESC CODE
0.000	3	I-840 RT. & LT. CENTER OF UNDERPASS / BEGIN WASHINGTON PK	360
0.000	9	BEGIN 30 MPH	932
0.000	9	ILLUMINATION	930
0.010	2	UNDERPASS [47105400022]: I-840 WB LNS.	222
0.100	9	TRAFFIC SIGNAL	905
0.100	5	G301 MALL RD. N. RT.	520
0.100	7	RAMP TO I-840 WEST BOUND LNS LT.	703
0.120	7	RAMP FROM G301 MALL RD N RT.	734
0.120	7	RAMP TO I-840 RAMP LT.	703
0.160	5	G309 ERMA LN. LT.	530
0.180	2	OVERHEAD [47012890001]: SOUTHERN RWY.	261
0.190	1	LEAVE KNOXVILLE CITY LIMITS	135
0.230	7	RAMP TO 1289 WASHINGTON PIKE RT. & RAMP FROM A021 GREENWAY DR LT.	721
0.240	9	TRAFFIC SIGNAL	905
0.240	0	90 DEG RT. TURN	921
0.240	5	A021 GREENWAY DR LT.	530
0.260	7	RAMP FROM 1289 WASHINGTON PIKE RT.	724
0.670	5	Z999 NEW HARVEST LN LT.	530
1.100	5	D488 MILL RD RT.	520
1.110	9	OAK GROVE AME ZION CHURCH & CEM LT.	914
1.140	5	D477 BABELAY RD RT.	520
1.220	9	Z999 STEEPLE SHADOW WAY LT.	999
1.250	9	REST IN CHRIST BAPTIST CHURCH LT.	912
1.360	5	Z999 AYLESBURY DR LT.	530
1.410	9	END ILLUMINATION	931
1.460	5	D476 EDMONDSON LN RT.	520

06/04/2008

ROUTE FEATURE DESCRIPTION LISTING KNOX County - 01289

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COUNTY: KNOX

COUNTY NO. 47

ROUTE: 01289

SPECIAL CASE: None

CTY SEQ: 1

LOG MILE	ITEM CODE	ROUTE FEATURE	DESC CODE
1.700	5	D473 MCCAMPBELL DR LT.	530
1.750	9	TRAFFIC SIGNAL	905
1.750	5	D464 MURPHY RD LT.	530
1.810	9	BEGIN 45 MPH	932
1.920	9	MURPHY CEM RT. 250'	913
2.090	2	BRIDGE [47S24120003]: MURPHY CR	221
2.330	5	D461 LUTTRELL RD LT.	530
2.600	9	BEGIN 20 MPH SCHOOL ZONE	933
2.770	9	RITTA ELEM SCHOOL RT.	915
2.960	9	END 20 MPH SCHOOL ZONE	934
2.960	5	D460 OLD WASHINGTON PK LT.	530
3.050	5	D479 HARRIS RD RT.	520
3.790	5	D457 JONES RD LT.	530
3.810	5	D460 OLD WASHINGTON PK LT.	530
3.860	9	UNION CEM RT.	913
4.030	9	UNION BAPTIST CHURCH LT.	912
4.200	4	2405 LINK RD RT.	420
4.240	4	2405 MALONEYVILLE RD LT.	430
4.250	9	CULVERT: BRANCH	980
4.280	1	LEAVE KNOXVILLE URBAN BOUNDARY	145
4.520	5	D437 BUD MCMILLAN RD RT.	520
4.630	5	D439 SHELL RD LT.	530
4.770	5	Z999 WASHINGTON VALLEY LN LT.	530
4.830	5	Z999 GOLDEN POND WAY RT.	520
4.900	5	D435 WISE SPGS RD LT.	530
5.010	5	Z999 ANGAKOT RD RT.	520

Crash Summary Report

Date: 06/04/2008

County: KNOX

Route: 01289

Spcl Cse: 0-NONE

Cnty Seq: 1

Begin LogMile: 0

End LogMile: 2

Begin Date: 01/01/2004

End Date: 12/31/2006

Statistics

Fatal Crashes:	1
Total Killed:	1
Incap Injury Crashes:	5
Total Incap Injuries:	7
Other Injury Crashes:	42
Total Other Injuries:	58
Prop Damage Crashes:	140
Total Crashes:	188

Weather Conditions

No Adverse Conditions:	159	Sleet and Fog:	0
Rain:	26	Smog, Smoke:	0
Sleet and Hail:	0	Severe Crosswind:	0
Snow:	1	Other:	1
Foggy:	0	Unknown:	0
Rain and Fog:	0	Blowing Sand, Soil, Dirt, or Snow:	0

Crashes Involving

Pedestrians:	0
Hazardous Cargo:	1
Construction Zones:	2
Fixed Objects:	21
Heavy Trucks:	4
Bicycles:	0

Manner of Collision

Rear End:	88
Head On:	8
Rear-to-Rear:	0
Angle:	63
Sideswipe Same Dir:	8
Sideswipe Opp. Dir:	0
Unknown:	2

Road Conditions

Ice:	0
Snow or Slush:	0
Sand, Mud, Dirt or Oil:	0
Wet:	0
Dry:	0
Other:	0
Unknown:	0

Crash Location

Along Roadway:	23
At Intersection:	164
Railroad Crossing:	0
Bridge:	0
Underpass:	1
Ramp:	1
Private Property:	0
Other:	0

First Harmful Event

Pedestrian:	0
Pedalcycle:	0
Railway Train:	0
Deer (Animal):	0
Other Animal:	0
Motor Vehicle in Transport:	163
Motor Vehicle in Transport in Other Rdway:	1
Parked Motor Vehicle:	0
Other Type Non-Motorist:	0
Fixed Object:	21
Other Object (not fixed):	0
Non Collision:	2

Lighting Conditions

Dawn:	3
Daylight:	149
Dusk:	3
Dark/Lighted:	23
Dark/Not Lighted:	10
Not Indicated:	0

Crash Summary Report

Date: 06/04/2008

County: KNOX

Route: 01289

Spcl Cse: 0-NONE

Cnty Seq: 1

Begin LogMile: 0

End LogMile: 2

Begin Date: 01/01/2004

End Date: 12/31/2006

Fixed Objects

Boulder:	0
Building:	0
Impact Attenuator:	0
Bridge Pier/Abutment:	0
Bridge Parapet End:	0
Bridge Rail:	0
Guardrail Face:	0
Guardrail End:	1
Median Barrier:	1
Highway Traffic Sign Post:	1
Overhead Sign Support:	0
Luminaire/Light Support:	0
Traffic Signal Support:	0
Utility Pole:	2
Other Post, Pole, Supports:	1
Culvert:	0
Curb:	1
Ditch:	5
Embankment:	2
Fence:	0
Wall:	1
Mail Box:	2
Shrubbery:	0
Tree:	2
Fire Hydrant:	1
Other Fixed Object:	1

Crash Summary Report

Date: 6/6/2008

County: KNOX Route: 03779 Spcl Cse: 0-NONE Cnty Seq: 1
 Begin LogMile: 0 End LogMile: 1 Begin Date: 01/01/2004 End Date: 12/31/2008

Statistics

Fatal Crashes:	0
Total Killed:	0
Incap Injury Crashes:	1
Total Incap Injuries:	1
Other Injury Crashes:	7
Total Other Injuries:	11
Prop Damage Crashes:	16
Total Crashes:	24

Weather Conditions

No Adverse Conditions:	23	Sleet and Fog:	0
Rain:	1	Smog, Smoke:	0
Sleet and Hail:	0	Severe Crosswind:	0
Snow:	0	Other:	0
Foggy:	0	Unknown:	0
Rain and Fog:	0	Blowing Sand, Soil, Dirt, or Snow:	0

Crashes Involving

Pedestrians:	0
Hazardous Cargo:	1
Construction Zones:	0
Fixed Objects:	1
Heavy Trucks:	1
Bicycles:	0

Manner of Collision

Rear End:	11
Head On:	0
Rear-to-Rear:	0
Angle:	9
Sideswipe Same Dir:	3
Sideswipe Opp. Dir:	0
Unknown:	0

Road Conditions

Ice:	0
Snow or Slush:	0
Sand, Mud, Dirt or Oil:	0
Wet:	0
Dry:	0
Other:	0
Unknown:	0

Crash Location

Along Roadway:	2
At Intersection:	21
Railroad Crossing:	0
Bridge:	0
Underpass:	0
Ramp:	1
Private Property:	0
Other:	0

First Harmful Event

Pedestrian:	0
Pedalcycle:	0
Railway Train:	0
Deer (Animal):	0
Other Animal:	0
Motor Vehicle in Transport:	23
Motor Vehicle in Transport in Other Roadway:	0
Parked Motor Vehicle:	0
Other Type Non-Motorist:	0
Fixed Object:	1
Other Object (not fixed):	0
Non Collision:	0

Lighting Conditions

Dawn:	0
Daylight:	20
Dusk:	0
Dark/Lighted:	4
Dark/Not Lighted:	0
Not Indicated:	0

Crash Summary Report
Date: 05/04/2008

County: KNOX	Route: 03770	Spcl Cse: 0-NONE	Cnty Seq: 1
Begin LogMile: 0	End LogMile: 1	Begin Date: 01/01/2004	End Date: 12/31/2006

Fixed Objects

Boulder:	0
Building:	0
Impact Attenuator:	0
Bridge Pier/Abutment:	0
Bridge Parapet End:	0
Bridge Rail:	0
Guardrail Face:	0
Guardrail End:	0
Median Barrier:	0
Highway Traffic Sign Post:	0
Overhead Sign Support:	0
Luminaire/Light Support:	0
Traffic Signal Support:	0
Utility Pole:	1
Other Post, Pole, Support:	0
Culvert:	0
Curb:	0
Ditch:	0
Embankment:	0
Fence:	0
Wall:	0
Mail Box:	0
Shrubbery:	0
Tree:	0
Fire Hydrant:	0
Other Fixed Object:	0

06/04/2008

ROUTE FEATURE DESCRIPTION LISTING
KNOX County - 03779

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COUNTY: KNOX

COUNTY NO. 47

ROUTE: 03779

SPECIAL CASE: None

CTY SEQ: 1

LOG MILE	ITEM CODE	ROUTE FEATURE	DESC CODE
0.000	3	I-640 RT. & LT. CENTER OF UNDERPASS / BEGIN WASHINGTON PK.	300
0.000	9	BEGIN 30 MPH & ILLUM.	932
0.010	2	UNDERPASS (4700400021) I-640 EB LNS.	322
0.100	9	TRAFFIC SIGNAL	905
0.100	7	RAMP FROM I-640 RT.	705
0.100	5	G302 MALL RD. S. LT.	530
0.100	5	A039 VALLEY VIEW DR. RT.	530
0.230	5	G307 CENTERLINE DR. LT.	530
0.390	5	C420 PINEHURST DR. RT.	500
0.400	5	C422 PINEHURST DR. RT.	500
0.460	5	WASHINGTON CT. RT.	500
0.520	5	C427 GREEN MEADOW LN. LT.	500
0.650	2	3-WAY STOP	803
0.650	4	3773 WASHINGTON PK. RT. & MILLERTOWN PK. LT.	410

County	Route	Sp Cse	Co Seq	Log Title	Date of Crash	Time of Crash	Type of Crash	Total Killed	Total Inj	Location	Total Veh	First Harmful Event	Manner of First Collision	Weather
KNOX	01289	0-NONE	1	1,140	02/21/2004	1845	Non-Incap Injur	0	1	At an Intersection	3	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1,140	02/24/2004	1850	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1,140	05/07/2004	2253	Non-Incap Injur	0	2	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1,140	12/07/2004	1323	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1,140	09/12/2005	1833	sp Damage (ov	0	0	At an Intersection	3	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1,140	03/04/2005	1029	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1,140	03/17/2005	1730	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1,150	04/09/2005	1051	Non-Incap Injur	0	1	Along Roadway	1	Other Post, Pole, Supports	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	1,170	05/05/2004	058	Incap Injury	0	1	Along Roadway	1	Mail Box	Head-On	No Adverse
KNOX	01289	0-NONE	1	1,170	08/12/2005	1402	sp Damage (ov	0	0	Along Roadway	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1,220	07/03/2004	1138	sp Damage (ov	0	0	At an Intersection	3	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1,285	12/03/2004	1001	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1,300	02/03/2004	1700	sp Damage (ov	0	0	Along Roadway	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1,350	02/02/2005	1238	sp Damage (ov	0	0	Along Roadway	1	Fire Hydrant	No Collision w/ Vehicle	Rain
KNOX	01289	0-NONE	1	1,483	01/23/2005	1513	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	1,483	02/05/2004	1230	Non-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1,469	08/13/2004	750	sp Damage (ov	0	0	At an Intersection	1	Ditch	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	1,480	12/18/2005	1239	sp Damage (ov	0	0	At an Intersection	1	Curb	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	1,480	09/15/2005	2100	Non-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	Rain
KNOX	01289	0-NONE	1	1,480	03/03/2005	137	sp Damage (ov	0	0	At an Intersection	1	Utility Pole	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	1,450	12/12/2005	1642	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	1,450	08/29/2005	2133	sp Damage (ov	0	0	At an Intersection	1	Other Fixed Object	No Collision w/ Vehicle	Rain
KNOX	01289	0-NONE	1	1,450	05/29/2005	1718	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1,450	07/18/2005	1652	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1,450	10/03/2005	918	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1,650	12/19/2005	335	sp Damage (ov	0	0	Along Roadway	1	Ditch	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	1,700	06/03/2004	844	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1,750	03/21/2003	1125	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1,750	03/02/2005	1549	Non-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	1,750	01/18/2005	1008	Non-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1,750	07/01/2004	1234	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Side-swipe, Same Dir	No Adverse
KNOX	01289	0-NONE	1	1,750	08/06/2004	1030	Non-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1,750	11/18/2005	2107	sp Damage (ov	0	0	At an Intersection	1	Tree	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	1,750	05/23/2005	740	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1,750	05/27/2005	1725	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1,750	12/03/2005	1131	Non-Incap Injur	0	1	At an Intersection	1	Ditch	No Collision w/ Vehicle	Rain

County	Route	Sp Cas	Co Seq	Log Mile	Date of Crash	Time of Crash	Type of Crash	Total Killed	Total Inj	Location	Total Veh	First Harmful Event	Manner of First Collision	Weather
KNOX	01289	0-NONE	1	0.240	03/15/2008	1717	sp Damage (ov)	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.240	11/05/2005	1810	sp Damage (ov)	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.240	04/28/2005	804	lan-incap injur	0	1	At an Intersection	2	Vehicle in Transport	Head-On	No Adverse
KNOX	01289	0-NONE	1	0.240	04/28/2005	1550	sp Damage (ov)	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.240	01/01/2005	1608	sp Damage (ov)	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.240	08/10/2005	2155	lan-incap injur	0	1	At an Intersection	2	Vehicle in Transport	Head-On	No Adverse
KNOX	01289	0-NONE	1	0.240	11/06/2008	1820	sp Damage (ov)	0	0	At an Intersection	1	Median Barrier	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	0.250	09/10/2005	1628	sp Damage (ov)	0	0	Along Roadway	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.280	03/01/2005	1000	sp Damage (ov)	0	0	Along Roadway	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.580	05/23/2004	1418	sp Damage (ov)	0	0	Along Roadway	3	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	0.670	05/01/2005	1048	sp Damage (ov)	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.670	04/02/2004	315	sp Damage (ov)	0	0	At an Intersection	1	Well	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	0.670	12/11/2005	2208	lan-incap injur	0	2	At an Intersection	1	Embankment	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	0.670	10/18/2006	903	sp Damage (ov)	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.730	07/27/2004	730	lan-incap injur	0	2	Along Roadway	3	Other Non-Collision	No Collision w/ Vehicle	Rain
KNOX	01289	0-NONE	1	0.770	07/16/2005	1014	sp Damage (ov)	0	0	Along Roadway	1	Utility Pole	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	0.800	07/11/2006	1727	lan-incap injur	0	1	Along Roadway	3	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.850	02/01/2004		sp Damage (ov)	0	0	Along Roadway	1	Ditch	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	0.850	07/27/2004	1458	lan-incap injur	0	1	Along Roadway	2	Vehicle in Transport in other Road	Angle	Rain
KNOX	01289	0-NONE	1	0.870	03/02/2005	215	sp Damage (ov)	0	0	Along Roadway	1	Unknown Harmful Event	Unknown	No Adverse
KNOX	01289	0-NONE	1	0.870	12/18/2004	1603	sp Damage (ov)	0	0	Along Roadway	2	Vehicle in Transport	Angle	Snow
KNOX	01289	0-NONE	1	1.000	12/19/2005	1538	sp Damage (ov)	0	0	Along Roadway	3	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.100	11/15/2004	1744	lan-incap injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1.100	08/16/2004	1039	sp Damage (ov)	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1.100	01/04/2005	2352	sp Damage (ov)	0	0	At an Intersection	1	Embankment	No Collision w/ Vehicle	0
KNOX	01289	0-NONE	1	1.100	05/09/2005	1208	sp Damage (ov)	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.100	08/22/2004	1312	Fatal	1	0	At an Intersection	2	Vehicle in Transport	Angle	Rain
KNOX	01289	0-NONE	1	1.100	08/07/2006	1418	lan-incap injur	0	2	At an Intersection	3	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1.100	03/08/2004	1442	sp Damage (ov)	0	0	At an Intersection	1	Guardrail End	No Collision w/ Vehicle	Rain
KNOX	01289	0-NONE	1	1.100	02/05/2004	1648	lan-incap injur	0	3	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.100	05/13/2004	2020	0	0	1	At an Intersection	4	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	1.100	06/10/2005	1903	sp Damage (ov)	0	0	At an Intersection	1	Unknown Harmful Event	Unknown	Rain
KNOX	01289	0-NONE	1	1.120	09/07/2005	1848	lan-incap injur	0	1	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.130	12/07/2005	1430	lan-incap injur	0	1	At an Intersection	2	Other Non-Collision	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	1.100	10/17/2006	1405	lan-incap injur	0	1	At an Intersection	1	Ditch	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	1.140	04/20/2004	022	sp Damage (ov)	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse

County	Route	Sp Cse	Co Seq	Log Mile	Date of Crash	Time of Crash	Type of Crash	Total Killed	Total Inj	Location	Total Veh	First Harmful Event	Manner of First Collision	Weather
KNOX	01280	0-NONE	1	0.240	02/07/2005	1545	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	Rain
KNOX	01280	0-NONE	1	0.240	01/14/2004	744	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01280	0-NONE	1	0.240	01/23/2004	734	Non-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01280	0-NONE	1	0.240	03/10/2005	756	sp Damage (ov	0	0	Along Roadway	2	Vehicle in Transport	Angle	No Adverse
KNOX	01280	0-NONE	1	0.240	10/22/2004	1850	Non-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01280	0-NONE	1	0.240	02/10/2005	1835	Non-Incap Injur	0	2	At an Intersection	2	Vehicle in Transport	Head-On	No Adverse
KNOX	01280	0-NONE	1	0.240	10/29/2004	1829	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01280	0-NONE	1	0.240	10/07/2004	543	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01280	0-NONE	1	0.240	02/05/2004	754	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01280	0-NONE	1	0.240	05/05/2004	738	Non-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01280	0-NONE	1	0.240	01/07/2005	1628	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01280	0-NONE	1	0.240	11/05/2004	1552	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01280	0-NONE	1	0.240	07/10/2004	1458	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01280	0-NONE	1	0.240	02/11/2005	1118	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01280	0-NONE	1	0.240	09/13/2004	1035	Non-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01280	0-NONE	1	0.240	07/09/2004	841	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Head-On	No Adverse
KNOX	01280	0-NONE	1	0.240	07/01/2004	1838	Non-Incap Injur	0	2	At an Intersection	2	Vehicle in Transport	Angle	Rain
KNOX	01280	0-NONE	1	0.240	08/10/2004	1737	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01280	0-NONE	1	0.240	07/25/2005	859	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01280	0-NONE	1	0.240	06/09/2005	1305	Non-Incap Injur	0	3	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01280	0-NONE	1	0.240	11/05/2008	1124	Non-Incap Injur	0	2	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01280	0-NONE	1	0.240	01/11/2008	2113	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01280	0-NONE	1	0.240	11/07/2005	1454	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01280	0-NONE	1	0.240	12/13/2004	1539	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01280	0-NONE	1	0.240	12/18/2004	1535	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01280	0-NONE	1	0.240	11/02/2005	832	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01280	0-NONE	1	0.240	11/07/2004	1548	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01280	0-NONE	1	0.240	11/12/2004	723	Incap Injury	0	1	At an Intersection	2	Vehicle in Transport	Angle	Rain
KNOX	01280	0-NONE	1	0.240	03/03/2005	1005	sp Damage (ov	0	0	At an Intersection	3	Vehicle in Transport	Angle	No Adverse
KNOX	01280	0-NONE	1	0.240	03/09/2005	1558	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01280	0-NONE	1	0.240	03/25/2005	1070	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01280	0-NONE	1	0.240	08/08/2008	1249	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01280	0-NONE	1	0.240	02/01/2000	1258	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01280	0-NONE	1	0.240	07/05/2008	1753	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Head-On	No Adverse
KNOX	01280	0-NONE	1	0.240	12/01/2008	1542	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Slipskips, Same Di	Other (Item
KNOX	01280	0-NONE	1	0.240	01/01/2009	911	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse

County	Route	Sp Cas	Cn Seq	Log Mile	Date of Crash	Time of Crash	Type of Crash	Total Killed	Total Inj	Location	Total Veh	First Harmful Event	Manner of First Collision	Weather
KNOX	01289	0-NONE	1	0.100	11/24/2005	1319	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	12/16/2005	1138	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	12/24/2005	650	non-occup injur	0	2	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	10/18/2005	1022	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	02/15/2005	1835	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	12/13/2004	850	non-occup injur	0	1	At an Intersection	3	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	06/06/2005	748	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	Rain
KNOX	01289	0-NONE	1	0.100	06/29/2005	1132	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	0.100	03/03/2006	2123	occup injury	0	3	At an Intersection	2	Vehicle in Transport	Head-On	No Adverse
KNOX	01289	0-NONE	1	0.100	10/13/2005	648	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	05/18/2006	1703	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	05/22/2006	1712	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	06/26/2006	1725	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	10/25/2006	1323	sp Damage (ov	0	0	Along Roadway	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	02/17/2006	1553	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	03/19/2006	1147	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	05/05/2006	1733	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	05/13/2006	830	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	06/05/2006	1740	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	10/05/2005	1028	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	13/10/2005	1530	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	05/02/2006	1546	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Side-swipe, Same Dir	No Adverse
KNOX	01289	0-NONE	1	0.100	05/08/2005	1235	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	0.100	06/02/2005	1713	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	12/11/2005	747	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	05/05/2006	1744	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Side-swipe, Same Dir	No Adverse
KNOX	01289	0-NONE	1	0.100	07/06/2006	1225	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	07/07/2006	1206	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	11/12/2005	1401	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	07/06/2006	1402	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	09/16/2006	1618	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	11/15/2005	1142	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	11/05/2005	1638	non-occup injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	12/22/2005	1242	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	0.100	05/15/2006	1556	sp Damage (ov	0	0	Ramp	2	Vehicle in Transport	Side-swipe, Same Dir	No Adverse
KNOX	01289	0-NONE	1	0.100	07/12/2006	1434	sp Damage (ov	0	0	Along Roadway	2	Vehicle in Transport	Angle	No Adverse

County	Route	Sp Cse	Co Seq	Leg Mile	Date of Crash	Time of Crash	Type of Crash	Total Killed	Total Inj	Location	Total Veh	First Harmful Event	Manner of First Collision	Weather
KNOX	01209	0-NONE	1	0.010	12/16/2008	1055	sp Damage (ov	0	0	Underpass	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01209	0-NONE	1	0.070	12/22/2008	1055	sp Damage (ov	0	0	Along Roadway	2	Vehicle in Transport	Rear-End	Rain
KNOX	01209	0-NONE	1	0.100	01/05/2004	717	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01209	0-NONE	1	0.100	05/16/2004	103	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01209	0-NONE	1	0.100	03/17/2005	1925	ion-incap injur	0	1	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01209	0-NONE	1	0.100	04/20/2004	1402	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01209	0-NONE	1	0.100	06/16/2004	1055	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	Rain
KNOX	01209	0-NONE	1	0.100	03/03/2004	1030	ion-incap injur	0	1	At an Intersection	3	Vehicle in Transport	Angle	No Adverse
KNOX	01209	0-NONE	1	0.100	11/05/2008	1134	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01209	0-NONE	1	0.100	12/23/2004	1219	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01209	0-NONE	1	0.100	08/01/2003	1307	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Side-swipe, Same Dir	No Adverse
KNOX	01209	0-NONE	1	0.100	03/16/2003	2049	ion-incap injur	0	2	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01209	0-NONE	1	0.100	03/13/2003	1325	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01209	0-NONE	1	0.100	03/17/2005	1740	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01209	0-NONE	1	0.100	08/24/2001	1735	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01209	0-NONE	1	0.100	07/15/2003	643	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01209	0-NONE	1	0.100	05/17/2005	2103	sp Damage (ov	0	0	At an Intersection	3	Vehicle in Transport	Rear-End	No Adverse
KNOX	01209	0-NONE	1	0.100	07/09/2004	1133	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01209	0-NONE	1	0.100	02/07/2004	2100	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01209	0-NONE	1	0.100	11/03/2005	1557	sp Damage (ov	0	3	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01209	0-NONE	1	0.100	02/19/2009	1227	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01209	0-NONE	1	0.100	09/08/2005	1603	incap injury	0	3	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01209	0-NONE	1	0.100	12/20/2005	1329	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01209	0-NONE	1	0.100	09/20/2005	1309	ion-incap injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01209	0-NONE	1	0.100	08/10/2005	818	ion-incap injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01209	0-NONE	1	0.100	09/26/2005	1719	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01209	0-NONE	1	0.100	11/16/2005	1945	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01209	0-NONE	1	0.100	10/20/2005	1427	ion-incap injur	0	1	At an Intersection	3	Vehicle in Transport	Angle	No Adverse
KNOX	01209	0-NONE	1	0.100	10/08/2005	1222	sp Damage (ov	0	0	At an Intersection	1	Highway Traffic Sign Post	No Collision w/ Vehicle	No Adverse
KNOX	01209	0-NONE	1	0.100	04/24/2008	1728	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01209	0-NONE	1	0.100	11/28/2009	1339	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01209	0-NONE	1	0.100	11/03/2006	1214	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01209	0-NONE	1	0.100	12/18/2008	1344	sp Damage (ov	0	3	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01209	0-NONE	1	0.100	10/29/2008	1681	sp Damage (ov	0	3	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01209	0-NONE	1	0.100	11/02/2009	1111	ion-incap injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01209	0-NONE	1	0.100	11/05/2008	1514	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse

County	Route	Sp Cse	Co Seq	Log Mile	Date of Crash	Time of Crash	Type of Crash	Total Killed	Total Inj	Location	Total Vch	First Harmful Event	Manner of First Collision	Weather
KNOX	01289	0-NONE	1	1.750	11/28/2005	1712	ip Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	1.750	06/09/2005	1215	ip Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1.750	06/19/2005	1830	ion-incap injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1.750	10/01/2005	1007	ip Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.750	11/15/2005	1830	ion-incap injur	0	1	At an Intersection	2	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	1.750	07/22/2006	2029	ip Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Head-On	No Adverse
KNOX	01289	0-NONE	1	1.750	10/21/2006	1913	ion-incap injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1.835	11/09/2006	1812	ion-incap injur	0	1	Along Roadway	1	Tires	No Collision w/ Vehicle	Rain
KNOX	01289	0-NONE	1	2.000	05/01/2005	0	ip Damage (ov	0	0		1	Mail Box	No Collision w/ Vehicle	No Adverse

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21 ALONG THE ROAD

Crash Summary Report

Date: 06/04/2008

County: KNOX

Route: 03779

Spcl Cse: 0-NONE

Cnty Seq: 1

Begin LogMile: 0

End LogMile: 1

Begin Date: 01/01/2004

End Date: 12/31/2006

Fixed Objects

Boulder:	0
Building:	0
Impact Attenuator:	0
Bridge Pairs/Abutment:	0
Bridge Parapet End:	0
Bridge Rail:	0
Guardrail Face:	0
Guardrail End:	0
Median Barrier:	0
Highway Traffic Sign Post:	0
Overhead Sign Support:	0
Luminaire/Light Support:	0
Traffic Signal Support:	0
Utility Pole:	1
Other Post, Pole, Supports:	0
Culvert:	0
Curb:	0
Ditch:	0
Embankment:	0
Fence:	0
Wall:	0
Mail Box:	0
Shrubbery:	0
Tree:	0
Fire Hydrant:	0
Other Fixed Object:	0

06/04/2008

ROUTE FEATURE DESCRIPTION LISTING
KNOX County - 03779

Page 1 of 1

COUNTY: KNOX

COUNTY NO. 47

ROUTE: 03779

SPECIAL CASE: None

CTY SEQ: 1

LOG MILE	ITEM CODE	ROUTE FEATURE	DESC CODE
0.000	3	I-840 RT. & LT. CENTER OF UNDERPASS / BEGIN WASHINGTON PK.	360
0.000	9	BEGIN 30 MPH & ILLUM.	932
0.010	2	UNDERPASS [47105400021]: I-840 EB LNS.	222
0.100	9	TRAFFIC SIGNAL	905
0.100	7	RAMP FROM I-840 RT.	705
0.100	5	G302 MALL RD. S. LT.	530
0.150	5	A099 VALLEY VIEW DR. RT.	520
0.230	5	G307 CENTERLINE DR. LT.	530
0.390	5	C420 PINEHURST DR. RT.	520
0.400	5	C422 PINEHURST DR. RT.	520
0.460	5	WASHINGTON CT. RT.	520
0.520	5	C427 GREEN MEADOW LN. LT.	530
0.650	9	3-WAY STOP	903
0.650	4	3773 WASHINGTON PK. RT. & MILLERTOWN PK. LT.	410

		Crash	Type of Crash	Total Killed	Total Inj	Location	Total Veh	First Harmful Event	Manner of First Collision	Weather Cond	Light Conditions	Case Number
0.100	01/22/2004	820	Ion-Incap Injur	0	2	At an Intersection	2	Vehicle in Transport	Angle	No Adverse Cond.	Daylight	796591
0.100	04/02/2004	1212	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Sideswipe, Same Dir	No Adverse Cond.	Daylight	7274554
0.100	01/23/2005	1800	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	Rain	Dark-Lighted	8495348
0.100	05/06/2005	1911	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse Cond.	Daylight	8551672
0.100	09/18/2005	1738	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse Cond.	Daylight	8581443
0.100	05/17/2005	1108	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse Cond.	Daylight	9149000
0.100	12/12/2006	1618	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse Cond.	Daylight	9228870
0.100	04/30/2006	1401	sp Damage (ov	0	0	Ramp	2	Vehicle in Transport	Sideswipe, Same Dir	No Adverse Cond.	Daylight	9270339
0.100	12/01/2005	1838	Ion-Incap Injur	0	3	At an Intersection	3	Vehicle in Transport	Rear-End	No Adverse Cond.	Dark-Lighted	9331064
0.100	06/03/2005	1729	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse Cond.	Daylight	9730500
0.100	12/28/2005	1626	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Sideswipe, Same Dir	No Adverse Cond.	Daylight	9858275
0.150	04/08/2004	1402	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse Cond.	Daylight	7082768
0.150	03/10/2004	788	Ion-Incap Injur	0	2	At an Intersection	2	Vehicle in Transport	Angle	No Adverse Cond.	Daylight	8544615
0.150	05/27/2005	1616	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse Cond.	Daylight	8551049
0.150	08/21/2004	1638	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse Cond.	Daylight	8551658
0.150	08/03/2005	750	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse Cond.	Daylight	8554013
0.150	10/04/2005	1830	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse Cond.	Daylight	9138112
0.150	05/16/2006	1569	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse Cond.	Daylight	9228214
0.150	06/27/2005	1030	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse Cond.	Daylight	9228552
0.150	08/23/2006	843	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse Cond.	Dark-Lighted	9779928
0.230	07/21/2004	710	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse Cond.	Daylight	8031340
0.230	03/27/2006	755	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse Cond.	Daylight	9136704
0.300	12/01/2004	1643	sp Damage (ov	0	0	Along Roadway	2	Vehicle in Transport	Angle	No Adverse Cond.	Daylight	8548779
0.620	11/07/2004	2025	sp Damage (ov	0	0	Along Roadway	1	Utility Pole	No Collision w/ Vehicle	No Adverse Cond.	Dark-Lighted	9148805

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22 AT INTERSECTION
2 ON THE ROAD

County	Route	Sp Cse	Co Seq	Log Mile	Date of Crash	Time of Crash	Type of Crash	Total Killed	Total Inj	Location	Total Veh	First Harmful Event	Manner of First Collision	Weather
KNOX	01289	0-NONE	1	1.140	02/21/2004	1845	Ion-Incap Injur	0	1	At an Intersection	3	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.140	07/24/2004	1850	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1.140	05/07/2004	2253	Ion-Incap Injur	0	2	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.140	12/07/2004	1323	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1.140	09/12/2005	1833	sp Damage (ov	0	0	At an Intersection	3	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.140	03/24/2005	2028	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1.140	03/17/2006	1730	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1.160	04/09/2005	1851	Ion-Incap Injur	0	1	Along Roadway	1	Other Post, Pole, Supports	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	1.170	05/30/2004	558	Incap Injury	0	1	Along Roadway	1	Mail Box	Head-On	No Adverse
KNOX	01289	0-NONE	1	1.170	08/12/2005	1402	sp Damage (ov	0	0	Along Roadway	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.220	07/03/2004	1138	sp Damage (ov	0	0	At an Intersection	3	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.260	12/03/2004	1001	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.300	02/03/2004	1700	sp Damage (ov	0	0	Along Roadway	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1.350	02/28/2005	1238	sp Damage (ov	0	0	Along Roadway	1	Fire Hydrant	No Collision w/ Vehicle	Rain
KNOX	01289	0-NONE	1	1.460	01/23/2006	1513	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	1.460	02/20/2004	1230	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.460	09/13/2004	750	sp Damage (ov	0	0	At an Intersection	1	Ditch	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	1.460	12/19/2005	1239	sp Damage (ov	0	0	At an Intersection	1	Curb	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	1.460	05/15/2006	2100	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	Rain
KNOX	01289	0-NONE	1	1.460	09/03/2006	137	sp Damage (ov	0	0	At an Intersection	1	Utility Pole	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	1.460	12/12/2005	1642	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	1.460	09/29/2005	2133	sp Damage (ov	0	0	At an Intersection	1	Other Fixed Object	No Collision w/ Vehicle	Rain
KNOX	01289	0-NONE	1	1.460	05/25/2006	1718	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.460	07/19/2006	1859	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.460	10/03/2006	918	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.650	12/10/2005	235	sp Damage (ov	0	0	Along Roadway	1	Ditch	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	1.700	06/03/2004	644	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.750	03/21/2005	1125	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.750	03/22/2005	1549	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	1.750	01/18/2006	1008	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1.750	07/31/2004	1234	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Sideswipe, Same Dir	No Adverse
KNOX	01289	0-NONE	1	1.750	09/06/2004	1036	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.750	11/18/2005	2107	sp Damage (ov	0	0	At an Intersection	1	Tree	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	1.750	05/23/2006	740	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.750	08/27/2006	1725	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1.750	12/03/2005	1131	Ion-Incap Injur	0	1	At an Intersection	1	Ditch	No Collision w/ Vehicle	Rain

County	Route	Sp Cse	Co Seq	Log Mile	Date of Crash	Time of Crash	Type of Crash	Total Killed	Total Inj	Location	Total Veh	First Harmful Event	Manner of First Collision	Weather
KNOX	01289	0-NONE	1	0.240	03/15/2006	1717	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.240	11/26/2005	1510	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.240	04/28/2005	804	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Head-On	No Adverse
KNOX	01289	0-NONE	1	0.240	04/08/2005	1550	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.240	01/31/2005	1608	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.240	09/19/2008	2158	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Head-On	No Adverse
KNOX	01289	0-NONE	1	0.240	11/06/2006	1826	yp Damage (ov	0	0	At an Intersection	1	Median Barrier	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	0.250	08/10/2005	1826	yp Damage (ov	0	0	Along Roadway	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.280	07/01/2005	1000	yp Damage (ov	0	0	Along Roadway	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.580	06/23/2004	1419	yp Damage (ov	0	0	Along Roadway	3	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	0.670	05/31/2005	1648	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.670	04/20/2004	315	yp Damage (ov	0	0	At an Intersection	1	Wall	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	0.670	12/11/2005	2208	Ion-Incap Injur	0	2	At an Intersection	1	Embankment	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	0.670	10/19/2008	905	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.730	07/27/2004	730	Ion-Incap Injur	0	2	Along Roadway	2	Other Non-Collision	No Collision w/ Vehicle	Rain
KNOX	01289	0-NONE	1	0.770	07/18/2006	1014	yp Damage (ov	0	0	Along Roadway	1	Utility Pole	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	0.890	07/11/2008	1727	Ion-Incap Injur	0	1	Along Roadway	3	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.850	02/01/2004		yp Damage (ov	0	0	Along Roadway	1	Ditch	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	0.850	07/27/2004	1456	Ion-Incap Injur	0	1	Along Roadway	2	Vehicle in Transport in other Roa	Angle	Rain
KNOX	01289	0-NONE	1	0.870	03/20/2005	215	yp Damage (ov	0	0	Along Roadway	1	Unknown Harmful Event	Unknown	No Adverse
KNOX	01289	0-NONE	1	0.970	12/19/2004	1805	yp Damage (ov	0	0	Along Roadway	2	Vehicle in Transport	Angle	Snow
KNOX	01289	0-NONE	1	1.000	12/19/2005	1538	yp Damage (ov	0	0	Along Roadway	3	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.100	11/16/2004	1744	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1.100	08/18/2004	1039	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1.100	01/04/2005	2352	yp Damage (ov	0	0	At an Intersection	1	Embankment	No Collision w/ Vehicle	0
KNOX	01289	0-NONE	1	1.100	05/06/2005	1208	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.100	06/22/2004	1312	Fatal	1	0	At an Intersection	2	Vehicle in Transport	Angle	Rain
KNOX	01289	0-NONE	1	1.100	08/07/2008	1418	Ion-Incap Injur	0	2	At an Intersection	3	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1.100	09/08/2004	1442	yp Damage (ov	0	0	At an Intersection	1	Guardrail End	No Collision w/ Vehicle	Rain
KNOX	01289	0-NONE	1	1.100	02/28/2004	1646	Incap Injury	0	3	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.100	05/13/2004	2020	0	0	1	At an Intersection	4	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	1.100	06/10/2005	1903	yp Damage (ov	0	0	At an Intersection	1	Unknown Harmful Event	Unknown	Rain
KNOX	01289	0-NONE	1	1.100	09/07/2005	1645	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.100	12/07/2005	1450	Ion-Incap Injur	0	1	At an Intersection	2	Other Non-Collision	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	1.100	10/17/2008	1405	Ion-Incap Injur	0	1	At an Intersection	1	Ditch	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	1.140	04/20/2004	922	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse

County	Route	Sp Cse	Co Seq	Log Mile	Date of Crash	Time of Crash	Type of Crash	Total Killed	Total Inj	Location	Total Veh	First Harmful Event	Manner of First Collision	Weather (
KNOX	01289	0-NONE	1	0.240	03/07/2005	1545	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	0.240	01/14/2004	744	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.240	01/23/2004	734	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.240	03/10/2005	755	yp Damage (ov	0	0	Along Roadway	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.240	10/25/2004	1950	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.240	02/10/2005	1856	Ion-Incap Injur	0	2	At an Intersection	2	Vehicle in Transport	Head-On	No Adverse
KNOX	01289	0-NONE	1	0.240	10/29/2004	1829	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.240	10/07/2004	543	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.240	02/05/2004	754	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.240	05/05/2004	738	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.240	01/07/2003	1628	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.240	11/05/2004	1552	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.240	07/10/2004	1458	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.240	02/11/2005	1118	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.240	08/13/2004	1035	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.240	07/29/2004	841	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Head-On	No Adverse
KNOX	01289	0-NONE	1	0.240	07/01/2004	1838	Ion-Incap Injur	0	2	At an Intersection	2	Vehicle in Transport	Angle	Rain
KNOX	01289	0-NONE	1	0.240	09/10/2004	1737	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.240	07/25/2005	859	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.240	06/09/2005	1305	Ion-Incap Injur	0	3	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.240	11/25/2008	1124	Ion-Incap Injur	0	2	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.240	01/11/2008	2113	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.240	11/07/2005	1454	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.240	12/13/2004	1536	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.240	12/16/2004	1535	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.240	11/22/2005	632	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.240	11/07/2004	1546	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.240	11/12/2004	720	Incap Injury	0	1	At an Intersection	2	Vehicle in Transport	Angle	Rain
KNOX	01289	0-NONE	1	0.240	03/03/2005	1605	yp Damage (ov	0	0	At an Intersection	3	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.240	03/30/2005	1556	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.240	03/25/2005	1020	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.240	08/09/2006	1249	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.240	02/01/2006	1258	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.240	07/05/2006	1755	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Head-On	No Adverse
KNOX	01289	0-NONE	1	0.240	12/01/2006	1642	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Sideswipe, Same Dir	Other (Narr
KNOX	01289	0-NONE	1	0.240	01/31/2006	911	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse

County	Route	Sp Cse	Co Seq	Log Mile	Date of Crash	Time of Crash	Type of Crash	Total Killed	Total Inj	Location	Total Veh	First Harmful Event	Manner of First Collision	Weather
KNOX	01289	0-NONE	1	0.100	11/24/2008	1319	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	12/16/2008	1138	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	12/24/2005	650	Ion-Incap Injur	0	2	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	10/19/2005	1522	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	02/16/2005	1856	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	12/13/2004	850	Ion-Incap Injur	0	1	At an Intersection	3	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	06/26/2006	748	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	Rain
KNOX	01289	0-NONE	1	0.100	06/26/2006	1132	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	0.100	03/03/2006	2123	Incap Injury	0	3	At an Intersection	2	Vehicle in Transport	Head-On	No Adverse
KNOX	01289	0-NONE	1	0.100	10/13/2006	649	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	05/18/2006	1703	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	08/22/2006	1712	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	08/28/2006	1725	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	10/26/2006	1323	yp Damage (ov	0	0	Along Roadway	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	02/17/2006	1853	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	02/10/2006	1147	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	05/05/2006	1733	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	08/13/2006	830	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	09/09/2005	1740	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	10/20/2005	1026	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	12/10/2005	1530	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	05/26/2006	1840	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Sideswipe, Same Dir	No Adverse
KNOX	01289	0-NONE	1	0.100	08/08/2006	1235	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	0.100	08/30/2005	1713	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	12/11/2006	747	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	09/05/2006	1744	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Sideswipe, Same Dir	No Adverse
KNOX	01289	0-NONE	1	0.100	07/08/2006	1225	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	07/27/2006	1205	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	11/12/2006	1401	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	07/05/2006	1402	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	09/16/2006	1848	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	11/18/2006	1142	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	11/28/2006	1638	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	12/22/2006	1242	yp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	0.120	05/15/2006	1556	yp Damage (ov	0	0	Ramp	2	Vehicle in Transport	Sideswipe, Same Dir	No Adverse
KNOX	01289	0-NONE	1	0.160	07/12/2006	1434	yp Damage (ov	0	0	Along Roadway	2	Vehicle in Transport	Angle	No Adverse

County	Route	Sp Cse	Co Seq	Log Mile	Date of Crash	Time of Crash	Type of Crash	Total Killed	Total Inj	Location	Total Veh	First Harmful Event	Manner of First Collision	Weather
KNOX	01289	0-NONE	1	0.010	12/16/2005	1655	xp Damage (ov	0	0	Underpass	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.070	12/22/2006	1605	xp Damage (ov	0	0	Along Roadway	2	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	0.100	01/20/2004	717	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	05/16/2004	103	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	03/17/2005	1925	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	04/30/2004	1402	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	06/16/2004	1058	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	0.100	09/03/2004	1520	Ion-Incap Injur	0	1	At an Intersection	3	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	11/05/2005	1134	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	12/23/2004	1219	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	08/01/2005	1307	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Sideswipe, Same Dir	No Adverse
KNOX	01289	0-NONE	1	0.100	02/16/2005	2040	Ion-Incap Injur	0	2	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	03/13/2005	1325	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	03/17/2005	1740	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	08/24/2005	1735	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	07/15/2005	643	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	05/17/2006	2103	xp Damage (ov	0	0	At an Intersection	3	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	07/09/2004	1135	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	02/07/2004	2150	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	11/03/2006	1557	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	02/19/2006	1227	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	09/08/2005	1853	Incap Injury	0	3	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	12/20/2005	1329	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	05/30/2005	1308	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	08/10/2005	818	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	09/29/2005	1719	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	11/15/2005	1945	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	10/30/2005	1427	Ion-Incap Injur	0	1	At an Intersection	3	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	10/06/2005	1222	xp Damage (ov	0	0	At an Intersection	1	Highway Traffic Sign Post	No Collision w/ Vehicle	No Adverse
KNOX	01289	0-NONE	1	0.100	04/24/2006	1728	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	11/28/2006	1339	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	11/03/2006	1314	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	12/16/2006	1344	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	10/26/2006	1651	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	0.100	11/02/2006	1111	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	0.100	11/08/2006	1514	xp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse

County	Route	Sp Cse	Co Seq	Log Mile	Date of Crash	Time of Crash	Type of Crash	Total Killed	Total Inj	Location	Total Veh	First Harmful Event	Manner of First Collision	Weather
KNOX	01289	0-NONE	1	1.750	11/28/2005	1713	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	1.750	06/09/2006	1215	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1.750	08/19/2008	1830	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1.750	10/03/2005	1007	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Rear-End	No Adverse
KNOX	01289	0-NONE	1	1.750	11/15/2008	1830	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Rear-End	Rain
KNOX	01289	0-NONE	1	1.750	07/22/2006	2029	sp Damage (ov	0	0	At an Intersection	2	Vehicle in Transport	Head-On	No Adverse
KNOX	01289	0-NONE	1	1.750	10/21/2006	1913	Ion-Incap Injur	0	1	At an Intersection	2	Vehicle in Transport	Angle	No Adverse
KNOX	01289	0-NONE	1	1.830	11/30/2008	1612	Ion-Incap Injur	0	1	Along Roadway Along Roadway	1	Tree	No Collision w/ Vehicle	Rain
KNOX	01289	0-NONE	1	2.000	05/01/2005	0	sp Damage (ov	0	0		1	Mail Box	No Collision w/ Vehicle	No Adverse

167 AT INTERSECTION
21 ALONG THE ROAD



April 6, 2012

Engineering

James R. Hagerman, P.E.
Director of Engineering

Stephen J. King, P.E.
Deputy Director of Engineering

Kevin Murphy
4508 Murphy Rd.
Knoxville TN 37918

Re: Project Identification Number: 110301.00
Washington Pike from I-640 to Murphy Road
Knoxville, Tennessee

Dear Property Owner:

As you may have heard, the City of Knoxville is continuing its public involvement process for the above mentioned roadway widening project, and we want to alert you about activities you may be seeing shortly in your neighborhood.

In order to insure that we have the most accurate, complete, and current information possible, survey crews will begin gathering data to supplement existing aerial photographs of the area. This will involve ground surveys, which will investigate property lines, underground utilities, detailed stream information, environmental surveys, and more.

These ground surveys will begin within the next one (1) to four (4) weeks, and will continue for twelve (12) to eighteen (18) months.

The survey crews may need to gain access to your property located on this project in order to gather the necessary information, and we will appreciate your cooperation in that effort. The surveyors will attempt to contact you personally prior to entering your property. If there are specific times during the work week that we should avoid, please let us know. Surveys will not be required on all properties.

If you have specific questions, you may contact Mr. Jeff Mize at CDM Smith by phone (865.963-4300) or by email (mizerj@cdmsmith.com). Thanks in advance for your cooperation.

Sincerely
CDM Smith

Jeff Mize, P.E.
Project Manager

Cc: Mr. Tom Clabo – City of Knoxville
File

Subject: Murphy Farm map
From: "Kevin P. Murphy" <murphysprings@gmail.com>
Date: 4/13/2012 8:37 AM
To: beanjl@cdmsmith.com

Hello,

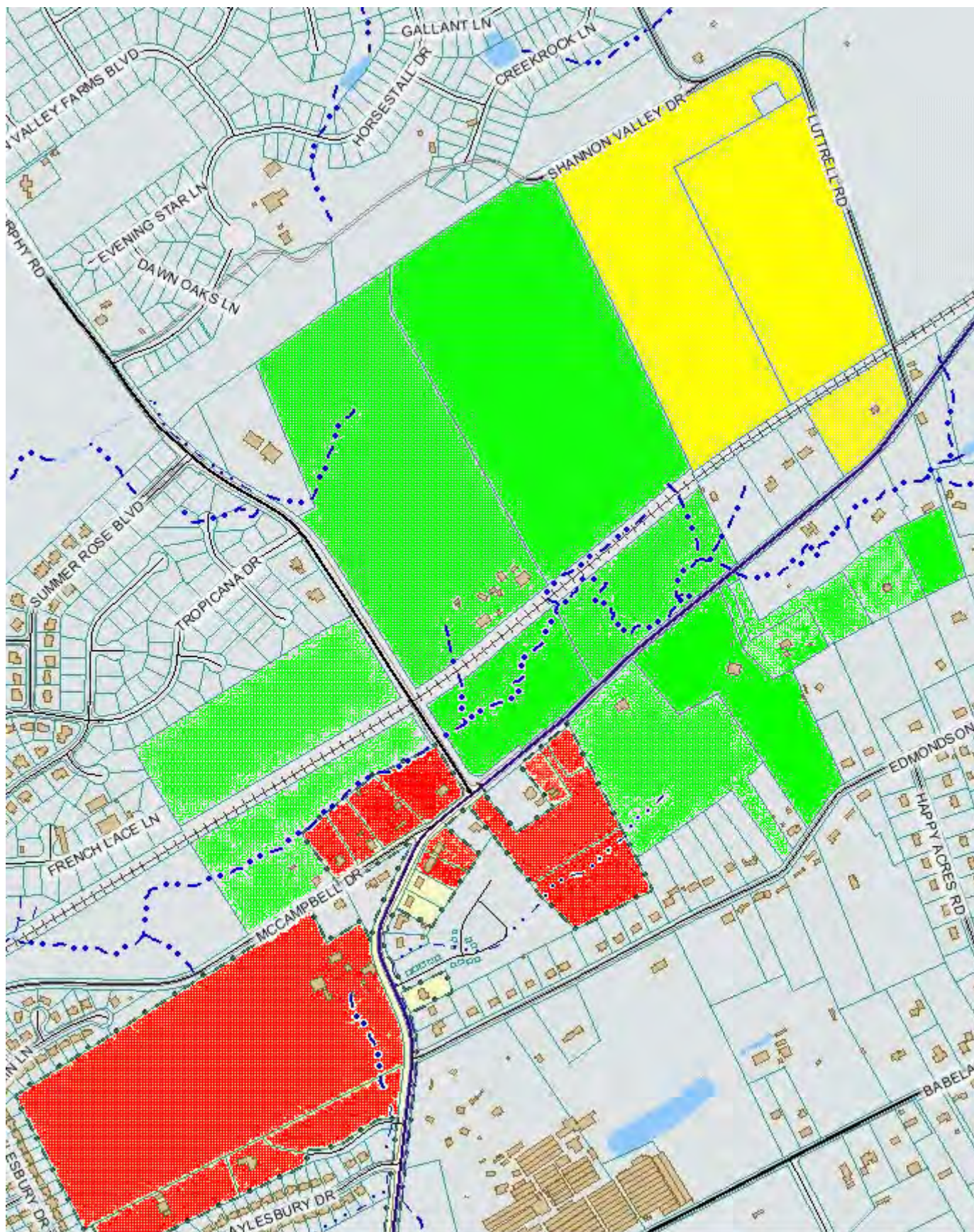
The Murphy property is represented in Green and Yellow on this map. I talked with Patrick McIntyre and we've agreed the entire farm is National Register eligible, and that's the scope of the application I'm working on right now.

It has been listed as a Tennessee Century Farm:
http://www.tncenturyfarms.org/knox_county/#Murphy_Springs_Farm

Best numbers to reach me at are:
865-560-4711 (W)
865-687-8799 (H)

--Kevin

-Murphy Farm.gif-----



—Attachments:—

Murphy Farm.gif

388 KB

Kevin P. Murphy
4508 Murphy Rd
Knoxville, TN 37918-9179
murphysprings@gmail.com
2012 April 15

RE: Washington Pike Widening

Via CERTIFIED MAIL and E-Mail

James R. Hagerman, Director of Engineering
1400 Loraine Street
Knoxville, TN 37921

Dear Mr. Hagerman,

I understand that a project is in the planning and engineering phase to widen Washington Pike from I-640 to the Murphy Road intersection. I also understand that federal funds are being used for this project.

The area of the widening project begins at a busy interstate and transits through a mix of commercial, residential and agricultural land before terminating at my family's farm. The Murphy Road / Washington Pike intersection is the gateway to northeast Knox County, which is still largely rural and agricultural in nature. Past the intersection, Washington Pike is identified as a Rural Heritage Corridor in the Northeast County Sector Plan. Also, the intersection is a sharp Growth Plan boundary line between the Urban Growth Area and Rural Area, with no transitional Planned Growth Area.

Improvements to the roadway should take into account:

- The large impact that it will have on the residences and neighborhoods
- National Register eligible structures and properties within the boundary area
- The transition from urban to rural that occurs in the 1.6 mile length of the project
- Enablement of the Washington Pike Heritage Corridor
- The generally one-way flow of high volume traffic during weekday rush-hour

First, I would like to make sure that the planners are aware of my farm's historical nature, that an impact analysis is performed as required by Section 106 since federal funds are being used, and that the impact of the project on the farm is mitigated.

The Murphy Springs Farm was settled in approximately 1797 by my ancestor Robert Murphy, and his family. His son, Hugh Murphy, built a house in 1841 that is about 850 feet from the current Washington Pike / Murphy Road intersection. That structure and its associated outbuildings have been identified as **National Register eligible** since the 1982-1986 Metropolitan Planning Commission survey of historic sites. During recent renovation and restoration, local and state historic preservation officials were consulted to ensure that the structure and farm would remain National-Register eligible.

In 2010 all of the parcels of the farm remaining in the family were certified by the Tennessee Department of Agriculture and Center for Historic Preservation at Middle Tennessee State University as a **Tennessee Century Farm**. Recently I have spoken with local preservation staff at Metropolitan Planning Commission as well as with Patrick McIntyre, the Executive Director of the Tennessee Historical Commission, and we decided to increase the scope of the National Register designation that I am preparing from just the Hugh Murphy House to the entire Murphy Family farm. I am enclosing a list of the parcels that will be listed on the National Register application, along with a rough map. I plan to submit the application to the Tennessee Historical Commission in June 2012.

Since 1797 when the Murphy's first acquired property for the farm, a number of takings have occurred that have impacted the value and historical integrity of the farm. They include:

- Early and continued use of Washington Pike, running through the center of the original farm
- Early and continued use of Murphy Road
- Railroad easement
- 200 foot TVA / KUB high voltage transmission easement on western parcels
- Water, gas and electrical utilities located adjacent to Murphy Road and Washington Pike that impact the peripheral use of the property
- Right of way acquisition for the Murphy Road widening in late 1990s

Given the historic nature of the Murphy Springs Farm and the adverse impact of prior takings, I hope and expect that all efforts will be taken to mitigate the impact to the farm, including:

- Minimal or no acquisition of farm property for right of way
- Noise mitigation measures
- Landscaping buffers
- Light pollution and trespass from streetlights and stoplights
- Location of utilities

Secondly, I hope that efforts are made to minimize the impact on other residents of the area. I have noticed that Knoxville does not utilize full-cutoff streetlights in many areas. This is a rural, residential area and full-cutoff streetlights should be a requirement.

Thirdly, Washington Pike is a route that has traditionally provided quick access for residents of the area to the interstate. There are not many stoplights. The last stoplight on Washington Pike is the light at the Murphy Road intersection; beyond that there are no lights or stop signs until the end of the road.

I have observed that Washington Pike's two-lane facility currently provides good service for most of the day, except for the morning and evening week day rush hours. At these times the traffic is generally uni-directional in nature – flowing into Knoxville in the morning and from the interstate in the evening.

Given the uni-directional nature of rush hour traffic, generally good service during non-rush-hour times, and the traditional quick transit times that Washington Pike has provided to residents, I would encourage the engineers to consider the use of high speed roundabouts instead of stop signs in the widening project. I have lived in areas of the United States and in other countries where roundabouts provide excellent service levels to travelers. In the case of Washington Pike, a multi-lane roundabout design can probably handle anticipated growth events.

I am requesting documentation on the traffic forecasting estimates that are being used as requirements in the engineering process. The Washington Pike Transportation planning Report study did not provide detailed information on the growth forecasts.

If there are any public meetings that will be held on this project, I request to be notified of them.

Sincerely,

A handwritten signature in black ink, appearing to read "K. Murphy", enclosed within a thin black rectangular border.

Kevin P. Murphy

CC via email:

Tom Clabo, Chief Civil Engineer, City of Knoxville
Lisa Starbuck, President, Northeast Knox Preservation Association
Ronnie Collins, President, Alice Bell / Spring Hill Neighborhood Association
Nick Della Volope, 4th District, Knoxville City Council
Dave Wright, 8th District, Knox County Commission
Nathan Benditz, Knoxville Regional Transportation Planning Organization
Kaye Graybeal, Knox Metropolitan Planning Commission Historic Preservation

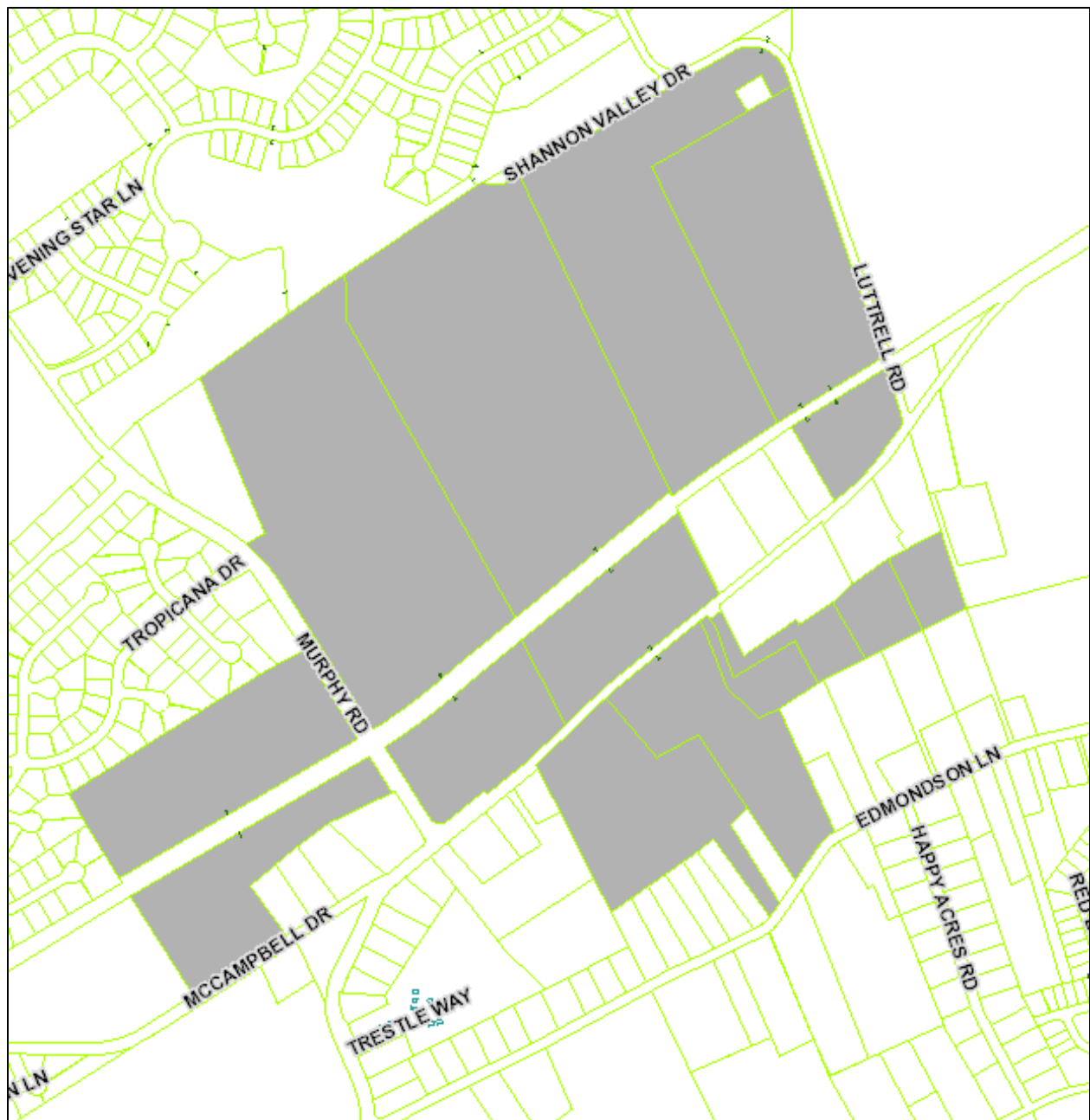


Figure 1 – Murphy Farm Map

The parcels that constitute the Murphy farm are:

Address	Parcel ID	Size (Acres)
5817 McCampbell Dr	049 08301	3.17
0 Murphy Rd	049 083	20.88
4508 Murphy Rd	049 080	49.50
0 Washington Pike	049 077	58.78
4671 Luttrell Rd	049 071	26.84
6029 Washington Pike	050 001	25.00
5922 Washington Pike	049 078	14.38
5930 Washington Pike	049 07701	2.25
5932 Washington Pike	049 07702	2.60
5936 Washington Pike	050 00201	2.41
0 Washington Pike	050 00202	2.11

Table 1 – Murphy Farm Parcels

Subject: Information on Murphy Farm
From: "Kevin P. Murphy" <murphysprings@gmail.com>
Date: 4/16/2012 9:34 AM
To: beanjl@cdmsmith.com

Hi Jana,

Thanks for chatting with me this morning about my family's farm. Attached is the Tennessee Century Farm application and the letter I sent to the City Engineer's office yesterday.

I'll clean up the National Register draft and send that to you tomorrow.

--Kevin

--Attachments:-----

Murphy Springs Farm Tennessee Century Farm Application.doc	74.0 KB
2012-04-15 Letter on Washington Pike Widening.pdf	112 KB

TENNESSEE CENTURY FARMS PROGRAM

APPLICATION

Read through the application and pay special attention to the “Requirements” to be certain that your farm qualifies.

Fill in the application form, answering each question as fully as possible. Submit only one application for each farm. If there are several current owners of the same farm, all owners’ names should be on one application, but one person should be the primary contact for all matters relating to the Century Farms Program.

Submit the form and any necessary supporting documents to the county historian or the county extension agent of the county in which the land is located for his/her signature.

Your signature must be witnessed by a Notary Public on the certification portion of the form.

Submit photographs, if you have any, which illustrate your family’s history, its buildings, and the landscape. Photographs will be copied and returned on request.

6. Mail completed application form and supporting materials to:

Caneta S. Hankins
Director, Tennessee Century Farm Program
Box 80, Middle Tennessee State University
Murfreesboro, TN 37132

APPLYING FOR THE CENTURY FARMS PROGRAM

Requirements

Ownership:

At least one owner of the farm must reside in Tennessee.

The line of ownership from the first family member owning the land (the founder) may be through wives, husbands, children, brothers, sisters, nephews, and nieces.

Adopted children will be recognized equally with blood children.

Any land in the process of being sold to a non-relative is ineligible.

Agricultural Production:

The land under consideration must meet the following U.S. Census definition of a farm: ten acres or more with annual agricultural revenues of \$1000 or more.

The land must have been agriculturally productive and *continuously* owned by members of the family for 100 years or more.

Each of the above requirements must be fulfilled for your application to be considered.

Application

All questions to this application must be answered as stipulated. When you have completed the application, you should have provided a clear line of ownership from the founder and the date founded to the present owner. If you have photographs of the farm's land, buildings, or owners (from any generation) which we could copy, please write your name and address on the back, identify the photograph, and submit them with your application. Photographs will be returned upon request. Please do not send original photographs or documents, only copies. The Center for Historic Preservation assumes the right to publish any photographs submitted with the application and information that appears within the application. To protect your privacy rights, addresses or phone number of owners and exact locations of the farm will not be published. Completed applications must be certified by the county historian or extension agent of the county in which the farm is located. The application must also be notarized.

On receipt of the application, the Center for Historic Preservation will review and process the application. Notification of acceptance will be made by letter and will include a certificate. A press release will be issued to the county newspaper where the farm is located and the farm's name, history, and photograph will be placed on the Century Farm web site.

One (1) Century Farm Certificate and one (1) sign, provided by the Tennessee Department of Agriculture, will be issued for each farm or ranch.

In cases where separately owned farms or ranches have evolved from the founder's original acreage by family members and meet all other requirements of the program, each farm or ranch may qualify as a Century Farm. Each owner must make application for his/her farm.

SECTION I: CURRENT OWNERSHIP

Owner # 1 should be the person submitting the application and will be considered the primary contact for the farm. This person will receive any correspondence associated with the Century Farms Program. For each owner, give the following information:

Owners:

Murphy, Kevin P.
4508 Murphy Rd, Knoxville TN 37918-9179
Knox County
865-687-8799
Email: kmurphy@alumni.rice.edu

Murphy, John P.
5922 Washington Pike, Knoxville TN 37918
Knox County
865-688-1604

Workman, Mary
5936 Washington Pike, Knoxville TN 37918

Murphy, Michael B.
P. O. Box 3580, Winter Haven FL 33885
863-307-3071

Murphy, Cathy and Manuel, John
5905 Woodberry Rd, Durham NC 27707
919-489-7826

King, Patricia
Little Rock, Arkansas

Campbell, Kent
Seattle, WA

Campbell, Robert
Atlanta, GA

Campbell, John

SECTION II-A: HISTORY OF THE LAND –The Founders of the Farm

Land Location (example: Davidson County, 2 mi. NE of Nashville, Hwy 41A):

Knox County, along Murphy Creek (referred to as White's Creek in the family history) at corner of Washington Pike and Murphy Rd, in the old Grassy Valley located between White's Ridge and Black Oak Ridge

Name of the first family member to own the land (hereinafter known as the "Founder"):

Robert Murphy

Name of founder's spouse: Martha McNeil

Name and/or number of children:

Polly Murphy
John Murphy (1786-1855)
Alexander Murphy (1788-1875)
William Murphy (1790-?)
James Murphy (1793-?)
Elizabeth Murphy (1794-1862)
Maria Murphy (1800-?)
Patsy Murphy (1804-1878)
Harriet S. Murphy (1805)
Hugh McNeil Murphy (1810-1877)

Date founder acquired title to the land (you must include a copy of legal documentation, such as a deed, will, or census record, that proves the founder's ownership and the date):

May 24, 1797, from deed for 115 acres along White's Creek, bought from John Crawford, who bought from Fred Adair and John Adair, which was an original land grant from the State of North Carolina

July 1, 1797 from deed of 50 acres along White's Creek, bought from John Edminston

15 acres, grant from State of Tennessee, March 12, 1819

12.5 acres, grant from State of Tennessee, March 10, 1826

Number of acres in founder's original farm or ranch: Approximately 192.5 acres (1797-1826)

Types of crops and livestock grown by founder: Corn, potatoes, hay, flax seed, flour, butter, honey, chickens, cotton (cloth)

Important events and activities occurring on the farm during the founding owner's lifetime related to the development of the farm or ranch, the history of the community, and the history of Tennessee (please add additional pages as you wish):

- See attached family history and the attached history of the Ritta Community by David Babely.
- Built an original settlers cabin on the land and cleared out land for homesite and fields.
- Isaac Anderson, founder of Maryville College, first founded Union Academy which was located less than 500 feet from the old farm.
- Robert Murphy donated land for the establishment of Murphy's Chapel in 1847, a Methodist congregation located at the intersection of the John Luttrell and Robert Murphy farms

SECTION II-B: Second Owners of the Farm

Name(s): William Murphy and Hugh McNeil Murphy

- each owned ½ of the farm at the time of their father's death, but William Murphy then signed over the remainder of the farm to Hugh Murphy according to the wishes in their father's will

Relationship to founder: sons

Year this owner acquired the property: 1850 (upon father's death)

Name of this owner's spouse:

Hugh Murphy → Sarah White (first wife, mother of all children)

Hugh Murphy → Dicey Malinda LaRue (second wife)

William Murphy → Sally Johnston

Name(s) and/or number of children:

Robert Fillmore Murphy (1854-1890)

Leonidius R. Murphy (1842-1879)

William Alonzo Murphy (1845-1916)

Martha Jane Murphy (1847-?)

Joseph C. B. Murphy (1849-1858)

Harriet S. Murphy (1851-1858)

John Rush Murphy (1956-1937)

Number of acres in farm at this time (if known): At least 192.5. Records in the archives indicate that additional land was acquired, possibly over 100 acres of the adjacent Anderson farm. However, that land was sold by the late 1800's. Hugh Murphy was the banker for the neighborhood; deciphering the land transactions of what he owned vs. what he bought on behalf of his neighbors is difficult.

Types of crops and livestock grown by this owner: Unknown. Assume similar as first generation.

Important events and activities occurring on the farm during the founding owner's lifetime related to the development of the farm or ranch, the history of the community, and the history of Tennessee (please add additional pages as you wish):

- Hugh Murphy was a teacher at Fancy Hill school
- Hugh Murphy built a house on the farm that still stands (the Hugh Murphy House) and is being nominated for the National Register of Historical Places
- Union troops traveled through the area and stripped the house bare

SECTION II-C: Family Owners Between the Second Generation and Current Owners

If other relatives owned the land between the years noted in Section II-B and the year the current owner(s) assumed ownership, please provide that information in the same form as asked for above for each generation or owner on a separate sheet. To keep the information organized, you might title each separate generation as Third Owners, Fourth Owners, and so on. We want as much information on each generation as possible. This information is most important to show the clear line of ownership and the history of the farm from the founders to the current ownership.

See the appendix for additional information.

SECTION III: Present Ownership

Year you acquired land: 2009 April 30

Your relationship to the founder: Great, great, great, great grandson

3. **Your spouse's name:** None
4. **Number of generations living on the land today:** Two
5. **Identify relationships of generations (example: "Owner and son's family, Mr. and Mrs. John Jones and their children, ages 5, 8, and 11"). Please be specific, including correct spelling on names and relationships, as we will use this information when preparing the press release and web site entry:**

Descendents of Robert Murphy include his great, great, great grandchildren Mary Workman, Sherry and John Murphy, and a great, great, great, great grandchild Kevin Murphy.

6. **Number of acres farmed by you that were owned by founder:** Myself: 50. All-together: Approximately 185 acres are being farmed, with another 24 in timber and as households for other family members. Approximately 209 acres of the original farm are intact. The founder owned approximately 192 acres, but his son Hugh Murphy acquired additional land between 1850 and 1877, some of which was later divested. Tracing the deed history is a difficult due to the property descriptions.

7. **Additional farm or ranch acreage owned by you today:** None

8. **Crops or livestock produced on the farm during the current owner's time on the farm, including what is produced today:** Beef cattle, hay

9. **Are any buildings constructed in or earlier than 1950 still standing? If so, please describe their physical appearance and original and present-day use. Enclose photographs if possible and use additional space as needed.**

Yes, there are a number of them. See the attached files for pictures of them in current state.

- Hugh Murphy House – built approximately 1841. A Gothic Revival cottage, approximately 2,600 square feet. The house is the subject of a National Register application; when the application is completed, it will be forwarded to MTSU for records. A blog describing the current restoration project is available (with numerous pictures) at <http://murphysprings.blogspot.com>
- Smoke house – behind the Hugh Murphy House; dendrochronological dating confirmed that the Hugh Murphy House and smoke house were built at the same time. The smoke house was used for smoking meats until at least the 1950s. It is now used for storage. The Knox County Historical Zoning Commission staff believes this to be one of only a few surviving smoke houses in Knox County.
- Spring house – unknown date (between 1841 and 1910). Was used as part of the dairy farm operation in the late 1800s and early 1900s. John Rush Murpy

- had a weekly Saturday morning dairy run in the 1920s and early 30s for eggs, butter and milk from the farm. The spring house was renovated in the 1970s/1980s with a concrete floor and concrete block walls, and new trusses.
- Wash house – next to the spring house, a small wooden building approximately 12x12 with a chimney. Used for washing up dairy equipment (the fireplace was used to heat the water for washing) and churning butter.
 - Garage – a two bay garage, built in the 1800s or very early 1900s. Two bays, large enough for wagons, on each side of a corn crib.
 - Wood shed – A large wood shed was located in the middle of current driveway parking area. Unknown build date; it was moved to the current location approximately 1932. It is now used as a tool shed.
 - Chicken coop – The chicken coop is at last 1924 if not earlier. The side was cut out of it and it is now a garage and storage shed.
 - Robert M. Murphy House – built approximately 1925 across White's (Murphy) Creek and Washington Pike from the Hugh Murphy House. Robert M. Murphy was the first Knox County Agricultural Extension Agent. The house is currently vacant.
 - Robert M. Murphy barn – primarily used as a hay storage loft
 - Dixie Dixon cottage – built by the wife of Fred Murphy after Fred Murphy died, circa 1926. A small, cedar-shake sided one bedroom cottage that is currently used as a rental house.

10. Is this property on the National Register of Historic Places or recognized by a local historical organization (give the name of organization):

The Hugh Murphy House is in the process of being listed on the National Register. We are working with the Knox County Historical Zoning Commission (Ann Bennett) and Knox Heritage.

11. Who works the land today? Give name and relationship (of any) to owner of property.

Joe Mitchell, no relation, has been working the property for approximately 20 years growing cattle on it.

12. If you retain a manager, are you actively engaged in the everyday operation of the farm or ranch?

SECTION IV: People, Events, Stories Related to the Farm

In each section of ownership we have requested that you describe important events, people, or stories related to the development of the farm, the history of the community, and the history of Tennessee that took place on your property.

Because the Center for Historic Preservation also administers the Tennessee Civil War National Heritage Area, we are especially interested in people, events, and stories associated with the period 1860– 1875 that encompasses the Civil War and Reconstruction. However, we are also interested in events and stories from any period of Tennessee history.

If you prefer, you can combine the information from different periods below, but please make sure we know the approximate dates and owners with whom the stories are associated. For example, if land was given for a school or church by the family during the 1890s, let us know. Also any awards or honors the farm and family received at different times would be welcome

information. For example, if someone was involved in the Home Demonstration Club, 4-H, or Farm Bureau, let us know. Use additional pages as needed.

Please see the attached Robert Murphy Family History and History of the Ritta Community for substantial details on the history of the farm. Other details not contained in that history include:

- Robert M. Murphy Sr. was the first Agricultural Extension Agent for Knox County. He was also instrumental in bringing the Farm Bureau to Knox County. See enclosed obituary. R. M. Sr. and his wife, Perle Pennington, started the Murphy Builders Sunday School class at Church Street United Methodist Church in Knoxville; the class still meets to this day.
- Alvin R. Murphy Sr. worked for Wallace and Tiernen. Mr. Wallace invented the first chlorinator. His son, Alvin R. Murphy Jr. also worked for Wallace and Tiernen. Each of them retired as the manager of the southeastern region for sales and operations. The elder A.R. Murphy was involved in the formation of Hamilton National Bank and Holston Hills Country Club.
- Tip Chesney's (mentioned at the end of the family history) son, Paul Henry Chesney, worked the A. R. Murphy farm until his death in the mid 1980s.
- A seven (7) acre field fronting Murphy Rd. is used for planting oats by the [East Tennessee Draft Horse and Mule Owner's Association](#). They plow the field in the fall with old equipment drawn by horse and mule teams, and then use an old combine to harvest the oats in the spring. A number of local onlookers stop in due to the large traffic volume on Murphy Road.
- Corinth Methodist Church, listed in the history, is now known as the First Comforter Church on Old Tazewell Pike.

Information for Certificate:

Name of Farm (such as Elm Hill Acres or McDow Farm):

Murphy Springs Farm

If no name is given, we will register the land under the last name of the present owner. In some instances, a farm in your county may already be registered under the name you have given. If that should be the case, we will contact you to ask you to select another name for your farm.

**for
CENTURY FARMS PROGRAM**

I declare that the statements made in this application are accurate and correct to the best of my knowledge.

Signature of current owner

**Subscribed and sworn to before me this _____ day of _____, 20
.**

Notary Public

**My commission expires on the _____ day of _____, 20
.**

**I declare that _____ appeared before me
on _____
name of owner date**

With substantiating evidence that the land now in his/her possession has met the stated requirements of the Tennessee Century Farms Program.

**County Historian _____
or
County Agent _____**

Mail the completed application and supporting documentation, including photographs, to:

**Caneta Hankins
Director, Tennessee Century Farms Program
Center for Historic Preservation
Box 80, MTSU
Murfreesboro, TN 37132**

Appendix A: Family Owners between the Second Generation and Current Owners

See the included genealogical charts for full information on the family members. For this section, I will focus on the owner names. Very significant events are included in this narrative; others are described in the Robert Murphy Family History.

THIRD GENERATION

Owner(s): Dicey LaRue Murphy (Hugh Murphy's second wife), Robert Fillmore Murphy, John Rush Murphy, William Alanzo Murphy

Land Description: Hugh Murphy's will gave the farm to all of his children, but after settling the estate Dicey, Robert, John and Rush were the only children that desired property. The property was transferred to them on the 15th July 1878. The farm was split into parcels on 6 March 1880 for the four of them. Dicey Murphy transferred her land to John Rush Murphy on 27 May 1899 in exchange for maintenance and support for the rest of her natural life. At least one large parcel of land that was acquired by Hugh Murphy, at least 100 acres, was sold during this generation's ownership.

Important events and activities occurring on the farm:

- The Powell Valley Railroad Company bought right-of-way from the Murphys in 1887 for the railroad line.
- Land was provided for Corinth Methodist Church (date was in the 1880s)
- Robert Fillmore Murphy died in 1890 of typhoid fever. His wife (Sarah French) and his step-mother (Dicey) took care of the three children. Sarah French died in 1905, and the children's uncle John Rush Murphy and Dicey Murphy raised them.

FOURTH GENERATION

Owner(s): Alvin R. Murphy Sr., Robert M. Murphy Sr., Mary Ann Koger (children of Robert Fillmore Murphy), Fred E. Murphy (son of William A. Murphy)

Land Description: On 22 June 1925 John Rush Murphy conveyed over to Robert Fillmore Murphy's children (A.R. Sr, R.M. Sr, and Mary Ann) the land that had once belonged to Robert Fillmore Murphy, Dicey Murphy and himself; this roughly split the farm into four parcels, with Fred Murphy inheriting the remaining quarter. Later Alvin Sr. bought Fred Murphy's parcel. The Knox County archives terminate after 1932; I have not conducted research at the Register of Deeds office to follow the property transfers after that. During this generation some smaller lots ranging from an acre to 4 were carved off and sold when family members required income.

Important events and activities occurring on the farm:

- Alvin Murphy Sr married Eliza Jane Rule, one of 10 children of George A. Rule and Maria Jane Monday. A. R. Murphy Sr. took good care of his in-laws, helped them acquire a 60 acre farm on the French Broad River just where John Sevier Highway crosses the river. That farm, while not part of this century farm program application, has been passed down to Alvin R. Murphy Jr. and ultimately his daughter, Catherine J. Murphy.
- Robert M. Murphy Sr. and his wife Perle Pennington were very active at Church Street United Methodist Church. They would often have Sunday Picnics at their house for the Murphy Builder's Sunday School class.

FIFTH GENERATION

Owner(s): Robert M. Murphy Jr., John P. Murphy, Sarah French Murphy (children of

Robert M. Murphy Sr), Alvin R. Murphy Jr.

Land Description: Alvin R. Murphy's holdings passed directly to his son. R. M. Murphy Sr's land was divided up into a large estate jointly held by all of his children. Several smaller lots were created to provide homesteads for Robert M. Murphy Jr. and equivalent lots for Sarah French Murphy and John P. Murphy. Mary Ann Koger left her property to Robert M. Murphy Jr.

Important events and activities occurring on the farm:

- Robert M. Murphy Jr. served as the county purchasing for Knox County after retiring as a Colonel in the United States Air Force, flying B-17 bombers in WWII and B-52 bombers in the Cold War.

SIXTH GENERATION

Owner(s): Michael B. and Catherine J. Murphy (children of Alvin R. Murphy Jr.), John Murphy and Patricia Murphy King (children of John P. Murphy), Mary French Workman (daughter of Sarah French Murphy); Kent, Robert and John Campbell, children of Betty Ann Campbell who passed away while they were children (1962). Betty Ann Murphy Campbell was the daughter of Robert M. Murphy Sr. but never owned the property; it was passed to the Campbell children from their grandfather.

Land Description: Michael and Catherine Murphy received two 50 acre parcels from their father Alvin R. Murphy Jr. In 2009 they transferred one of the parcels, with the Hugh Murphy house, Michael's son Kevin P. Murphy. The Campbell children, John Murphy, Patricia King Murphy and Mary French Murphy own various interests in a 57 acre "estate" in the middle of the farm. John Murphy owns Col R. M. Murphy Jr's homestead, as well as the homestead lot of his grandparents (Robert M. Murphy Sr.) and the parcels that Mary Ann Koger Murphy gave to Col R. M. Murphy Jr. Mary French Murphy owns a homestead parcel, and Patricia Murphy also owns another parcel.

Important events and activities occurring on the farm:

- The barn, built at least by 1900 if not earlier, was torn down in October 2008 due to significant deterioration, with the unofficial consent of Knox County Historic Zoning.

Subject: Invitation from Alice Bell / Spring Hill and NEKPA
From: Lisa Starbuck <lisa@aobe.com>
Date: 5/1/2012 9:38 AM
To: Madeline Rogero <rogero@comcast.net>
CC: Ronnie Collins <abshna@aol.com>, Bob Wolfenbarger <rlw03@bellsouth.net>, "Kevin P. Murphy" <murphysprings@gmail.com>

Hello Madam Mayor,

We would like to invite you to a joint meeting of the Alice Bell/Spring Hill and NEKPA neighborhood associations on Monday, May 21st at 7:00 pm at New Harvest Park.

The subject of discussion will be concerns about our area, specifically the city's planned road widening project on Washington Pike and the impact on the already-troubled Knoxville Center Mall area.

We have had conversations about these concerns with some of your staff, but we don't feel that any one person or group has responsibility for the big picture and is coordinating the overall plan for road improvements, redevelopment and growth.

We know you are a busy person, but we are hoping you can make time to meet with the neighborhoods because we believe that is the only way to ensure our voices will be heard and some positive action taken.

If you are unable to meet with us on May 21st, would you be available on another date?

Thank you for your consideration of this important issue.

With best regards,

Ronnie Collins, Bob Wolfenbarger, Kevin Murphy and Lisa Starbuck
Neighborhood Representatives

Subject: Re: Information on Murphy Farm
From: "Kevin P. Murphy" <murphysprings@gmail.com>
Date: 5/8/2012 8:36 PM
To: "Bean, Jana L" <beanjl@cdmsmith.com>

Hi Jana,

Here's the draft of the nomination. I still have a lot of work to do on the narrative side, along with some pictures and maps. The criteria will be under A and C. The "A" designation has been used for other Century Farms that were nominated because they are associated with the early exploration and settlement patterns along the frontier.

Here's my list of contributing vs. non-contributing items:

	Contributing	Non-Contributing
Buildings	1. Hugh Murphy House 2. Smoke House 3. Garage with Corn Crib 4. Wood Shed 5. Spring House 6. Cook House	14. Pole Barn 15. Colonel Robert M. Murphy Jr. House 16. Robert Murphy Sr. House 17. Mary Workman House
Sites	7. Robert M. Murphy barn 8. Robert Murphy log cabin site 9. Murphy Family Cemetery 10. Murphy Chapel Cemetery 11. Murphy Chapel site 12. Agricultural landscape	
Structures	13. Chicken Coop	18. Old barn site
Objects		

--Kevin

On 5/7/2012 3:23 PM, Bean, Jana L wrote:

I have a few quick questions concerning your National Register nomination so that my report will jive with your nomination.

What are the areas of significance and Criteria (A, B, C) that you are nominating the farm under? I assume (C) architecture for the Gothic Revival style but was there anything else? Are you making a list of contributing versus non-contributing buildings and would you mind sharing that list with me?

Thank you,

Jana Bean

-----Original Message-----

From: Kevin P. Murphy [<mailto:murphysprings@gmail.com>]
Sent: Monday, April 16, 2012 9:34 AM
To: Bean, Jana L
Subject: Information on Murphy Farm

Hi Jana,

Thanks for chatting with me this morning about my family's farm. Attached is the Tennessee Century Farm application and the letter I sent to the City Engineer's office yesterday.

I'll clean up the National Register draft and send that to you tomorrow.

--Kevin

—Attachments:—

10-900.doc

160 KB

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form*. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. **Place additional certification comments, entries, and narrative items on continuation sheets if needed (NPS Form 10-900a).**

1. Name of Property

historic name Murphy Family Farm and Hugh Murphy House

other names/site number Murphy Springs Farm

2. Location

street & number 4508 Murphy Road

city or town Knoxville

state TN

code _____

county Knox

code _____

zip code 37918

X

not for publication

vicinity

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this X nomination ___ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property ___ meets ___ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

___ national ___ statewide X local

Signature of certifying official/Title

Date

State or Federal agency/bureau or Tribal Government

In my opinion, the property ___ meets ___ does not meet the National Register criteria.

Signature of commenting official

Date

Title

State or Federal agency/bureau or Tribal Government

4. National Park Service Certification

I hereby certify that this property is:

___ entered in the National Register

___ determined eligible for the National Register

___ determined not eligible for the National Register

___ removed from the National Register

___ other (explain:)

Signature of the Keeper

Date of Action

Hugh Murphy House and Murphy Family Farm
Name of Property

Knox County, Tennessee
County and State

5. Classification

Ownership of Property

(Check as many boxes as apply.)

<input checked="" type="checkbox"/>	private
<input type="checkbox"/>	public - Local
<input type="checkbox"/>	public - State
<input type="checkbox"/>	public - Federal

Category of Property

(Check only **one** box.)

<input checked="" type="checkbox"/>	building(s)
<input type="checkbox"/>	district
<input type="checkbox"/>	site
<input type="checkbox"/>	structure
<input type="checkbox"/>	object

Number of Resources within Property

(Do not include previously listed resources in the count.)

Contributing	Noncontributing	
6	4	buildings
5		sites
1		structures
		objects
		Total

Name of related multiple property listing

(Enter "N/A" if property is not part of a multiple property listing)

N/A

Number of contributing resources previously listed in the National Register

0

6. Function or Use

Historic Functions

(Enter categories from instructions.)

Domestic/single dwelling

Domestic/secondary structure

Agriculture/agricultural field

Agriculture/storage

Agriculture/animal facility

Agriculture/agricultural outbuilding

Agriculture/processing

Religion/religious facility

Funerary/cemetery

Transportation/railroad

Transportation/road

Current Functions

(Enter categories from instructions.)

Domestic/single dwelling

Domestic/secondary structure

Agriculture/agricultural field

Agriculture/storage

Agriculture/agricultural outbuilding

Religion/religious facility

Funerary/cemetery

Transportation/railroad

Transportation/road

7. Description

Architectural Classification

(Enter categories from instructions.)

Early Gothic Revival

Materials

(Enter categories from instructions.)

foundation: Stone; Wood Log

walls: Wood Log; Wood Weatherboard; Wood

roof: Metal

other: _____

Hugh Murphy House and Murphy Family Farm
Name of Property

Knox County, Tennessee
County and State

Narrative Description

(Describe the historic and current physical appearance of the property. Explain contributing and noncontributing resources if necessary. Begin with a **summary paragraph** that briefly describes the general characteristics of the property, such as its location, setting, size, and significant features.)

Summary Paragraph

The Murphy Family Farm is approximately 190 acres in northeastern Knox County, just outside the city limits of Knoxville, Tennessee. It consists of the circa 1841 Hugh Murphy House, smokehouse, spring house, sterilization house, chicken coop, woodshed, two cemeteries, former barn site, former log cabin site and historic field patterns.

Narrative Description

1. Hugh Murphy House (c. 1841, 1925, 2009, contributing building)

The Hugh Murphy House is located in Grassy Valley, at 4508 Murphy Road in Knoxville, Knox County, Tennessee. It sits near the Murphy Creek, facing Murphy Road to the southwest and Washington Pike to the southeast, with a railroad line between the house and Washington Pike and paralleling Washington Pike. Land for the rail line was purchased in 1877 by the Powell Valley railroad. The Hugh Murphy House, according to a 1950 family history written by Robert M. Murphy Sr. (Hugh's grandson) was built c. 1841 by Hugh Murphy assisted by James Murphy, Abraham Stoffle, Abner White and Hugh Crawford.

BUILDING HISTORY

Hand hewn logs used in the foundation were felled on the property, and the bricks used in the chimneys were handmade on site. Robert M. Murphy's 1950 narrative describes the original house as a "pretentious structure using logs of heart pine and a lean-to back porch."

The house sits on a rolling portion of the farm. The two sides of the property facing the streets are characterized by a gentle, downward slope. The two-story, Gothic Revival dwelling uses balloon frame construction with horizontal heart pine wood siding. Hand adzed and sawn timbers are used for the structural framing, with the white oak sills and southern yellow pine corner posts being hand-adzed. Where plaster exists, it is installed on handsplit lathe. The roof deck is wide slices of log southern yellow pine with the outer bark layers still present. The house has a cross gable roof with seven distinct peaks. The foundation was originally brick and stone piles, but the 2009 renovation dug out under the house and poured concrete foundation walls and retaining walls were introduced in a 6 foot deep basement. Evidence of the hand-split white pine wood shakes that were the original roof covering have been found in the attic and pictorial evidence documents the wood shake roof in 1891. The recent rehabilitation (2009) installed a standing seam metal roof.

EXTERIOR

Windows are six feet in height, six over six, double hung wood. Floor joists, corner posts and white oak sills are hand-adzed logs with mortised joints; the southern yellow pine floor joists rest on stone piers. Floor joists are flattened on the bearing sides. Roof decking is sawn boards from logs that still retain the bark on each side. There are two remaining brick chimneys, both interior offset. The newer of these, located in the northeast room now used as a dining room has a brick and concrete base, while the other chimney (located in the southwest master bedroom) has a deep stone base. A band of wood trim extends below the eaves of the house.

The main facade of the house faces southwest and fronts Murphy Road. It is composed of three bays. The front entrance is located in the central bay and has three-light sidelights of with one light each of cobalt, ruby and frosted glass. The entrance to the house is emphasized by a one bay front porch with a gable roof and square posts. On the second story, above the front entrance, is a front gable featuring a Gothic Revival style, pedimented wooden two-sash window with sidelights of cobalt, ruby and frosted glass. This window (installed in 2010) replaced a metal window that appears to have been added c. 1925, and was a likely replacement for a door originally placed above the one-bay front porch. A round sawn wood attic vent is located above the window. A one-story porch wraps around to the northwest and northeast facades, joining a contemporary kitchen addition that continues the roof and dimensions of the screened porch to the northeast corner of the house. The porch ceiling contains two different types of board, indicating that the porch was enlarged, most likely in the 1925 renovation. The kitchen was reconfigured during a 2009. Prior to the 2009 renovation, the kitchen was also reconfigured in the 1925 renovation when a small porch on the west and a breakfast nook on the north side were added.

Hugh Murphy House and Murphy Family Farm
Name of Property

Knox County, Tennessee
County and State

The southeast elevation faces the railroad track and Washington Pike. It features two, two-story gable ends and one, one-story gable end along the right side of this elevation, as well as a metal covered hatch accessing the cellar.

A wrap around porch with one-story, wooden Doric columns continues to the northwest elevation, where the porch is shed roofed. The northeast elevation also features a one two-story gable end with vented pediment and round, sawn-wood attic vent. Two dormers located on the northwest elevation each have six light wood windows with matching trim and vented pediments. The two-story gable end is located to the right of this elevation.

INTERIOR

The interior of the structure is a five-room plan. The formal entry to the house, facing southeast to Murphy Road, was originally a central hall flanked by two rooms, each of which contained a fireplace. It has been altered with the removal of one wall that was once part of the central, front entry hall, separating the hallway from the living room and by the removal of the fireplace originally located in the room to the left. These alterations were probably completed in a c. 19250 renovation. Today the front entrance leads directly into the living room, with a bedroom to the right.

Opposite the formal front entry is a stair hall. An exterior entrance with sidelights, identical to the front entrance, leads into this hallway from the northwest porch.

On the northeast corner of the house, with access from the stair hall, is the dining room, a large room featuring a large, brick fireplace. Leading off to the right (southeast), and accessible from both the hallway and the original structure is a hallway reconfigured in the current renovation. A newly added bathroom laundry room is accessed from this hall, which leads to the reconfigured kitchen located to the rear (northeast) of the dining room. A newly-added bathroom is accessed from the front bedroom.

Upstairs, an L-shaped hallway connects a bedroom over the rear portion of the house with bedrooms over the living room and front bedroom. Two A bathrooms, initially added in the 1925 renovation and renovated in the 2009 renovation, are located above the downstairs bathroom and utility roomdining room.

Floors throughout the Murphy House were originally five or six inch white pine tongue in groove boards. The first floor rooms were modified , c. 1920, in 1925 by the addition of four-inch red and white oak tongue and groove floors which use the original boards as a subfloor. The upstairs spaces still contain the original, exposed pine boards.

Ceilings and walls throughout the house were originally of hand-split lathe covered with plaster. Necessary extensive repairs in this the 2009 renovation have resulted in the removal of some of this plaster and hand-split lathe, although it is retained in the dining room and some upstairs rooms. Except for a window above the kitchen sink and in the bathrooms and in the second story façade, windows are six feet in height and are six-over-six, double hung, wood, trimmed with wood molding and pediment. Window trim throughout the Murphy House exhibits dog-ear trim and is hand planed. Baseboards are hand planed and vary in height from six inches to one foot. All interior doors are two paneled wood.

SMOKEHOUSE

The smokehouse is log construction and has front cantilever with gable end metal roof and hand-planed dovetail joints. Dendrologic dating of the logs by the University of Tennessee demonstrated that the smokehouse and farm house were built at the same time.

WOODSHED

The woodshed is frame, with vertical siding.

CHICKEN COOP

The chicken coop is wood, has three bays and a shed roof.

GARAGE

The garage was remodeled c 1926. It is three bays, wood frame with vertical siding and corn crib in the middle. It has a tin gable end roof and concrete block foundation. The trim on the corn crib door features hand adzed supports; this trim and the door match the same elements used throughout the house.

STERILIZING HOUSE and SPRING HOUSE

Hugh Murphy House and Murphy Family Farm

Name of Property

Knox County, Tennessee

County and State

The sterilizing house has vertical wood boards, gable, tin roof, brick foundation on one side and stone piers on the other. Windows are fixed, wood, eight lights.

The spring house has a concrete foundation, vertical wood siding, gable end roof, fixed wood windows with 6 lights. Log beams and hand adzed joists. Floor has nine inch planks.

Hugh Murphy House and Murphy Family Farm
Name of Property

Knox County, Tennessee
County and State

8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- ☒ A Property is associated with events that have made a significant contribution to the broad patterns of our history.
- ☐ B Property is associated with the lives of persons significant in our past.
- ☒ C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- ☐ D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations

(Mark "x" in all the boxes that apply.)

Property is:

- ☐ A Owned by a religious institution or used for religious purposes.
- ☐ B removed from its original location.
- ☐ C a birthplace or grave.
- ☒ D a cemetery.
- ☐ E a reconstructed building, object, or structure.
- ☐ F a commemorative property.
- ☐ G less than 50 years old or achieving significance within the past 50 years.

Areas of Significance

(Enter categories from instructions.)

Agriculture

Exploration/Settlement

Religion

Period of Significance

1797 to 1962

Significant Dates

May 1797 – Robert Murphy acquired first deed to
Murphy Family Farm

c. 1841 – Hugh Murphy house and smoke
constructed

Significant Person

(Complete only if Criterion B is marked above.)

N/A

Cultural Affiliation

N/A

Architect/Builder

Edward Legg (supposed)

Period of Significance (justification)

The first deed to the Murphy Family Farm was acquired on May 24, 1797 from John Crawford for 115 acres along White's Creek. Another 50 acres was acquired on July 1, 1797. Grants from the State of Tennessee were acquired on March 12, 1819 for 15 acres and March 10, 1826 for 12.5 acres. The initial deed is the earliest documented evidence of the Murphy family settling in Knox County. The Murphy Family Farm is significant to this day because it maintains original fence lines and agricultural fields, two family cemeteries and spring house and other outbuildings that reflect the agricultural settlement and production from the 1890s-1910s. 1962 represents fifty (50) years prior to this application being filed.

Hugh Murphy House and Murphy Family Farm
Name of Property

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The Hugh Murphy House was built circa 1841. Ann Bennett, the Knox Metropolitan Planning Commission historical expert, opined that the baseboards and woodwork in the house indicated that it was built between 1820 and 1850. Dendrochronological testing indicated [REDACTED]. University of Tennessee archeologist Dr. Charles Faulkner examined the house during the 2009 restoration when it was possible to view all of the interior framing. After examining the style, braced frame construction and nails he estimated that the house dated later than 1835 but not too long after 1840. After learning that Hugh Murphy was married to Sarah White in 1841, Dr. Faulkner and Ms. Bennett agreed that the date appeared plausible, and also fit the narrative in the family history that indicated Robert Murphy was living in his son's house later in life (Robert Murphy died in 1850). In the absence of further evidence, the date of circa 1841 was adopted as the build year of the Hugh Murphy House. The structure retains its Gothic Revival architecture, along with most of the original framing and exterior siding, the original interior trim, doors, windows and one of the four (4) original chimneys. The structure is still historically significant due to the characteristics of the period.

Criteria Considerations (explanation, if necessary)

Statement of Significance Summary Paragraph (Provide a summary paragraph that includes level of significance and applicable criteria.)

Narrative Statement of Significance (Provide at least **one** paragraph for each area of significance.)

The Murphy House (1841) was built by Hugh Murphy on land owned by his father, Robert. The house is in a Gothic Revival style, and is significant for its architectural design and construction materials, for the early outbuildings and the picture of agricultural settlement still present on the land surrounding the house, and for its reflection of the importance of the Murphy family over time.

Hugh McNeil Murphy was the son of Robert Murphy and Martha McNeil Murphy, born in 1804 in Knox County, Tennessee. Hugh's father, Robert Murphy, was born in 1757 in Londonderry, Ireland. Family history says that Robert Murphy and his younger sister were shanghaied by sailors and brought to America in the hold of a ship. Robert Murphy's name next appears in the records of the Revolutionary War listing of non-commissioned officers and privates of the Virginia Continental Line of Defenses (February-April, 1783), when Robert would have been aged 26.

In 1785 Robert married Martha McNeil in Max Meadows, Virginia. In 1797, Robert Murphy and his family arrived in Grassy Valley where the land is located. They were traveling in a covered wagon on their way to Murfreesboro, a town which

Hugh Murphy House and Murphy Family Farm

Name of Property

Knox County, Tennessee

County and State

Robert Murphy's half-brother had previously named. They camped there overnight and were approached the next morning by William Anderson, who had recently moved to the vicinity and purchased land from another neighbor, John Crawford. A deed dated May 24, 1797, established Robert Murphy's ownership of 115 acres along White's Creek, purchased from John Crawford, who in turn purchased part of an original land grant from the state of North Carolina to Fred Adair and John Adair. In July of 1797, Murphy bought an additional 50 acres on White's Creek from John Edminton. Additional landholdings came from a 15 acre grant from the State of Tennessee in 1819 and another 12.5 acre grant from the State in 1826. By 1826, Robert Murphy's farm totaled approximately 192.5 acres, and was used to grow corn, potatoes, hay, flax seed, flour, butter, honey, chickens; the Murphy farm also sold yard of woolen, cotton and linen cloth from their looms. .

Robert Murphy built the original home on the land, a two story log house, since demolished, that was located west of the Murphy House and near one of the many springs on the land. Robert Murphy lived until 1850, while Martha McNeil Murphy lived until 1847; both are buried in the Old Murphy Cemetery near the Murphy Home at 4508 Murphy Road.

Hugh Murphy owned the Robert Murphy farm with his brother William Murphy; each had a one-half interest in the land that they inherited at the time of Robert Murphy's death in 1850. However, William Murphy deeded his interest to Hugh shortly after Robert Murphy's death, according to the provisions of their father's will.

Hugh Murphy was married first to Sarah White, who was the mother of his seven children. Hugh Murphy was the organizer of and a teacher at Fancy Hill School, a private school located in the community. The school was organized in 1836, with Hugh pledging to teach reading, writing and arithmetic to thirteen sets of parents in the community. He was 26 at the time, and five years later (1841) married Sarah White, who was the mother of his seven children. After Sarah White Murphy's death, he married Dicey Melinda LaRue. He was also prominent in the community, and often acted as the banker for many of his neighbors.

The Hugh Murphy House is described as the grandest in the Ritta Community at the time of its construction. The house sat on a rise and was built in the Victorian Gothic design, with a steeply pitched roof and massive chimneys. With its wall covering of weatherboard, and its stained glass transoms and imposing front porch, it must have been a startling contrast to the homes of many neighbors, who were still living in log houses in 1841.

The Murphy family has continued to live in the Ritta Community since first settling there. After Hugh Murphy's death in 1877, Murphy Springs Farm was inherited by his widow Dicey, and sons Robert, John and Rush. Dicey Murphy transferred her land to John Rush Murphy in 1899 in exchange for maintenance and support for the rest of her life. Robert Fillmore Murphy, Hugh's son, died in 1890 of typhoid fever. His wife Sarah French Murphy and his step-mother (Dicey) cared for the three children and after Sarah's death in 1890, Dicey and John Rush Murphy, their uncle, raised them. In 1925, those children (Alvin R. Sr., R. M. Sr., and Mary Ann Murphy Koger) were given the land that had belonged to Robert Fillmore Murphy, Dicey Murphy and himself. This land transfer formed the basic division that the farm still encounters today. Kevin Murphy, the owner of the Hugh Murphy House, is the seventh generation of descendants of Robert Murphy, who settled the land in over 200 210 years ago.

The Hugh Murphy House is a rare example of the Gothic Revival architectural style in Knox County. Even more unusual is the degree to which the building retains its original detailing. The house is a large one, prominently exhibiting the prestige of the man that built it. The building contains a blend of hand adzed timbers and beams, hand split lathe, original wide board trim and floors, hand planed doors and other original details. Early farm buildings on the property that speak to the need for self-sufficient farming include the smokehouse, constructed at about the same time as the main house, and the buildings associated with the farm's later economic role as a dairy farm.

Hugh Murphy House and Murphy Family Farm
Name of Property

Knox County, Tennessee
County and State

Developmental history/additional historic context information (if appropriate)

9. Major Bibliographical References

Bibliography (Cite the books, articles, and other sources used in preparing this form.)

Unpublished family history, Robert M. Murphy, Sr., undated.

Previous documentation on file (NPS):

☐ preliminary determination of individual listing (36 CFR 67 has been requested)
☐ previously listed in the National Register
☐ previously determined eligible by the National Register
☐ designated a National Historic Landmark
☐ recorded by Historic American Buildings Survey # _____
☐ recorded by Historic American Engineering Record # _____
☐ recorded by Historic American Landscape Survey # _____

Primary location of additional data:

☒ State Historic Preservation Office
☐ Other State agency
☐ Federal agency
☐ Local government
☐ University
☒ Other

Name of repository: MTSU Center for Historic Preservation

Historic Resources Survey Number (if assigned): _____

10. Geographical Data

Acreage of Property 190

(Do not include previously listed resource acreage.)

UTM References

(Place additional UTM references on a continuation sheet.)

1 _____
Zone Easting Northing

2 _____
Zone Easting Northing

3 _____
Zone Easting Northing

4 _____
Zone Easting Northing

Hugh Murphy House and Murphy Family Farm
Name of Property

Knox County, Tennessee
County and State

Verbal Boundary Description (Describe the boundaries of the property.)

Boundary Justification (Explain why the boundaries were selected.)

11. Form Prepared By

name/title _____
organization _____ date _____
street & number _____ telephone _____
city or town _____ state _____ zip code _____
e-mail _____

Additional Documentation

Submit the following items with the completed form:

- **Maps:** A **USGS map** (7.5 or 15 minute series) indicating the property's location.
A **Sketch map** for historic districts and properties having large acreage or numerous resources. Key all photographs to this map.
- **Continuation Sheets**
- **Additional items:** (Check with the SHPO or FPO for any additional items.)

Photographs:

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map.

Name of Property:

City or Vicinity:

County:

State:

Photographer:

Date Photographed:

Description of Photograph(s) and number:

Hugh Murphy House and Murphy Family Farm
Name of Property

Knox County, Tennessee
County and State

1 of ____.

Property Owner:

(Complete this item at the request of the SHPO or FPO.)

name Kevin P. Murphy
street & number 4508 Murphy Rd telephone 865-687-8799
city or town Knoxville state TN zip code 37918

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Office of Planning and Performance Management, U.S. Dept. of the Interior, 1849 C. Street, NW, Washington, DC.

Subject: RE: Information on Murphy Farm
From: "Bean, Jana L" <beanjl@cdmsmith.com>
Date: 5/9/2012 6:33 PM
To: "Kevin P. Murphy" <murphysprings@gmail.com>

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I have marked the general location of the cemeteries as noted on a 1978 topographic map. But if these are not the cemeteries you name then please mark the locations.

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Jana Bean

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-KN13232 southeast elev.jpg-----



-Attachments:

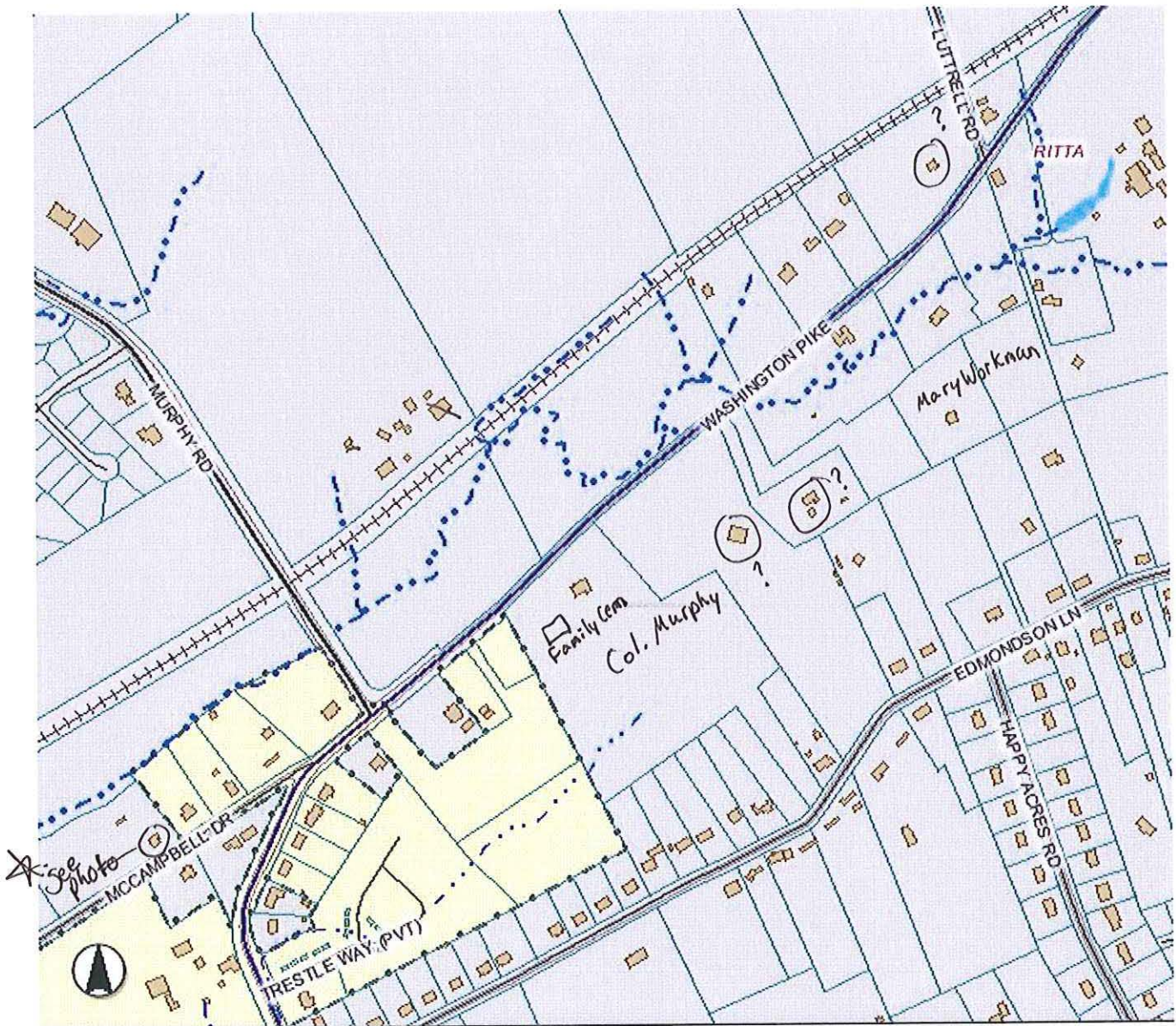
murphy questions.pdf

275 KB

KN13232 southeast elev.jpg

922 KB

*Murphy
Chapel
Site & Cem.*



© KGIS 2012

0 552ft

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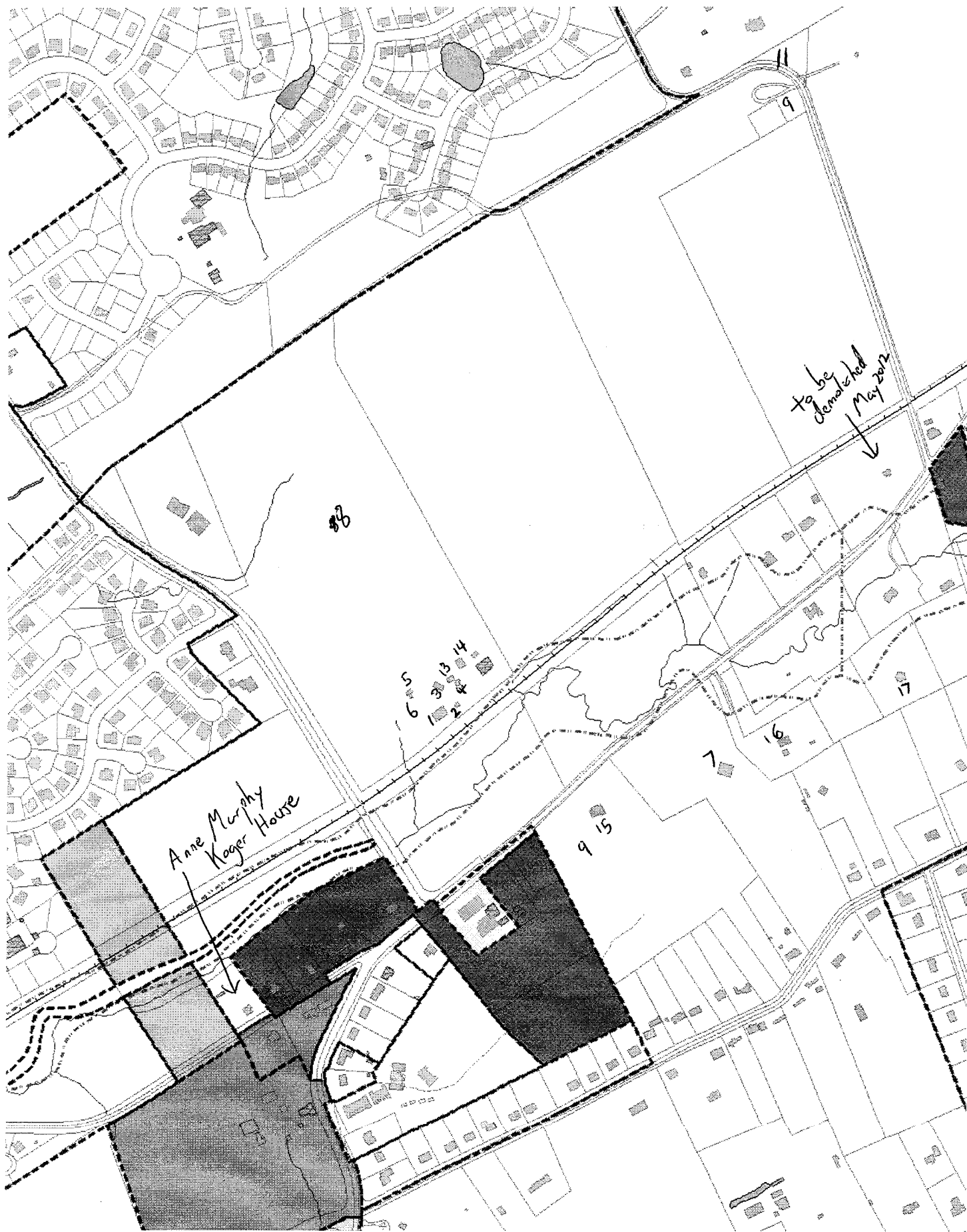
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-TaxMap of Sites.bmp-





Washington Pike Roadway Project



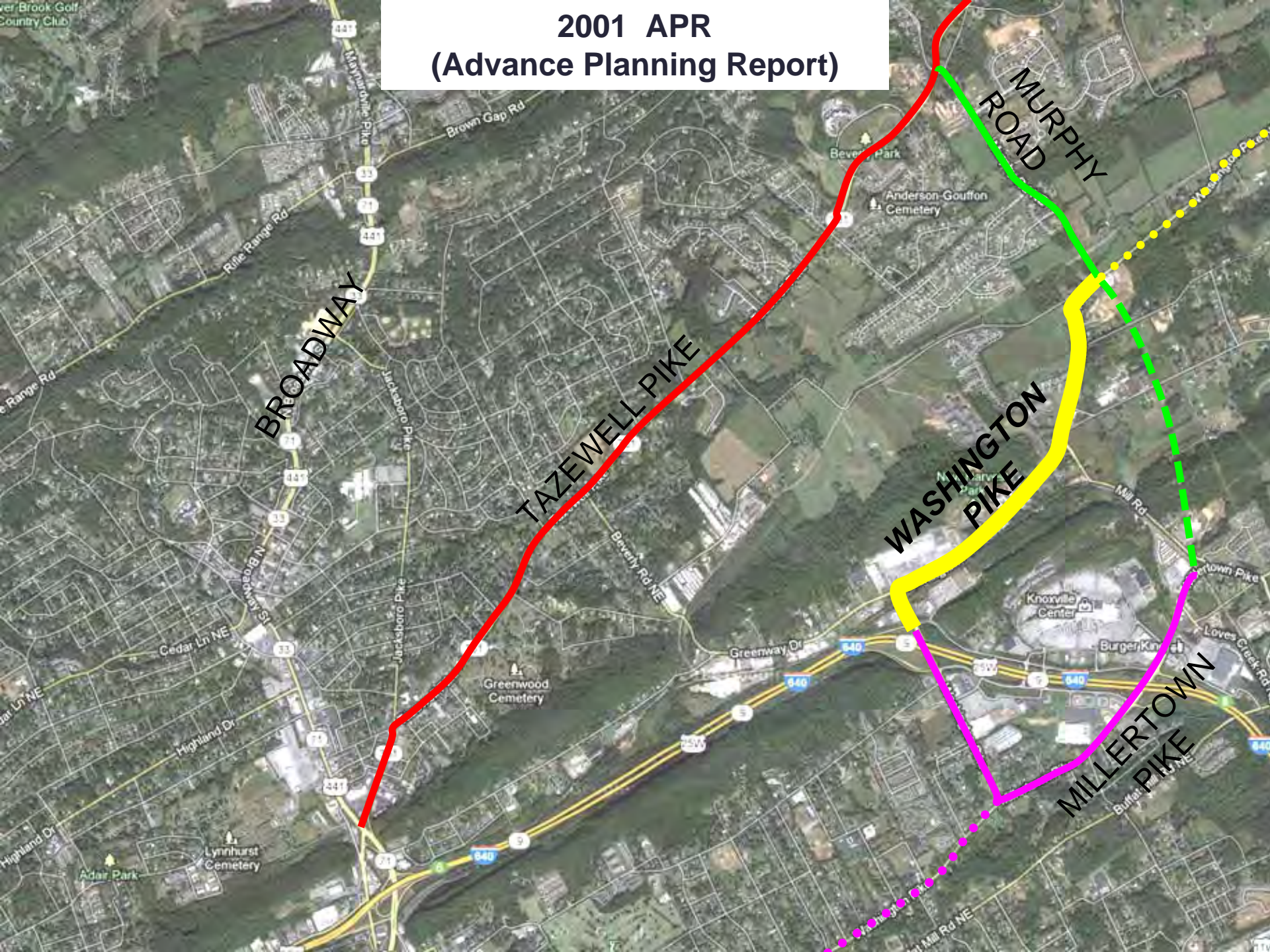
CITY OF KNOXVILLE

**CDM
Smith**

Project History

- 2001 – City prepared Advance Planning Report (APR) for northeast sector road network
 - Identified project needs and completed Phase 1 Environmental screening
- 2010 – City prepared updated Transportation Planning Report (TPR) for Washington Pike Project
 - Reevaluated environmental resources
- 2011 – Washington Pike Roadway Project (from I-640 to Murphy Road)
 - Consultant Selection
 - NEPA Document Determination = Categorical Exclusion

2001 APR
(Advance Planning Report)



BROADWAY

TAZEWELL PIKE

WASHINGTON PIKE

MILLERTOWN PIKE

MURPHY ROAD

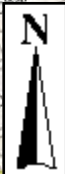
Peak Hour Traffic

AM Peak Hour





PM Peak Hour

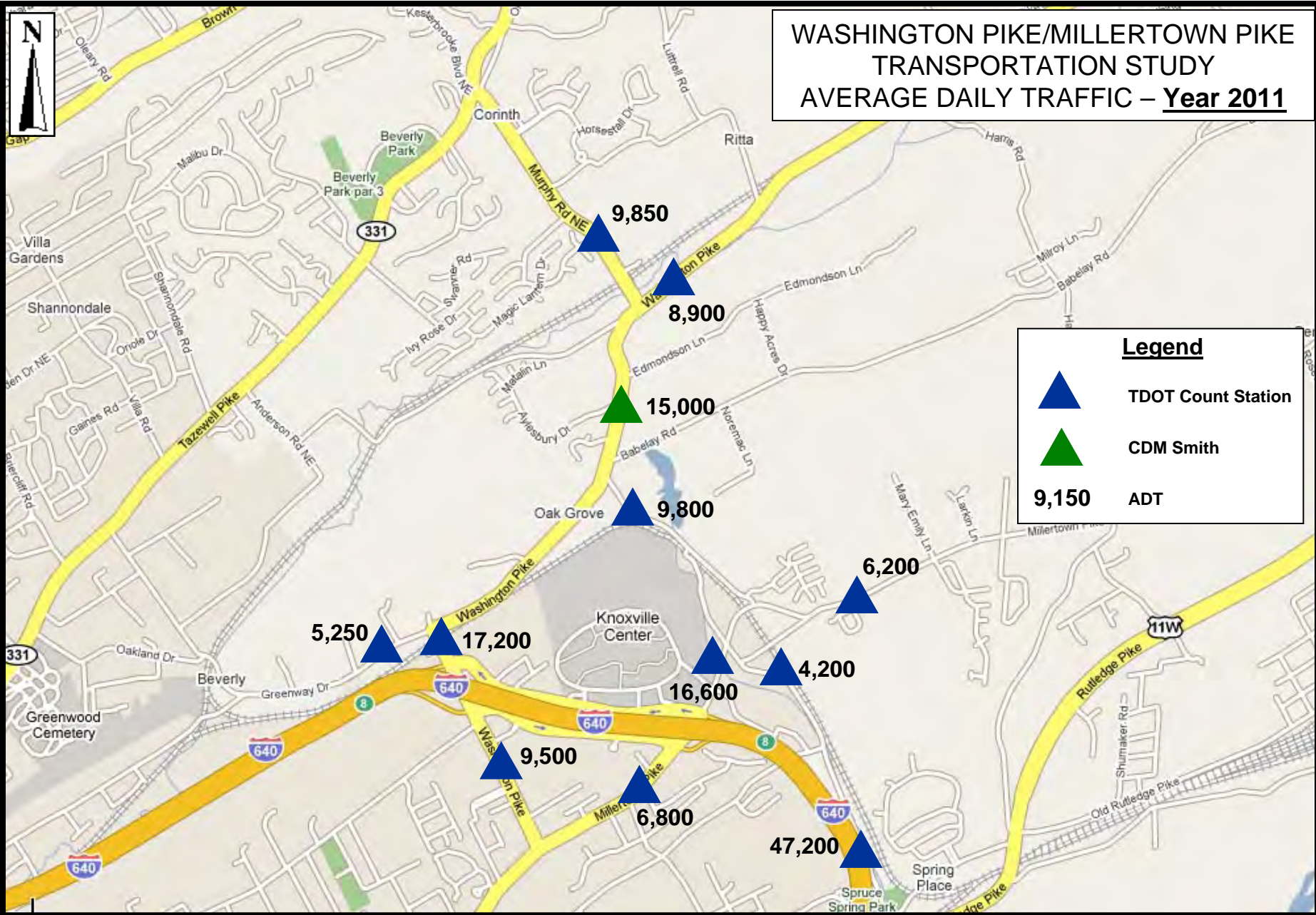


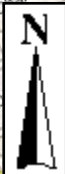


WASHINGTON PIKE/MILLERTOWN PIKE TRANSPORTATION STUDY AVERAGE DAILY TRAFFIC – Year 2011

Legend


-  TDOT Count Station
-  CDM Smith
- 9,150** ADT






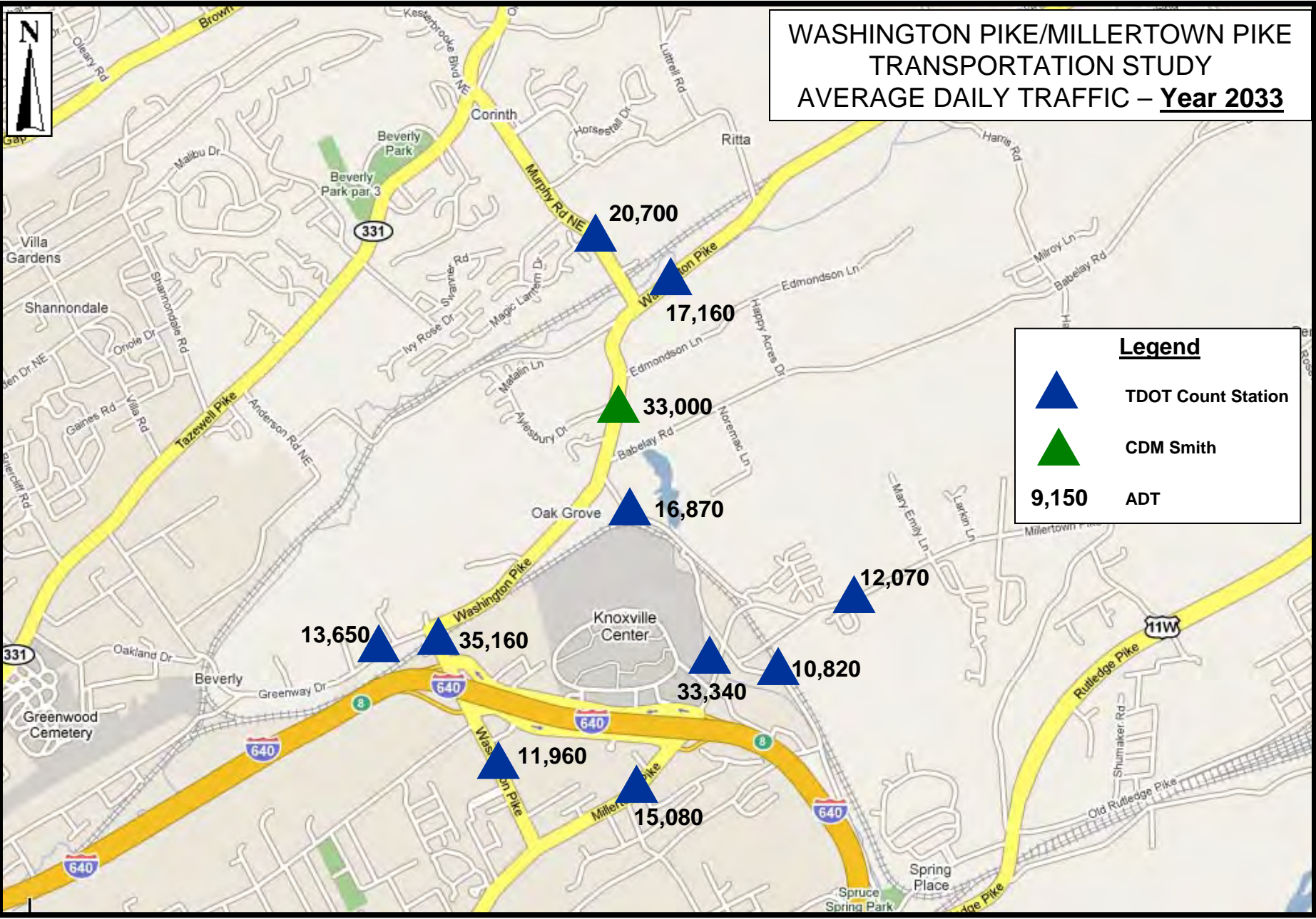
WASHINGTON PIKE/MILLERTOWN PIKE
TRANSPORTATION STUDY
AVERAGE DAILY TRAFFIC – Year 2033

Legend

 TDOT Count Station

 CDM Smith

9,150 ADT



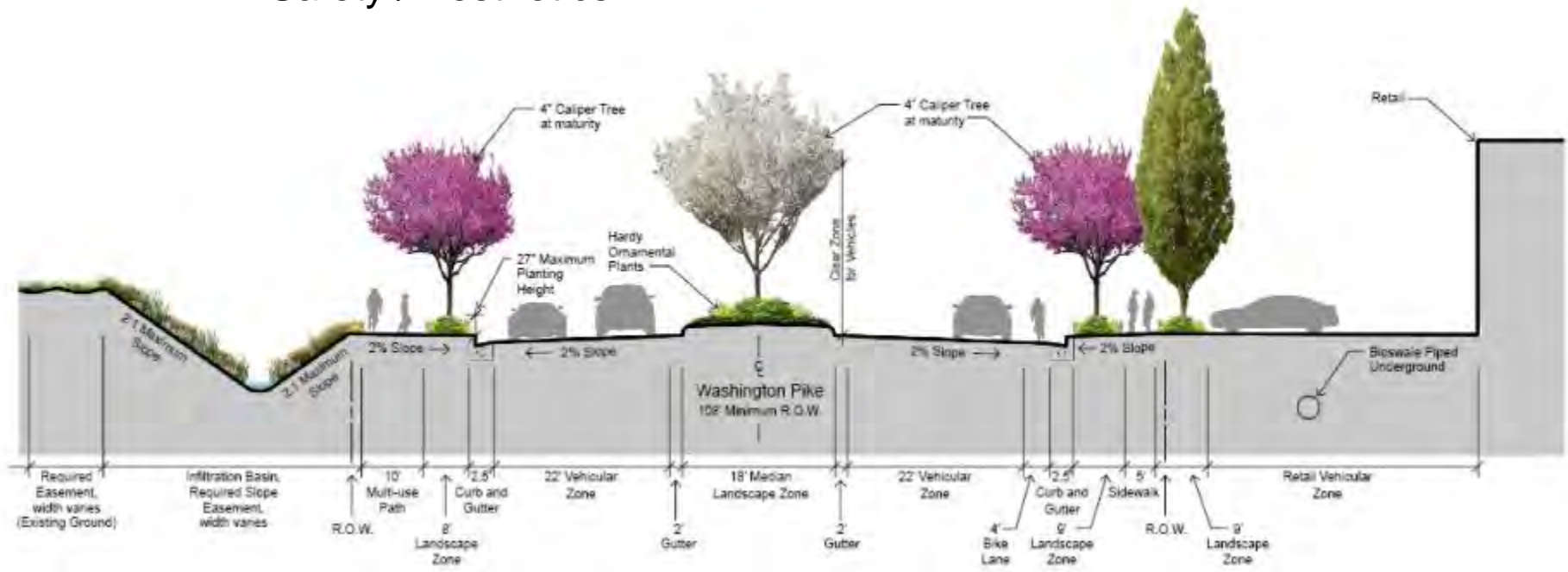
Typical Section

- 4-lanes with turn lanes at intersections
 - Median divided where practical for aesthetics and safety
 - May include infiltration basins for water quality treatment
- 40mph design speed
- Serves multi-modes of transportation
- Minimize ROW impacts

Typical Section

Design Flexibility to Provide:

- Adequate traffic capacity
- Serve multi-modes of transportation
- Safety / Aesthetics



Water Quality

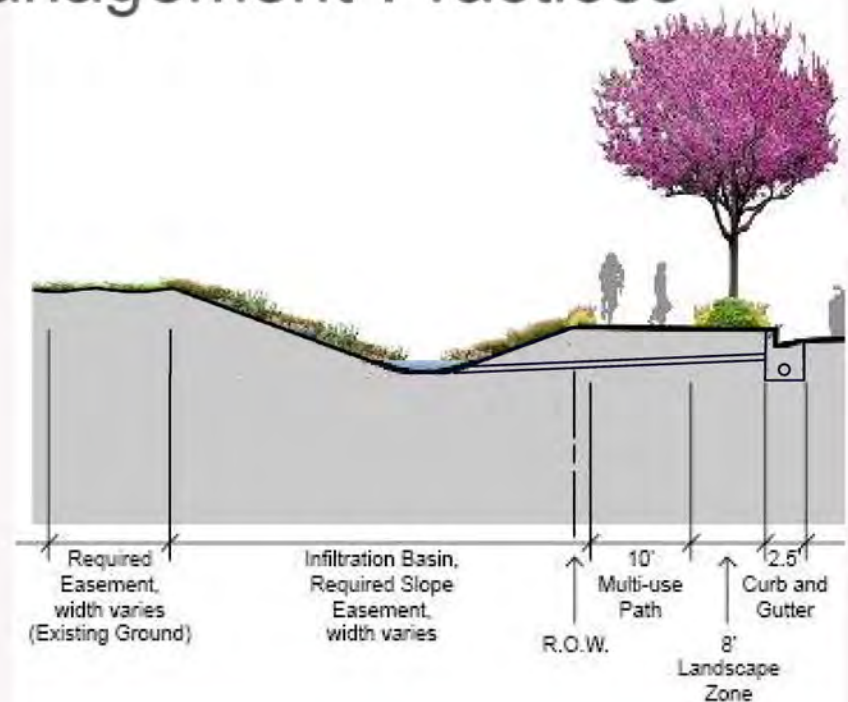
- First flush
- Infiltration Systems
- Combination of Best Management Practices

- Pretreatment measures

- Water Quality Inlets
- Grass Swales
- Filter Strips
- Check Dams
- Riprap Aprons

- Multiple systems

- Volume



Neighborhood Connections



New Harvest Park



Retail Center



Murphy Road Intersection



640 Intersection

Project Scope / Schedule

TDOT Locally Managed Project



- Environmental Clearance
(Currently Underway – Anticipated approval 2013)
- Survey & Design / Public Involvement (18 months \pm)
- Right of Way Process (12 months \pm)
 - Utilities / Railroad Coordination
- Bidding / Construction (TBD)

Subject: Summary of meeting with Mayor Rogero on Thurs re: Washington Pike widening
From: "Kevin P. Murphy" <murphysprings@gmail.com>
Date: 6/2/2012 8:42 PM
To: Lisa Starbuck <lisa@aobe.com>, Bob Wolfenbarger <rlw03@bellsouth.net>, "abshna@aol.com" <abshna@aol.com>, Jamie Rowe <ombroligo@aol.com>, "genemathis@bellsouth.net" <genemathis@hotmail.com>, Dan Anderson <danderson@cityofknoxville.org>
CC: james McMillan <james-mcmillan@att.net>, Rebecca Longmire <rebeccalongmire@hotmail.com>, Laura Cole <cole5137@bellsouth.net>, dave.wright@knoxcounty.org, Nick Della Volpe <ndellavolpe@bellsouth.net>

Hi all,

A quick summary of the meeting with Mayor Rogero and her staff on Thursday. The PowerPoint that Bob Bowers and Jim Haggerman presented at the ABSHNA meeting on Monday the 21st is also attached.

Attending:
ABSHNA - Ronnie Collins, Gene Mathis, Bob Wolfenbarger
Kevin Murphy
Jamie Rowe
Mayor Rogero
Christi Branscom, Director, Public Works
Jim Haggerman, Director, City Engineering
Tom Clabo, Deputy Director, City Engineering

We spent about 60 minutes with the mayor and her staff. We presented the various points: widening Washington Pike will create a new commercial corridor and sprawl; we need to spend our available funds in the mall area to keep that commercial center strong and prevent further hemorrhaging; we would like an overall transportation plan for the area; the city and county need to really look and decide if the Murphy Road extension will happen or not, because that indecision is impacting the entire area, including Tazewell Pike. Jamie said she thought Fountain City Town Hall would be very supportive of our position, especially because this impacts traffic cutting through Fountain City as well.

The mayor said she'll talk it over with staff and also meet with the County to talk about their plans for Millertown Pike and the Murphy Road extension.

Tom and Jim did tell us that there is a project that is almost ready for construction to put in a third lane on Millertown Pike between Kinzel Way and Loves Creek; the owner of that parcel just north of Loves Creek is about to file a new plat that will have the right-of-way dedicated. They are not making other improvements at the Loves Creek Rd / Millertown Pike intersection though.

--Kevin

—Attachments:—

12-05-21_Washington Pike neighborhood meeting.pptx

2.8 MB



**STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION**

ENVIRONMENTAL DIVISION

SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

August 17, 2012

The Cherokee Nation
17675 South Muscogee
Tahlequah, OK 74465
Attn: Dr. Richard Allen, Policy Analyst

SUBJECT: Section 106 Initial Coordination for Proposed Washington Pike Project from I-640 to Murphy Road NE,
Knoxville, Knox County, Tennessee

Dear Dr. Allen:

The Tennessee Department of Transportation (TDOT) in cooperation with the Federal Highway Administration (FHWA) is proposing to improve Washington Pike from I-640 to Murphy Road NE in Knox County (maps attached). The project will widen the road from two lanes to four with turn lanes as required at intersecting side streets as well as add curb and gutter, sidewalks, and bike lanes; some sections of the road already feature a center turn lane. The intersection with McCampbell Drive near Murphy Road NE will be realigned. The project may eliminate or reduce some curb and gutter section with construction of grass swales. The approximate length of the project is 1.73 miles. Additional right-of-way will be needed.

The National Historic Preservation Act (NHPA) recognizes that federally funded undertakings, like the subject project, can affect historic properties to which your tribe attaches religious, cultural, and historic significance. In accordance with 36 CFR 800 regulations implementing compliance with Section 106 of the NHPA, I would like to know if you have information you could share with me about tribal concerns in the project area and if you wish to be a consulting party on the project? Early awareness of your concerns can serve to protect historic properties valued by your tribe.

If you act as a consulting party you will receive archaeological assessment reports and related documentation, be invited to attend project meetings with FHWA, TDOT, and the Tennessee State Historic Preservation Office (TN-SHPO), if any are held, and be asked to provide input throughout the process. If you choose to not act as a consulting party at this time, you can do so at a later date simply by notifying me.

Please respond to me via letter, telephone (615-741-5257), fax (615-741-1098), or E-mail (Gerald.Kline@tn.gov). I respectfully request responses (email is preferred) to project reports and other materials within thirty (30) days of receipt if at all possible. Thank you for your assistance.

Sincerely,

A handwritten signature in cursive script that reads "Gerald Kline".

Gerald Kline
Transportation Specialist I
Archaeology Program Manager

Enclosure

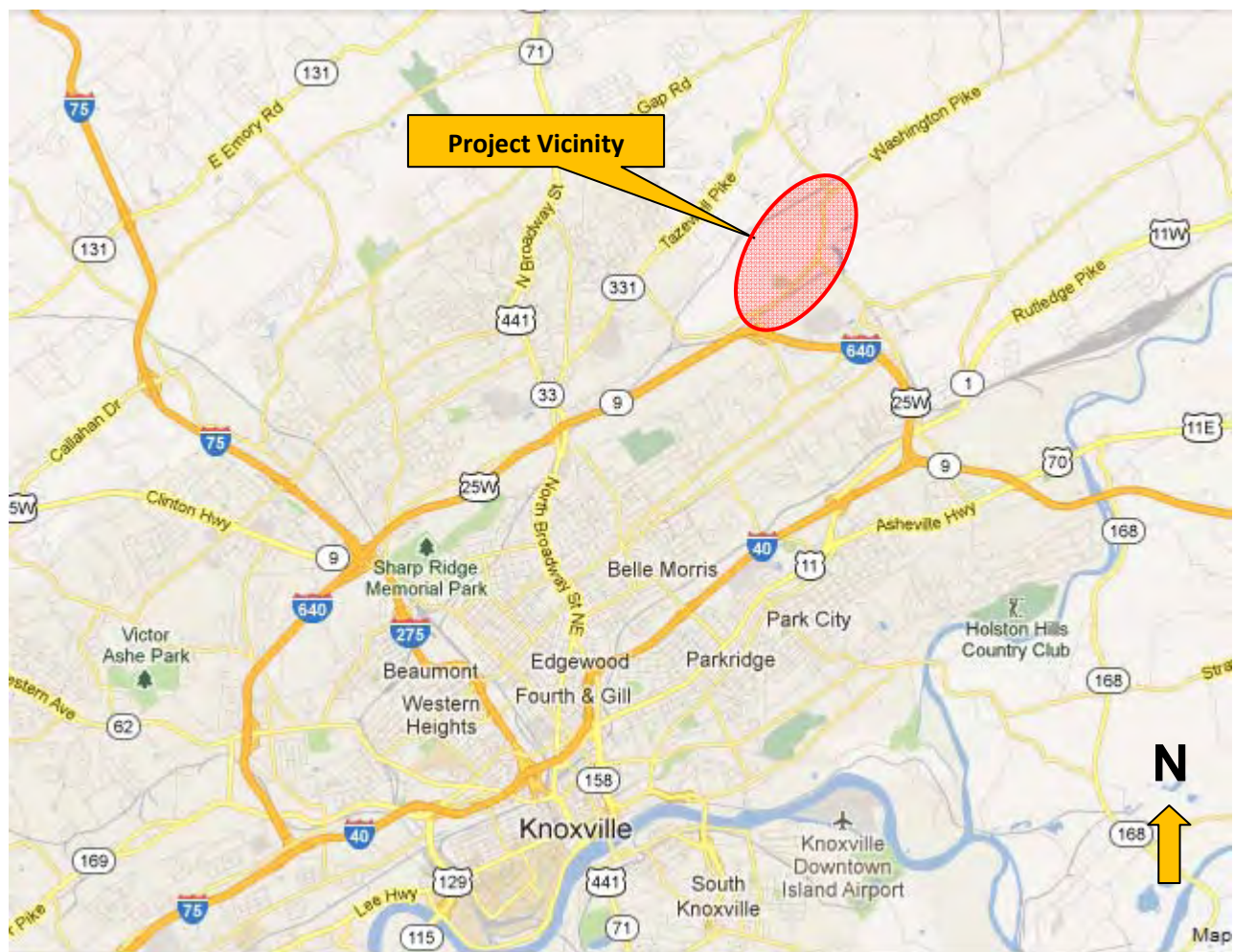
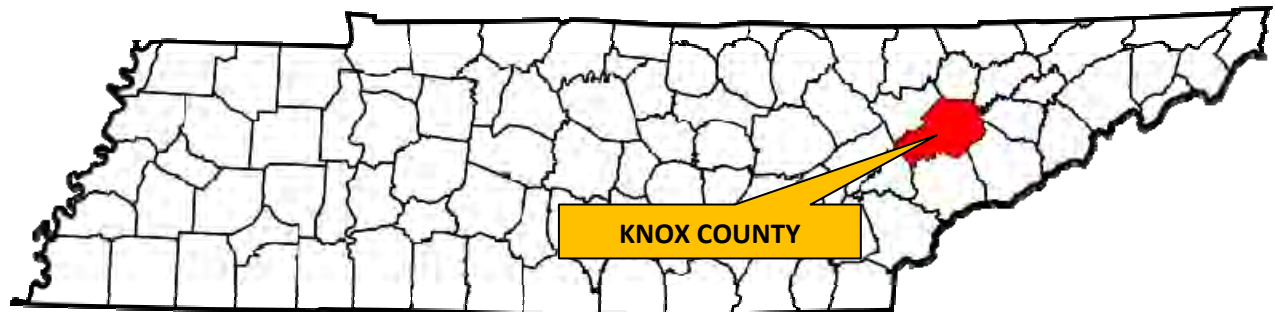
cc: Robin Dushane, Eastern Shawnee Tribe of Oklahoma
Kim Jumper, Shawnee Tribe
Lisa LaRue-Baker, United Keetowah Band of Cherokee Indians
Tyler Howe, Eastern Band of Cherokee Indians



WASHINGTON PIKE PROJECT

FROM I-640 TO MURPHY ROAD NE

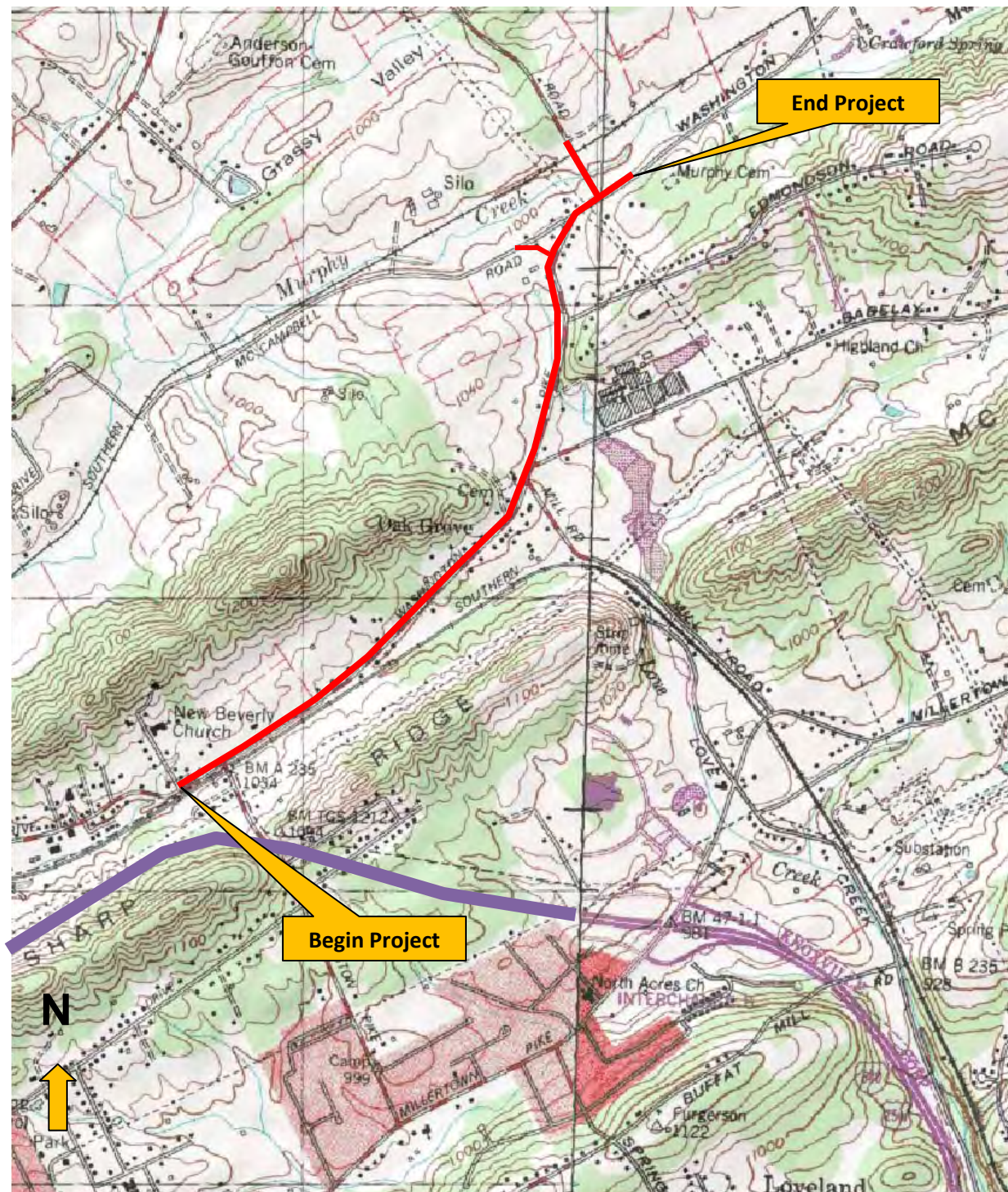
KNOXVILLE, KNOX COUNTY, TENNESSEE



PROJECT VICINITY MAP



Project Location Map



Project Location Map – USGS Fountain City (146 SW) & John Sevier (146 SE)

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From: "Kevin P. Murphy" <murphysprings@gmail.com>
Date: 10/30/2012 9:00 AM
To: "Bean, Jana L" <beanjl@cdmsmith.com>

Hi Jana,

I haven't made progress on submitting the application to the SHPO unfortunately. If it would help, we can probably get them to issue a letter saying that their preliminary inspection of the property has identified it as a probably candidate for the National Register and that they are awaiting the formal application.

Dates for those other buildings:

Mary Workman house: 1986
Col Robert Murphy house: approx 1965
Robert Murphy Sr house: approx 1920
Robert Murphy barn: approx 1920

--Kevin

On 10/8/2012 12:47 PM, Bean, Jana L wrote:

Hi Kevin,

My report for the Washington Pike Roadway Improvement Project for TDOT has been delayed a few months but I am getting ready to finalize it now. I wanted to check back with you to see if you have made progress on submitting your National Register nomination to the SHPO and if there was any feedback.

Also, I would like to know approximate dates of construction for a few of the houses that are non-contributing such as the Mary Workman house, Col. Robert Murphy house, the Robert Murphy Sr. house, and the Robert Murphy barn which is labeled contributing.

Thank you!

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Historic Structures Survey for the Washington Pike Roadway Improvements Project

Knoxville, Knox County, TN

TDOT PIN # 043090.00

SUBMITTED BY:

**CDM
Smith**

1100 Marion Street, Suite 200
Knoxville, TN 37921

PREPARED FOR:
City of Knoxville, Tennessee
PO Box 1631
Knoxville, TN 37901

OCTOBER 2012

**Historic Structures Survey
for the
Washington Pike Roadway Improvements Project
in Knoxville, Knox County, TN**


Submitted by
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Pursuant to 36 CFR 800 and Section 4(f) Evaluation

Prepared for
City of Knoxville, Tennessee
PO Box 1631
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Management Summary

CDM Smith conducted the historic structures survey portion of the Categorical Exclusion for proposed improvements to Washington Pike in the City of Knoxville in Knox County in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and Section 4(f) of the U.S. DOT Act of 1966. This survey was conducted on behalf of the City of Knoxville and the Tennessee Department of Transportation with funding from the Federal Highway Administration. The project is located along Washington Pike with its western terminus at the I-640 interchange and its eastern terminus at Murphy Road.

A search of the Tennessee State Historic Preservation Office files revealed no resources listed on the National Register of Historic Places (NRHP) in the general vicinity of the project. A historic structures survey was conducted in April 2012 to identify historic resources in the designated project Area of Potential Effect (APE), determine their eligibility for listing on the NRHP, and assess the project's potential effect on eligible properties.

Results of the recent field survey found 14 resources within the APE of which 13 resources were determined not eligible and one resource is recommended eligible for the NRHP. It is the opinion of the consultant that the Murphy Springs Farm (KN-2586) is eligible for the NRHP based on Criteria A as an example of a family farmstead in the Early Settlement of Knox County and Criteria C for its example of Gothic Revival architecture. This property was examined for potential effects by the project. It is the opinion of the consultant that the project as proposed will not impact the NRHP-eligible resource and therefore, the project will have no effects to historic properties under Section 106. Therefore, there would be no Section 4(f) use of a historic property.

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Native American Tribes coordination letter

Tennessee Century Farms Application for Murphy Springs Farm

Letter from Kevin Murphy

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Introduction

CDM Smith conducted the historic structures survey portion of the Categorical Exclusion for the proposed widening of Washington Pike Road in the City of Knoxville in Knox County. The survey was conducted in April 2012 to identify historic properties in the designated Area of Potential Effect (APE), determine the eligibility of historic properties for the National Register of Historic Places (NRHP), and assess the project's potential effect on eligible properties. This survey was conducted, as is required of the Tennessee Department of Transportation (TDOT) and the Federal Highway Administration (FHWA), in compliance with Section 106 of the National Historic Preservation Act of 1966 (NHPA) as amended, Federal Regulation 36 CFR 800, and in accordance with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (NPS 1983). If it is determined that the proposed project would have an adverse effect to a historic property, then FHWA provides the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the effect.

FHWA also is required to assess the applicability of Section 4(f) of the U.S. Department of Transportation Act of 1966, as amended. The project may not "use" an historic property unless there is no prudent and feasible alternative to that use and unless the project includes all possible planning to minimize harm to an historic property. Section 6009 of SAFETEA-LU (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users) was implemented in 2005 to take into account any avoidance or minimization of impacts along with any mitigation or enhancement measures to determine the extent of the impacts to the property. Section 4(f) will be satisfied if it is determined that a transportation project will have only a *de minimis*, or minimal, impact to the historic property.

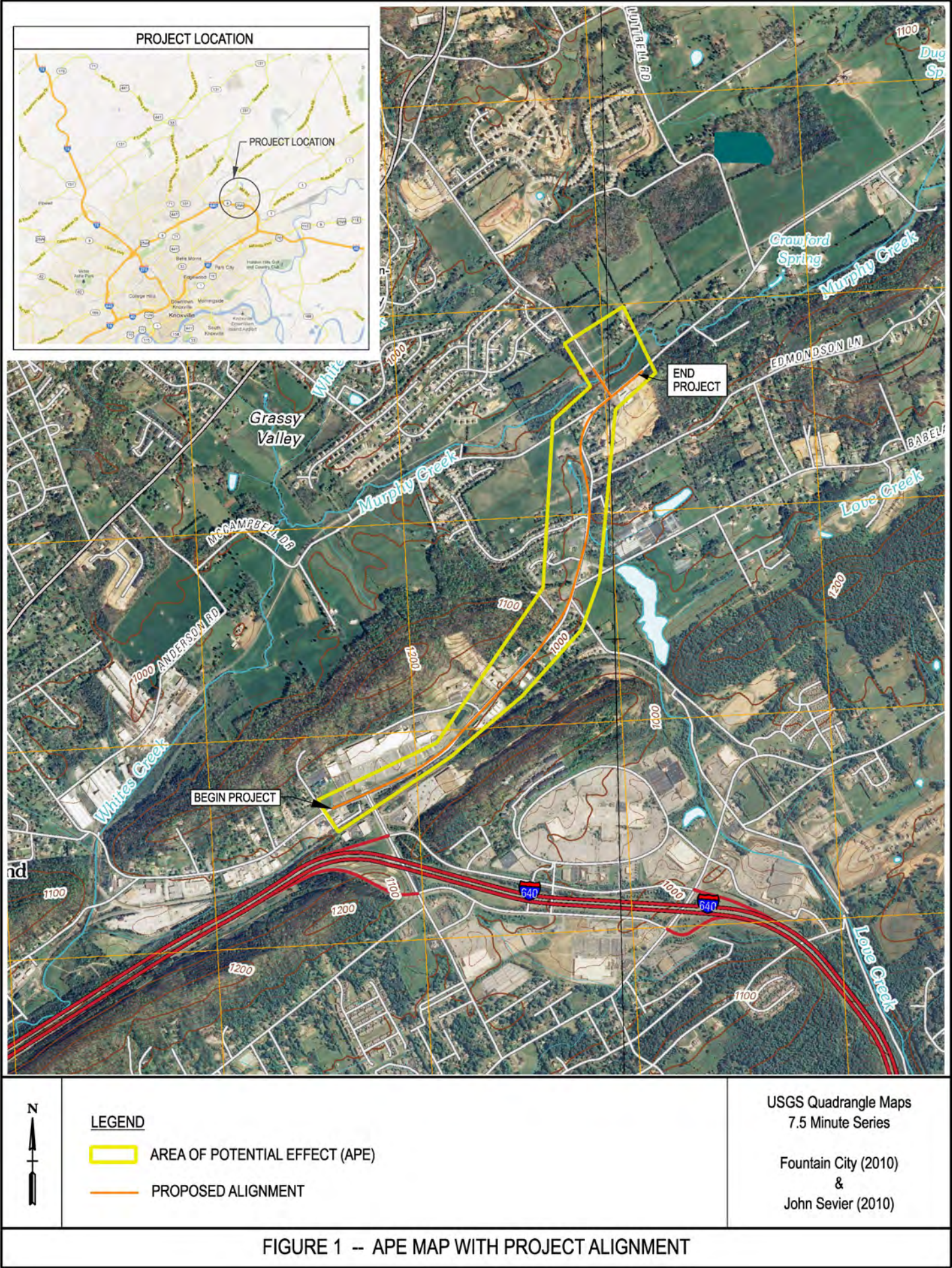
The project is located along Washington Pike with its western terminus at I-640 and its eastern terminus at Murphy Road (see Figure 1 for location). Improvements to Washington Pike would consist of widening to four traffic lanes (two in each direction) with turn lanes as required at the intersecting side streets, and the installation of curb and gutter, sidewalks, and bike lanes. The proposed corridor is 200 feet in width and extends for 1.73 miles. The purpose of the widening of Washington Pike project is to provide a transportation facility that enhances mobility, supports economic development, improves safety, provides alternate modes of travel, and relieves traffic congestion.

Area of Potential Effect

Pursuant to 36 CFR 800 regulations, an Area of Potential Effect (APE) was identified to determine if the proposed project would affect historic resources included in or potentially eligible for the NRHP. An APE is defined in 36 CFR 800.16 (d) as:

the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.

The proposed project is located in a mixed-use area just inside city-limits that includes commercial, rural residential, and new residential subdivisions. The nature of this project includes roadway widening and the addition of sidewalks, curb and gutter, and bike lanes. This led to an APE that takes into account changes in air quality, noise levels, setting, and land use.



The area of potential effect for this project includes the following:

- Parcels adjacent to the project that may be directly impacted;
- Areas within the viewshed of the project as bounded by tree lines or other obstructions to account for changes in setting, and;
- Areas within the potential noise impact area which includes up to 500 feet from the proposed improvements.

(See Figure 1 for a map of the APE)

Methodology

A literature review was conducted at the Tennessee State Historical Preservation Office (TN-SHPO) to identify previous surveys conducted in the area and any resources listed or eligible for listing on the NRHP in the vicinity of the project. The review revealed no resources listed on the NRHP in the project vicinity.

The Knoxville/Knox County Metropolitan Planning Commission conducted a historical and architectural survey of the County between 1982 and 1984 which resulted in a National Register multiple property listing, *Historic and Architectural Resources in Knoxville and Knox County, Tennessee* (Bennett 1994). (Refer to Appendix C for a map.) Three properties were surveyed that are within or near the project APE, the Babelay House (KN-2566), the Murphy House (KN-2586), and the LeCoultré House (KN-2568). The Babelay House and the Murphy House were determined eligible and the LeCoultré House was determined not eligible. The Babelay House is not within the APE for this project due to obstructions to the viewshed. The Murphy House and the LeCoultré House are within the APE and are evaluated later in this document.

Thomason and Associates conducted an architectural survey in 2000 of Tazewell, Washington and Millertown Pikes. (Refer to Appendix C for a map of surveyed properties.) Of the properties surveyed that are within the APE for this project, ten properties, of which seven are extant, were recommended not eligible to the National Register. The survey also recommended that the Babelay House and the Murphy House were no longer eligible for the National Register due to deterioration and neglect of the Babelay House and lack of integrity of its original design of the Murphy House, although this design was present during the 1984 survey.

A field survey was conducted in April 2012 to identify historical resources that may be eligible for the National Register in accordance with National Register Criteria A, B, and C (36 CFR Part 60.4). The field survey revealed 14 properties that were inventoried and evaluated according to National Register criteria. Historical research was conducted at the Tennessee Historical Commission, the McClung Collection at the Knoxville County Public Library, and the University of Tennessee-Map Library to review the history of the area and develop a historic context in which to evaluate the historical significance of these resources. Property owners were interviewed when possible to obtain any pertinent information concerning their respective properties. Documentation for historic resources included color digital photography and notation on the *Fountain City, Tennessee* and the *John Sevier, Tennessee* 7.5 minute USGS topographic maps. In the opinion of the consultant, one inventoried property, the Murphy Springs Farm (KN-2586), meets the eligibility criteria for inclusion in the NRHP.

The eligible property was also evaluated for the potential for impacts by the proposed project in accordance with 36 CFR 800. In the opinion of the consultant, the project as proposed will have no effect to the eligible historic property. Therefore, there will be no Section 4(f) use of a historic property.

Public Participation

The current project is Segment Two of a study developed in 2001 by the City to improve traffic conditions and accommodate future growth in the areas of the Knoxville Center Mall and I-640. The larger study involved four segments:

- Segment One- Widen Millertown Pike from Mill Road to I-640
- Segment Two - Widen Washington Pike from I-640 to Murphy Road
- Segment Three- Widen Washington Pike from I-640 to Millertown Pike
- Segment Four- Widen Millertown Pike from I-640 to Washington Pike

Working Group meetings were held with interested parties on July 18 and October 9, 2006 to discuss improvements to Washington Pike and Millertown Pike. Representatives were from the Alice Bell-Spring Hill Association, Knoxville Center Mall Area Businesses, Knox County Metropolitan Planning Commission, Northeast Knox Preservation Association (NEKPA), Fountain City, Knox County, and the City of Knoxville.

Comments from groups representing historical interests were as follows. Alice Bell-Spring Hill Association was supportive of improvements south of I-640 which is the area utilized by their residents most. NEKPA expressed concern for placing priority on improvements north of I-640. Fountain City expressed support of extending Murphy Road to alleviate Tazewell Pike traffic.

On August 17, 2012, TDOT mailed letters to five groups representing Native American interests and asked them if they wished to participate in the historic review process as consulting parties. Letters were sent to the following:

Tyler Howe
Eastern Band of Cherokee Indians

Lisa LaRue-Baker
United Keetoowah Band of Cherokee

Richard Allen
Cherokee Nation

Robin Dushane
Eastern Shawnee Tribe of Oklahoma

Kim Jumper
Shawnee Tribe

No responses were received. Copies of the consulting party invitation letters are in Appendix B.

Appendix B also contains a list of historic groups, county historians, and other such individuals or organizations that might be interested in the proposed project. A copy of this report will be mailed to these interested groups and individuals.

A NEPA public hearing will be held by the City upon completion and approval of the Categorical Exclusion document and development of Preliminary Roadway Plans.

Environmental Setting

Knoxville lies in the Ridge-and-Valley physiographic region in eastern Tennessee which is between the Appalachian Plateau to the west and the Blue Ridge Mountains to the east. The long ridges and corresponding valleys lie generally northeast to southwest. Cultivation typically has occurred in the valleys whereas the ridges have remained forested. Water sources in the area include the Holston and French Broad Rivers which come together to form the Tennessee River at Knoxville. Numerous creeks feed the Tennessee River including First and Second Creeks. First Creek comes from the north of downtown Knoxville with White's Creek as a tributary from the east. Murphy Creek extends eastward off of White's Creek. Both feed the Grassy Valley area that is between Black Oak Ridge to the north and Sharp Ridge to the south. The Grassy Valley area is so named for the lush grasses located between the steep slopes of the ridges. This was an excellent area for agricultural development.

The project is in an area that is commercial at the west end and rural residential at the eastern end. At the west end the project begins at the interchange of Washington Pike and Interstate-640, which curves around Knoxville as a bypass. Washington Pike has seen a rise in commercial development in recent years at this location. Continuing eastward, the scene changes to rural residential with primarily mid-century housing on one-acre plots. New subdivisions have been constructed leading off of Washington Pike as the road continues east of Mill Road. The project area's eastern end has a large farm, convenience stores, and a 1970s development. The project ends at the Knoxville city limits on Murphy Road.

Historical Overview

Early Settlement

Knoxville lies in the ridges and valleys west of the Appalachian Mountains. The ridges are on a northeast to southwest axis which made crossing from the eastern colonies to newly opened lands in the west difficult. Nevertheless, by the time of the Revolutionary War, settlers had begun trickling over the mountains to settle along the river valleys of east Tennessee. The city of Knoxville grew up along the north bank of the Tennessee River just west of the confluence of the Holston and French Broad Rivers that form the Tennessee. Knoxville was actually the capital of the territory and then state of Tennessee until 1812. However, due to the difficulties in travel in the region, Knoxville grew slowly. The local economy was based on serving the immediate area and did not develop industries to serve the region. The surrounding topography of valleys and mountains made transportation of goods difficult. Small, relatively subsistent farms were the norm as opposed to the large plantations found elsewhere in the South (Bennett 1994).

Overland roadways such as Tazewell and Washington Pikes were established radiating from Knoxville to burgeoning communities in the region. Tazewell Pike extended to the northeast to the community of Tazewell with access to nearby Cumberland Gap and Washington Pike also led northeast towards Washington County, Virginia just across the border. After the Civil War, Tazewell Pike was one of five roads chosen that led out of Knoxville to be improved as a toll road (Knoxville/Knox Co. MPC 2007). Several of the pikes located north of the city connected to North Broadway which led straight into downtown.

In 1848, at the invitation of the German-American East Tennessee Colonization Company, Swiss settlers arrived in the Knoxville area. Over the years, many families settled northeast of Knoxville and established farms. By 1850, the Swiss were the largest ethnic group of the new settlers in the area. One of these families, the Babelays, settled along Washington Pike and eventually established a large greenhouse business (Babelay 2009).

Industrial Growth

In 1855 the East Tennessee Valley and Georgia Railroad was constructed leading north out of Knoxville along Second Creek towards Bristol, Tennessee. When the Civil War began, Knoxville was seen as important to the Union effort due to the railroad. This line was a link between Virginia and the Mississippi River and used for transportation of troops and support goods (Sammartino 1996). To achieve control of the rail line, Union forces under Major General Ambrose Burnside occupied Knoxville by September 1863 after a short siege of the city from the north. Undaunted, Confederate forces under General James Longstreet lay siege to Knoxville that November but by early December had withdrawn leaving the city in the hands of the Union occupiers. The Civil War brought no serious destruction to the city and surrounding communities as in other parts of the region.

A result of Union occupation was the attention brought to Knoxville's resources to those in the Union army occupying the city. Several who had capital to invest came back after the war to begin Knoxville's industries (Bennett 1994). Industry in Knoxville was made possible due to its railroad connections. Service had been disrupted during the Civil War, but once restored it became the impetus to growth for areas north of downtown Knoxville. The creeks that feed into the Tennessee River acted as a water source to provide power to the factories. Also, as more railroads were constructed intersecting Knoxville, the city became a center in the region for wholesale businesses (Brown 1980).

One of the connecting rail lines constructed after the war was the Powell's Valley Railroad that was begun in 1887. This line led northeast out of Knoxville, paralleling Washington Pike, and connected to Middlesboro, Kentucky near the Cumberland Gap. This was a coal mining area of Kentucky and therefore the Powell's Valley line brought coal back to Knoxville for use in the iron foundries. It also provided coal to communities along the rail line. The line eventually became the Knoxville, Cumberland Gap and Louisville Railroad before being incorporated into the Southern Railway (Rule 1900). The line is now owned by Norfolk Southern. A bypass line that connected to this line was constructed in the early 1920s around the eastern edge of the city to the new John Sevier railyards. The community of Beverly, just west of the project and located at the juncture of these two lines, developed warehousing to service the rail lines.

Residential Growth

Manufacturing did not come to outlying areas along Washington Pike. Instead, the area was home to two known greenhouse businesses. As mentioned, the Babelay greenhouses were located along Washington Pike and Babelay Road. Another greenhouse business was Charles Baum's Home of Flowers established in 1889 along Tazewell Pike (Knoxville/Knox Co. MPC 2007). These two businesses grew the exotic and delicate flowers that were popular in the Victorian gardens of the wealthy and upper middle-classes who were building new homes in the new suburbs of Knoxville. With the rise of new factories on the outskirts of Knoxville came the construction of neighborhoods to house the workers, managers, and owners of the new factories. Two such neighborhoods that contained the larger Queen Anne style homes and gardens were Fourth and Gill for middle-class professionals and Old North Knoxville which had more of the owner-class homes. Also, larger estates were established along Tazewell Pike leading away from the new suburban areas.

Streetcar lines, such as the Dummy Line that led to Fountain City along North Broadway, enabled the growth of these residential areas and attracted not just homes but businesses to serve the residences as well as churches and schools. Fountain City, so named for the fresh water springs, was the site of early camp grounds for the Methodist Church. By the 1880s the site became a



Figure 2 – Historic Topographic Maps; Fountain City (1941), John Sevier (1940)

health resort with a hotel, park, and lake. To reach the resort, a street car line, the Dummy Line since it was not a real rail line, was established in 1890. By the 1920s the area had become a commuter suburb with the coming of the automobile (Bennett 1984).

Another community that arose was the Oak Grove community centered on the Oak Grove AME Zion Church at the corner of Washington Pike and Mill Road (as seen in Figure 2). Several African American families purchased land in the vicinity of the church that was established in 1868. The land has been passed down to succeeding generations.

The result of the spreading development was that by the mid-twentieth century, the farms located along the old pike roads that radiated from Knoxville were being replaced by subdivisions that could be reached by automobile along the pikes. The demand for housing, especially after World War II, accelerated the transformation of the farmland into residences (refer to Figure 3) (Knoxville/Knox Co. MPC 2007).

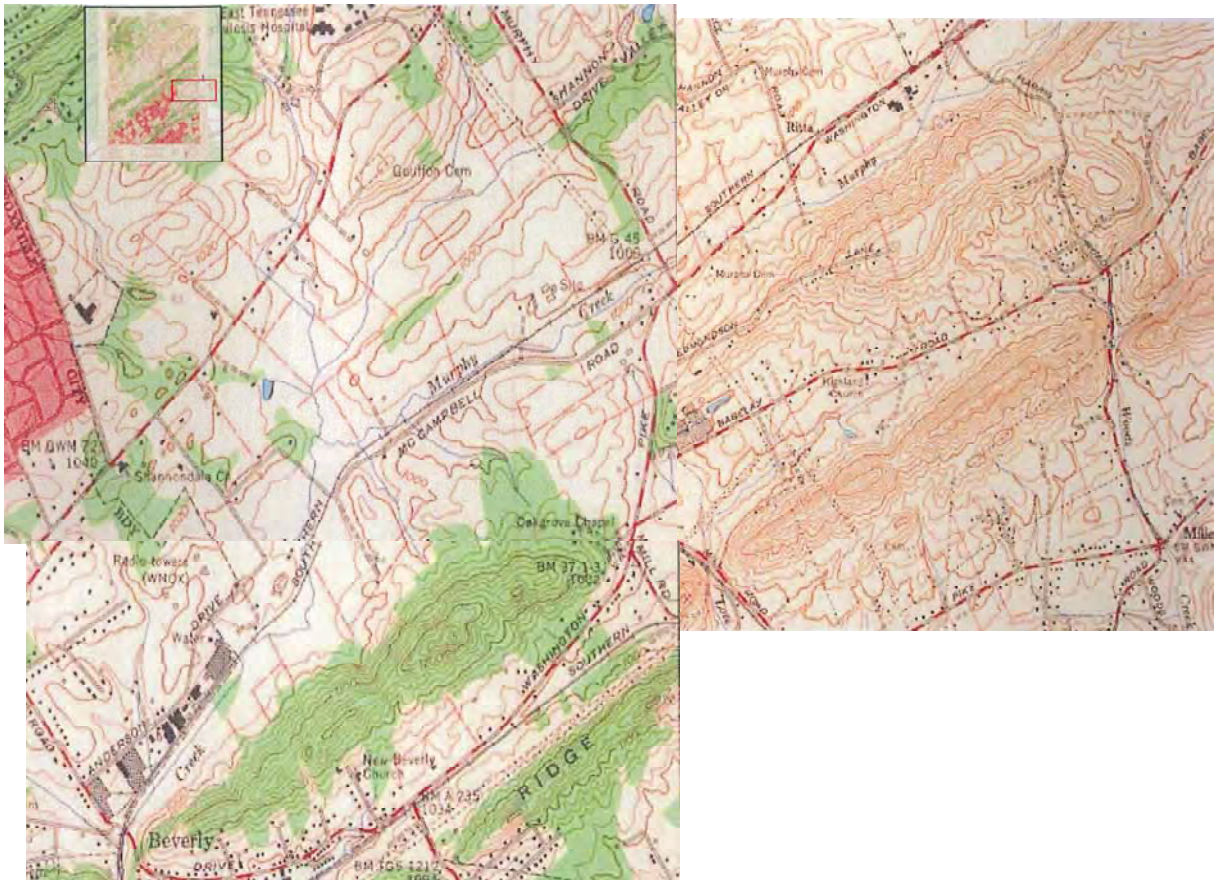
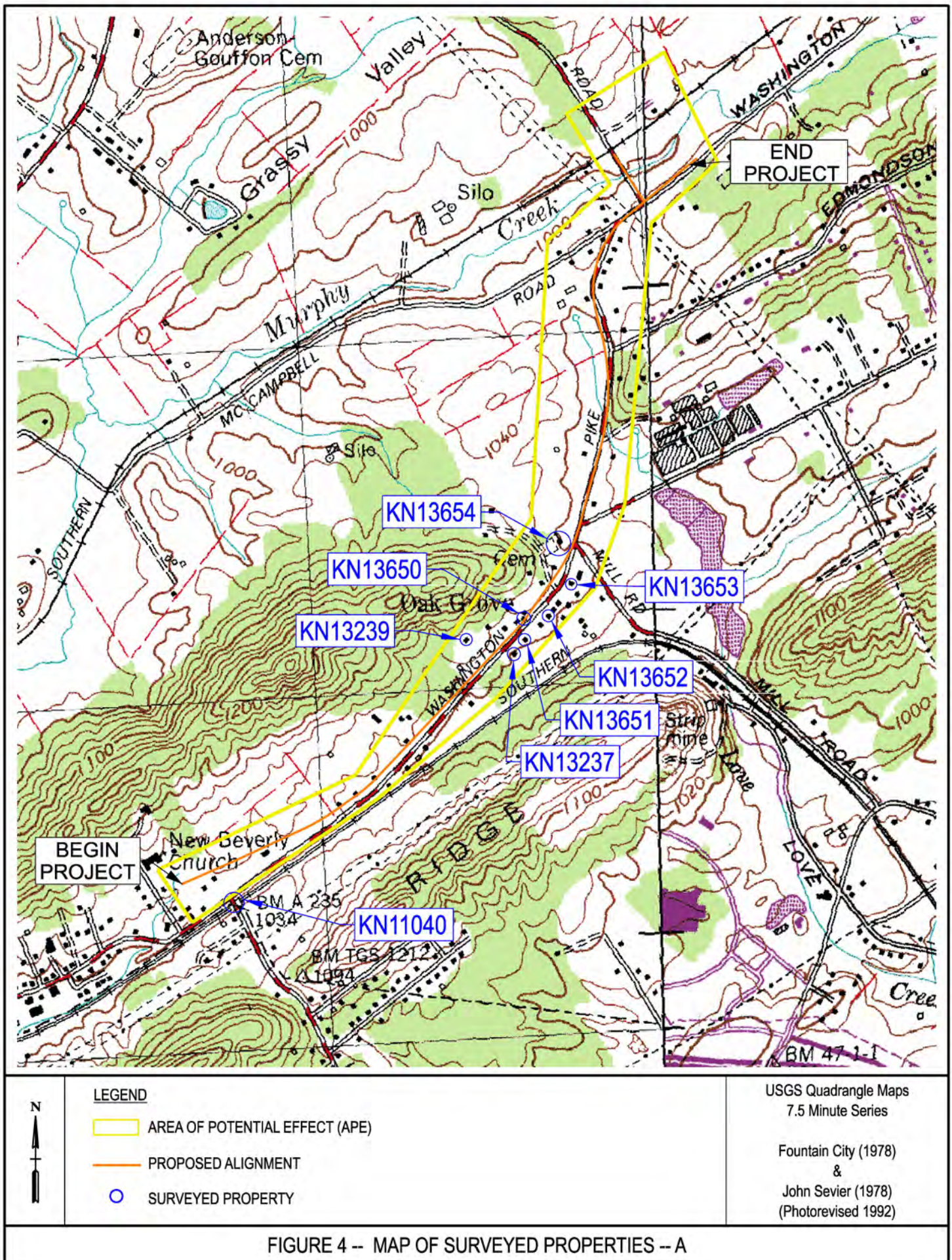


Figure 3 – 1966 Topographic Maps

When I-640 was constructed in the 1970s around eastern Knoxville, the area began to take on a suburban feel. New subdivisions were constructed and the area of East Knoxville underwent revitalization. The Knoxville Center Mall was opened in 1984 with access from I-640 at Millertown and Washington Pikes. The area has continued to attract new commercial establishments and subdivisions with an increase in the past decade. Farms have been subdivided for the new subdivisions, further reducing the rural feel of Washington Pike in this area.



Field Survey Results

KN-11040

Old Washington Pike Bridge

Constructed c. 1930, this resource is a reinforced concrete beam bridge that carried a two-lane asphalt road, Old Washington Pike, over the former Southern Railroad tracks that connected to the John Sevier railyards. The bridge has two reinforced concrete piers and concrete abutments. The railings on top of the deck are steel with square concrete balustrades. It is located parallel to Washington Pike, crossing over the Norfolk Southern Railroad north of I-640.



Figure 5 – KN-11040, east elevation

The bridge is a common type of concrete beam highway bridge of the 1930s' era and does not display any significant architectural or engineering features that would qualify it as eligible under Criteria C. The bridge has no known associations with significant persons or events that would qualify it as eligible under Criteria A or B. KN-11040 is recommended not eligible for the National Register.

KN-13239
5609 Washington Pike

Situated on the north side of Washington Pike and facing south, this is a one and a half story frame house constructed c. 1925 in the Craftsman style and rests on a brick pier and concrete block foundation. The house is sheathed in vertical board panels and there are stamped metal panels skirting most of the foundation. The front façade has double entry doors in the center flanked by two 2/2 sash windows and two picture windows to either side. A second entry door is located on the left side and leads to an enclosed porch. Other windows on the house are 2/2 horizontal. The full-width front porch has vinyl columns and new square post railings and steps. The side gable roof has asphalt shingles, a large shed dormer with two 2/2 windows, and a brick chimney on the ridge. There is also a brick chimney flue on the exterior west elevation. The rear façade (north elevation) has a shed dormer with a row of aluminum sash windows. An enclosed walkway has been added to the rear to connect to an open three-bay garage.

There is one outbuilding, an original shed, located to the west that rests on rock and wood piers and is sheathed in horizontal boards with a standing seam metal roof and exposed rafters. There is a window on the west elevation and a door on the east elevation.



Figure 6 – KN-13239, south elevation

The house is currently rented and there are four small businesses on the property close to the roadway. The Craftsman-style house underwent several unsympathetic changes in the 1970s including the addition of the picture windows, vertical siding, enclosed porch, and double entry doors. Under Criteria A or B, KN-13239 has no known associations with significant persons, events, and does not retain sufficient architectural integrity of the Craftsman style features under Criteria C; therefore, KN-13239 is recommended not eligible for the National Register.

KN-13237
5608 Washington Pike

Situated on the south side of Washington Pike and facing north, this is a one-story frame house constructed c. 1930 in the Bungalow style and rests on a brick foundation covered by concrete stucco. This front gable house has asphalt shingles, exposed rafters, open eaves, and an interior brick chimney on the east elevation and an exterior brick chimney on the rear. The walls are sheathed in asbestos shingles. The engaged porch is partial-width with a paneled entry door and screen door and a 1/1 window. The porch has wood tapered piers on brick veneer columns and iron railing. The right side of the porch has been enclosed and contains a paneled entry door on the east elevation and a picture window with 1/1 sash sidelights on the façade that is surrounded by asbestos shingles and a brick veneer skirt wall under the window. To the rear on the west elevation is a side entry with iron steps that leads into an original shed porch. The shed porch has vinyl siding and a row of screened windows. The house has a partial basement.

There are two outbuildings, a concrete block garage and a concrete block shed. The garage has a gable, standing seam metal roof, paneled side door and metal garage door. The shed has a vertical paneled door, three-pane window, and a gable, corrugated tin roof.



Figure 7 – KN-13237, north elevation

The house is currently owned by Alfred Nance, a descendant of Josie Crippen, who received the property in 1955 according to tax records. The Crippen family was active members of nearby Oak Grove AME Zion Church (KN-13654) at the time of the 1926 construction. The Bungalow-style house underwent several alterations in the late 1950s including the addition of the picture window and enclosed porch, and windows. Additional alterations since include covering the rear porch with vinyl siding, addition of iron steps to the rear entry door, and stuccoing the brick foundation. Under Criteria A or B, KN-13237 has no known associations with significant persons, events, and does not retain sufficient architectural integrity of the Bungalow-style features under Criteria C; therefore, KN-13237 is recommended not eligible for the National Register.

KN-13650**5621 Washington Pike**

Situated on the north side of Washington Pike and facing south, this is a one-story frame house constructed c. 1950 in the Ranch style. It has a side gable roof with asphalt shingles and has been sheathed in vinyl siding. The porch is an entry stoop that has been gated with iron fencing to form a patio. The door is a replacement and there are brick pilasters to either side that extend three-fourths of the height of the door. The windows throughout the house are 1/1 single pane with vinyl muntins forming a 6/6 pattern. There is a picture window with 1/1 sash sidelights and a partial brick surround to the right of the entry door. The house rests on concrete block foundation and has open, close eaves. An ell addition extends to the rear with rear entry door and a small concrete block shed has been added to the rear of this addition.



Figure 8 – KN-13650, southwest elevation

According to Isom Jamison, the owner is Theodora Jamison who currently rents the property to family members. Theodora's mother, Elizabeth Isom, inherited the land from the Johnson estate in 1946 according to tax records, and presumably lived here until her death in 1997. The Johnson family has been longstanding members of the Oak Grove AME Zion Church (KN-13654). The house has been altered with the addition of vinyl siding, closure of the entry porch, and unsympathetic additions to the rear. Under Criteria A or B, this house is not associated with a significant person or event, and does not possess significant architectural features of the Ranch style under Criteria C; therefore, KN-13650 is recommended not eligible for the National Register.

KN-13651
5610 Washington Pike

Situated on the south side of Washington Pike and facing north, this is a one-story frame house constructed c. 1960 in the Ranch style. It has a side gable roof with side gable wings to either side that are set back from the main façade. An extended roof covers the porch along the main façade and has square wooden supports and concrete slab flooring. The paneled door is new and there are 1/1 sash windows to either side with vinyl muntins forming a 9/6 pattern. The side gable wings each have a picture window with the one on the right having 1/1 sidelights. The front facade has brick veneer and the rest of the house is sheathed in vinyl. The gables in the main façade have masonite siding. There is a large exterior brick chimney on the west elevation. There are two cross gables extending to the rear. The cross gable to the west was a porch that has been partially enclosed and has a vinyl entry door leading to a wooden deck. The rest of the porch has framed screening with side entryway. The cross gable to the east has a sliding glass door leading to the wooden deck.

There is one outbuilding, a concrete block garage to the rear of the property. The garage has a new aluminum roll door, a 1/1 window, and a new vinyl door. There is a pence roof above the door. The gable roof is extended and has particle board and bracing in the eaves.



Figure 9 – KN-13651, north elevation

The house has been altered with the addition of vinyl siding and unsympathetic additions to the rear. Under Criteria A or B, this house is not associated with a significant person or event, and does not possess significant architectural features of the Ranch style under Criteria C; therefore, KN-13651 is recommended not eligible for the National Register.

KN-13652**5624 Washington Pike**

Situated on the south side of Washington Pike and facing north, this is a one-story frame house constructed c. 1960 in the Ranch style and rests on a concrete foundation. There is a brick chimney on the ridge. The house has a side gable roof with asphalt shingles and an extended front cross gable on the left side of the facade. The front façade has a shed roof entry porch with new paneled door, concrete steps and decorative iron railing. The cross gable and entry have brick veneer which extends across the rest of the façade as a skirt wall. There is vertical siding above the skirt wall and the rest of the house has asbestos siding. There is a picture window with 2/2 sash sidelights to the right of the entry door. The rest of the house has 6/6 paired windows. A side entry on the west elevation has concrete steps, iron railing, and a vinyl awning. On the east elevation is a new sliding glass door leading out to a new deck. There is also a sliding glass door on the rear that leads to a broad deck and a sliding glass door that leads out from the basement. Also on the rear façade is an exterior concrete block chimney flue and the windows in the basement are 1/1 horizontal.

There is one outbuilding on the property, a concrete block garage that has a gable roof with asphalt shingles. The two garage doors are aluminum roll doors.



Figure 10 – KN-13652, north elevation

According to the current owner, Mark Isom, he bought the property from Marion Wells in 2011 who had received the property in 1946 from the Johnson Estate. The house has been altered with the addition of the three sliding glass doors. Under Criteria A or B, this house is not associated with a significant person or event, and does not possess significant architectural features of the Ranch style under Criteria C; therefore, KN-13652 is recommended not eligible for the National Register.

KN-13653**5650 Washington Pike Road**

Situated on the south side of Washington Pike and facing north, this is a one-story house constructed c. 1952 in the Ranch style and rests on a concrete block foundation. The low-pitched roof is a side gable with asphalt shingles. The house is sheathed in synthetic siding and has a rock veneer skirt wall on the front façade. The rock veneer covers the wall to the right of the door. There are concrete block entry steps with decorative iron railing leading to the paneled door which has three diagonal lights. The roof extends slightly over the steps and walkway. The windows on the house are 1/1 horizontal with aluminum storm windows and there is a picture window with single pane sidelights to the left of the door. On the west elevation is a double carport with concrete slab. There is a wooden ramp leading to a side entry under the carport. To the rear is a shed roof extension with sliding glass doors on the west elevation leading to a wooden deck.

There are two outbuildings, sheds, on the property. One shed is modern corrugated tin and the other is of particle board with a gambrel, asphalt-shingled roof.



Figure 11 – KN-13653, northwest elevation

The current owner is Almeta Chesney who, with Paul Chesney, purchased the property in October 1951 according to tax records. The house has been altered with the addition of synthetic siding, the sliding glass door and wooden deck. Under Criteria A or B, the house is not associated with a significant person or event, and does not possess significant architectural features of the Ranch style under Criteria C; therefore, KN-13653 is recommended not eligible for the National Register.

KN-13654
Oak Grove AME Zion Church
5667 Washington Pike Road

Situated on the north side of Washington Pike and facing south, this is a one-story church on a full basement. According to a cornerstone, the church congregation dates to 1868 and the 1926 structure replaces a 1915 structure. Another plaque states the church was remodeled in 1976 (see Figure 13). The church is referred to as the Fullwood Chapel, AME Zion Church on the 1926 plaque and on a 1953 USGS topographic map. By the time of the remodeling in 1976 and on the 1941 and 1966 USGS topographic maps, the current name was in use. This church and several of the properties surrounding it have long been affiliated with a small African-American community at the crossroads of Washington Pike and Mill Road.

The 1926 portion of the church is a scaled-down Greek temple style which is a long rectangle with front gable entrance and windows along both sides. The row of 1/1 windows on either side have painted glass and there is a brick chimney on the north elevation that has been cut off at the roof line. To the rear is a hipped addition that stretches around both sides. This rear addition has an entry porch on the south elevation with a concrete walk leading to wooden steps, original paneled door and metal awning. There is also a paneled entry door with metal awning on the west elevation of the addition. The basement has stucco and has windows along the north elevation.

The 1976 changes include brick veneer added to the entire structure and a gable addition to the front façade. The gable addition is on the east elevation and wraps around to the south elevation where there are double, vinyl doors. There is a ribbon of lights along the roof line and an inset vinyl cross in the brick veneer on the east elevation. There are also 1/1 windows on the lower level of the east elevation.



Figure 12 – KN-13654, southeast elevation



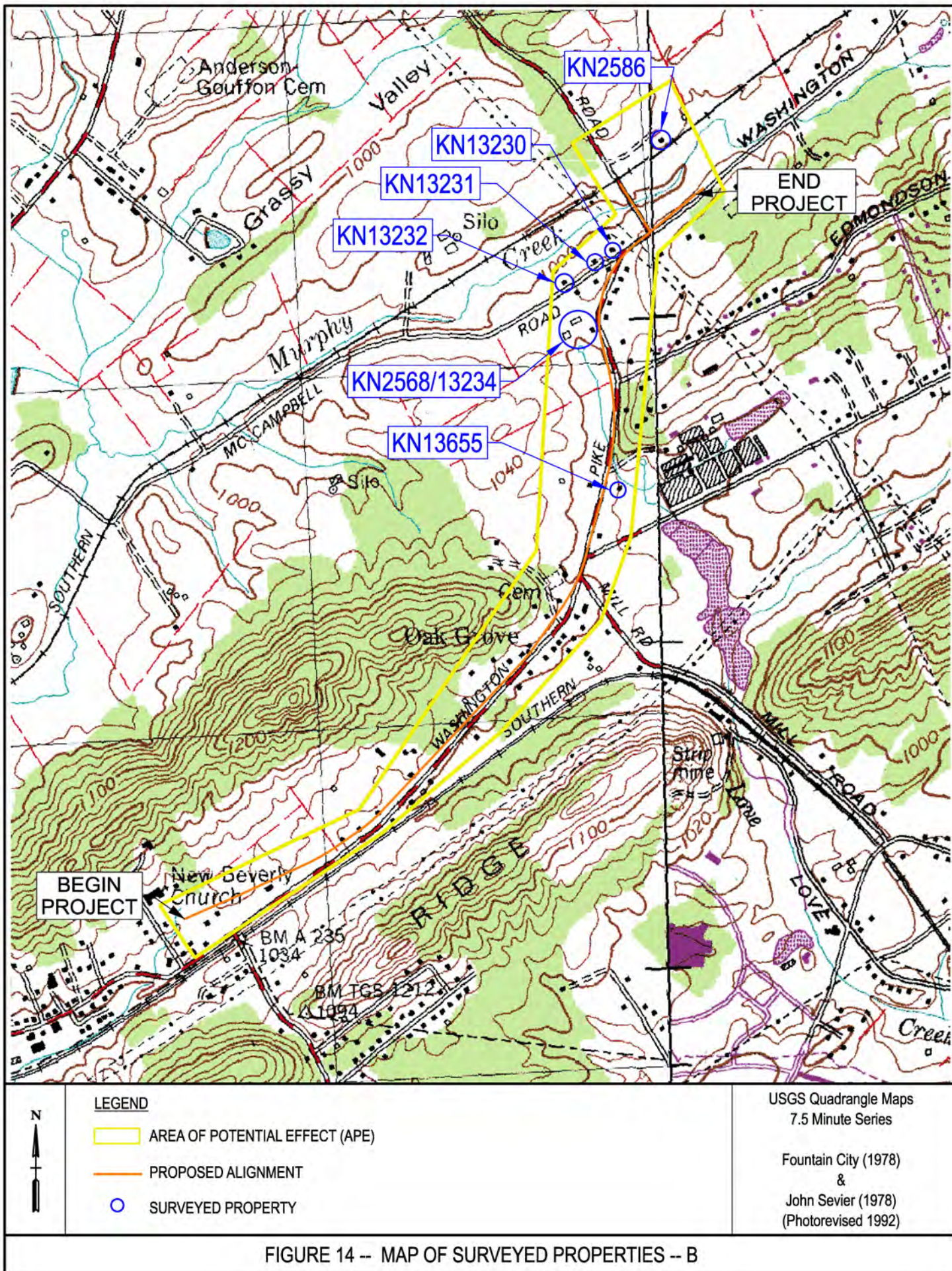
Figure 13 – Cornerstone Plaques

There is a cemetery along the western portion of the property to the rear of the church that extends up the hillside. One of the oldest stones dates to 1874. There are approximately 50 headstones in the cemetery with many damaged or lying down. Some of the stones are grouped in family units but most are scattered. Many of the headstones date to the 1920s and 1930s, however, this is an active cemetery.

A context was developed for evaluating African American rural churches by the Center for Historic Preservation at Middle Tennessee State University (MTSU 2000). For churches from the 1890-1945 Jim Crow era, the vernacular frame, front-gable entrance style of church building was common for rural African American churches. Other themes associated with the enforced segregation of the era include activism by congregants, nearby community buildings affiliated with the church, documentation of church history on dedication plaques, and a historic cemetery establishing an overt African American identity.

This church has no known association with a significant person or event of the 1890-1945 Jim Crow era to be eligible under Criteria A or B. Under Criteria C, the 1976 renovations have compromised the front-gable entrance style common to this era so that the church does not possess significant architectural features for a religious property of this type and ethnic affiliation. For these reasons, KN-13654 is recommended not eligible for the National Register.

Also, the area around the church does not contain many of the community features such as a school, shopping area, or designed neighborhood associated with African American historic districts. Most of the houses on the surrounding parcels date to the mid-twentieth century, several decades after the founding and later constructions of the church.



KN-13655**5716 Washington Pike**

Situated on the east side of Washington Pike and facing west, this is a one-story frame house constructed c. 1949 according to the owner, Gene Babelay. This brick house is in the Ranch style and has a hipped roof with asphalt shingles and two cross gables extending to the front. The front door is paneled with a metal screen door and there is a multi-light bay window to the left. Other windows on the house are 6/6 sash with some single and some paired. The extended gable on the left side of the façade has a one-car garage with wood paneled roll door and row of lights at the top. There is a brick chimney on the interior and a brick chimney flue at the rear. On the north elevation is a side entry door with hipped roof, concrete steps and decorative railing. On the rear is a hipped wing with garage that leads to a full basement. There are windows at the basement level that have iron grates covering them. Also to the rear is a concrete patio area with concrete picnic table and low brick wall.

According to the current owner, Gene Babelay, the parcel has been in the Babelay family since the late 19th century. The Babelay House (KN-2566) c. 1910 and not covered in this survey, is located east of this property in a separate parcel and includes the Babelay Greenhouses business (KN-13250) established at the turn of the twentieth century.



Figure 15 – KN-13655, west elevation

Under Criteria A or B, since the house is not directly associated with the Babelay Greenhouse business, then it is not considered associated with a significant person or event. Under Criteria C, it does not possess significant architectural features of the Ranch style. KN-13655 is recommended not eligible for the National Register.

KN-2568/13234- LeCoultre House
5820 Washington Pike

Situated on the west side of Washington Pike and oriented east, this property has a collection of three barns and a smokehouse constructed during the first half of the twentieth century for the purpose of a dairy operation. Barn 1 on the northern portion of the property has two bays open at either end and was probably used for equipment storage. The gable roof has exposed rafters and is covered in corrugated tin. Much of the board and corrugated tin siding has come off. Barn 2 is the main barn at the northwestern end of the property. It is constructed of vertical boards on a concrete block foundation. The foundation forms a basement level and has two windows on the north elevation with no glass. On the east elevation is an open bay into the basement level. There is an open bay on the north elevation and an entry door on the south elevation. There are several stalls with a hay loft above in the interior. The roof is gable with standing seam metal. Barn 3 is the milkhhouse that is attached to the south elevation of the main barn. The building has a corrugated tin exterior and standing seam metal roof. There are windows on the west elevation. The east elevation is covered with vegetation. Attached to the corner of the south elevation is a concrete block gable wing with standing seam metal roof and hopper windows. In the southern portion of the property is a fallen shed with wood siding and a standing seam metal roof. Its location near a drained pond indicates it was probably a spring house to keep the milk cool. The last structure on the property in the eastern portion is a log smokehouse. Constructed in the half-dovetail method, it has particle board in the overhanging gabled eaves. A small paneled door is in the north elevation and the roof is standing seam metal.

When this property was surveyed in 1984 (KN-2568) and again in 2000 (KN-13234), the house was still standing. The house was a two-story central hall built c.1880 with a c. 1930 wraparound porch. The original owner was Stoffell who had a dairy operation. Dairying was continued by the next owners, the LeCoultres, whose dairy operation was called Richelieu Dairy. The property is now bank-owned.



Figure 16 – KN-2568/13234, Barn 1-southeast elevation



Figure 17 – KN-2568/13234, Barn 2-east elevation



Figure 18 – KN-2568/13234, Smokehouse-north elevation

Under Criteria A, this property is not associated with a significant person and under Criteria B the barns do not constitute an outstanding representation of dairying in eastern Tennessee. Under Criteria C the barns do not possess significant architectural features of a farmstead. KN-2568/13234 is recommended not eligible for the National Register.

KN-13232**5817 McCampbell Drive**

Situated on the north side of McCampbell Drive and oriented to the east, this one and a half story frame house was constructed c. 1925 and rests on a brick and concrete block foundation. The gable roof has asphalt shingles and close eaves. The house is sheathed in weatherboard siding and there is a brick chimney on the ridge. The entry door does not face the street but rather is on the east elevation with a cement slab patio. The door is paneled with nine lights. Most of the windows on the house are paired 2/2 sash. On the south elevation facing the street in the upper story is a single pane window with three-light windows on either side. There is decorative trim along the south elevation between the first and second levels. There is a gable dormer addition on the west elevation with a large multi-light window and a small casement window. Also the west elevation exterior has vertical board paneling. On the east elevation is a cross gabled wing with entry door and windows. To the rear is a shed addition with paneled entry door that has three lights and a metal awning covering the concrete platform. There are knee braces in the gable of the north elevation.



Figure 19 – KN-13232, southeast elevation

This property is vacant and is currently owned by Carlos, Robert, and John Campbell who are descendants of Robert M. Murphy. This parcel is being submitted as part of the National Register nomination of the Murphy Springs Farm (KN-2586), evaluated later in this document. The house on this parcel is non-contributing to the eligibility of the Murphy Springs Farm complex since it is not representative of the early settlement or farming operations of the complex.

KN-13231**5831 McCampbell Drive**

Situated on the north side of McCampbell Drive and oriented to the east, this is a one-story house built c. 1940 and rests on a wood pier foundation with brick and concrete block infill. The house is sheathed in masonite and has a full-width, hipped porch. The concrete floor porch has metal supports and decorative iron railing. The gable roof is reminiscent of a saltbox gable and has asphalt shingles. The door is aluminum with a glass storm door and the windows are 1/1 sash. Some of the 1/1 windows on the house have vinyl muntins for an 8/12 or 6/6 pattern. At the rear the doorway has been enclosed. It once led to rounded concrete steps and patio. A new paneled door has been installed to the right and leads to a wood deck.



Figure 20 – KN13231, southeast elevation

Under Criteria A and B, this house is not associated with a significant person or event. Under Criteria C, this house has had several unsympathetic changes including new doors and windows, new porch, and removal of a rear door and patio configuration; therefore, KN-13231 is recommended not eligible for the National Register.

KN-13230**5835 McCampbell Drive**

Situated on the north side of McCampbell Drive and oriented to the east, this is a one-story house constructed c. 1930 and rests on a wood pier foundation with concrete block infill. The house is sheathed in weatherboard and there is a brick chimney in the interior of the gable roof. The roof is standing seam metal and has exposed rafters. The windows are 6/6 sash. On the west elevation is a shed roof wing with partially-enclosed porch. The porch has square wood posts and railings. The porch wraps around the enclosed portion from the southeast to the northeast. The enclosed portion has a row of three 6/6 windows. There are two entry doors from leading this porch that are paneled. The house is covered in vegetation.



Figure 21 – KN-13230, south elevation

The house is abandoned and bank-owned. Under Criteria A and B, this house is not associated with a significant person or event, and under Criteria C it does not possess significant architectural features and has lost some of its architectural integrity due to deterioration; therefore, KN-13230 is recommended not eligible for the National Register.

KN-2586**Murphy Springs Farm****4508 Murphy Road**

This farmstead has been determined eligible to the National Register by the Tennessee Historical Commission (THC). The owner, Kevin Murphy, is currently preparing a nomination form for listing on the National Register. The property is also a Tennessee Century Farm (see Appendix B for application form).

The farm is located on the east side of Murphy Road at the corner with Washington Pike along Murphy Creek in an area of Knox County known as Grassy Valley. The property includes a c. 1841 Gothic Revival house and a collection of outbuildings. The Norfolk Southern Railroad, constructed in 1887 as Powell's Valley Railroad, runs through the property alongside Murphy Creek. The farm was originally purchased in 1797 by Robert Murphy and reached 192 acres by 1826. His son Hugh built the current house and purchased additional acreage. The farm at times had fields for crops of corn, potatoes, flax, and cotton and later a dairy was established. Currently the farm is in timber, fallow fields, hay and grazing fields, and a seven-acre field that is plowed by the East Tennessee Draft Horse and Mule Owner's Association.



Figure 22 – Hugh Murphy House, west elevation

Description of Buildings

Hugh Murphy House – Oriented west toward Murphy Road, the two-story frame, Gothic Revival house has a steeply-pitched side gable, standing seam metal roof. The house is sheathed in weatherboard. A cross gable in the front façade has a tripartite window with two 8-pane windows and a three-paned stained glass sidelight to either side. Above are pointed arched louvers with a medallion attic vent above. The paneled entry door has three-light sidelights to either side and a molding surround. A slightly-pedimented molding surrounds each window on

the house which are 6/6 and have storm windows. The hipped roof porch is partial-width and features square wood columns and a wood floor on brick piers. On the north elevation is a wraparound porch that extends the length of the rear cross gable and wraps to the east elevation. The hipped roof porch is supported by wood Doric columns and has a wood floor and paneled entry door with the same surround and sidelights as the front entry door. In the cross gable are two, steeply-pitched gabled dormers. A triangular louver is above the windows and also above the second floor window of the side gable which also has a medallion attic vent. On the rear or east elevation the southeastern portion of the porch is enclosed and wraps around to the south elevation. It has an entry door from the porch, a fixed three-light window, paired 3/3 window, and a 6/6 sash window on the south elevation. There is a window in the second floor of the cross gable on the east elevation in the same configuration as the north elevation side gable window. The south elevation has a paired gable set slightly back from the main side gable. The windows on the second floor of this gable are 6/6 but smaller than the rest of the windows and there is a medallion attic vent above. There is a bricked cellar entrance at the bottom of this gable. The eaves of the house are open with enclosed rafters and a wide band of trim below. There is a corbelled brick chimney with metal cap on the ridge of the side gable and also on the ridge of the cross gable that extends to the rear.



Figure 23 – Hugh Murphy house, southwest elevation

A c. 1925 renovation introduced a Craftsman porch on the front façade that consisted of a shed roof and tapered columns on brick piers. Also, in 1925, bathrooms were added in the paired gable and rooms such as a mud room and nook were added to the kitchen on the first floor to form the enclosed porch. A wall separating the central hall from the living room was removed, and a fireplace was removed from the living room. When the rear porch was enclosed, an outside entry door and molding were removed and added to the corn crib in Garage 1.

The current owner has been restoring the house to its original form in the past few years. On the

advice of the THC, the front porch was rebuilt to its original configuration according to photographs. Recent renovations to the rear wraparound porch have included removal of c. 1980 plate glass that enclosed the wraparound porch, however the three foot extension of the porch made in the c. 1925 renovation was maintained; reconstruction of the kitchen within the same footprint; replacement of the door on the east elevation into the c. 1925 enclosed porch with double windows; and removal of a gable roof from the hipped roof over the enclosed porch on the south elevation. Other renovations included replacing the cross gable chimney and fireplace, replastering the interior, new cellar entrance, and renovating the kitchen and bathrooms.



Figure 24 – Hugh Murphy house, northeast elevation

The interior of the house retains the original woodwork, stairs and railing, doors, window sills, baseboards, some of the plastering, and pine flooring. The layout is the same with the exception of a recently added downstairs bathroom and laundry room.

Garage 1 – This is a two-bay garage with corn crib in the center, built c. 1925 that rests on a concrete block foundation. Entrance to the corn crib on the west elevation is a door and molding that is from the house. The garage has weatherboard siding and a standing seam metal, gable roof.

Garage 2 – North of Garage 1 is a concrete block, one-bay garage constructed c. 1950. It has a wooden roll door with a row of glass panes at the top and a side entrance that has been boarded up with weatherboard. The gable roof has standing seam metal and there are weatherboards in the gable.

Springhouse – Constructed c. 1905 in support of the dairy operation at the farm, the gable-roofed springhouse is constructed of vertical boards and has a standing seam metal roof. It has a concrete floor and concrete block foundation that is c. 1970. The entrance is on the east elevation with a pent roof above the door. The windows are fixed with six lights. In the northeast corner inside is a

cement water trough that catches the spring water flowing into this corner of the building. There is a brick chimney and fireplace south of the springhouse. The wash house surrounding the fireplace was recently torn down. The wash house was probably used to sanitize dairy equipment. The brick piers of this structure also remain.



Figure 25 – Garage 1 and 2



Figure 26 – Springhouse and chimney for wash house

Smokehouse – This smokehouse was constructed at the same time as the house as dated by core sampling. The logs are V-notched and there is a small vertical board door in the west elevation. The roof overhangs in front of the door and there are vertical boards in the gable. The

Smokehouse is currently undergoing renovations including reconstruction of the roof with shakes, construction of a rock foundation, and replacement of a few of the sills and lower logs.



Figure 27 – Smokehouse

Wood Shed – This gable-roof structure is constructed of vertical boards with unhewn corner posts and has a standing seam metal roof. It is open on the south elevation and there is a four-pane window on the west elevation. A small shed is attached to the northeast corner. It was originally the wood shed and was moved to its current position at the end of the driveway in the 1930s.



Figure 28 – Wood Shed

Chicken Coop – This shed-roofed structure c. 1900 with standing seam metal roof was originally a chicken coop with an entry door on the west elevation. The south elevation was opened up c. 1970 and the shed is now used for storage. It is constructed of vertical boards and rests on concrete block piers and has exposed rafters.



Figure 29 – Chicken Coop

Pole Barn – The pole barn was constructed in 2000 and is used to store farm equipment. It has one large gable-roof bay and a smaller shed bay to the east. It replaces a large hay barn that was severely deteriorated and recently demolished. The c. 1925 hay/stock barn was located southeast of the pole barn. It was a frame, gable structure with standing seam metal roof, metal sliding doors and central passageway. There was a large shed addition on the north elevation.



Figure 30 - Pole Barn and Shed

Shed – Located east of the pole barn is a vertical board shed with standing seam metal roof with open bays on the south elevation.

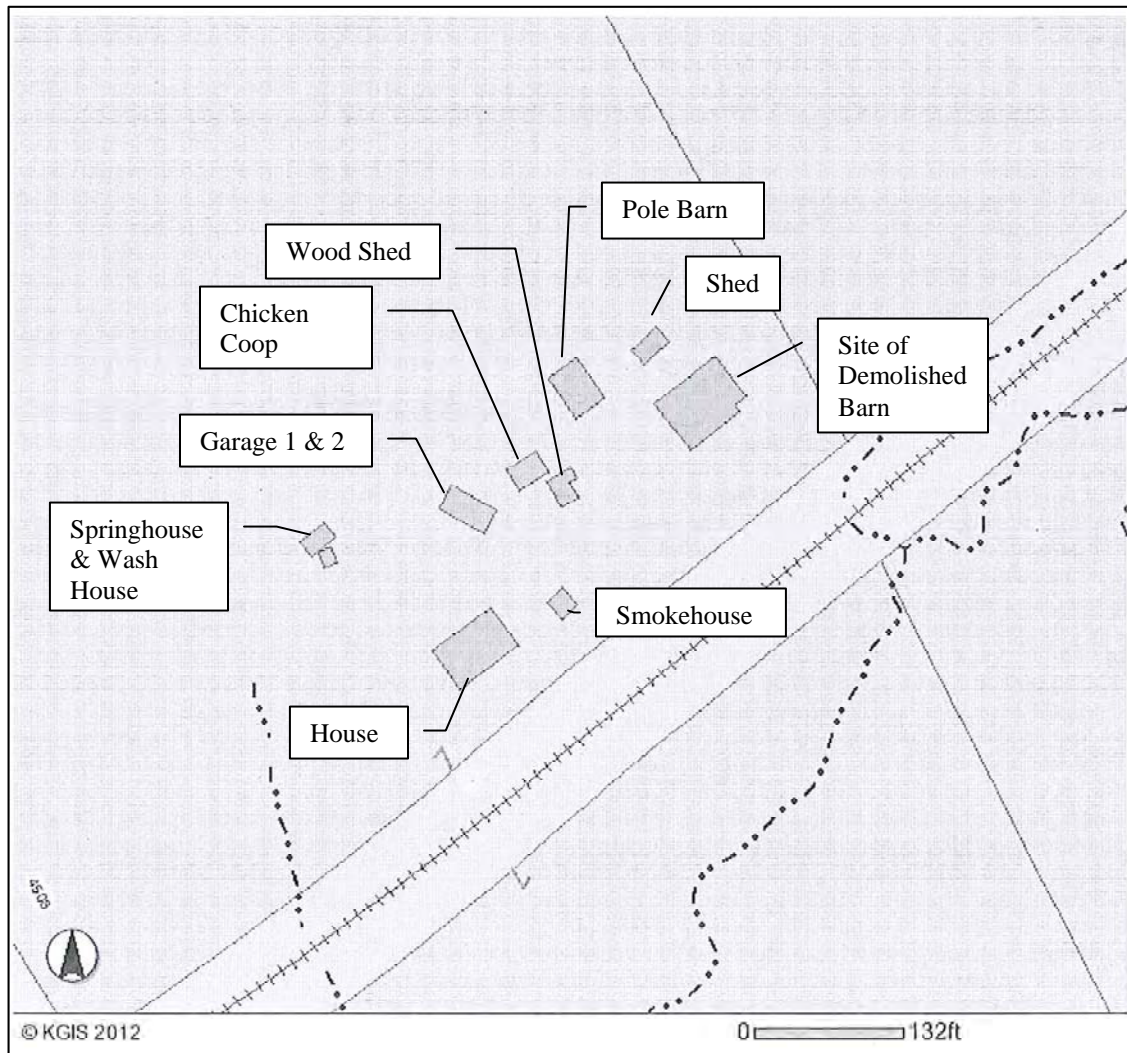


Figure 31 – Site Plan for Murphy Springs Farm complex

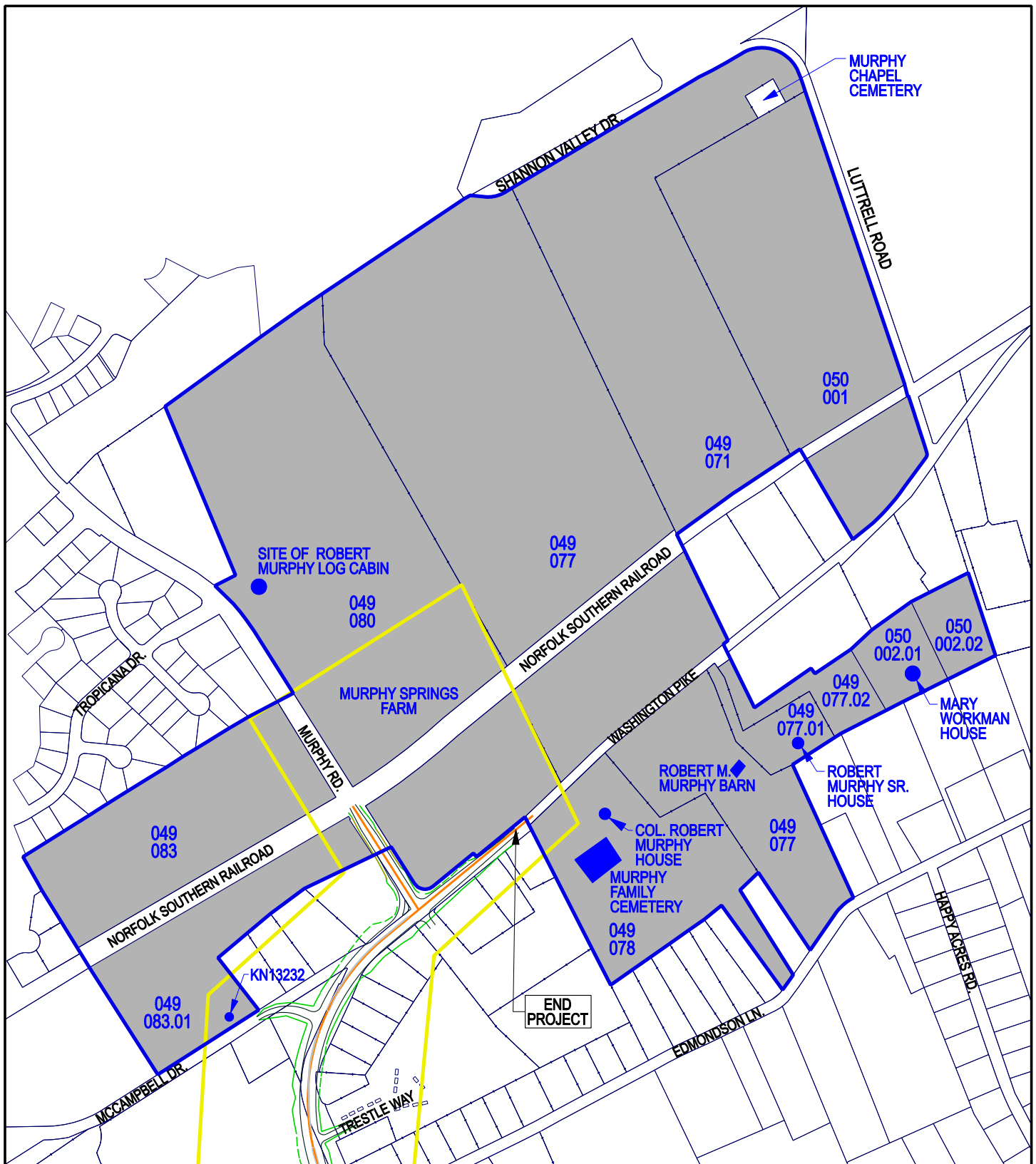
Eligibility for the National Register

KN-2586 is eligible for the National Register based on Criteria A as an example of a family farmstead in the Early Settlement of Knox County and Criteria C for its example of Gothic Revival architecture. The farm was purchased in 1797, less than a decade after the city of Knoxville was laid out. The acreage has been maintained as farmland or timberland and stayed within the family since that time. The farmstead, surrounded by agricultural fields, retains many buildings from the turn of the century dairy operation. The house has been restored to its original Gothic Revival appearance with characteristic steep gables, entry porch, and molding around the windows and doors.

Boundary of Eligible Property

The proposed boundary is based on lands acquired by the original owner, Robert Murphy. This acreage was later subdivided among family members and now totals 207.92 acres. The boundary shown in Figure 32 shows the various parcels owned by family members that constitute the Murphy Springs Farm. The boundary stretches from the northeast corner of the intersection of Murphy Road and Washington Pike to Shannon Valley Drive to the north and Luttrell Road to the east, and includes parcels west of Murphy Road curving south to McCampbell Drive, and parcels on the south side of Washington Pike east of its intersection with Murphy Road.

Table 1 - Parcels Included in Nomination of Murphy Springs Farm					
Address	Parcel ID	Acres	Within APE	Features	Contributing/ Non-contributing
5817 McCampbell Drive	049 083.01	3.17	Partially	KN-13232 (Anne Murphy Koger house)	Non-contributing
0 Murphy Road	049 083	20.88	No	None	
4508 Murphy Road	049 080	49.50	Partially	Murphy Springs Farm complex (KN-2586)	Contributing
				Robert Murphy log cabin site	Contributing
0 Washington Pike	049 077	58.78	No	Robert M. Murphy Barn	Contributing
4671 Luttrell Road	049 071	26.84	No	Murphy Chapel site and Cemetery	Contributing
6029 Washington Pike	050 001	25.00	No	None	
5922 Washington Pike	049 078	14.38	No	Col. Robert Murphy house	Non-contributing
				Murphy Family Cemetery	Contributing
5930 Washington Pike	049 077.01	2.25	No	Robert Murphy Sr. house	Non-contributing
5932 Washington Pike	049 077.02	2.60	No	None	
5936 Washington Pike	050 002.01	2.41	No	Mary Workman house	Non-contributing
0 Washington Pike	050 002.02	2.11	No	None	
	Total	207.92			



	LEGEND AREA OF POTENTIAL EFFECT (APE) PROPOSED ALIGNMENT PROPOSED CONSTRUCTION LIMITS NATIONAL REGISTER BOUNDARY	USGS Quadrangle Maps 7.5 Minute Series Fountain City (2010) & John Sevier (2010)
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FIGURE 32 – PARCELS INCLUDED IN NATIONAL REGISTER BOUNDARY FOR MURPHY SPRINGS FARM (KN-2586)

Within the APE for this project are the following features that contribute to the eligibility of the Murphy Springs Farm to the National Register:

- Parcel 049 080: (Murphy Springs Farm complex)
 - Hugh Murphy House
 - Springhouse
 - Smokehouse
 - Wood Shed
 - Garage 1
 - Chicken Coop
 - Shed
- All parcels: Agricultural landscape of fields and timberlands

Non-contributing features within the APE include:

- Parcel 049 080: (Murphy Springs Farm complex)
 - Garage 2
 - Pole Barn
- Parcel 049 083.01: Anne Murphy Koger house (KN-13232).

Parcels within the proposed nomination boundary that are outside of the APE for this project also contain contributing and non-contributing features. Contributing features not within the APE include:

- Parcel 049 078: Murphy Family Cemetery
- Parcel 049 071: Murphy Chapel site and Cemetery
- Parcel 049 077: Robert M. Murphy Barn (c. 1920)
- Parcel 049 080: Robert Murphy log cabin site

Non-contributing features outside of the APE include:

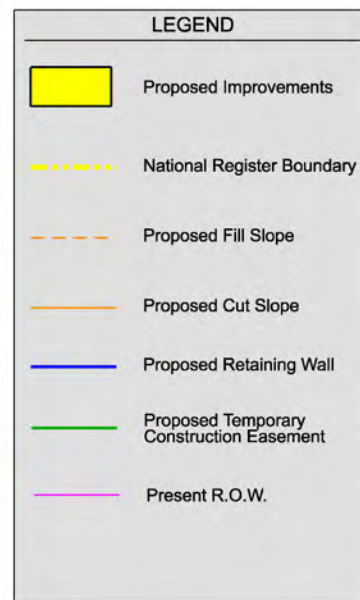
- Parcel 049 078: Col. Robert Murphy house (c. 1965)
- Parcel 049 077.01: Robert Murphy Sr. House (c. 1920)
- Parcel 050 002.01: Mary Workman house (c. 1986)

Assessment of Impacts under Section 106

In accordance with 36 CFR 800.5, the Criteria of Effect was applied to the proposed project improvements at the Murphy Springs Farm. Proposed improvements at the corner of Murphy Road and Washington Pike are to widen the roadway for the addition of travel and turn lanes and the installation of bike lanes, sidewalks, curb and gutter. Approximately 150 square feet for a temporary construction easement will be required along Murphy Road from within the proposed National Register boundary. Approximately 310 square feet will be needed for temporary construction easement along Washington Pike from within the proposed National Register boundary (see Figure 33).

Murphy Road currently widens from 24 feet at the railroad to 36 feet at the intersection with Washington Pike to accommodate a right-turn lane. After proposed improvements are completed, the width of Murphy Road would be 44 feet at the railroad and 55 feet at the intersection in order to accommodate southbound dedicated right and left turn lanes and a northbound second travel lane that merges into one lane at the railroad. Retaining walls would be required where the roadway intersects Murphy Creek. These walls would be three to five feet in height and extend for 313 feet along the west side of the roadway and 200 feet along the east side. The material and aesthetics of the retaining wall would be determined during the design process after reviewing comments from the public received during the public hearing. Retaining walls were

Figure 34
Roadway Improvements
at Murphy Springs Farm
(KN 2586)



chosen in this area as opposed to a roadway embankment in order to avoid impacting the proposed National Register boundary for the Murphy Springs Farm.

Washington Pike currently widens from 24 feet to 34 feet as it approaches the intersection with Murphy Road. After proposed improvements are completed, the width of Washington Pike would be 70 feet in order to accommodate a dedicated left turn lane separated by a median and sidewalks.

Only temporary construction easements would be necessary for the proposed improvements along Murphy Road and Washington Pike. No right-of-way is required from within the proposed National Register boundary for the proposed improvements. The proposed project would not cause the physical destruction or removal of any structure. The proposed easements contain grassy fields that are mowed for hay along Murphy Road and Washington Pike and once the proposed project is completed, the easement would be returned to grass. The proposed project will not change the property's function as agricultural fields or its setting in a rural environment that has some urban incursions.

With the proposed project's improvements of roadway widening and retaining walls, no visual, atmospheric or audible elements would be introduced that would diminish the National Register significance of the farm. The grassy fields of the farm currently front a busy intersection that is signalized and has utilities and commercial businesses at the corner. The addition of turn lanes along Murphy Road will alleviate some queuing of traffic in front of the farm. The traffic currently queues to beyond the railroad during peak traffic hours. Traffic patterns would not be changed due to the proposed project. No changes in access to the property are anticipated.

The Hugh Murphy House and outbuildings are within view of the proposed project along Murphy Road near the railroad crossing (see Figure 34). The house is approximately 530 feet from the proposed project's endpoint along Murphy Road at the railroad and approximately 580 feet from edge of right-of-way where the tree line along Murphy Creek intersects with Murphy Road. At this location the proposed improvements include fill, retaining walls in place of an existing guard rail, and widening of the roadway within right-of-way. The tree line then blocks the viewshed of the rest of Murphy Road. There are no buildings within view of the proposed project along Washington Pike due to the tree line along Murphy Creek blocking the viewshed of the roadway. Proposed improvements along Washington Pike east of the intersection with Murphy Road include widening and fill within the right-of-way. Therefore, no impacts to the viewshed and setting of the historical property are anticipated that would diminish the qualities that make this resource eligible for the National Register.



Figure 34 – View from front façade of the Hugh Murphy House southwest across railroad tracks toward Murphy Road

A noise study was conducted to assist in evaluating the potential for noise impacts to the Murphy Springs Farm. This study is on file with TDOT. The study found that the predicted noise level for 2012 (existing) at the Weigel's convenience store which is located at the southeast corner of Washington Pike and Murphy Road directly across from the Murphy Springs Farm is 63 dBA (a unit of noise measurement). If no actions are taken to improve the roadway, then the noise level will increase to 65 dBA by design year 2033 (future). If the proposed improvements are implemented then the noise level will remain at 63 dBA by 2033. The study also modeled a point in the field located on the west side of Murphy Road (Parcel 049 083) which is a parcel that is included within the National Register boundary for Murphy Springs Farm. The point is located approximately 700 feet from the project endpoint at the railroad on Murphy Road. The existing noise level is 46 dBA, the future level is 48 dBA with no action and 48 dBA with proposed improvements (see Table 2).

Table 2 – Results of Noise Study at Murphy Springs Farm			
Location	Existing (2012)	Future (2033) with No Action	Future (2033) with Improvements
Weigels' at Washington Pike and Murphy Road	63 dBA	65 dBA	63 dBA
Parcel 049 083 west of Murphy Road	46 dBA	48 dBA	48 dBA

FHWA developed a Noise Abatement Criteria (NAC) based on land uses establishing base lines for various activities to determine when the level of impact from traffic noise occurs. The Murphy Springs Farm is considered a residential land use and therefore falls into Category B which has a baseline dBA of 67 (see Table 3).

Table 3 – FHWA Noise Abatement Criteria			
Activity Category	dBA	Location	Description of Activity
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67	Exterior	Residential
C	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreational areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	NA	NA	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, ship yards, utilities (water resources, water treatment, electrical), and warehousing.
G	NA	NA	Undeveloped lands that are not permitted for development.

Source: FHWA Noise Policy FAQs

An increase in noise is considered by TDOT to be “substantial” when the dBA increases 10 to 15 dBA. Noise levels in the area of Murphy Springs Farm are anticipated to increase by two dBA with or without roadway improvements by design year 2033. While noise levels may increase at the Murphy Springs Farm, the level of noise is not considered to be an impact according to the FHWA’s Noise Abatement Criteria or TDOT’s criterion of substantial increase. Therefore, the overall environment of the Murphy Spring Farm would not be diminished due to noise levels from the project.

It is the opinion of the consultant that the proposed project would not have an adverse effect to the property.

Assessment of Impacts under Section 4(f)

The proposed project would require temporary construction easement from the property which does not constitute a “use” under Section 4(f) (23 CFR 771.135 (p)(7)). It is the opinion of the consultant that the proposed project would not have an adverse effect to the Murphy Springs Farm; therefore, there will not be a Section 4(f) use of the historic property.

Conclusion

CDM Smith conducted the historic structures survey portion of the Categorical Exclusion for improvements Washington Pike. The project is located in the City of Knoxville in Knox County with its western terminus at I-640 and its eastern terminus at Murphy Road. This area was previously surveyed in 1984 and 2000 for resources eligible to the NRHP. Within the APE are 13 resources determined not eligible and one resource determined eligible for the NRHP. Murphy Springs Farm (KN-2586) is eligible for the NRHP based on Criteria A as an example of a family farmstead in the Early Settlement of Knox County and Criteria C for its example of Gothic Revival architecture. The eligible property was examined for potential effects by the project. It is the opinion of the consultant that the proposed project would have no adverse effect to the eligible property and, therefore, there would be no Section 4(f) use of a historic property.

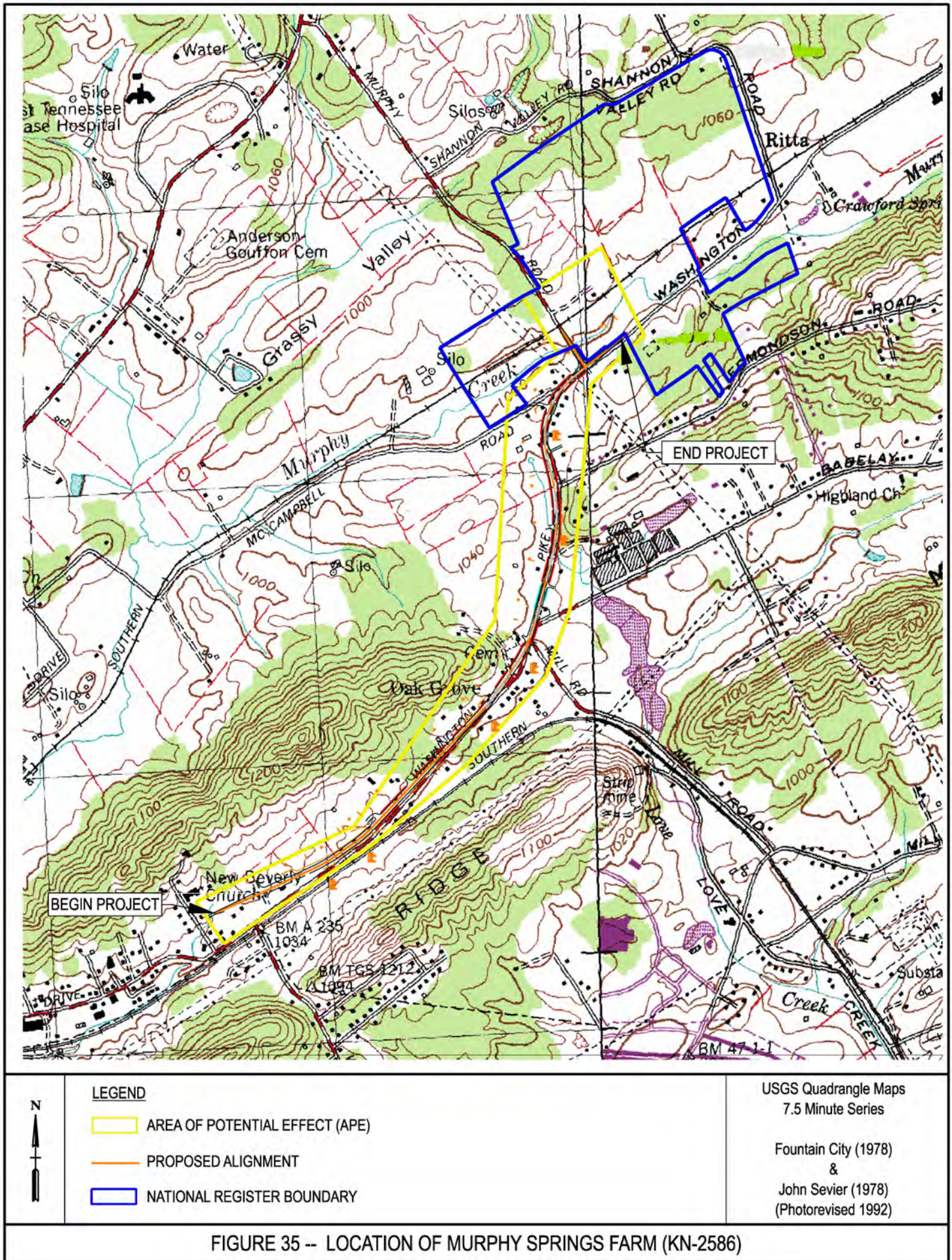


FIGURE 35 -- LOCATION OF MURPHY SPRINGS FARM (KN-2586)

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Knoxville-Knox County Metropolitan Planning Commission

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Rule, William, ed.

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Sammartino, Therese T.

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Thomason and Associates

- 2000 *Historical and Architectural Survey. Improvement to Tazewell Pike (SR 331) and Washington and Millertown Pikes Knoxville, Knox County, TN*. Thomason and Associates, Nashville, TN.

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- 1966 *7.5' Fountain City, Tennessee Quadrangle*. Department of the Interior, Geologic Survey, Washington, D.C.; available online at <http://www.lib.utk.edu/cic/tnmap/browse.html>

- 1978 7.5' *Fountain City, Tennessee Quadrangle*. Department of the Interior, Geologic Survey, Washington, D.C.; available online at <http://www.lib.utk.edu/cic/tnmap/browse.html>
- 1978 7.5' *John Sevier, Tennessee Quadrangle*. Department of the Interior, Geologic Survey, Washington, D.C.; photo revised in 1992.

Appendix A
Resume for Principal Investigator

Jana L. Bean

Architectural Historian

Ms. Bean joined the Columbia, South Carolina office in 2003 and serves as an architectural historian and environmental coordinator. In these roles, she investigates and documents survey findings; supervises historic survey field personnel; completes NEPA documentation; conducts environmental assessments for transportation projects; and assesses the impacts related to human environmental conditions.

Principal Investigator, S-41 Blackstock Road over Norfolk Southern Railroad, Spartanburg County, South Carolina (2011-2012). This project involved an investigation and presentation of 3 alternative layouts for consideration by SCDOT for a new grade-separated bridge to carry S-41 (Blackstock Road) over the Norfolk Southern Railroad to replace existing at-grade crossing. Ms. Bean conducted field and written documentation of environmental conditions and assessed the impacts of the project. As the principal investigator, Ms. Bean developed a historic context, documented historic sites through mapping, photography, completed SHPO survey forms, and made recommendations of eligibility for the National Register and determinations of effect.

Principal Investigator, South Carolina Public Railways, Charleston Intermodal Facility, North Charleston, South Carolina (2011). As the principal investigator, Ms. Bean reviewed historic maps, performed background research on previous surveys, documented existing conditions at the former Charleston Naval Base through photography, surveyed additional properties and made recommendations of eligibility for the National Register, and determined the potential impacts of the project on eligible and listed historic sites and districts.

Principal Investigator, North Forrest Street (CR 138) Improvements, Georgia Department of Transportation, Valdosta, Georgia (2010). Ms. Bean performed an assessment of impacts to 2 historic districts and 3 historic properties. This process involved documentation in an Assessment of Effects report and Draft 4(f) Evaluation, analysis of avoidance alternatives, and negotiation of mitigation measures.

Principal Investigator, Donalsonville-Seminole County Airport Environmental Assessment, Donalsonville, Georgia (2010-2011). As the principal investigator, Ms. Bean developed a historic context, documented historic sites through mapping, photography, completed SHPO survey forms, and made recommendations of eligibility for the National Register and determinations of effect.

Environmental Coordinator, I-526 (Mark Clark Expressway) around Charleston, South Carolina (2008-2010). The extension of I-526 (Mark Clark Expressway) around Charleston, South Carolina will complete the Charleston Inner Belt Freeway and provide an interstate connection with West Ashley, Johns Island, and James Island. CDM Smith was selected by the South Carolina Department of Transportation to study alternative alignments, prepare an environmental impact statement, and produce right-of-way plans for this new interstate facility. For the environmental impact statement portion of this study, Ms. Bean was responsible for documenting environmental conditions, assessing impacts to Section 4(f) resources, and coordinating with local and state officials. She also

Education

M.A. - History,
University of
South Carolina,
2003

B.A. - History,
Southwest
Missouri State
University, 1996

Training

National
Preservation
Institute -
Identification and
Evaluation of Mid-
20th Century
Buildings

National
Preservation
Institute - Section
106 Review

Ohio Department
of Transportation -
Section
106/National
Register Eligibility
Training

Ohio Department
of Transportation
Section 4 (f)
Training

National Highway
Institute - NEPA
and the
Transportation
Decision-Making
Process

Years of Experience

Total Years: 8
CDM Smith: 8

served as the principal investigator for a historic structures survey involving documentation of historic sites, making recommendations of eligibility to the National Register and potential project impacts, and coordinating mitigation with the SHPO.

Principal Investigator, Hilton Head Island Airport - Environmental Assessment for Runway 21 Tree Removal, Hilton Head, South Carolina (2008-2012). This airport's primary approach contained hundreds of obstructions. The controversial environmental assessment focused on a strict tree removal ordinance as well as nearby historic properties, endangered species, and residential impacts. As the principal investigator for a historic architectural survey, Ms. Bean assessed determinations of eligibility to the National Register for historic structures, the eligibility of a Traditional Cultural Property, and the potential effect of the project on and possible mitigation for a Civil War earthwork and archaeological site.

Principal Investigator, Turner County Airport Runway Expansion Environmental Assessment, Ashburn, Georgia (2008-2009). As the principal investigator, Ms. Bean developed a historic context, documented historic sites through mapping, photography, completed SHPO survey forms, and made recommendations of eligibility for the National Register and determinations of effect.

Principal Investigator, State Route 9 Environmental Assessment, Lee and Union Counties, Mississippi (2008). As the principal investigator for this proposed widening and new alignment for SR 9, Ms. Bean developed a historic context, documented historic site survey. She conducted mapping, photography, completed SHPO survey forms, and made recommendations of eligibility for the National Register and determinations of effect.

Principal Investigator, Armuchee Connector, Floyd County, Georgia (2007). This project consisted of a 2-mile long, 2-lane rural and 4-lane urban connector with bike lanes. Also included was the design of a 2-lane bridge with a multi-use trail over the Oostanaula River. As principal investigator, Ms. Bean developed a historic context, documented historic sites through mapping, photography, completed SHPO survey forms, and made recommendations of eligibility for the National Register and determinations of effect.

Principal Investigator, Roadway and Bridge Design for Widening of I-26, North Charleston, South Carolina (2006-2007). For the South Carolina Department of Transportation, this project involved preliminary design, construction cost estimates, and an environmental assessment for the widening of a 6-mile section of I-26 between I-526 and Exit 217. It was completed on an accelerated 6-month schedule. As the principal investigator, Ms. Bean developed a historic context for World War II housing developments; field documentation of historic sites which included mapping, photography, and completion of SHPO survey forms; and recommendations of eligibility for the National Register and determinations of the effect of the project to historic resources.

Environmental Coordinator, I-73 Environmental Impact Assessment, South Carolina (2005-2007). CDM Smith worked with SCDOT on the planning and design of I-73, to run from Michigan to South Carolina. The team prepared two environmental impact statements and records of decision and obtained environmental permits within an unprecedented three-year period. For this project, Ms. Bean coordinated with the cultural resource firm subconsultant, documented environmental conditions, assessed impacts to Section 4(f) resources, coordinated with local and state officials, assisted at public meetings, and conducted public surveys.

Environmental Coordinator, Mississippi River Bridge Crossing Feasibility and Location Study, Memphis, Tennessee 2004-2007). This feasibility and location study, which included three counties in three states, identified and evaluated potential river crossing sites. CDM Smith conducted extensive public and community outreach as part of a context sensitive solutions program. The project received an ACEC award. Ms. Bean oversaw mapping and data collection of the environmental conditions, coordinated with public agencies and the general public, and developed the purpose and need for the project.

Principal Investigator, Southern Kentucky Intermodal Park Environmental Assessment, Somerset, Kentucky (2004). Environmental services were provided for the proposed intermodal park study for the Southern Kentucky Economic Development Corporation. A community impact report and a noise analysis report were prepared. A categorical exclusion, Level III report was submitted to and approved by KYTC and FHWA. As the principal investigator, Ms. Bean developed a historic context, documented historic sites through mapping, photography, completed SHPO survey forms, and made recommendations of eligibility for the National Register and determinations of effect.

Principal Investigator, North Campbell Station Road Advanced Planning Report and Environmental Assessment, Farragut, Tennessee (2003-2005). CDM Smith determined the need and feasibility of improving access to I-40 via Campbell Station Road. The study recommended widening the roadway to 5 lanes throughout, and evaluated the need for a new traffic signal and signal system upgrades. As the principal investigator, Ms. Bean developed a historic context, documented historic sites through mapping, photography, completed SHPO survey forms, and made recommendations of eligibility for the National Register and determinations of effect.

Principal Investigator, Proposed Route I-66 between Somerset to London, Section 106 Compliance, Kentucky (2001-2007). As the principal investigator, Ms. Bean developed a historic context, documented historic sites through mapping, photography, completed SHPO survey forms, and made recommendations of eligibility for the National Register and determinations of effect.

Environmental Coordinator, College Avenue (SC 133) Widening and Railroad Bridge Replacement, Clemson, South Carolina (2001-2010). For this project CDM Smith provided surveys and mapping, traffic analysis, environmental studies, evaluation of alternatives, coordination with Norfolk Southern Railroad and utility companies, temporary railroad detour planning, roadway and railroad bridge construction plans, and

geotechnical engineering for pavement and bridge foundation design. As the environmental coordinator, Ms. Bean conducted field and written documentation of environmental conditions and assessed the impacts of the project.

Environmental Coordinator, Veteran's Administration Enhanced-Use Market and Business Plan, Columbia, South Carolina (2005-2011). This study primarily included data collection, defining Veteran's Administration development objectives, refining preferred development objectives, real estate appraisal and market analysis for the future of the enhanced-use development of the VAMC campus. Ms. Bean served as the coordinator for Section 106 consultation between the Veteran's Administration and SHPO and between the Veteran's Administration and subconsultant.

Publications

Bean, J.L. "Historic Structures Report: The Slave Quarters of Redcliffe Plantation State Historic Site." July 2002

Bean, J.L. "National Register Nomination: Old Shandon Historic District." Columbia, South Carolina, December, 2002

Appendix B

Coordination



**STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION**

ENVIRONMENTAL DIVISION

SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

August 17, 2012

The Cherokee Nation
17675 South Muscogee
Tahlequah, OK 74465
Attn: Dr. Richard Allen, Policy Analyst

SUBJECT: Section 106 Initial Coordination for Proposed Washington Pike Project from I-640 to Murphy Road NE,
Knoxville, Knox County, Tennessee

Dear Dr. Allen:

The Tennessee Department of Transportation (TDOT) in cooperation with the Federal Highway Administration (FHWA) is proposing to improve Washington Pike from I-640 to Murphy Road NE in Knox County (maps attached). The project will widen the road from two lanes to four with turn lanes as required at intersecting side streets as well as add curb and gutter, sidewalks, and bike lanes; some sections of the road already feature a center turn lane. The intersection with McCampbell Drive near Murphy Road NE will be realigned. The project may eliminate or reduce some curb and gutter section with construction of grass swales. The approximate length of the project is 1.73 miles. Additional right-of-way will be needed.

The National Historic Preservation Act (NHPA) recognizes that federally funded undertakings, like the subject project, can affect historic properties to which your tribe attaches religious, cultural, and historic significance. In accordance with 36 CFR 800 regulations implementing compliance with Section 106 of the NHPA, I would like to know if you have information you could share with me about tribal concerns in the project area and if you wish to be a consulting party on the project? Early awareness of your concerns can serve to protect historic properties valued by your tribe.

If you act as a consulting party you will receive archaeological assessment reports and related documentation, be invited to attend project meetings with FHWA, TDOT, and the Tennessee State Historic Preservation Office (TN-SHPO), if any are held, and be asked to provide input throughout the process. If you choose to not act as a consulting party at this time, you can do so at a later date simply by notifying me.

Please respond to me via letter, telephone (615-741-5257), fax (615-741-1098), or E-mail (Gerald.Kline@tn.gov). I respectfully request responses (email is preferred) to project reports and other materials within thirty (30) days of receipt if at all possible. Thank you for your assistance.

Sincerely,

A handwritten signature in cursive script that reads "Gerald Kline".

Gerald Kline
Transportation Specialist I
Archaeology Program Manager

Enclosure

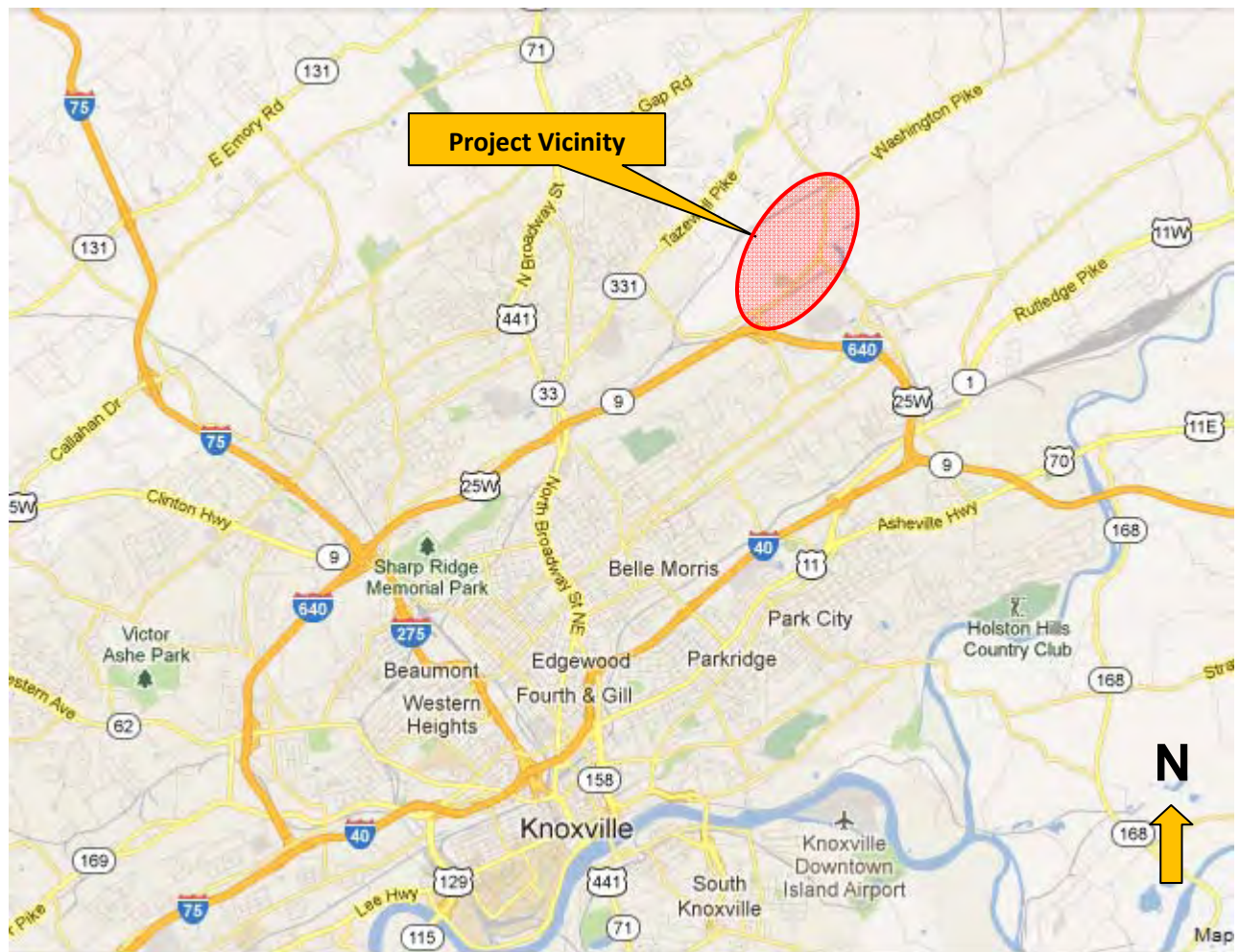
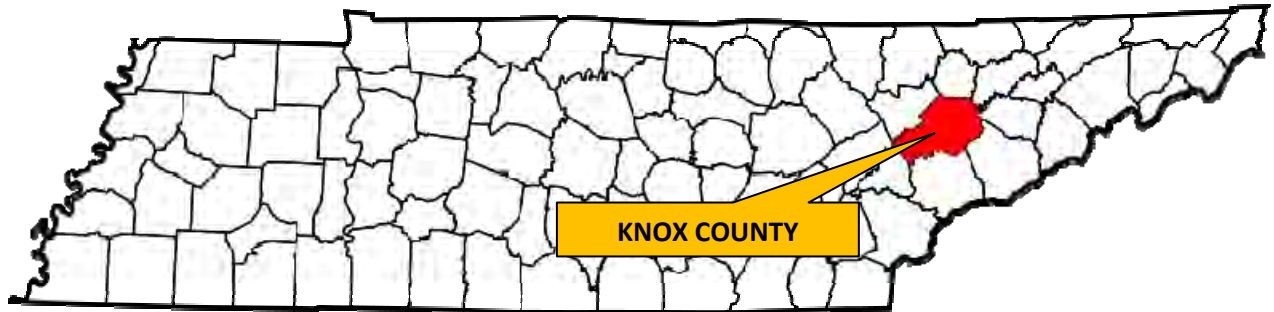
cc: Robin Dushane, Eastern Shawnee Tribe of Oklahoma
Kim Jumper, Shawnee Tribe
Lisa LaRue-Baker, United Keetowah Band of Cherokee Indians
Tyler Howe, Eastern Band of Cherokee Indians



WASHINGTON PIKE PROJECT

FROM I-640 TO MURPHY ROAD NE

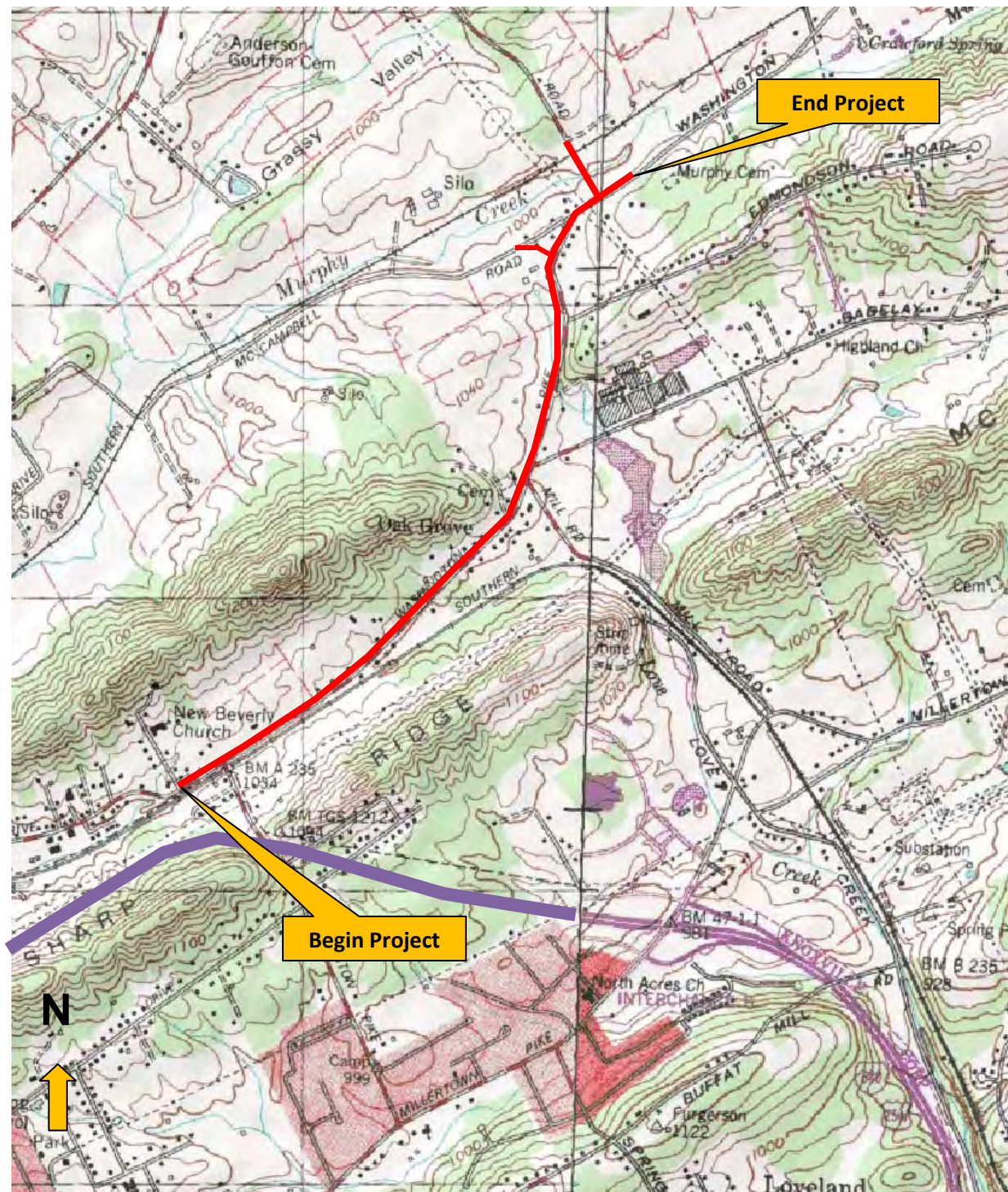
KNOXVILLE, KNOX COUNTY, TENNESSEE



PROJECT VICINITY MAP



Project Location Map



Project Location Map – USGS Fountain City (146 SW) & John Sevier (146 SE)

List of Interested Parties

East Tennessee Community Design Center
1300 North Broadway
Knoxville, TN 37917

Heather Bailey
Historic Preservation Planner
East Tennessee Development District
Post Office Box 249
Alcoa, TN 37701-0249

East Tennessee Historical Society
P.O. Box 1629
Knoxville, TN 37901

Knox County Mayor
Suite 615, City-County Building
400 Main Street
Knoxville, TN 37902

Tennessee Valley Authority
Cultural Resources
400 West Summit Hill Drive
Knoxville, TN 37902

Knox Heritage, Inc.
P. O. Box 1242
Knoxville, TN 37901

Knoxville Historic Zoning Commission
c/o Knoxville/Knox Co. Planning Commission
City County Building, Suite 403
400 West Main Street
Knoxville, TN 37902-2476

Steve Cotham
Knox County Historian
Knox County Public Library
500 West Church Avenue
Knoxville, TN 37902-2505

Ethiel Garlington
East TN Preservation Alliance
Post Office Box 1242
Knoxville, TN 37901

Kevin Murphy
4508 Murphy Rd
Knoxville, TN 37918

Northeast Knox Preservation Association
P.O. Box 5863
Knoxville, TN 37928

TENNESSEE CENTURY FARMS PROGRAM
APPLICATION

Read through the application and pay special attention to the “Requirements” to be certain that your farm qualifies.

Fill in the application form, answering each question as fully as possible. Submit only one application for each farm. If there are several current owners of the same farm, all owners’ names should be on one application, but one person should be the primary contact for all matters relating to the Century Farms Program.

Submit the form and any necessary supporting documents to the county historian or the county extension agent of the county in which the land is located for his/her signature.

Your signature must be witnessed by a Notary Public on the certification portion of the form.

Submit photographs, if you have any, which illustrate your family’s history, its buildings, and the landscape. Photographs will be copied and returned on request.

6. Mail completed application form and supporting materials to:

Caneta S. Hankins
Director, Tennessee Century Farm Program
Box 80, Middle Tennessee State University
Murfreesboro, TN 37132

APPLYING FOR THE CENTURY FARMS PROGRAM

Requirements

Ownership:

At least one owner of the farm must reside in Tennessee.

The line of ownership from the first family member owning the land (the founder) may be through wives, husbands, children, brothers, sisters, nephews, and nieces.

Adopted children will be recognized equally with blood children.

Any land in the process of being sold to a non-relative is ineligible.

Agricultural Production:

The land under consideration must meet the following U.S. Census definition of a farm: ten acres or more with annual agricultural revenues of \$1000 or more.

The land must have been agriculturally productive and *continuously* owned by members of the family for 100 years or more.

Each of the above requirements must be fulfilled for your application to be considered.

Application

All questions to this application must be answered as stipulated. When you have completed the application, you should have provided a clear line of ownership from the founder and the date founded to the present owner. If you have photographs of the farm's land, buildings, or owners (from any generation) which we could copy, please write your name and address on the back, identify the photograph, and submit them with your application. Photographs will be returned upon request. Please do not send original photographs or documents, only copies. The Center for Historic Preservation assumes the right to publish any photographs submitted with the application and information that appears within the application. To protect your privacy rights, addresses or phone number of owners and exact locations of the farm will not be published. Completed applications must be certified by the county historian or extension agent of the county in which the farm is located. The application must also be notarized.

On receipt of the application, the Center for Historic Preservation will review and process the application. Notification of acceptance will be made by letter and will include a certificate. A press release will be issued to the county newspaper where the farm is located and the farm's name, history, and photograph will be placed on the Century Farm web site.

One (1) Century Farm Certificate and one (1) sign, provided by the Tennessee Department of Agriculture, will be issued for each farm or ranch.

In cases where separately owned farms or ranches have evolved from the founder's original acreage by family members and meet all other requirements of the program, each farm or ranch may qualify as a Century Farm. Each owner must make application for his/her farm.

SECTION I: CURRENT OWNERSHIP

Owner # 1 should be the person submitting the application and will be considered the primary contact for the farm. This person will receive any correspondence associated with the Century Farms Program. For each owner, give the following information:

Owners:

Murphy, Kevin P.
4508 Murphy Rd, Knoxville TN 37918-9179
Knox County
865-687-8799
Email: kmurphy@alumni.rice.edu

Murphy, John P.
5922 Washington Pike, Knoxville TN 37918
Knox County
865-688-1604

Workman, Mary
5936 Washington Pike, Knoxville TN 37918

Murphy, Michael B.
P. O. Box 3580, Winter Haven FL 33885
863-307-3071

Murphy, Cathy and Manuel, John
5905 Woodberry Rd, Durham NC 27707
919-489-7826

King, Patricia
Little Rock, Arkansas

Campbell, Kent
Seattle, WA

Campbell, Robert
Atlanta, GA

Campbell, John

SECTION II-A: HISTORY OF THE LAND –The Founders of the Farm

Land Location (example: Davidson County, 2 mi. NE of Nashville, Hwy 41A):

Knox County, along Murphy Creek (referred to as White's Creek in the family history) at corner of Washington Pike and Murphy Rd, in the old Grassy Valley located between White's Ridge and Black Oak Ridge

Name of the first family member to own the land (hereinafter known as the "Founder"):

Robert Murphy

Name of founder's spouse: Martha McNeil

Name and/or number of children:

Polly Murphy
John Murphy (1786-1855)
Alexander Murphy (1788-1875)
William Murphy (1790-?)
James Murphy (1793-?)
Elizabeth Murphy (1794-1862)
Maria Murphy (1800-?)
Patsy Murphy (1804-1878)
Harriet S. Murphy (1805)
Hugh McNeil Murphy (1810-1877)

Date founder acquired title to the land (you must include a copy of legal documentation, such as a deed, will, or census record, that proves the founder's ownership and the date):

May 24, 1797, from deed for 115 acres along White's Creek, bought from John Crawford, who bought from Fred Adair and John Adair, which was an original land grant from the State of North Carolina

July 1, 1797 from deed of 50 acres along White's Creek, bought from John Edminston

15 acres, grant from State of Tennessee, March 12, 1819

12.5 acres, grant from State of Tennessee, March 10, 1826

Number of acres in founder's original farm or ranch: Approximately 192.5 acres (1797-1826)

Types of crops and livestock grown by founder: Corn, potatoes, hay, flax seed, flour, butter, honey, chickens, cotton (cloth)

Important events and activities occurring on the farm during the founding owner's lifetime related to the development of the farm or ranch, the history of the community, and the history of Tennessee (please add additional pages as you wish):

- See attached family history and the attached history of the Ritta Community by David Babely.
- Built an original settlers cabin on the land and cleared out land for homesite and fields.
- Isaac Anderson, founder of Maryville College, first founded Union Academy which was located less than 500 feet from the old farm.
- Robert Murphy donated land for the establishment of Murphy's Chapel in 1847, a Methodist congregation located at the intersection of the John Luttrell and Robert Murphy farms

SECTION II-B: Second Owners of the Farm

Name(s): William Murphy and Hugh McNeil Murphy

- each owned ½ of the farm at the time of their father's death, but William Murphy then signed over the remainder of the farm to Hugh Murphy according to the wishes in their father's will

Relationship to founder: sons

Year this owner acquired the property: 1850 (upon father's death)

Name of this owner's spouse:

Hugh Murphy → Sarah White (first wife, mother of all children)

Hugh Murphy → Dicey Malinda LaRue (second wife)

William Murphy → Sally Johnston

Name(s) and/or number of children:

Robert Fillmore Murphy (1854-1890)

Leonidius R. Murphy (1842-1879)

William Alonzo Murphy (1845-1916)

Martha Jane Murphy (1847-?)

Joseph C. B. Murphy (1849-1858)

Harriet S. Murphy (1851-1858)

John Rush Murphy (1956-1937)

Number of acres in farm at this time (if known): At least 192.5. Records in the archives indicate that additional land was acquired, possibly over 100 acres of the adjacent Anderson farm. However, that land was sold by the late 1800's. Hugh Murphy was the banker for the neighborhood; deciphering the land transactions of what he owned vs. what he bought on behalf of his neighbors is difficult.

Types of crops and livestock grown by this owner: Unknown. Assume similar as first generation.

Important events and activities occurring on the farm during the founding owner's lifetime related to the development of the farm or ranch, the history of the community, and the history of Tennessee (please add additional pages as you wish):

- Hugh Murphy was a teacher at Fancy Hill school
- Hugh Murphy built a house on the farm that still stands (the Hugh Murphy House) and is being nominated for the National Register of Historical Places
- Union troops traveled through the area and stripped the house bare

SECTION II-C: Family Owners Between the Second Generation and Current Owners

If other relatives owned the land between the years noted in Section II-B and the year the current owner(s) assumed ownership, please provide that information in the same form as asked for above for each generation or owner on a separate sheet. To keep the information organized, you might title each separate generation as Third Owners, Fourth Owners, and so on. We want as much information on each generation as possible. This information is most important to show the clear line of ownership and the history of the farm from the founders to the current ownership.

See the appendix for additional information.

SECTION III: Present Ownership

Year you acquired land: 2009 April 30

Your relationship to the founder: Great, great, great, great grandson

3. **Your spouse's name:** None
4. **Number of generations living on the land today:** Two
5. **Identify relationships of generations (example: "Owner and son's family, Mr. and Mrs. John Jones and their children, ages 5, 8, and 11"). Please be specific, including correct spelling on names and relationships, as we will use this information when preparing the press release and web site entry:**

Descendents of Robert Murphy include his great, great, great grandchildren Mary Workman, Sherry and John Murphy, and a great, great, great, great grandchild Kevin Murphy.

6. **Number of acres farmed by you that were owned by founder:** Myself: 50. All-together: Approximately 185 acres are being farmed, with another 24 in timber and as households for other family members. Approximately 209 acres of the original farm are intact. The founder owned approximately 192 acres, but his son Hugh Murphy acquired additional land between 1850 and 1877, some of which was later divested. Tracing the deed history is a difficult due to the property descriptions.

7. **Additional farm or ranch acreage owned by you today:** None

8. **Crops or livestock produced on the farm during the current owner's time on the farm, including what is produced today:** Beef cattle, hay

9. **Are any buildings constructed in or earlier than 1950 still standing? If so, please describe their physical appearance and original and present-day use. Enclose photographs if possible and use additional space as needed.**

Yes, there are a number of them. See the attached files for pictures of them in current state.

- Hugh Murphy House – built approximately 1841. A Gothic Revival cottage, approximately 2,600 square feet. The house is the subject of a National Register application; when the application is completed, it will be forwarded to MTSU for records. A blog describing the current restoration project is available (with numerous pictures) at <http://murphysprings.blogspot.com>
- Smoke house – behind the Hugh Murphy House; dendrochronological dating confirmed that the Hugh Murphy House and smoke house were built at the same time. The smoke house was used for smoking meats until at least the 1950s. It is now used for storage. The Knox County Historical Zoning Commission staff believes this to be one of only a few surviving smoke houses in Knox County.
- Spring house – unknown date (between 1841 and 1910). Was used as part of the dairy farm operation in the late 1800s and early 1900s. John Rush Murpy

- had a weekly Saturday morning dairy run in the 1920s and early 30s for eggs, butter and milk from the farm. The spring house was renovated in the 1970s/1980s with a concrete floor and concrete block walls, and new trusses.
- Wash house – next to the spring house, a small wooden building approximately 12x12 with a chimney. Used for washing up dairy equipment (the fireplace was used to heat the water for washing) and churning butter.
 - Garage – a two bay garage, built in the 1800s or very early 1900s. Two bays, large enough for wagons, on each side of a corn crib.
 - Wood shed – A large wood shed was located in the middle of current driveway parking area. Unknown build date; it was moved to the current location approximately 1932. It is now used as a tool shed.
 - Chicken coop – The chicken coop is at last 1924 if not earlier. The side was cut out of it and it is now a garage and storage shed.
 - Robert M. Murphy House – built approximately 1925 across White's (Murphy) Creek and Washington Pike from the Hugh Murphy House. Robert M. Murphy was the first Knox County Agricultural Extension Agent. The house is currently vacant.
 - Robert M. Murphy barn – primarily used as a hay storage loft
 - Dixie Dixon cottage – built by the wife of Fred Murphy after Fred Murphy died, circa 1926. A small, cedar-shake sided one bedroom cottage that is currently used as a rental house.

10. Is this property on the National Register of Historic Places or recognized by a local historical organization (give the name of organization):

The Hugh Murphy House is in the process of being listed on the National Register. We are working with the Knox County Historical Zoning Commission (Ann Bennett) and Knox Heritage.

11. Who works the land today? Give name and relationship (of any) to owner of property.

Joe Mitchell, no relation, has been working the property for approximately 20 years growing cattle on it.

12. If you retain a manager, are you actively engaged in the everyday operation of the farm or ranch?

SECTION IV: People, Events, Stories Related to the Farm

In each section of ownership we have requested that you describe important events, people, or stories related to the development of the farm, the history of the community, and the history of Tennessee that took place on your property.

Because the Center for Historic Preservation also administers the Tennessee Civil War National Heritage Area, we are especially interested in people, events, and stories associated with the period 1860– 1875 that encompasses the Civil War and Reconstruction. However, we are also interested in events and stories from any period of Tennessee history.

If you prefer, you can combine the information from different periods below, but please make sure we know the approximate dates and owners with whom the stories are associated. For example, if land was given for a school or church by the family during the 1890s, let us know. Also any awards or honors the farm and family received at different times would be welcome

information. For example, if someone was involved in the Home Demonstration Club, 4-H, or Farm Bureau, let us know. Use additional pages as needed.

Please see the attached Robert Murphy Family History and History of the Ritta Community for substantial details on the history of the farm. Other details not contained in that history include:

- Robert M. Murphy Sr. was the first Agricultural Extension Agent for Knox County. He was also instrumental in bringing the Farm Bureau to Knox County. See enclosed obituary. R. M. Sr. and his wife, Perle Pennington, started the Murphy Builders Sunday School class at Church Street United Methodist Church in Knoxville; the class still meets to this day.
- Alvin R. Murphy Sr. worked for Wallace and Tiernen. Mr. Wallace invented the first chlorinator. His son, Alvin R. Murphy Jr. also worked for Wallace and Tiernen. Each of them retired as the manager of the southeastern region for sales and operations. The elder A.R. Murphy was involved in the formation of Hamilton National Bank and Holston Hills Country Club.
- Tip Chesney's (mentioned at the end of the family history) son, Paul Henry Chesney, worked the A. R. Murphy farm until his death in the mid 1980s.
- A seven (7) acre field fronting Murphy Rd. is used for planting oats by the [East Tennessee Draft Horse and Mule Owner's Association](#). They plow the field in the fall with old equipment drawn by horse and mule teams, and then use an old combine to harvest the oats in the spring. A number of local onlookers stop in due to the large traffic volume on Murphy Road.
- Corinth Methodist Church, listed in the history, is now known as the First Comforter Church on Old Tazewell Pike.

Information for Certificate:

Name of Farm (such as Elm Hill Acres or McDow Farm):

Murphy Springs Farm

If no name is given, we will register the land under the last name of the present owner. In some instances, a farm in your county may already be registered under the name you have given. If that should be the case, we will contact you to ask you to select another name for your farm.

for
CENTURY FARMS PROGRAM

I declare that the statements made in this application are accurate and correct to the best of my knowledge.

Signature of current owner

Subscribed and sworn to before me this _____ day of _____, 20
.

Notary Public

My commission expires on the _____ day of _____, 20
.

I declare that _____ appeared before me
on _____
name of owner date

With substantiating evidence that the land now in his/her possession has met the stated requirements of the Tennessee Century Farms Program.

County Historian ____
or
County Agent ____

Mail the completed application and supporting documentation, including photographs, to:

**Caneta Hankins
Director, Tennessee Century Farms Program
Center for Historic Preservation
Box 80, MTSU
Murfreesboro, TN 37132**

Appendix A: Family Owners between the Second Generation and Current Owners

See the included genealogical charts for full information on the family members. For this section, I will focus on the owner names. Very significant events are included in this narrative; others are described in the Robert Murphy Family History.

THIRD GENERATION

Owner(s): Dicey LaRue Murphy (Hugh Murphy's second wife), Robert Fillmore Murphy, John Rush Murphy, William Alanzo Murphy

Land Description: Hugh Murphy's will gave the farm to all of his children, but after settling the estate Dicey, Robert, John and Rush were the only children that desired property. The property was transferred to them on the 15th July 1878. The farm was split into parcels on 6 March 1880 for the four of them. Dicey Murphy transferred her land to John Rush Murphy on 27 May 1899 in exchange for maintenance and support for the rest of her natural life. At least one large parcel of land that was acquired by Hugh Murphy, at least 100 acres, was sold during this generation's ownership.

Important events and activities occurring on the farm:

- The Powell Valley Railroad Company bought right-of-way from the Murphys in 1887 for the railroad line.
- Land was provided for Corinth Methodist Church (date was in the 1880s)
- Robert Fillmore Murphy died in 1890 of typhoid fever. His wife (Sarah French) and his step-mother (Dicey) took care of the three children. Sarah French died in 1905, and the children's uncle John Rush Murphy and Dicey Murphy raised them.

FOURTH GENERATION

Owner(s): Alvin R. Murphy Sr., Robert M. Murphy Sr., Mary Ann Koger (children of Robert Fillmore Murphy), Fred E. Murphy (son of William A. Murphy)

Land Description: On 22 June 1925 John Rush Murphy conveyed over to Robert Fillmore Murphy's children (A.R. Sr, R.M. Sr, and Mary Ann) the land that had once belonged to Robert Fillmore Murphy, Dicey Murphy and himself; this roughly split the farm into four parcels, with Fred Murphy inheriting the remaining quarter. Later Alvin Sr. bought Fred Murphy's parcel. The Knox County archives terminate after 1932; I have not conducted research at the Register of Deeds office to follow the property transfers after that. During this generation some smaller lots ranging from an acre to 4 were carved off and sold when family members required income.

Important events and activities occurring on the farm:

- Alvin Murphy Sr married Eliza Jane Rule, one of 10 children of George A. Rule and Maria Jane Monday. A. R. Murphy Sr. took good care of his in-laws, helped them acquire a 60 acre farm on the French Broad River just where John Sevier Highway crosses the river. That farm, while not part of this century farm program application, has been passed down to Alvin R. Murphy Jr. and ultimately his daughter, Catherine J. Murphy.
- Robert M. Murphy Sr. and his wife Perle Pennington were very active at Church Street United Methodist Church. They would often have Sunday Picnics at their house for the Murphy Builder's Sunday School class.

FIFTH GENERATION

Owner(s): Robert M. Murphy Jr., John P. Murphy, Sarah French Murphy (children of

Robert M. Murphy Sr), Alvin R. Murphy Jr.

Land Description: Alvin R. Murphy's holdings passed directly to his son. R. M. Murphy Sr's land was divided up into a large estate jointly held by all of his children. Several smaller lots were created to provide homesteads for Robert M. Murphy Jr. and equivalent lots for Sarah French Murphy and John P. Murphy. Mary Ann Koger left her property to Robert M. Murphy Jr.

Important events and activities occurring on the farm:

- Robert M. Murphy Jr. served as the county purchasing for Knox County after retiring as a Colonel in the United States Air Force, flying B-17 bombers in WWII and B-52 bombers in the Cold War.

SIXTH GENERATION

Owner(s): Michael B. and Catherine J. Murphy (children of Alvin R. Murphy Jr.), John Murphy and Patricia Murphy King (children of John P. Murphy), Mary French Workman (daughter of Sarah French Murphy); Kent, Robert and John Campbell, children of Betty Ann Campbell who passed away while they were children (1962). Betty Ann Murphy Campbell was the daughter of Robert M. Murphy Sr. but never owned the property; it was passed to the Campbell children from their grandfather.

Land Description: Michael and Catherine Murphy received two 50 acre parcels from their father Alvin R. Murphy Jr. In 2009 they transferred one of the parcels, with the Hugh Murphy house, Michael's son Kevin P. Murphy. The Campbell children, John Murphy, Patricia King Murphy and Mary French Murphy own various interests in a 57 acre "estate" in the middle of the farm. John Murphy owns Col R. M. Murphy Jr's homestead, as well as the homestead lot of his grandparents (Robert M. Murphy Sr.) and the parcels that Mary Ann Koger Murphy gave to Col R. M. Murphy Jr. Mary French Murphy owns a homestead parcel, and Patricia Murphy also owns another parcel.

Important events and activities occurring on the farm:

- The barn, built at least by 1900 if not earlier, was torn down in October 2008 due to significant deterioration, with the unofficial consent of Knox County Historic Zoning.

Kevin P. Murphy
4508 Murphy Rd
Knoxville, TN 37918-9179
murphysprings@gmail.com
2012 April 15

RE: Washington Pike Widening

Via CERTIFIED MAIL and E-Mail

James R. Hagerman, Director of Engineering
1400 Loraine Street
Knoxville, TN 37921

Dear Mr. Hagerman,

I understand that a project is in the planning and engineering phase to widen Washington Pike from I-640 to the Murphy Road intersection. I also understand that federal funds are being used for this project.

The area of the widening project begins at a busy interstate and transits through a mix of commercial, residential and agricultural land before terminating at my family's farm. The Murphy Road / Washington Pike intersection is the gateway to northeast Knox County, which is still largely rural and agricultural in nature. Past the intersection, Washington Pike is identified as a Rural Heritage Corridor in the Northeast County Sector Plan. Also, the intersection is a sharp Growth Plan boundary line between the Urban Growth Area and Rural Area, with no transitional Planned Growth Area.

Improvements to the roadway should take into account:

- The large impact that it will have on the residences and neighborhoods
- National Register eligible structures and properties within the boundary area
- The transition from urban to rural that occurs in the 1.6 mile length of the project
- Enablement of the Washington Pike Heritage Corridor
- The generally one-way flow of high volume traffic during weekday rush-hour

First, I would like to make sure that the planners are aware of my farm's historical nature, that an impact analysis is performed as required by Section 106 since federal funds are being used, and that the impact of the project on the farm is mitigated.

The Murphy Springs Farm was settled in approximately 1797 by my ancestor Robert Murphy, and his family. His son, Hugh Murphy, built a house in 1841 that is about 850 feet from the current Washington Pike / Murphy Road intersection. That structure and its associated outbuildings have been identified as **National Register eligible** since the 1982-1986 Metropolitan Planning Commission survey of historic sites. During recent renovation and restoration, local and state historic preservation officials were consulted to ensure that the structure and farm would remain National-Register eligible.

In 2010 all of the parcels of the farm remaining in the family were certified by the Tennessee Department of Agriculture and Center for Historic Preservation at Middle Tennessee State University as a **Tennessee Century Farm**. Recently I have spoken with local preservation staff at Metropolitan Planning Commission as well as with Patrick McIntyre, the Executive Director of the Tennessee Historical Commission, and we decided to increase the scope of the National Register designation that I am preparing from just the Hugh Murphy House to the entire Murphy Family farm. I am enclosing a list of the parcels that will be listed on the National Register application, along with a rough map. I plan to submit the application to the Tennessee Historical Commission in June 2012.

Since 1797 when the Murphy's first acquired property for the farm, a number of takings have occurred that have impacted the value and historical integrity of the farm. They include:

- Early and continued use of Washington Pike, running through the center of the original farm
- Early and continued use of Murphy Road
- Railroad easement
- 200 foot TVA / KUB high voltage transmission easement on western parcels
- Water, gas and electrical utilities located adjacent to Murphy Road and Washington Pike that impact the peripheral use of the property
- Right of way acquisition for the Murphy Road widening in late 1990s

Given the historic nature of the Murphy Springs Farm and the adverse impact of prior takings, I hope and expect that all efforts will be taken to mitigate the impact to the farm, including:

- Minimal or no acquisition of farm property for right of way
- Noise mitigation measures
- Landscaping buffers
- Light pollution and trespass from streetlights and stoplights
- Location of utilities

Secondly, I hope that efforts are made to minimize the impact on other residents of the area. I have noticed that Knoxville does not utilize full-cutoff streetlights in many areas. This is a rural, residential area and full-cutoff streetlights should be a requirement.

Thirdly, Washington Pike is a route that has traditionally provided quick access for residents of the area to the interstate. There are not many stoplights. The last stoplight on Washington Pike is the light at the Murphy Road intersection; beyond that there are no lights or stop signs until the end of the road.

I have observed that Washington Pike's two-lane facility currently provides good service for most of the day, except for the morning and evening week day rush hours. At these times the traffic is generally uni-directional in nature – flowing into Knoxville in the morning and from the interstate in the evening.

Given the uni-directional nature of rush hour traffic, generally good service during non-rush-hour times, and the traditional quick transit times that Washington Pike has provided to residents, I would encourage the engineers to consider the use of high speed roundabouts instead of stop signs in the widening project. I have lived in areas of the United States and in other countries where roundabouts provide excellent service levels to travelers. In the case of Washington Pike, a multi-lane roundabout design can probably handle anticipated growth events.

I am requesting documentation on the traffic forecasting estimates that are being used as requirements in the engineering process. The Washington Pike Transportation planning Report study did not provide detailed information on the growth forecasts.

If there are any public meetings that will be held on this project, I request to be notified of them.

Sincerely,

A handwritten signature in black ink, appearing to read "K. Murphy", enclosed within a thin black rectangular border.

Kevin P. Murphy

CC via email:

Tom Clabo, Chief Civil Engineer, City of Knoxville
Lisa Starbuck, President, Northeast Knox Preservation Association
Ronnie Collins, President, Alice Bell / Spring Hill Neighborhood Association
Nick Della Volope, 4th District, Knoxville City Council
Dave Wright, 8th District, Knox County Commission
Nathan Benditz, Knoxville Regional Transportation Planning Organization
Kaye Graybeal, Knox Metropolitan Planning Commission Historic Preservation

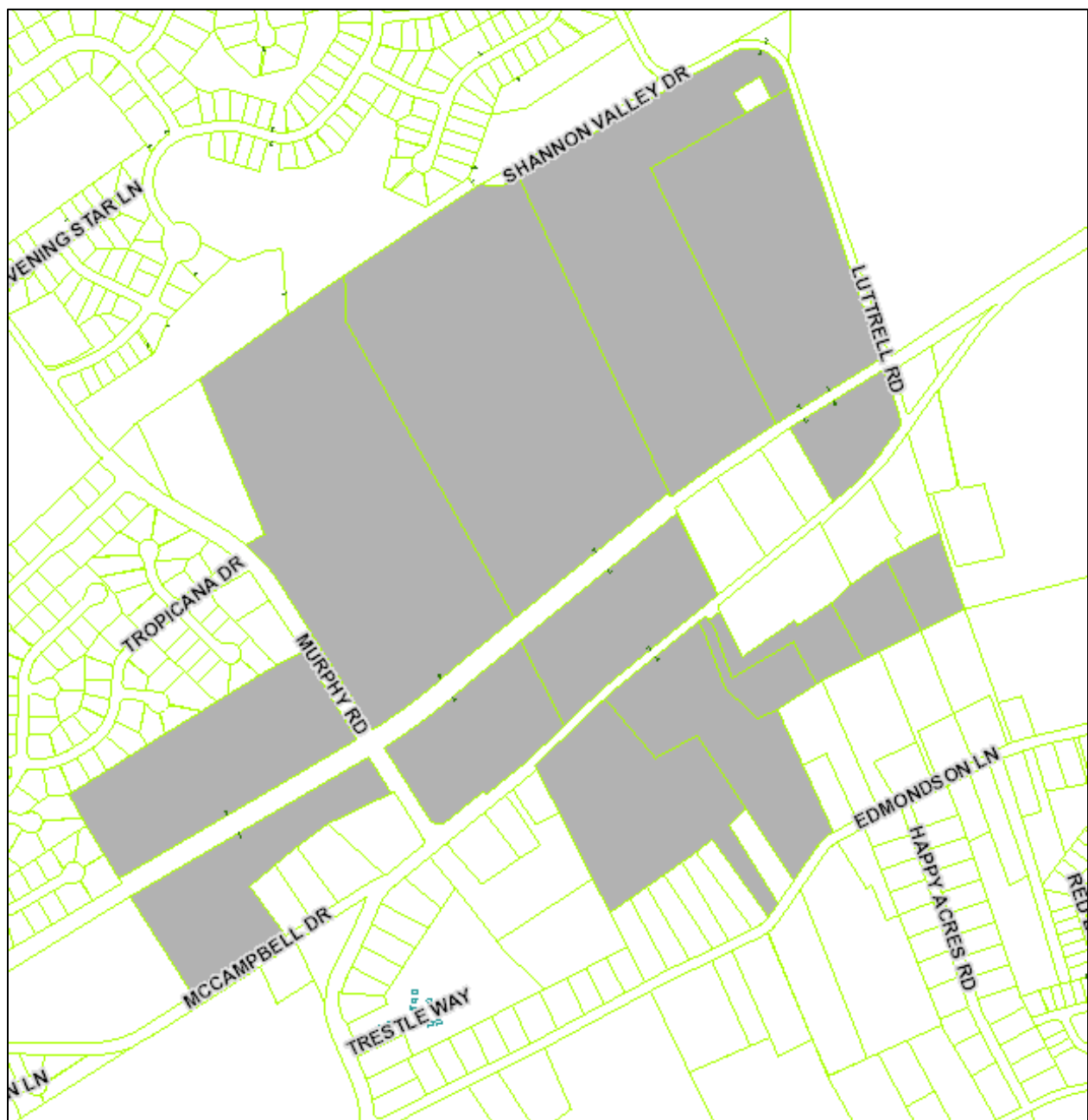


Figure 1 – Murphy Farm Map

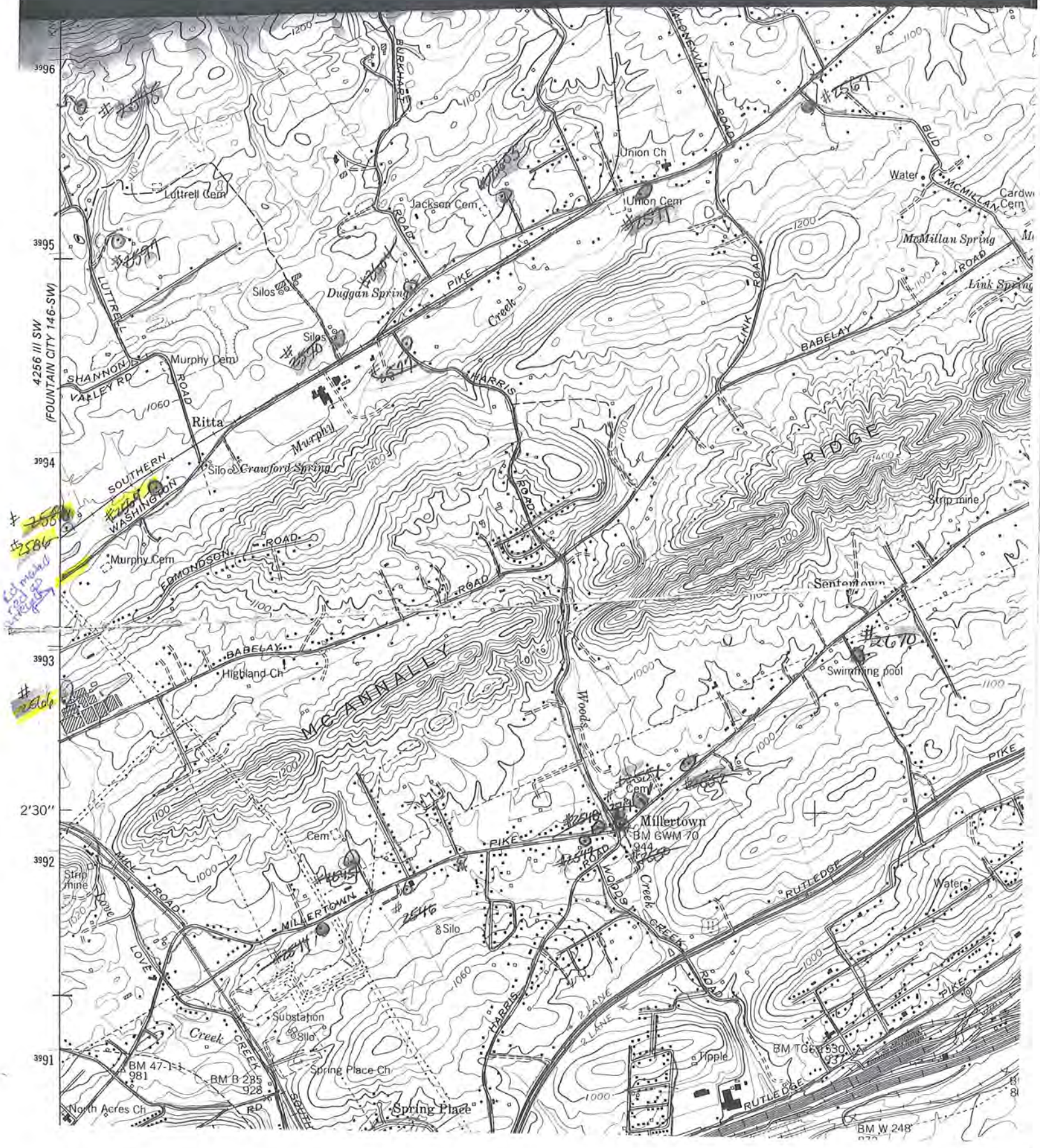
The parcels that constitute the Murphy farm are:

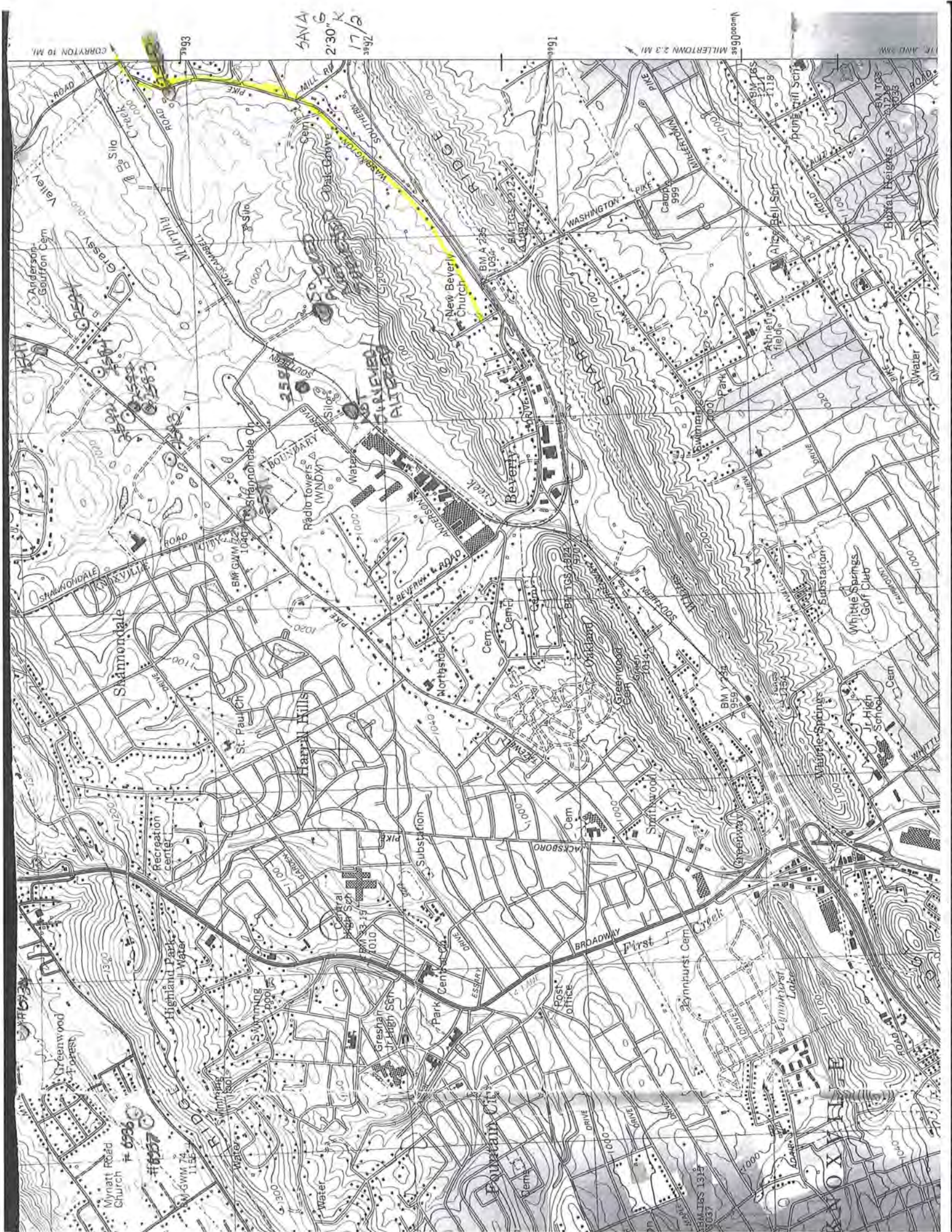
Address	Parcel ID	Size (Acres)
5817 McCampbell Dr	049 08301	3.17
0 Murphy Rd	049 083	20.88
4508 Murphy Rd	049 080	49.50
0 Washington Pike	049 077	58.78
4671 Luttrell Rd	049 071	26.84
6029 Washington Pike	050 001	25.00
5922 Washington Pike	049 078	14.38
5930 Washington Pike	049 07701	2.25
5932 Washington Pike	049 07702	2.60
5936 Washington Pike	050 00201	2.41
0 Washington Pike	050 00202	2.11

Table 1 – Murphy Farm Parcels

Appendix C

Previous Surveys - Maps





CONRYTON 10 MI.

SAVA
2'30" K
17/2
Phase

MILERTOWN 2.3 MI

AND 85W

Shannondale

Harrell Hills

Fountain City

Lynnhurst Lake

White Springs Golf Club

Whinnie Springs Jr High School

New Beverly Church

Mynatt Road Church

Highland Park

Central High Sch

Gresham Jr High Sch

Post office

Slynnhurst Cem

Greenwood Cem

Greenwood Cem

Greenwood Cem

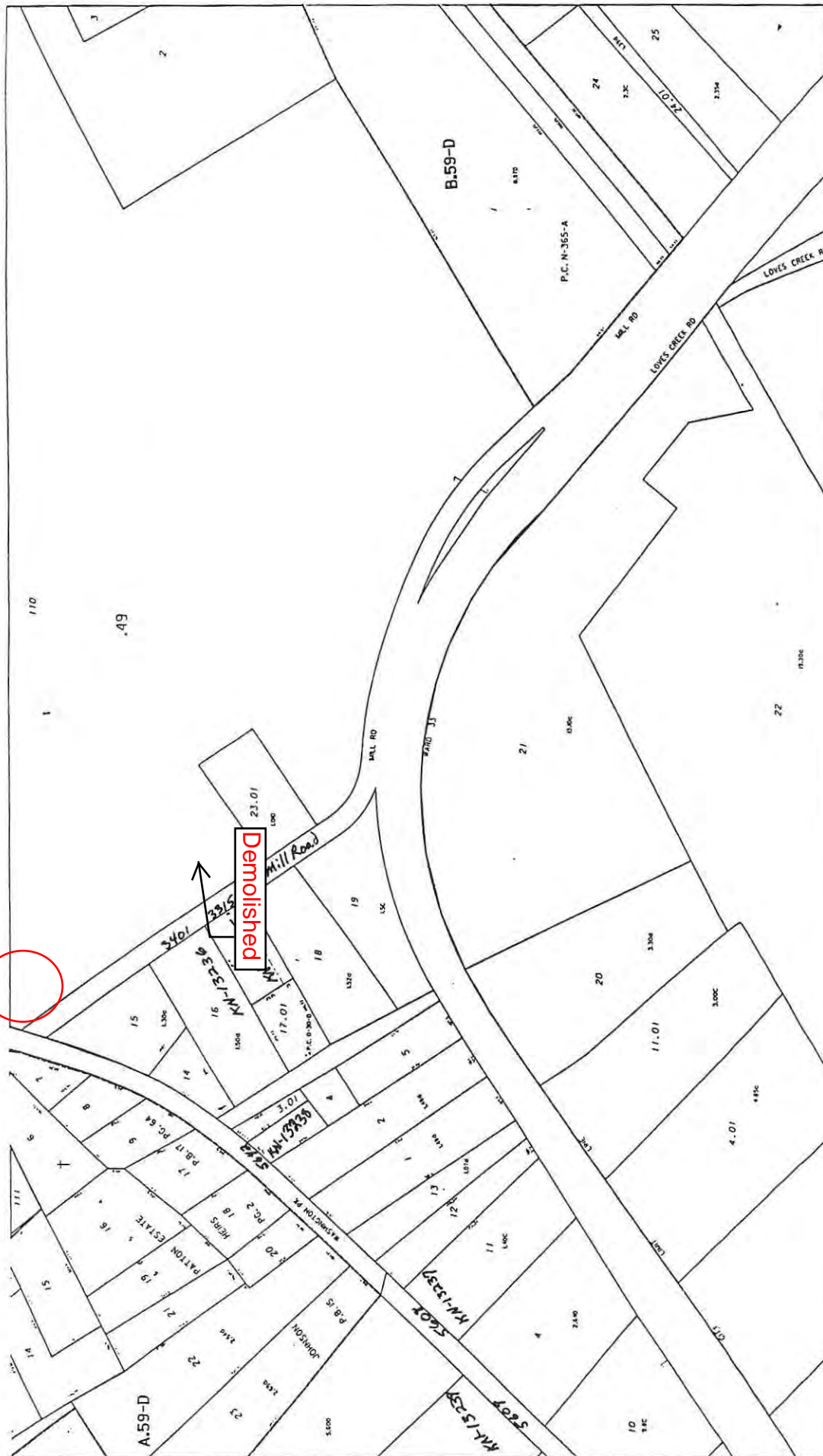
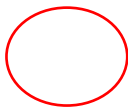
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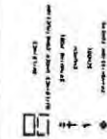
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Greenwood Cem



PROPERTY ASSESSORS OFFICE			
INDEX	COUNTY	TR	MAP No.
1000	1000	1000	1000
1000	1000	1000	1000
1000	1000	1000	1000

49-N	49-M	50-P
59-C	59-D	60-A
59-F	59-E	60-H



Symbol	Description
[Box]	Demolished
[Line]	Road
[Line]	Water
[Line]	Boundary
[Line]	Survey

Parcel Number	Parcel Name	Area
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16
17	17	17
18	18	18
19	19	19
20	20	20
21	21	21
22	22	22
23	23	23
24	24	24
25	25	25

Parcel Number	Parcel Name	Area
1	1	1
2	2	2
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4	4	4
5	5	5
6	6	6
7	7	7
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10	10	10
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Parcel Number	Parcel Name	Area
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Parcel Number	Parcel Name	Area
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2	2	2
3	3	3
4	4	4
5	5	5
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PROPERTY ASSESSORS OFFICE
KNOX COUNTY TN
49-M
Copyright 1988 Courthouse Retrieval Systems Inc


49-X	49-L	50-I
49-N	49-M	50-P
59-C	59-O	60-A

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[illegible]

1	PARCEL 11/12/13/14	1
2	PARCEL 15/16/17/18	2
3	PARCEL 19/20/21/22	3
4	PARCEL 23/24/25/26	4
5	PARCEL 27/28/29/30	5
6	PARCEL 31/32/33/34	6
7	PARCEL 35/36/37/38	7
8	PARCEL 39/40/41/42	8
9	PARCEL 43/44/45/46	9
10	PARCEL 47/48/49/50	10
11	PARCEL 51/52/53/54	11
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14	PARCEL 63/64/65/66	14
15	PARCEL 67/68/69/70	15
16	PARCEL 71/72/73/74	16
17	PARCEL 75/76/77/78	17
18	PARCEL 79/80/81/82	18
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28	PARCEL 119/120/121/122	28
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87	PARCEL 355/356/357/358	87
88	PARCEL 359/360/361/362	88
89	PARCEL 363/364/365/366	89
90	PAR	

SEE 1-1 - 400



Historic Structures Survey for the Washington Pike Roadway Improvements Project

Knoxville, Knox County, TN

TDOT PIN # 043090.00

SUBMITTED BY:

**CDM
Smith**

1100 Marion Street, Suite 200
Knoxville, TN 37921

PREPARED FOR:
City of Knoxville, Tennessee
PO Box 1631
Knoxville, TN 37901

OCTOBER 2012

**Historic Structures Survey
for the
Washington Pike Roadway Improvements Project
in Knoxville, Knox County, TN**


Submitted by
CDM Smith
1100 Marion Street, Suite 200
Knoxville, TN 37921

Pursuant to 36 CFR 800 and Section 4(f) Evaluation

Prepared for
City of Knoxville, Tennessee
PO Box 1631
Knoxville, TN 37901

Lead Federal Agency:
Federal Highway Administration
TDOT PIN # 043090.00

October 2012


Jana Bean, M.A.
Principal Investigator
1301 Gervais Street
Columbia, South Carolina 29201
Phone: (803) 758-4500
Beanjl@cdmsmith.com

Management Summary

CDM Smith conducted the historic structures survey ~~portion of the Categorical Exclusion~~ for proposed improvements to Washington Pike in the City of Knoxville in Knox County in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and Section 4(f) of the U.S. DOT Act of 1966. This survey was conducted on behalf of the City of Knoxville and the Tennessee Department of Transportation with funding from the Federal Highway Administration. The project is located along Washington Pike with its western terminus at the I-640 interchange and its eastern terminus at Murphy Road.

A search of the Tennessee State Historic Preservation Office files revealed no resources listed on the National Register of Historic Places (NRHP) in the general vicinity of the project. A historic structures survey was conducted in April 2012 to identify historic resources in the designated project Area of Potential Effect (APE), determine their eligibility for listing on the NRHP, and assess the project's potential effect on eligible properties.

Results of the recent field survey found 14 resources within the APE of which 13 resources were determined not eligible and one resource is recommended eligible for the NRHP. It is the opinion of the consultant that the Murphy Springs Farm (KN-2586) is eligible for the NRHP based on Criteria A as an example of a family farmstead in the Early Settlement of Knox County and Criteria C for its example of Gothic Revival architecture. This property was examined for potential effects by the project. It is the opinion of the consultant that the project as proposed will not impact the NRHP-eligible resource and therefore, the project will have no effects to historic properties under Section 106. Therefore, there would be no Section 4(f) use of a historic property.

V adverse ?

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Appendix

Appendix A – Resume for Principal Investigator

Appendix B – Coordination

List of Property Owners/Interested Parties

Native American Tribes coordination letter

Tennessee Century Farms Application for Murphy Springs Farm

Letter from Kevin Murphy

Not needed

Appendix C – Previous Surveys - Maps

Introduction

CDM Smith conducted the historic structures survey ~~portion of the Categorical Exclusion~~ for the proposed widening of Washington Pike Road in the City of Knoxville in Knox County. The survey was conducted in April 2012 to identify historic properties in the designated Area of Potential Effect (APE), determine the eligibility of historic properties for the National Register of Historic Places (NRHP), and assess the project's potential effect on eligible properties. This survey was conducted, as is required of the Tennessee Department of Transportation (TDOT) and the Federal Highway Administration (FHWA), in compliance with Section 106 of the National Historic Preservation Act of 1966 (NHPA) as amended, Federal Regulation 36 CFR 800, and in accordance with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (NPS 1983). If it is determined that the proposed project would have an adverse effect to a historic property, then FHWA provides the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the effect.

FHWA also is required to assess the applicability of Section 4(f) of the U.S. Department of Transportation Act of 1966, as amended. The project may not "use" an historic property unless there is no prudent and feasible alternative to that use and unless the project includes all possible planning to minimize harm to an historic property. Section 6009 of SAFETEA-LU (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users) was implemented in 2005 to take into account any avoidance or minimization of impacts along with any mitigation or enhancement measures to determine the extent of the impacts to the property. Section 4(f) will be satisfied if it is determined that a transportation project will have only a *de minimis*, or minimal, impact to the historic property.

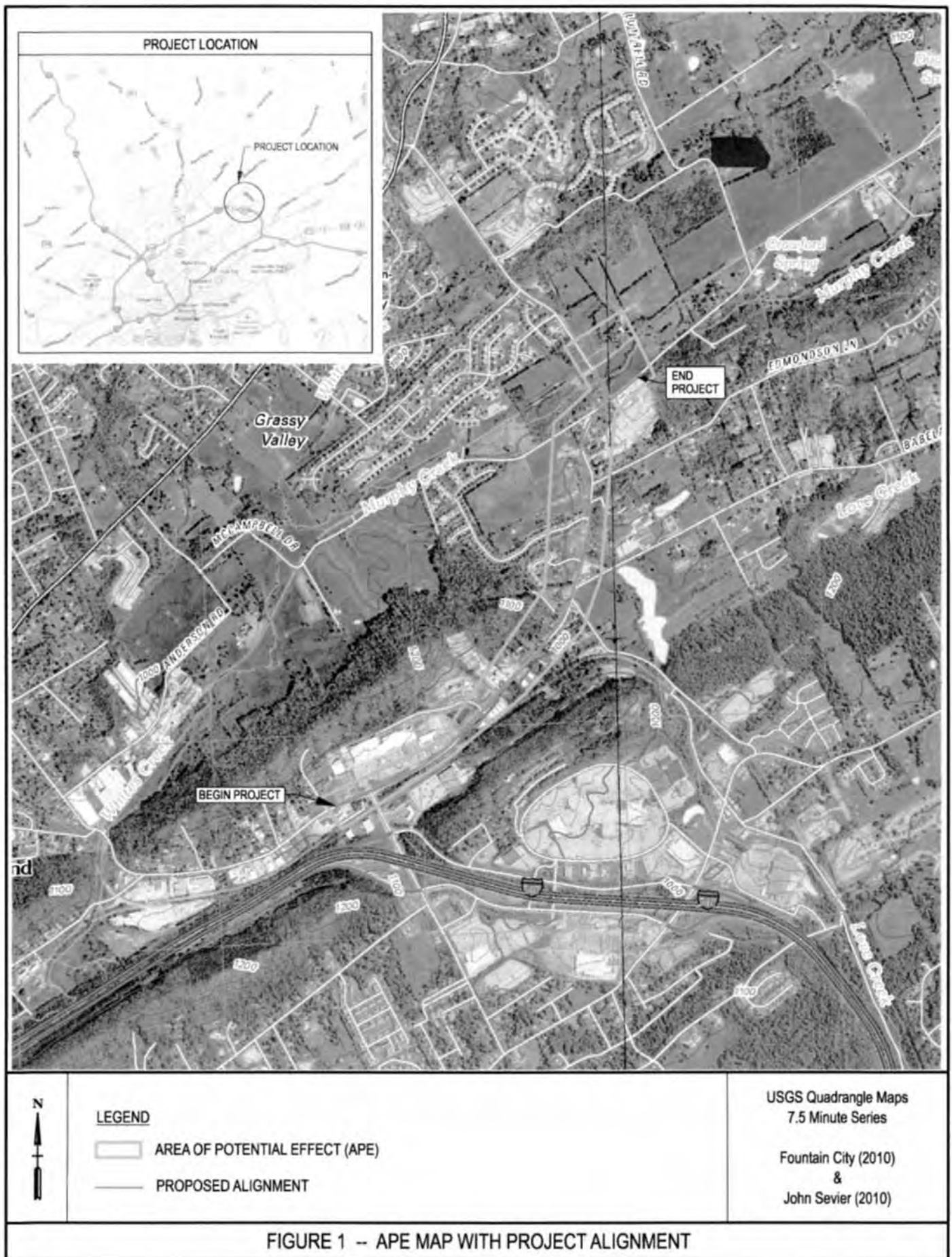
The project is located along Washington Pike with its western terminus at I-640 and its eastern terminus at Murphy Road (see Figure 1 for location). Improvements to Washington Pike would consist of widening to four traffic lanes (two in each direction) with turn lanes as required at the intersecting side streets, and the installation of curb and gutter, sidewalks, and bike lanes. The proposed corridor is 200 feet in width and extends for 1.73 miles. The purpose of the widening of Washington Pike project is to provide a transportation facility that enhances mobility, supports economic development, improves safety, provides alternate modes of travel, and relieves traffic congestion.

Area of Potential Effect

Pursuant to 36 CFR 800 regulations, an Area of Potential Effect (APE) was identified to determine if the proposed project would affect historic resources included in or potentially eligible for the NRHP. An APE is defined in 36 CFR 800.16 (d) as:

the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.

The proposed project is located in a mixed-use area just inside city-limits that includes commercial, rural residential, and new residential subdivisions. The nature of this project includes roadway widening and the addition of sidewalks, curb and gutter, and bike lanes. This led to an APE that takes into account changes in air quality, noise levels, setting, and land use.



The area of potential effect for this project includes the following:

- Parcels adjacent to the project that may be directly impacted;
- Areas within the viewshed of the project as bounded by tree lines or other obstructions to account for changes in setting, and;
- Areas within the potential noise impact area which includes up to 500 feet from the proposed improvements.

(See Figure 1 for a map of the APE)

Methodology

A literature review was conducted at the Tennessee State Historical Preservation Office (TN-SHPO) to identify previous surveys conducted in the area and any resources listed or eligible for listing on the NRHP in the vicinity of the project. The review revealed no resources listed on the NRHP in the project vicinity.

The Knoxville/Knox County Metropolitan Planning Commission conducted a historical and architectural survey of the County between 1982 and 1984 which resulted in a National Register multiple property listing, *Historic and Architectural Resources in Knoxville and Knox County, Tennessee* (Bennett 1994). (Refer to Appendix C for a map.) Three properties were surveyed that are within or near the project APE, the Babelay House (KN-2566), the Murphy House (KN-2586), and the LeCoultre House (KN-2568). The Babelay House and the Murphy House were determined eligible and the LeCoultre House was determined not eligible. The Babelay House is not within the APE for this project due to obstructions to the viewshed. The Murphy House and the LeCoultre House are within the APE and are evaluated later in this document.

Thomason and Associates conducted an architectural survey in 2000 of Tazewell, Washington and Millertown Pikes. (Refer to Appendix C for a map of surveyed properties.) Of the properties surveyed that are within the APE for this project, ten properties, of which seven are extant, were recommended not eligible to the National Register. The survey also recommended that the Babelay House and the Murphy House were no longer eligible for the National Register due to deterioration and neglect of the Babelay House and lack of integrity of its original design of the Murphy House, although this design was present during the 1984 survey.

A field survey was conducted in April 2012 to identify historical resources that may be eligible for the National Register in accordance with National Register Criteria A, B, and C (36 CFR Part 60.4). The field survey revealed 14 properties that were inventoried and evaluated according to National Register criteria. Historical research was conducted at the Tennessee Historical Commission, the McClung Collection at the Knoxville County Public Library, and the University of Tennessee-Map Library to review the history of the area and develop a historic context in which to evaluate the historical significance of these resources. Property owners were interviewed when possible to obtain any pertinent information concerning their respective properties. Documentation for historic resources included color digital photography and notation on the *Fountain City, Tennessee* and the *John Sevier, Tennessee* 7.5 minute USGS topographic maps. In the opinion of the consultant, one inventoried property, the Murphy Springs Farm (KN-2586), meets the eligibility criteria for inclusion in the NRHP.

The eligible property was also evaluated for the potential for impacts by the proposed project in accordance with 36 CFR 800. In the opinion of the consultant, the project as proposed will have no effect to the eligible historic property. Therefore, there will be no Section 4(f) use of a historic property.

Public Participation

The current project is Segment Two of a study developed in 2001 by the City to improve traffic conditions and accommodate future growth in the areas of the Knoxville Center Mall and I-640. The larger study involved four segments:

- Segment One- Widen Millertown Pike from Mill Road to I-640
- Segment Two - Widen Washington Pike from I-640 to Murphy Road
- Segment Three- Widen Washington Pike from I-640 to Millertown Pike
- Segment Four- Widen Millertown Pike from I-640 to Washington Pike

Working Group meetings were held with interested parties on July 18 and October 9, 2006 to discuss improvements to Washington Pike and Millertown Pike. Representatives were from the Alice Bell-Spring Hill Association, Knoxville Center Mall Area Businesses, Knox County Metropolitan Planning Commission, Northeast Knox Preservation Association (NEKPA), Fountain City, Knox County, and the City of Knoxville.

Comments from groups representing historical interests were as follows. Alice Bell-Spring Hill Association was supportive of improvements south of I-640 which is the area utilized by their residents most. NEKPA expressed concern for placing priority on improvements north of I-640. Fountain City expressed support of extending Murphy Road to alleviate Tazewell Pike traffic.

On August 17, 2012, TDOT mailed letters to five groups representing Native American interests and asked them if they wished to participate in the historic review process as consulting parties. Letters were sent to the following:

Tyler Howe
Eastern Band of Cherokee Indians

Lisa LaRue-Baker
United Keetoowah Band of Cherokee

Richard Allen
Cherokee Nation

Robin Dushane
Eastern Shawnee Tribe of Oklahoma

Kim Jumper
Shawnee Tribe

No responses were received. Copies of the consulting party invitation letters are in Appendix B.

Appendix B also contains a list of historic groups, county historians, and other such individuals or organizations that might be interested in the proposed project. A copy of this report will be mailed to these interested groups and individuals.

A NEPA public hearing will be held by the City upon completion and approval of the Categorical Exclusion document and development of Preliminary Roadway Plans.

*if CE is completed & approved
why have a hearing?*

Environmental Setting

Knoxville lies in the Ridge-and-Valley physiographic region in eastern Tennessee which is between the Appalachian Plateau to the west and the Blue Ridge Mountains to the east. The long ridges and corresponding valleys lie generally northeast to southwest. Cultivation typically has occurred in the valleys whereas the ridges have remained forested. Water sources in the area include the Holston and French Broad Rivers which come together to form the Tennessee River at Knoxville. Numerous creeks feed the Tennessee River including First and Second Creeks. First Creek comes from the north of downtown Knoxville with White's Creek as a tributary from the east. Murphy Creek extends eastward off of White's Creek. Both feed the Grassy Valley area that is between Black Oak Ridge to the north and Sharp Ridge to the south. The Grassy Valley area is so named for the lush grasses located between the steep slopes of the ridges. This was an excellent area for agricultural development.

The project is in an area that is commercial at the west end and rural residential at the eastern end. At the west end the project begins at the interchange of Washington Pike and Interstate-640, which curves around Knoxville as a bypass. Washington Pike has seen a rise in commercial development in recent years at this location. Continuing eastward, the scene changes to rural residential with primarily mid-century housing on one-acre plots. New subdivisions have been constructed leading off of Washington Pike as the road continues east of Mill Road. The project area's eastern end has a large farm, convenience stores, and a 1970s development. The project ends at the Knoxville city limits on Murphy Road.

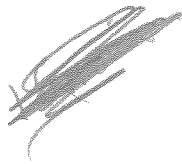
Historical Overview

Early Settlement

Knoxville lies in the ridges and valleys west of the Appalachian Mountains. The ridges are on a northeast to southwest axis which made crossing from the eastern colonies to newly opened lands in the west difficult. Nevertheless, by the time of the Revolutionary War, settlers had begun trickling over the mountains to settle along the river valleys of east Tennessee. The city of Knoxville grew up along the north bank of the Tennessee River just west of the confluence of the Holston and French Broad Rivers that form the Tennessee. Knoxville was actually the capital of the territory and then state of Tennessee until 1812. However, due to the difficulties in travel in the region, Knoxville grew slowly. The local economy was based on serving the immediate area and did not develop industries to serve the region. The surrounding topography of valleys and mountains made transportation of goods difficult. Small, relatively subsistent farms were the norm as opposed to the large plantations found elsewhere in the South (Bennett 1994).

Overland roadways such as Tazewell and Washington Pikes were established radiating from Knoxville to burgeoning communities in the region. Tazewell Pike extended to the northeast to the community of Tazewell with access to nearby Cumberland Gap and Washington Pike also led northeast towards Washington County, Virginia just across the border. After the Civil War, Tazewell Pike was one of five roads chosen that led out of Knoxville to be improved as a toll road (Knoxville/Knox Co. MPC 2007). Several of the pikes located north of the city connected to North Broadway which led straight into downtown.

In 1848, at the invitation of the German-American East Tennessee Colonization Company, Swiss settlers arrived in the Knoxville area. Over the years, many families settled northeast of Knoxville and established farms. By 1850, the Swiss were the largest ethnic group of the new settlers in the area. One of these families, the Babelays, settled along Washington Pike and eventually established a large greenhouse business (Babelay 2009).



Industrial Growth

In 1855 the East Tennessee Valley and Georgia Railroad was constructed leading north out of Knoxville along Second Creek towards Bristol, Tennessee. When the Civil War began, Knoxville was seen as important to the Union effort due to the railroad. This line was a link between Virginia and the Mississippi River and used for transportation of troops and support goods (Sammartino 1996). To achieve control of the rail line, Union forces under Major General Ambrose Burnside occupied Knoxville by September 1863 after a short siege of the city from the north. Undaunted, Confederate forces under General James Longstreet lay siege to Knoxville that November but by early December had withdrawn leaving the city in the hands of the Union occupiers. The Civil War brought no serious destruction to the city and surrounding communities as in other parts of the region.

A result of Union occupation was the attention brought to Knoxville's resources to those in the Union army occupying the city. Several who had capital to invest came back after the war to begin Knoxville's industries (Bennett 1994). Industry in Knoxville was made possible due to its railroad connections. Service had been disrupted during the Civil War, but once restored it became the impetus to growth for areas north of downtown Knoxville. The creeks that feed into the Tennessee River acted as a water source to provide power to the factories. Also, as more railroads were constructed intersecting Knoxville, the city became a center in the region for wholesale businesses (Brown 1980).

One of the connecting rail lines constructed after the war was the Powell's Valley Railroad that was begun in 1887. This line led northeast out of Knoxville, paralleling Washington Pike, and connected to Middlesboro, Kentucky near the Cumberland Gap. This was a coal mining area of Kentucky and therefore the Powell's Valley line brought coal back to Knoxville for use in the iron foundries. It also provided coal to communities along the rail line. The line eventually became the Knoxville, Cumberland Gap and Louisville Railroad before being incorporated into the Southern Railway (Rule 1900). The line is now owned by Norfolk Southern. A bypass line that connected to this line was constructed in the early 1920s around the eastern edge of the city to the new John Sevier railyards. The community of Beverly, just west of the project and located at the juncture of these two lines, developed warehousing to service the rail lines.

Residential Growth

Manufacturing did not come to outlying areas along Washington Pike. Instead, the area was home to two known greenhouse businesses. As mentioned, the Babelay greenhouses were located along Washington Pike and Babelay Road. Another greenhouse business was Charles Baum's Home of Flowers established in 1889 along Tazewell Pike (Knoxville/Knox Co. MPC 2007). These two businesses grew the exotic and delicate flowers that were popular in the Victorian gardens of the wealthy and upper middle-classes who were building new homes in the new suburbs of Knoxville. With the rise of new factories on the outskirts of Knoxville came the construction of neighborhoods to house the workers, managers, and owners of the new factories. Two such neighborhoods that contained the larger Queen Anne style homes and gardens were Fourth and Gill for middle-class professionals and Old North Knoxville which had more of the owner-class homes. Also, larger estates were established along Tazewell Pike leading away from the new suburban areas.

Streetcar lines, such as the Dummy Line that led to Fountain City along North Broadway, enabled the growth of these residential areas and attracted not just homes but businesses to serve the residences as well as churches and schools. Fountain City, so named for the fresh water springs, was the site of early camp grounds for the Methodist Church. By the 1880s the site became a



Figure 2 – Historic Topographic Maps; Fountain City (1941), John Sevier (1940)

health resort with a hotel, park, and lake. To reach the resort, a street car line, the Dummy Line since it was not a real rail line, was established in 1890. By the 1920s the area had become a commuter suburb with the coming of the automobile (Bennett 1984).

Another community that arose was the Oak Grove community centered on the Oak Grove AME Zion Church at the corner of Washington Pike and Mill Road (as seen in Figure 2). Several African American families purchased land in the vicinity of the church that was established in 1868. The land has been passed down to succeeding generations.

The result of the spreading development was that by the mid-twentieth century, the farms located along the old pike roads that radiated from Knoxville were being replaced by subdivisions that could be reached by automobile along the pikes. The demand for housing, especially after World War II, accelerated the transformation of the farmland into residences (refer to Figure 3) (Knoxville/Knox Co. MPC 2007).

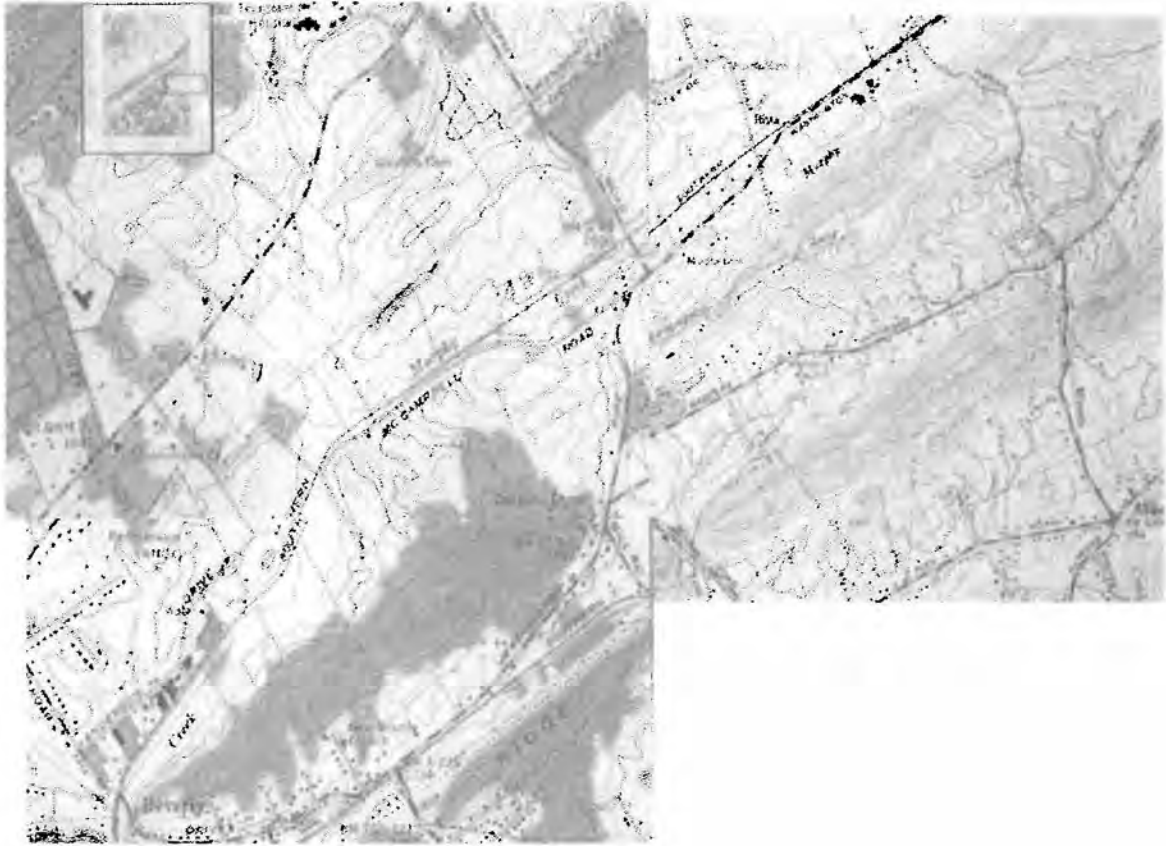
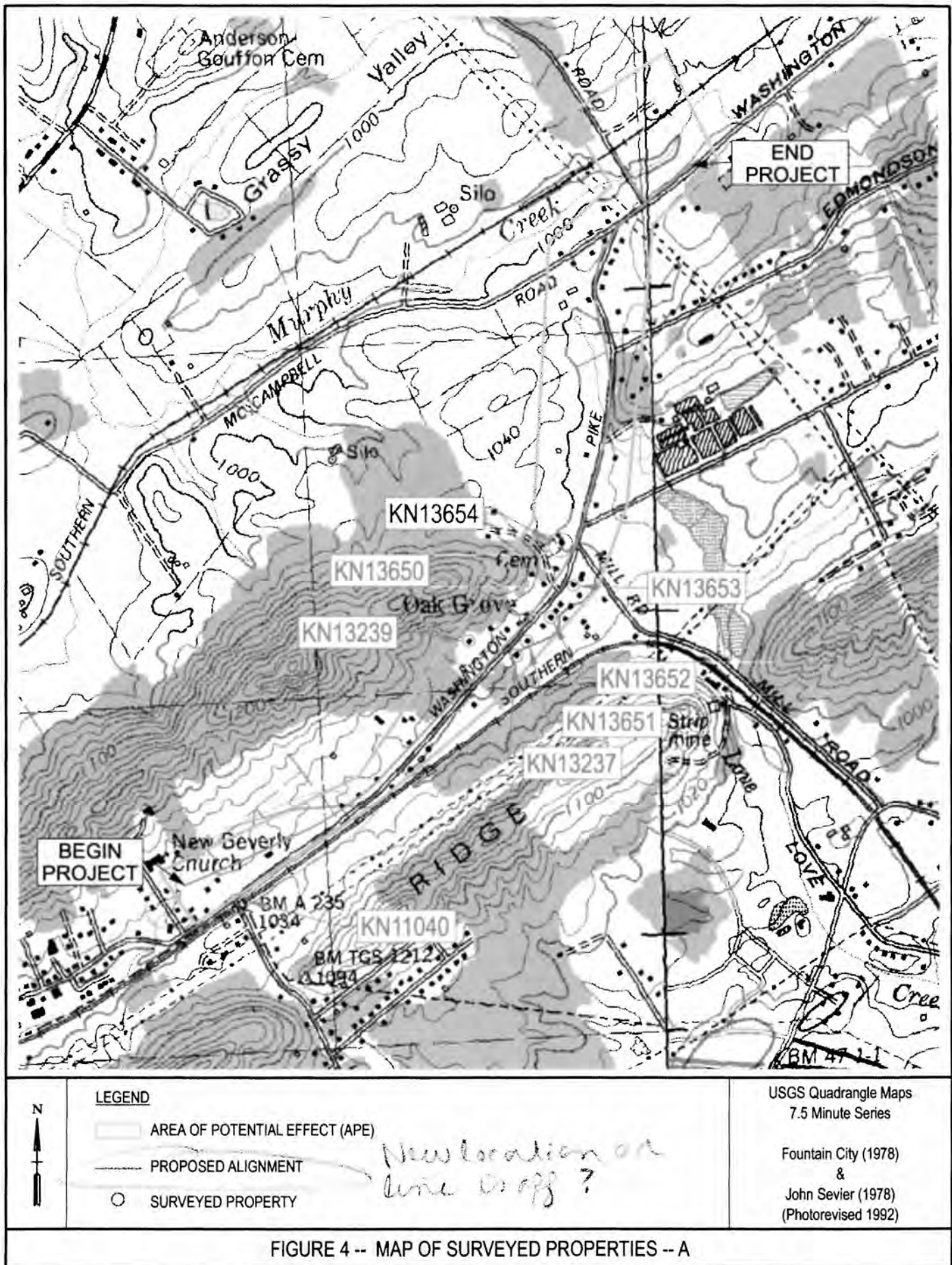


Figure 3 – 1966 Topographic Maps

When I-640 was constructed in the 1970s around eastern Knoxville, the area began to take on a suburban feel. New subdivisions were constructed and the area of East Knoxville underwent revitalization. The Knoxville Center Mall was opened in 1984 with access from I-640 at Millertown and Washington Pikes. The area has continued to attract new commercial establishments and subdivisions with an increase in the past decade. Farms have been subdivided for the new subdivisions, further reducing the rural feel of Washington Pike in this area.



Field Survey Results

KN-11040

Old Washington Pike Bridge

Constructed c. 1930, this resource is a reinforced concrete beam bridge that carried a two-lane asphalt road, Old Washington Pike, over the former Southern Railroad tracks that connected to the John Sevier railyards. The bridge has two reinforced concrete piers and concrete abutments. The railings on top of the deck are steel with square concrete balustrades. It is located parallel to Washington Pike, crossing over the Norfolk Southern Railroad north of I-640.



Figure 5 – KN-11040, east elevation

The bridge is a common type of concrete beam highway bridge of the 1930s era and does not display any significant architectural or engineering features that would qualify it as eligible under Criteria C. The bridge has no known associations with significant persons or events that would qualify it as eligible under Criteria A or B. KN-11040 is recommended not eligible for the National Register.

KN-13239

5609 Washington Pike

Situated on the north side of Washington Pike and facing south, this is a one and a half story frame house constructed c. 1925 in the Craftsman style and rests on a brick pier and concrete block foundation. The house is sheathed in vertical board panels and there are stamped metal panels skirting most of the foundation. The front façade has double entry doors in the center flanked by two 2/2 sash windows and two picture windows to either side. A second entry door is located on the left side and leads to an enclosed porch. Other windows on the house are 2/2 horizontal. The full-width front porch has vinyl columns and new square post railings and steps. The side gable roof has asphalt shingles, a large shed dormer with two 2/2 windows, and a brick chimney on the ridge. There is also a brick chimney flue on the exterior west elevation. The rear façade (north elevation) has a shed dormer with a row of aluminum sash windows. An enclosed walkway has been added to the rear to connect to an open three-bay garage.

There is one outbuilding, an original shed, located to the west that rests on rock and wood piers and is sheathed in horizontal boards with a standing seam metal roof and exposed rafters. There is a window on the west elevation and a door on the east elevation.



Figure 6 – KN-13239, south elevation

The house is currently rented and there are four small businesses on the property close to the roadway. The Craftsman-style house underwent several unsympathetic changes in the 1970s including the addition of the picture windows, vertical siding, enclosed porch, and double entry doors. Under Criteria A or B, KN-13239 has no known associations with significant persons, events, and does not retain sufficient architectural integrity of the Craftsman style features under Criteria C; therefore, KN-13239 is recommended not eligible for the National Register.

KN-13237**5608 Washington Pike**

Situated on the south side of Washington Pike and facing north, this is a one-story frame house constructed c. 1930 in the Bungalow style and rests on a brick foundation covered by concrete stucco. This front gable house has asphalt shingles, exposed rafters, open eaves, and an interior brick chimney on the east elevation and an exterior brick chimney on the rear. The walls are sheathed in asbestos shingles. The engaged porch is partial-width with a paneled entry door and screen door and a 1/1 window. The porch has wood tapered piers on brick veneer columns and iron railing. The right side of the porch has been enclosed and contains a paneled entry door on the east elevation and a picture window with 1/1 sash sidelights on the façade that is surrounded by asbestos shingles and a brick veneer skirt wall under the window. To the rear on the west elevation is a side entry with iron steps that leads into an original shed porch. The shed porch has vinyl siding and a row of screened windows. The house has a partial basement.

There are two outbuildings, a concrete block garage and a concrete block shed. The garage has a gable, standing seam metal roof, paneled side door and metal garage door. The shed has a vertical paneled door, three-pane window, and a gable, corrugated tin roof.



Figure 7 – KN-13237, north elevation

The house is currently owned by Alfred Nance, a descendant of Josie Crippen, who received the property in 1955 according to tax records. The Crippen family was active members of nearby Oak Grove AME Zion Church (KN-13654) at the time of the 1926 construction. The Bungalow-style house underwent several alterations in the late 1950s including the addition of the picture window and enclosed porch, and windows. Additional alterations since include covering the rear porch with vinyl siding, addition of iron steps to the rear entry door, and stuccoing the brick foundation. Under Criteria A or B, KN-13237 has no known associations with significant persons, events, and does not retain sufficient architectural integrity of the Bungalow-style features under Criteria C; therefore, KN-13237 is recommended not eligible for the National Register.

late 1950s

KN-13650
5621 Washington Pike

Situated on the north side of Washington Pike and facing south, this is a one-story frame house constructed c. 1950 in the Ranch style. It has a side gable roof with asphalt shingles and has been sheathed in vinyl siding. The porch is an entry stoop that has been gated with iron fencing to form a patio. The door is a replacement and there are brick pilasters to either side that extend three-fourths of the height of the door. The windows throughout the house are 1/1 single pane with vinyl muntins forming a 6/6 pattern. There is a picture window with 1/1 sash sidelights and a partial brick surround to the right of the entry door. The house rests on concrete block foundation and has open, close eaves. An ell addition extends to the rear with rear entry door and a small concrete block shed has been added to the rear of this addition.



Figure 8 – KN-13650, southwest elevation

According to Isom Jamison, the owner is Theodora Jamison who currently rents the property to family members. Theodora's mother, Elizabeth Isom, inherited the land from the Johnson estate in 1946 according to tax records, and presumably lived here until her death in 1997. The Johnson family has been longstanding members of the Oak Grove AME Zion Church (KN-13654). The house has been altered with the addition of vinyl siding, closure of the entry porch, and unsympathetic additions to the rear. Under Criteria A or B, this house is not associated with a significant person or event, and does not possess significant architectural features of the Ranch style under Criteria C; therefore, KN-13650 is recommended not eligible for the National Register.

KN-13651
5610 Washington Pike

Situated on the south side of Washington Pike and facing north, this is a one-story frame house constructed c. 1960 in the Ranch style. It has a side gable roof with side gable wings to either side that are set back from the main façade. An extended roof covers the porch along the main façade and has square wooden supports and concrete slab flooring. The paneled door is new and there are 1/1 sash windows to either side with vinyl muntins forming a 9/6 pattern. The side gable wings each have a picture window with the one on the right having 1/1 sidelights. The front façade has brick veneer and the rest of the house is sheathed in vinyl. The gables in the main façade have masonite siding. There is a large exterior brick chimney on the west elevation. There are two cross gables extending to the rear. The cross gable to the west was a porch that has been partially enclosed and has a vinyl entry door leading to a wooden deck. The rest of the porch has framed screening with side entryway. The cross gable to the east has a sliding glass door leading to the wooden deck.

There is one outbuilding, a concrete block garage to the rear of the property. The garage has a new aluminum roll door, a 1/1 window, and a new vinyl door. There is a pence roof above the door. The gable roof is extended and has particle board and bracing in the eaves.



Figure 9 – KN-13651, north elevation

The house has been altered with the addition of vinyl siding and unsympathetic additions to the rear. Under Criteria A or B, this house is not associated with a significant person or event, and does not possess significant architectural features of the Ranch style under Criteria C; therefore, KN-13651 is recommended not eligible for the National Register.

KN-13652**5624 Washington Pike**

Situated on the south side of Washington Pike and facing north, this is a one-story frame house constructed c. 1960 in the Ranch style and rests on a concrete foundation. There is a brick chimney on the ridge. The house has a side gable roof with asphalt shingles and an extended front cross gable on the left side of the facade. The front façade has a shed roof entry porch with new paneled door, concrete steps and decorative iron railing. The cross gable and entry have brick veneer which extends across the rest of the façade as a skirt wall. There is vertical siding above the skirt wall and the rest of the house has asbestos siding. There is a picture window with 2/2 sash sidelights to the right of the entry door. The rest of the house has 6/6 paired windows. A side entry on the west elevation has concrete steps, iron railing, and a vinyl awning. On the east elevation is a new sliding glass door leading out to a new deck. There is also a sliding glass door on the rear that leads to a broad deck and a sliding glass door that leads out from the basement. Also on the rear façade is an exterior concrete block chimney flue and the windows in the basement are 1/1 horizontal.

There is one outbuilding on the property, a concrete block garage that has a gable roof with asphalt shingles. The two garage doors are aluminum roll doors.



Figure 10 – KN-13652, north elevation

According to the current owner, Mark Isom, he bought the property from Marion Wells in 2011 who had received the property in 1946 from the Johnson Estate. The house has been altered with the addition of the three sliding glass doors. Under Criteria A or B, this house is not associated with a significant person or event, and does not possess significant architectural features of the Ranch style under Criteria C; therefore, KN-13652 is recommended not eligible for the National Register.

KN-13653

5650 Washington Pike Road

Situated on the south side of Washington Pike and facing north, this is a one-story house constructed c. 1952 in the Ranch style and rests on a concrete block foundation. The low-pitched roof is a side gable with asphalt shingles. The house is sheathed in synthetic siding and has a rock veneer skirt wall on the front façade. The rock veneer covers the wall to the right of the door. There are concrete block entry steps with decorative iron railing leading to the paneled door which has three diagonal lights. The roof extends slightly over the steps and walkway. The windows on the house are 1/1 horizontal with aluminum storm windows and there is a picture window with single pane sidelights to the left of the door. On the west elevation is a double carport with concrete slab. There is a wooden ramp leading to a side entry under the carport. To the rear is a shed roof extension with sliding glass doors on the west elevation leading to a wooden deck.

There are two outbuildings, sheds, on the property. One shed is modern corrugated tin and the other is of particle board with a gambrel, asphalt-shingled roof.



Figure 11 – KN-13653, northwest elevation

The current owner is Almeta Chesney who, with Paul Chesney, purchased the property in October 1951 according to tax records. The house has been altered with the addition of synthetic siding, the sliding glass door and wooden deck. Under Criteria A or B, the house is not associated with a significant person or event, and does not possess significant architectural features of the Ranch style under Criteria C; therefore, KN-13653 is recommended not eligible for the National Register.

KN-13654
Oak Grove AME Zion Church
5667 Washington Pike Road

Situated on the north side of Washington Pike and facing south, this is a one-story church on a full basement. According to a cornerstone, the church congregation dates to 1868 and the 1926 structure replaces a 1915 structure. Another plaque states the church was remodeled in 1976 (see Figure 13). The church is referred to as the Fullwood Chapel, AME Zion Church on the 1926 plaque and on a 1953 USGS topographic map. By the time of the remodeling in 1976 and on the 1941 and 1966 USGS topographic maps, the current name was in use. This church and several of the properties surrounding it have long been affiliated with a small African-American community at the crossroads of Washington Pike and Mill Road.

The 1926 portion of the church is a scaled-down Greek temple style which is a long rectangle with front gable entrance and windows along both sides. The row of 1/1 windows on either side have painted glass and there is a brick chimney on the north elevation that has been cut off at the roof line. To the rear is a hipped addition that stretches around both sides. This rear addition has an entry porch on the south elevation with a concrete walk leading to wooden steps, original paneled door and metal awning. There is also a paneled entry door with metal awning on the west elevation of the addition. The basement has stucco and has windows along the north elevation.

The 1976 changes include brick veneer added to the entire structure and a gable addition to the front façade. The gable addition is on the east elevation and wraps around to the south elevation where there are double, vinyl doors. There is a ribbon of lights along the roof line and an inset vinyl cross in the brick veneer on the east elevation. There are also 1/1 windows on the lower level of the east elevation.



Figure 12 – KN-13654, southeast elevation



Figure 13 – Cornerstone Plaques

There is a cemetery along the western portion of the property to the rear of the church that extends up the hillside. One of the oldest stones dates to 1874. There are approximately 50 headstones in the cemetery with many damaged or lying down. Some of the stones are grouped in family units but most are scattered. Many of the headstones date to the 1920s and 1930s, however, this is an active cemetery.

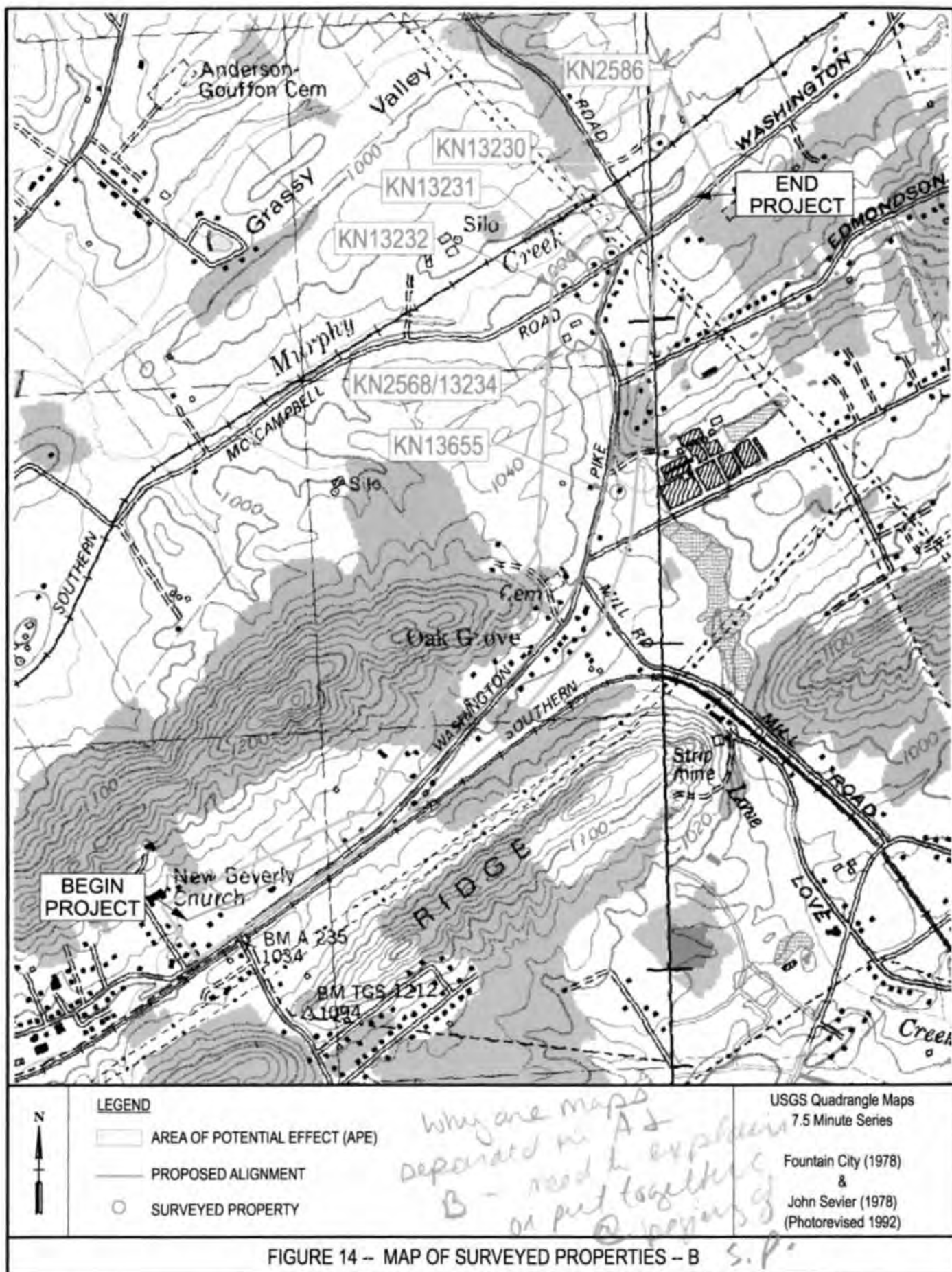
A context was developed for evaluating African American rural churches by the Center for Historic Preservation at Middle Tennessee State University (MTSU 2000). For churches from the 1890-1945 Jim Crow era, the vernacular frame, front-gable entrance style of church building was common for rural African American churches. Other themes associated with the enforced segregation of the era include activism by congregants, nearby community buildings affiliated with the church, documentation of church history on dedication plaques, and a historic cemetery establishing an overt African American identity.

This church has no known association with a significant person or event of the 1890-1945 Jim Crow era to be eligible under Criteria A or B. Under Criteria C, the 1976 renovations have compromised the front-gable entrance style common to this era so that the church does not possess significant architectural features for a religious property of this type and ethnic affiliation. For these reasons, KN-13654 is recommended not eligible for the National Register.

Also, the area around the church does not contain many of the community features such as a school, shopping area, or designed neighborhood associated with African American historic districts. Most of the houses on the surrounding parcels date to the mid-twentieth century, several decades after the founding and later constructions of the church.

*Need better
argument
for inclusion
oral interview*

18
*Many of houses you saw might have been for church
members. That does that fit?
Did Phil survey?*



KN-13655

5716 Washington Pike

Situated on the east side of Washington Pike and facing west, this is a one-story frame house constructed c. 1949 according to the owner, Gene Babelay. This brick house is in the Ranch style and has a hipped roof with asphalt shingles and two cross gables extending to the front. The front door is paneled with a metal screen door and there is a multi-light bay window to the left. Other windows on the house are 6/6 sash with some single and some paired. The extended gable on the left side of the façade has a one-car garage with wood paneled roll door and row of lights at the top. There is a brick chimney on the interior and a brick chimney flue at the rear. On the north elevation is a side entry door with hipped roof, concrete steps and decorative railing. On the rear is a hipped wing with garage that leads to a full basement. There are windows at the basement level that have iron grates covering them. Also to the rear is a concrete patio area with concrete picnic table and low brick wall.

According to the current owner, Gene Babelay, the parcel has been in the Babelay family since the late 19th century. The Babelay House (KN-2566) c. 1910 and not covered in this survey, is located east of this property in a separate parcel and includes the Babelay Greenhouses business (KN-13250) established at the turn of the twentieth century.



Figure 15 – KN-13655, west elevation

Under Criteria A or B, since the house is not directly associated with the Babelay Greenhouse business, then it is not considered associated with a significant person or event. Under Criteria C, it does not possess significant architectural features of the Ranch style. KN-13655 is recommended not eligible for the National Register.

KN-2568/13234- LeCoultre House
5820 Washington Pike

Situated on the west side of Washington Pike and oriented east, this property has a collection of three barns and a smokehouse constructed during the first half of the twentieth century for the purpose of a dairy operation. Barn 1 on the northern portion of the property has two bays open at either end and was probably used for equipment storage. The gable roof has exposed rafters and is covered in corrugated tin. Much of the board and corrugated tin siding has come off. Barn 2 is the main barn at the northwestern end of the property. It is constructed of vertical boards on a concrete block foundation. The foundation forms a basement level and has two windows on the north elevation with no glass. On the east elevation is an open bay into the basement level. There is an open bay on the north elevation and an entry door on the south elevation. There are several stalls with a hay loft above in the interior. The roof is gable with standing seam metal. Barn 3 is the milkhouse that is attached to the south elevation of the main barn. The building has a corrugated tin exterior and standing seam metal roof. There are windows on the west elevation. The east elevation is covered with vegetation. Attached to the corner of the south elevation is a concrete block gable wing with standing seam metal roof and hopper windows. In the southern portion of the property is a fallen shed with wood siding and a standing seam metal roof. Its location near a drained pond indicates it was probably a spring house to keep the milk cool. The last structure on the property in the eastern portion is a log smokehouse. Constructed in the half-dovetail method, it has particle board in the overhanging gabled eaves. A small paneled door is in the north elevation and the roof is standing seam metal.

P.C.?

When this property was surveyed in 1984 (KN-2568) and again in 2000 (KN-13234), the house was still standing. The house was a two-story central hall built c.1880 with a c. 1930 wraparound porch. The original owner was Stoffell who had a dairy operation. Dairying was continued by the next owners, the LeCoultres, whose dairy operation was called Richelieu Dairy. The property is now bank-owned.

but is now
not in use
exterior.



Figure 16 – KN-2568/13234, Barn 1-southeast elevation



Figure 17 – KN-2568/13234, Barn 2-east elevation



Figure 18 – KN-2568/13234, Smokehouse-north elevation

Under Criteria A, this property is not associated with a significant person and under Criteria B the barns do not constitute an outstanding representation of dairying in eastern Tennessee. Under Criteria C the barns do not possess significant architectural features of a farmstead. KN-2568/13234 is recommended not eligible for the National Register.

KN-13232

5817 McCampbell Drive

Situated on the north side of McCampbell Drive and oriented to the east, this one and a half story frame house was constructed c. 1925 and rests on a brick and concrete block foundation. The gable roof has asphalt shingles and close eaves. The house is sheathed in weatherboard siding and there is a brick chimney on the ridge. The entry door does not face the street but rather is on the east elevation with a cement slab patio. The door is paneled with nine lights. Most of the windows on the house are paired 2/2 sash. On the south elevation facing the street in the upper story is a single pane window with three-light windows on either side. There is decorative trim along the south elevation between the first and second levels. There is a gable dormer addition on the west elevation with a large multi-light window and a small casement window. Also the west elevation exterior has vertical board paneling. On the east elevation is a cross gabled wing with entry door and windows. To the rear is a shed addition with paneled entry door that has three lights and a metal awning covering the concrete platform. There are knee braces in the gable of the north elevation.



Figure 19 – KN-13232, southeast elevation

This property is vacant and is currently owned by Carlos, Robert, and John Campbell who are descendants of Robert M. Murphy. This parcel is being submitted as part of the National Register nomination of the Murphy Springs Farm (KN-2586), evaluated later in this document. The house on this parcel is non-contributing to the eligibility of the Murphy Springs Farm complex since it is not representative of the early settlement or farming operations of the complex.

Who is property this is NR boundary?

KN-13231

5831 McCampbell Drive

Situated on the north side of McCampbell Drive and oriented to the east, this is a one-story house built c. 1940 and rests on a wood pier foundation with brick and concrete block infill. The house is sheathed in masonite and has a full-width, hipped porch. The concrete floor porch has metal supports and decorative iron railing. The gable roof is reminiscent of a saltbox gable and has asphalt shingles. The door is aluminum with a glass storm door and the windows are 1/1 sash. Some of the 1/1 windows on the house have vinyl muntins for an 8/12 or 6/6 pattern. At the rear the doorway has been enclosed. It once led to rounded concrete steps and patio. A new paneled door has been installed to the right and leads to a wood deck.



Figure 20 – KN13231, southeast elevation

Under Criteria A and B, this house is not associated with a significant person or event. Under Criteria C, this house has had several unsympathetic changes including new doors and windows, new porch, and removal of a rear door and patio configuration; therefore, KN-13231 is recommended not eligible for the National Register.

KN-13230
5835 McCampbell Drive

Situated on the north side of McCampbell Drive and oriented to the east, this is a one-story house constructed c. 1930 and rests on a wood pier foundation with concrete block infill. The house is sheathed in weatherboard and there is a brick chimney in the interior of the gable roof. The roof is standing seam metal and has exposed rafters. The windows are 6/6 sash. On the west elevation is a shed roof wing with partially-enclosed porch. The porch has square wood posts and railings. The porch wraps around the enclosed portion from the southeast to the northeast. The enclosed portion has a row of three 6/6 windows. There are two entry doors from leading this porch that are paneled. The house is covered in vegetation.



Figure 21 – KN-13230, south elevation

The house is abandoned and bank-owned. Under Criteria A and B, this house is not associated with a significant person or event, and under Criteria C it does not possess significant architectural features and has lost some of its architectural integrity due to deterioration; therefore, KN-13230 is recommended not eligible for the National Register.

KN-2586
Murphy Springs Farm
4508 Murphy Road

This farmstead has been determined eligible to the National Register by the Tennessee Historical Commission (THC). The owner, Kevin Murphy, is currently preparing a nomination form for listing on the National Register. The property is also a Tennessee Century Farm (see Appendix B for application form).

The farm is located on the east side of Murphy Road at the corner with Washington Pike along Murphy Creek in an area of Knox County known as Grassy Valley. The property includes a c. 1841 Gothic Revival house and a collection of outbuildings. The Norfolk Southern Railroad, constructed in 1887 as Powell's Valley Railroad, runs through the property alongside Murphy Creek. The farm was originally purchased in 1797 by Robert Murphy and reached 192 acres by 1826. His son Hugh built the current house and purchased additional acreage. The farm at times had fields for crops of corn, potatoes, flax, and cotton and later a dairy was established. Currently the farm is in timber, fallow fields, hay and grazing fields, and a seven-acre field that is plowed by the East Tennessee Draft Horse and Mule Owner's Association.



Figure 22 – Hugh Murphy House, west elevation

Description of Buildings

Hugh Murphy House – Oriented west toward Murphy Road, the two-story frame, Gothic Revival house has a steeply-pitched side gable, standing seam metal roof. The house is sheathed in weatherboard. A cross gable in the front façade has a tripartite window with two 8-pane windows and a three-paned stained glass sidelight to either side. Above are pointed arched louvers with a medallion attic vent above. The paneled entry door has three-light sidelights to either side and a molding surround. A slightly-pedimented molding surrounds each window on

the house which are 6/6 and have storm windows. The hipped roof porch is partial-width and features square wood columns and a wood floor on brick piers. On the north elevation is a wraparound porch that extends the length of the rear cross gable and wraps to the east elevation. The hipped roof porch is supported by wood Doric columns and has a wood floor and paneled entry door with the same surround and sidelights as the front entry door. In the cross gable are two, steeply-pitched gabled dormers. A triangular louver is above the windows and also above the second floor window of the side gable which also has a medallion attic vent. On the rear or east elevation the southeastern portion of the porch is enclosed and wraps around to the south elevation. It has an entry door from the porch, a fixed three-light window, paired 3/3 window, and a 6/6 sash window on the south elevation. There is a window in the second floor of the cross gable on the east elevation in the same configuration as the north elevation side gable window. The south elevation has a paired gable set slightly back from the main side gable. The windows on the second floor of this gable are 6/6 but smaller than the rest of the windows and there is a medallion attic vent above. There is a bricked cellar entrance at the bottom of this gable. The eaves of the house are open with enclosed rafters and a wide band of trim below. There is a corbelled brick chimney with metal cap on the ridge of the side gable and also on the ridge of the cross gable that extends to the rear.



Figure 23 – Hugh Murphy house, southwest elevation

A c. 1925 renovation introduced a Craftsman porch on the front façade that consisted of a shed roof and tapered columns on brick piers. Also, in 1925, bathrooms were added in the paired gable and rooms such as a mud room and nook were added to the kitchen on the first floor to form the enclosed porch. A wall separating the central hall from the living room was removed, and a fireplace was removed from the living room. When the rear porch was enclosed, an outside entry door and molding were removed and added to the corn crib in Garage 1.

The current owner has been restoring the house to its original form in the past few years. On the

advice of the THC, the front porch was rebuilt to its original configuration according to photographs. Recent renovations to the rear wraparound porch have included removal of c. 1980 plate glass that enclosed the wraparound porch, however the three foot extension of the porch made in the c. 1925 renovation was maintained; reconstruction of the kitchen within the same footprint; replacement of the door on the east elevation into the c. 1925 enclosed porch with double windows; and removal of a gable roof from the hipped roof over the enclosed porch on the south elevation. Other renovations included replacing the cross gable chimney and fireplace, replastering the interior, new cellar entrance, and renovating the kitchen and bathrooms.



Figure 24 – Hugh Murphy house, northeast elevation

The interior of the house retains the original woodwork, stairs and railing, doors, window sills, baseboards, some of the plastering, and pine flooring. The layout is the same with the exception of a recently added downstairs bathroom and laundry room.

Garage 1 – This is a two-bay garage with corn crib in the center, built c. 1925 that rests on a concrete block foundation. Entrance to the corn crib on the west elevation is a door and molding that is from the house. The garage has weatherboard siding and a standing seam metal, gable roof.

Garage 2 – North of Garage 1 is a concrete block, one-bay garage constructed c. 1950. It has a wooden roll door with a row of glass panes at the top and a side entrance that has been boarded up with weatherboard. The gable roof has standing seam metal and there are weatherboards in the gable.

Springhouse – Constructed c. 1905 in support of the dairy operation at the farm, the gable-roofed springhouse is constructed of vertical boards and has a standing seam metal roof. It has a concrete floor and concrete block foundation that is c. 1970. The entrance is on the east elevation with a pent roof above the door. The windows are fixed with six lights. In the northeast corner inside is a

cement water trough that catches the spring water flowing into this corner of the building. There is a brick chimney and fireplace south of the springhouse. The wash house surrounding the fireplace was recently torn down. The wash house was probably used to sanitize dairy equipment. The brick piers of this structure also remain.



Figure 25 – Garage 1 and 2



Figure 26 – Springhouse and chimney for wash house

Smokehouse – This smokehouse was constructed at the same time as the house as dated by core sampling. The logs are V-notched and there is a small vertical board door in the west elevation. The roof overhangs in front of the door and there are vertical boards in the gable. The

Smokehouse is currently undergoing renovations including reconstruction of the roof with shakes, construction of a rock foundation, and replacement of a few of the sills and lower logs.



Figure 27 – Smokehouse

Wood Shed – This gable-roof structure is constructed of vertical boards with unhewn corner posts and has a standing seam metal roof. It is open on the south elevation and there is a four-pane window on the west elevation. A small shed is attached to the northeast corner. It was originally the wood shed and was moved to its current position at the end of the driveway in the 1930s.



Figure 28 – Wood Shed

Chicken Coop – This shed-roofed structure c. 1900 with standing seam metal roof was originally a chicken coop with an entry door on the west elevation. The south elevation was opened up c. 1970 and the shed is now used for storage. It is constructed of vertical boards and rests on concrete block piers and has exposed rafters.



Figure 29 – Chicken Coop

Pole Barn – The pole barn was constructed in 2000 and is used to store farm equipment. It has one large gable-roof bay and a smaller shed bay to the east. It replaces a large hay barn that was severely deteriorated and recently demolished. ~~The c. 1925 hay/stock barn was located southeast of the pole barn. It was a frame, gable structure with standing seam metal roof, metal sliding doors and central passageway. There was a large shed addition on the north elevation.~~



Figure 30 - Pole Barn and Shed

Shed – Located east of the pole barn is a vertical board shed with standing seam metal roof with open bays on the south elevation.

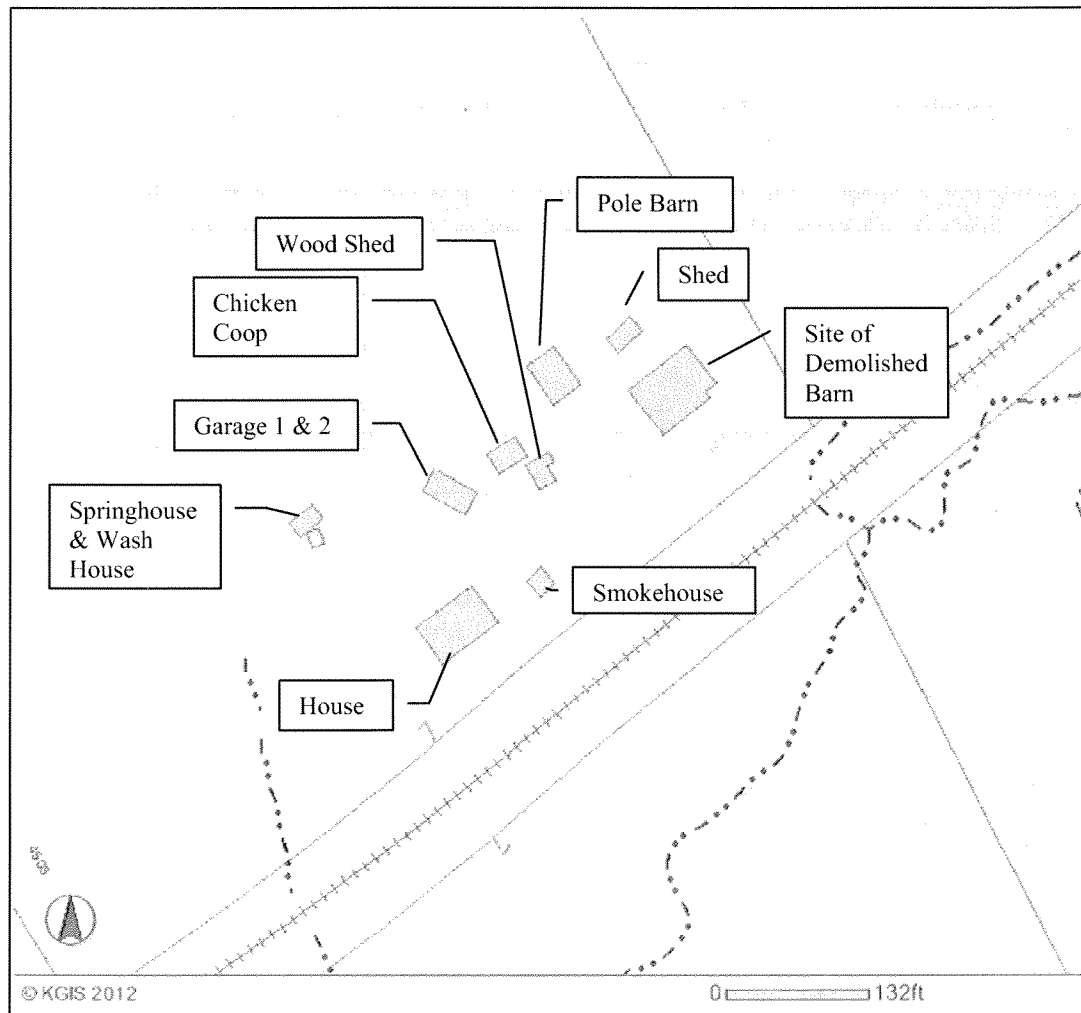


Figure 31 – Site Plan for Murphy Springs Farm complex

Eligibility for the National Register

KN-2586 is eligible for the National Register based on Criteria A as an example of a family farmstead in the Early Settlement of Knox County and Criteria C for its example of Gothic Revival architecture. The farm was purchased in 1797, less than a decade after the city of Knoxville was laid out. The acreage has been maintained as farmland or timberland and stayed within the family since that time. The farmstead, surrounded by agricultural fields, retains many buildings from the turn of the century dairy operation. The house has been restored to its original Gothic Revival appearance with characteristic steep gables, entry porch, and molding around the windows and doors.

Boundary of Eligible Property

The proposed boundary is based on lands acquired by the original owner, Robert Murphy. This acreage was later subdivided among family members and now totals 207.92 acres. The boundary shown in Figure 32 shows the various parcels owned by family members that constitute the Murphy Springs Farm. The boundary stretches from the northeast corner of the intersection of Murphy Road and Washington Pike to Shannon Valley Drive to the north and Luttrell Road to the east, and includes parcels west of Murphy Road curving south to McCampbell Drive, and parcels on the south side of Washington Pike east of its intersection with Murphy Road.

Table 1 - Parcels Included in Nomination of Murphy Springs Farm					
Address	Parcel ID	Acres	Within APE	Features	Contributing/ Non-contributing
5817 McCampbell Drive	049 083.01	3.17	Partially	KN-13232 (Anne Murphy Koger house)	Non-contributing
0 Murphy Road	049 083	20.88	No	None	
4508 Murphy Road	049 080	49.50	Partially	Murphy Springs Farm complex (KN-2586)	Contributing
				Robert Murphy log cabin site	Contributing
0 Washington Pike	049 077	58.78	No	Robert M. Murphy Barn	Contributing
4671 Luttrell Road	049 071	26.84	No	Murphy Chapel site and Cemetery	Contributing
6029 Washington Pike	050 001	25.00	No	None	
5922 Washington Pike	049 078	14.38	No	Col. Robert Murphy house	Non-contributing
				Murphy Family Cemetery	Contributing
5930 Washington Pike	049 077.01	2.25	No	Robert Murphy Sr. house	Non-contributing
5932 Washington Pike	049 077.02	2.60	No	None	
5936 Washington Pike	050 002.01	2.41	No	Mary Workman house	Non-contributing
0 Washington Pike	050 002.02	2.11	No	None	
	Total	207.92			

Who came up w/ Boundary?
 Don't think boundary is appropriate
 Why jump to these parcels?

Need to include 333 on east of that
 bldgs. Why jump to Mr. Sprung's house out
 Murphy Property? 1. west P. he F 32 - APE extends onto
 highlighted Parcel why not



Within the APE for this project are the following features that contribute to the eligibility of the Murphy Springs Farm to the National Register:

- Parcel 049 080: (Murphy Springs Farm complex)
 - Hugh Murphy House
 - Springhouse
 - Smokehouse
 - Wood Shed
 - Garage 1
 - Chicken Coop
 - Shed
- All parcels: Agricultural landscape of fields and timberlands

Non-contributing features within the APE include:

- Parcel 049 080: (Murphy Springs Farm complex)
 - Garage 2
 - Pole Barn
- Parcel 049 083.01: Anne-Murphy Koger house (KN-13232).

Parcels within the proposed nomination boundary that are outside of the APE for this project also contain contributing and non-contributing features. Contributing features not within the APE include:

- Parcel 049 078: Murphy Family Cemetery
- Parcel 049 071: Murphy Chapel site and Cemetery
- Parcel 049 077: Robert M. Murphy Barn (c. 1920)
- Parcel 049 080: Robert Murphy log cabin site

Non-contributing features outside of the APE include:

- Parcel 049 078: Col. Robert Murphy house (c. 1965)
- Parcel 049 077.01: Robert Murphy Sr. House (c. 1920)
- Parcel 050 002.01: Mary Workman house (c. 1986)

Assessment of Impacts under Section 106

In accordance with 36 CFR 800.5, the Criteria of Effect was applied to the proposed project improvements at the Murphy Springs Farm. Proposed improvements at the corner of Murphy Road and Washington Pike are to widen the roadway for the addition of travel and turn lanes and the installation of bike lanes, sidewalks, curb and gutter. Approximately 150 square feet for a temporary construction easement will be required along Murphy Road from within the proposed National Register boundary. Approximately 310 square feet will be needed for temporary construction easement along Washington Pike from within the proposed National Register boundary (see Figure 33).

Murphy Road currently widens from 24 feet at the railroad to 36 feet at the intersection with Washington Pike to accommodate a right-turn lane. After proposed improvements are completed, the width of Murphy Road would be 44 feet at the railroad and 55 feet at the intersection in order to accommodate southbound dedicated right and left turn lanes and a northbound second travel lane that merges into one lane at the railroad. Retaining walls would be required where the roadway intersects Murphy Creek. These walls would be three to five feet in height and extend for 313 feet along the west side of the roadway and 200 feet along the east side. The material and aesthetics of the retaining wall would be determined during the design process after reviewing comments from the public received during the public hearing. Retaining walls were








if these boundaries were used, great like a H.O. effects are to entire NR Property not section @ Parcel who decided these boundaries? SHPO owner?

Figure 34

Roadway Improvements
at Murphy Springs Farm
(KN 2586)



LEGEND

-  Proposed Improvements
-  National Register Boundary
-  Proposed Fill Slope
-  Proposed Cut Slope
-  Proposed Retaining Wall
-  Proposed Temporary Construction Easement
-  Present R.O.W.



**CDM
Smith**

chosen in this area as opposed to a roadway embankment in order to avoid impacting the proposed National Register boundary for the Murphy Springs Farm.

Washington Pike currently widens from 24 feet to 34 feet as it approaches the intersection with Murphy Road. After proposed improvements are completed, the width of Washington Pike would be 70 feet in order to accommodate a dedicated left turn lane separated by a median and sidewalks.

Only temporary construction easements would be necessary for the proposed improvements along Murphy Road and Washington Pike. No right-of-way is required from within the proposed National Register boundary for the proposed improvements. The proposed project would not cause the physical destruction or removal of any structure. The proposed easements contain grassy fields that are mowed for hay along Murphy Road and Washington Pike and once the proposed project is completed, the easement would be returned to grass. The proposed project will not change the property's function as agricultural fields or its setting in a rural environment that has some urban incursions.

With the proposed project's improvements of roadway widening and retaining walls, no visual, atmospheric or audible elements would be introduced that would diminish the National Register significance of the farm. The grassy fields of the farm currently front a busy intersection that is signalized and has utilities and commercial businesses at the corner. The addition of turn lanes along Murphy Road will alleviate some queuing of traffic in front of the farm. The traffic currently queues to beyond the railroad during peak traffic hours. Traffic patterns would not be changed due to the proposed project. No changes in access to the property are anticipated.

The Hugh Murphy House and outbuildings are within view of the proposed project along Murphy Road near the railroad crossing (see Figure 34). The house is approximately 530 feet from the proposed project's endpoint along Murphy Road at the railroad and approximately 580 feet from edge of right-of-way where the tree line along Murphy Creek intersects with Murphy Road. At this location the proposed improvements include fill, retaining walls in place of an existing guard rail, and widening of the roadway within right-of-way. The tree line then blocks the viewshed of the rest of Murphy Road. There are no buildings within view of the proposed project along Washington Pike due to the tree line along Murphy Creek blocking the viewshed of the roadway. Proposed improvements along Washington Pike east of the intersection with Murphy Road include widening and fill within the right-of-way. Therefore, no impacts to the viewshed and setting of the historical property are anticipated that would diminish the qualities that make this resource eligible for the National Register.

- Re-think realistic NR Boundary
What should it be?
* Claudette

- then write effects.
~~may have to get more study~~

- Why not survey property on Wash. Pike
they seem closer than Tan?



Figure 34 – View from front façade of the Hugh Murphy House southwest across railroad tracks toward Murphy Road

*What?
Where?*

A noise study was conducted to assist in evaluating the potential for noise impacts to the Murphy Springs Farm. This study is on file with TDOT. The study found that the predicted noise level for 2012 (existing) at the Weigel's convenience store which is located at the southeast corner of Washington Pike and Murphy Road directly across from the Murphy Springs Farm is 63 dBA (a unit of noise measurement). If no actions are taken to improve the roadway, then the noise level will increase to 65 dBA by design year 2033 (future). If the proposed improvements are implemented then the noise level will remain at 63 dBA by 2033. The study also modeled a point in the field located on the west side of Murphy Road (Parcel 049 083) which is a parcel that is included within the National Register boundary for Murphy Springs Farm. The point is located approximately 700 feet from the project endpoint at the railroad on Murphy Road. The existing noise level is 46 dBA, the future level is 48 dBA with no action and 48 dBA with proposed improvements (see Table 2).

need more pres from NR Rep.

Table 2 – Results of Noise Study at Murphy Springs Farm			
Location	Existing (2012)	Future (2033) with No Action	Future (2033) with Improvements
Weigels' at Washington Pike and Murphy Road	63 dBA	65 dBA	63 dBA
Parcel 049 083 west of Murphy Road	46 dBA	48 dBA	48 dBA

FHWA developed a Noise Abatement Criteria (NAC) based on land uses establishing base lines for various activities to determine when the level of impact from traffic noise occurs. The Murphy Springs Farm is considered a residential land use and therefore falls into Category B which has a baseline dBA of 67 (see Table 3).

Activity Category	dBA	Location	Description of Activity
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67	Exterior	Residential
C	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreational areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	NA	NA	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, ship yards, utilities (water resources, water treatment, electrical), and warehousing.
G	NA	NA	Undeveloped lands that are not permitted for development.

Source: FHWA Noise Policy FAQs

An increase in noise is considered by TDOT to be “substantial” when the dBA increases 10 to 15 dBA. Noise levels in the area of Murphy Springs Farm are anticipated to increase by two dBA with or without roadway improvements by design year 2033. While noise levels may increase at the Murphy Springs Farm, the level of noise is not considered to be an impact according to the FHWA’s Noise Abatement Criteria or TDOT’s criterion of substantial increase. Therefore, the overall environment of the Murphy Spring Farm would not be diminished due to noise levels from the project.

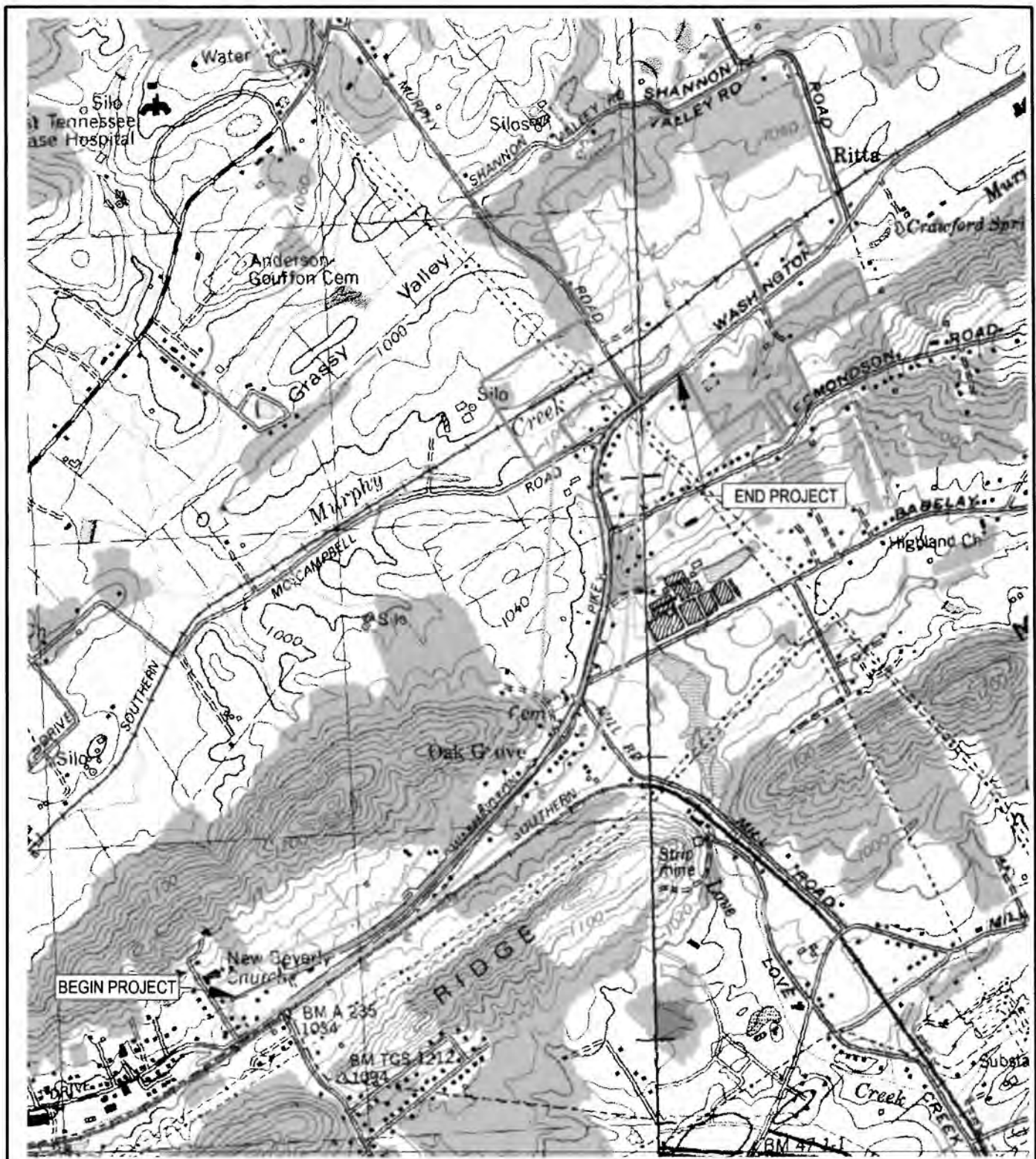
It is the opinion of the consultant that the proposed project would not have an adverse effect to the property.

Assessment of Impacts under Section 4(f)

The proposed project would require temporary construction easement from the property which does not constitute a “use” under Section 4(f) (23 CFR 771.135 (p)(7)). It is the opinion of the consultant that the proposed project would not have an adverse effect to the Murphy Springs Farm; therefore, there will not be a Section 4(f) use of the historic property.

Conclusion

CDM Smith conducted the historic structures survey ~~portion of the Categorical Exclusion~~ for improvements Washington Pike. The project is located in the City of Knoxville in Knox County with its western terminus at I-640 and its eastern terminus at Murphy Road. This area was previously surveyed in 1984 and 2000 for resources eligible to the NRHP. Within the APE are 13 resources determined not eligible and one resource determined eligible for the NRHP. Murphy Springs Farm (KN-2586) is eligible for the NRHP based on Criteria A as an example of a family farmstead in the Early Settlement of Knox County and Criteria C for its example of Gothic Revival architecture. The eligible property was examined for potential effects by the project. It is the opinion of the consultant that the proposed project would have no adverse effect to the eligible property and, therefore, there would be no Section 4(f) use of a historic property.



LEGEND

- AREA OF POTENTIAL EFFECT (APE)
- PROPOSED ALIGNMENT
- NATIONAL REGISTER BOUNDARY

USGS Quadrangle Maps
7.5 Minute Series

Fountain City (1978)
&
John Sevier (1978)
(Photorevised 1992)

FIGURE 35 -- LOCATION OF MURPHY SPRINGS FARM (KN-2586)

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1941 *7.5' Fountain City, Tennessee Quadrangle*. Department of the Interior, Geologic Survey, Washington, D.C.; available online at <http://www.lib.utk.edu/cic/tnmap/browse.html>
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- 1978 7.5' *Fountain City, Tennessee Quadrangle*. Department of the Interior, Geologic Survey, Washington, D.C.; available online at <http://www.lib.utk.edu/cic/tnmap/browse.html>
- 1978 7.5' *John Sevier, Tennessee Quadrangle*. Department of the Interior, Geologic Survey, Washington, D.C.; photo revised in 1992.

Tammy Sellers

From: Bean, Jana L <beanjl@cdmsmith.com>
Sent: Tuesday, November 27, 2012 12:09 PM
To: Tammy Sellers
Subject: WASHINGTON PIKE comments

Hi Tammy, I received your comments in the mail yesterday afternoon.

Let's get right to Murphy Springs. The extra large boundary is based on the owner's nomination form that he is in the midst of preparing. He is trying to include every parcel that founder Robert Murphy owned—all of which has been parceled out to family members over the years. The criteria, the list of non- and contributing buildings, all come from the nomination form. He has discussed the farm at length with Ann Bennett when she was at the Knox Metropolitan Planning Commission. She made the original determination of eligibility during the county-wide survey. In the recent letter that Mr. Murphy sent to James Hagerman which I included in the Appendix, he writes, "Recently I have spoken with local preservation staff at Metropolitan Planning Commission as well as Patrick McIntyre, the Executive Director of the Tennessee Historical Commission, and we decided to increase the scope of the National Register designation that I am preparing from just the Hugh Murphy House to the entire Murphy Family farm." The map and acreage on page 33-34 of my report are from this letter. Mr. Murphy believes that this large boundary is what the SHPO has recommended. Thus I feel caught in the middle again.

When I was out to survey for the project, I only photographed the main farm complex plus a house (KN-13232) that bordered the project. I did not know the magnitude of his boundary until later when he sent me various materials and therefore I had not inventoried the other buildings. That is also why KN-13232 is inventoried separately since I didn't know at the time that it was a part of the large boundary plus it had its own survey number from the Thomason 2000 survey. I have gone back and forth and all over trying to discern what the APE should be—to include the whole boundary in the APE or focus on the portions of the farm that are within the viewshed. Thus the odd-shaped APE trying to focus on the viewshed from the project.

So if we do use the whole extra large boundary, you mentioned treating it like a historic district. I would need to go out and photograph the additional buildings but I think my conclusions as to the effects to a District would be as I wrote—no take of property, visual effects not adverse, noise impacts not rising to an adverse level. I would include additional write-up that the viewshed of the Col. Murphy house and the Murphy Family Cemetery is blocked by a thick grove of trees along Washington Pike blocking the view of the project. You can start to see this grove of trees in Figure 34 (which should be labeled 33 as I now see).

I put Figure 35 in the Conclusion section as I did originally with the East Cedar report because in your scope it says to include in the Summary or Conclusion section a map of NR eligible/listed properties on the proposed project.

Other comments: I split up Figures 4 and 14 so that the reader does not have to flip back and forth to one map to find properties that are further along in the report. But I can make just one map for the beginning of the section. The topo map is from 1978 and Washington Pike was realigned at a later time—hence the orange line representing today's road departing from the 1978 road at the western end. In Figure 1, I use a 2010 topo/aerial which shows today's roadway alignment. I could use the 2010 topo for Figure 4 but it won't have the black squares representing the locations of buildings. So I prefer to use the 1978 map and I will include an explanation of the wandering roadway.

African-American context- I'll see if I can interview someone with the church and research Civil Rights history in Knoxville. There was a community of African-American landowners affiliated with the church but that seems to be the extent. No other community/business buildings. Mr. Johnson was an African-American land owner. He garnered quite a few plots, had several daughters that inherited the plots and built their own houses in the 50s, and his house, which was surveyed in Thomason 2000, is no longer standing.

On page 18 for the church, you penciled in "Did Phil survey?" I don't know what this alludes to but Thomason's 2000 report (which was done for TDOT) mentions that it was not surveyed because of its alterations which would not meet

the “Tenn Rural African American Churches” context and that only a few buildings associated with the African-American settlement connected to the church remain standing. I’ll put this in the historic context section.

Whew, what an email. I’m going for lunch now.

Jana Bean

CDM Smith

1301 Gervais St., Ste. 1600

Columbia, SC 29201

803-758-4756

Bean, Jana L

From: Joseph Garrison [Joseph.Garrison@tn.gov]
Sent: Tuesday, January 08, 2013 10:54 AM
To: Bean, Jana L
Subject: Survey Project along Washington Pike in Knox County.

Follow Up Flag: Follow up
Flag Status: Flagged

Ms. Bean,

Thank you for your recent email. I have checked my log and find that our office concurred with the TDOT in letters dated November 2, 2000 that there were no historic architectural resources located within that agency's proposed project Areas of Potential Effect along Washington and Millertown Pikes . That was 12 years ago, however, so any proposed projects with Areas of Potential Effects bounding Washington Pike must be treated by this office as new undertakings and re-surveyed for possible National Register properties.

Best,

Joseph Y. Garrison, PhD
Review and Compliance Coordinator
Tennessee State Historic Preservation Office
Tennessee Historical Commission
2941 Lebanon Road
Nashville, Tennessee 37243-0442

Joseph.Garrison@tn.gov

(615)532-1550-103

Tammy Sellers

From: Bean, Jana L [beanjl@cdmsmith.com]

Sent: Friday, January 25, 2013 2:13 PM

To: Tammy Sellers

Subject: Washington Pike revision

Tammy,

Hopefully you have just received an email message saying there is a package ready for you and hopefully it all works easily this time. I have revised the Washington Pike, Knox County report (finally) for your review.

I want to address the memorandum comments you sent back with my draft:

Project Description – updated, separate section

Public participation – reworded

Mapping – Figs 4 and 14 have been combined and are now Fig 5. The project alignment on the maps reflects how the roadway is aligned today whereas the mapping is older (pre I-640) and shows the previous roadway alignment. Fig 35 has been relocated and is now Fig 22.

African American context – updated on p.8 though there isn't much information on this area. Mr. Johnson was a member of the Oak Grove church whose property was subdivided among several family members who still own their parcel. Several of these parcels were recorded so I mention him/his family. I researched all the parcels in that area and found other church member names historically, but are not currently owned by family members.

KN-13239 – I had originally went to the other side of the house for a photo but it was going to be so bad due to the slope of the yard and the existence of an RV behind me that I didn't snap a picture. I have a picture of the rear of house I could send you. I was thinking that I included all the photos in the original package I sent you electronically.

KN-13654 – I tried numerous times over several weeks to contact someone at the church but never got anyone. I didn't find anything more on the church or its members. I did look thru a book entitled *Diary of a Sit-In* by Merrill Proudfoot, a local minister, which is about Civil Rights activities in Knoxville as it related to area churches and this church was not mentioned.

KN-13655 – the Babelay house and greenhouses are shown on Fig 5, they were determined not eligible in the 2000 survey

Murphy Springs – updated per our phone conversation with a greatly reduced NR boundary that encompasses only the parcel that the farmhouse and outbuildings are on, also changed the APE to reflect this boundary

APE – no longer incorporates part of parcel 078. The buildings on this parcel are not in the viewshed of the APE.

And from the paper copy - I included an email from SHPO stating they concurred with the 2000 survey. It is located at the end of Appendix C. The noise report that my company performed should be on file with TDOT or at least it will be officially on file when this is released to the public.

Let me know if you can access the revised copy and if I can answer any other questions.

Jana Bean

CDM Smith

1301 Gervais St., Ste. 1600

Columbia, SC 29201

803-758-4756

Tammy Sellers

From: Tammy Sellers
Sent: Tuesday, January 29, 2013 1:21 PM
To: Bean, Jana L
Subject: RE: Washington Pike revision

Hi Jana. I looked over the report and I think it sounds good. There are a few things I have questions about.

Figures 2 and 5: The APE line is inconsistent throughout the project. I think it is the fault of the drawing program rather than a lack of understanding of the APE. You've surveyed a large enough area but drawing the box around the project line is problematic. In TDOT's Scope of Work we give consultants the option to make a map showing the "roads driven." We tend to use this because of the drawing limitations we have in our software. For the APE maps either measure a true distance on both sides of the road or use the "roads driven" option.

Figure 22: add "proposed" to the National Register Boundary in the legend.

Page 35: After the written description of the proposed NR Boundary you need to include a parcel map showing the boundary.

After you've made these minor corrections, I can send it to the TN-SHPO as a draft. If you have any questions, please let me know.

Tammy Sellers
Historic Preservation Section
Environmental Division
Tennessee Department of Transportation
505 Deaderick St., Ste. 900 Polk Bldg.
Nashville, TN 37243

From: Bean, Jana L [beanjl@cdmsmith.com]
Sent: Friday, January 25, 2013 2:13 PM
To: Tammy Sellers
Subject: Washington Pike revision

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Let me know if you can access the revised copy and if I can answer any other questions.

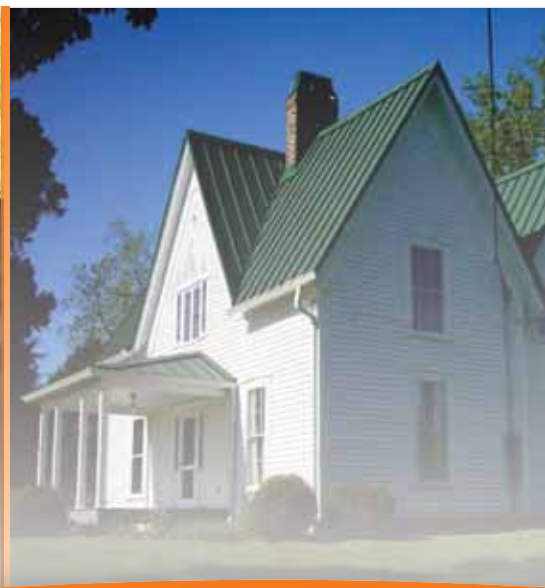
Jana Bean

CDM Smith

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803-758-4756



Historic Structures Survey for the Washington Pike Roadway Improvements Project

Knoxville, Knox County, TN

TDOT PIN # 043090.00

SUBMITTED BY:

**CDM
Smith**

1100 Marion Street, Suite 200
Knoxville, TN 37921

PREPARED FOR:
City of Knoxville, Tennessee
PO Box 1631
Knoxville, TN 37901

JANUARY 2013

**Historic Structures Survey
for the
Washington Pike Roadway Improvements Project
in Knoxville, Knox County, TN**

Submitted by
CDM Smith
1100 Marion Street, Suite 200
Knoxville, TN 37921

Pursuant to 36 CFR 800 and Section 4(f) Evaluation

Prepared for
City of Knoxville, Tennessee
PO Box 1631
Knoxville, TN 37901

Lead Federal Agency:
Federal Highway Administration
TDOT PIN # 043090.00

January 2013


Jana Bean, M.A.
Principal Investigator
1301 Gervais Street
Columbia, South Carolina 29201
Phone: (803) 758-4500
Beanjl@cdmsmith.com

Management Summary

CDM Smith conducted the historic structures survey for proposed improvements to Washington Pike in the City of Knoxville in Knox County in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and Section 4(f) of the U.S. DOT Act of 1966. This survey was conducted on behalf of the City of Knoxville and the Tennessee Department of Transportation with funding from the Federal Highway Administration. The project is located along Washington Pike with its western terminus at the I-640 interchange and its eastern terminus at Murphy Road.

A search of the Tennessee State Historic Preservation Office files revealed no resources listed on the National Register of Historic Places (NRHP) in the general vicinity of the project. A historic structures survey was conducted in April 2012 to identify historic resources in the designated project Area of Potential Effect (APE), determine their eligibility for listing on the NRHP, and assess the project's potential effect on eligible properties.

Results of the recent field survey found 14 resources within the APE of which 13 resources were determined not eligible and one resource is recommended eligible for the NRHP. It is the opinion of the consultant that the Murphy Springs Farm (KN-2586) is eligible for the NRHP based on Criteria A as an example of a family farmstead in the Early Settlement of Knox County and Criteria C for its example of Gothic Revival architecture. This property was examined for potential effects by the project. It is the opinion of the consultant that the project as proposed will not impact the NRHP-eligible resource and therefore, the project will have no adverse effects to historic properties under Section 106. Therefore, there would be no Section 4(f) use of a historic property.

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Appendix B – Coordination

Native American Tribes coordination letter

List of Interested Parties

Letter from Kevin Murphy

Appendix C – Previous Surveys - Maps

Introduction

CDM Smith conducted the historic structures survey for the proposed widening of Washington Pike Road in the City of Knoxville in Knox County. The survey was conducted in April 2012 to identify historic properties in the designated Area of Potential Effects (APE), determine the eligibility of historic properties for the National Register of Historic Places (NRHP), and assess the project's potential effect on eligible properties. This survey was conducted, as is required of the Tennessee Department of Transportation (TDOT) and the Federal Highway Administration (FHWA), in compliance with Section 106 of the National Historic Preservation Act of 1966 (NHPA) as amended, and Federal Regulation 36 CFR 800. If it is determined that the proposed project would have an adverse effect to a historic property, then FHWA provides the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the effect.

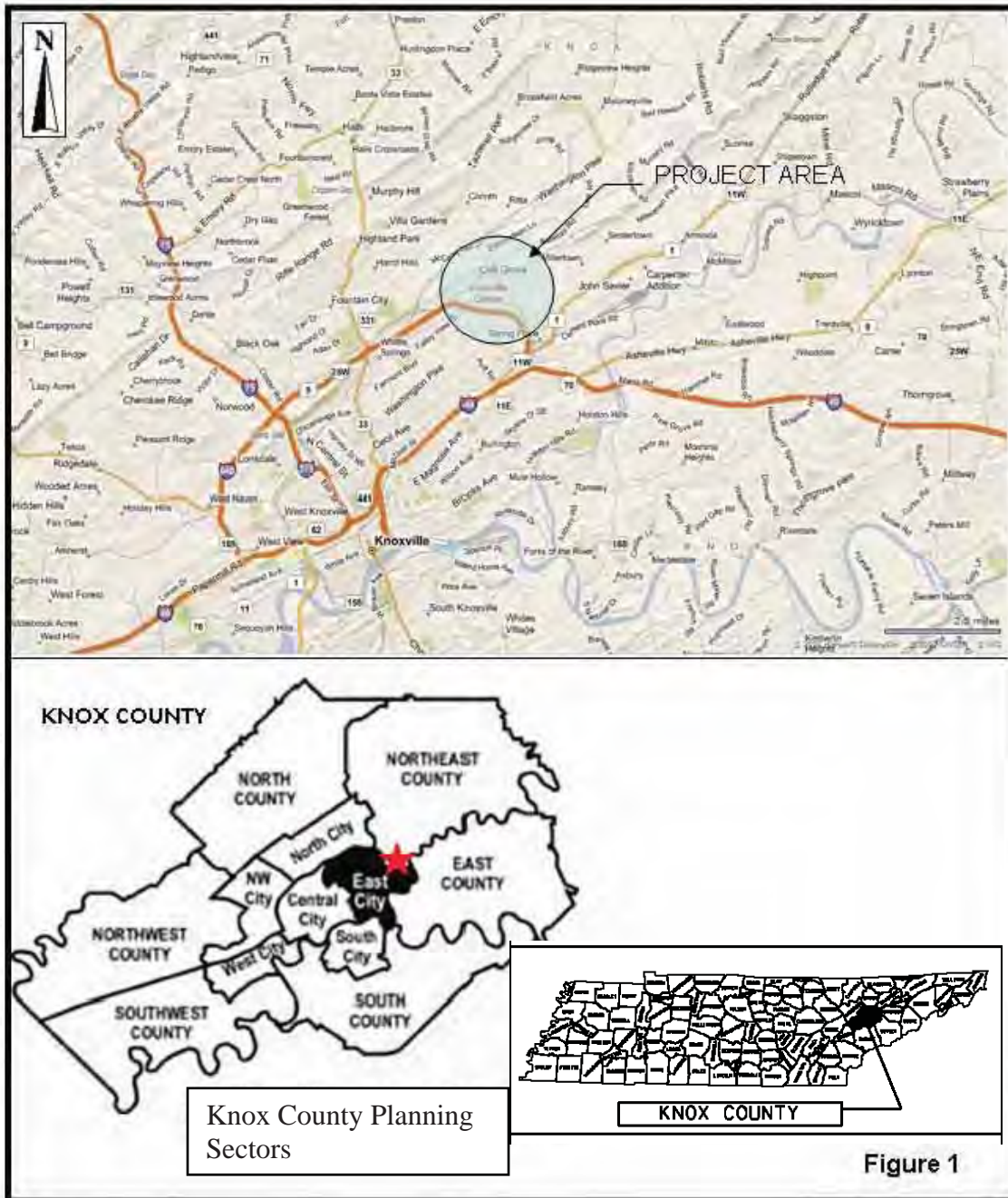
FHWA also is required to assess the applicability of Section 4(f) of the U.S. Department of Transportation Act of 1966, as amended. The project may not “use” an historic property unless there is no prudent and feasible alternative to that use and unless the project includes all possible planning to minimize harm to an historic property. Section 6009 of SAFETEA-LU (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users) was implemented in 2005 to take into account any avoidance or minimization of impacts along with any mitigation or enhancement measures to determine the extent of the impacts to the property. Section 4(f) will be satisfied if it is determined that a transportation project will have only a *de minimis*, or minimal, impact to the historic property.

Project Description

The project is located along Washington Pike with its western terminus at I-640 and its eastern terminus at Murphy Road (see Figure 1 for project location). Washington Pike begins as a four-lane, divided roadway at its intersection with I-640 then turns east at Greenway Drive and quickly tapers to a two-lane roadway with no shoulders. There are traffic signals at Greenway Drive, Mill Road, and Murphy Road.

Proposed improvements to Washington Pike would consist of widening to four, twelve-foot traffic lanes (two lanes in each direction) with turn lanes as required at the intersecting side streets, and the installation of two-foot curb and gutter, five-foot sidewalks, and four-foot bike lanes. The proposed corridor is 200 feet in width and extends for 1.73 miles. Roadway realignment of Washington Pike would occur at the approaches to intersections with Mill Road and McCampbell Drive to correct roadway deficiencies. Additional turn lanes would be incorporated at Greenway Drive, Rising Oaks Way, Mill Road, Steeple Shadow Way/Babelay Road, Aylesbury Drive, Edmondson Lane, Trestle Way, McCampbell Drive, and Murphy Road. The project would also include cut and fill and retaining walls where needed. The purpose of the widening of Washington Pike project is to provide a transportation facility that enhances mobility, supports economic development, improves safety, provides alternate modes of travel, and relieves traffic congestion.

PROJECT VICINITY MAP



Area of Potential Effect

Pursuant to 36 CFR 800 regulations, an Area of Potential Effect (APE) was identified to determine if the proposed project would affect historic resources included in or potentially eligible for the NRHP. An APE is defined in 36 CFR 800.16 (d) as:

the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.

The proposed project is located in a mixed-use area just inside city-limits that includes commercial, rural residential, and new residential subdivisions. The nature of this project includes roadway widening and the addition of sidewalks, curb and gutter, and bike lanes. This led to an APE that takes into account changes in air quality, noise levels, setting, and land use.

The area of potential effect for this project includes the following:

- Parcels adjacent to the project that may be directly impacted;
- Areas within the viewshed of the project as bounded by tree lines or other obstructions to account for changes in setting, and;
- Areas within the potential noise impact area which includes up to 500 feet from the proposed improvements.

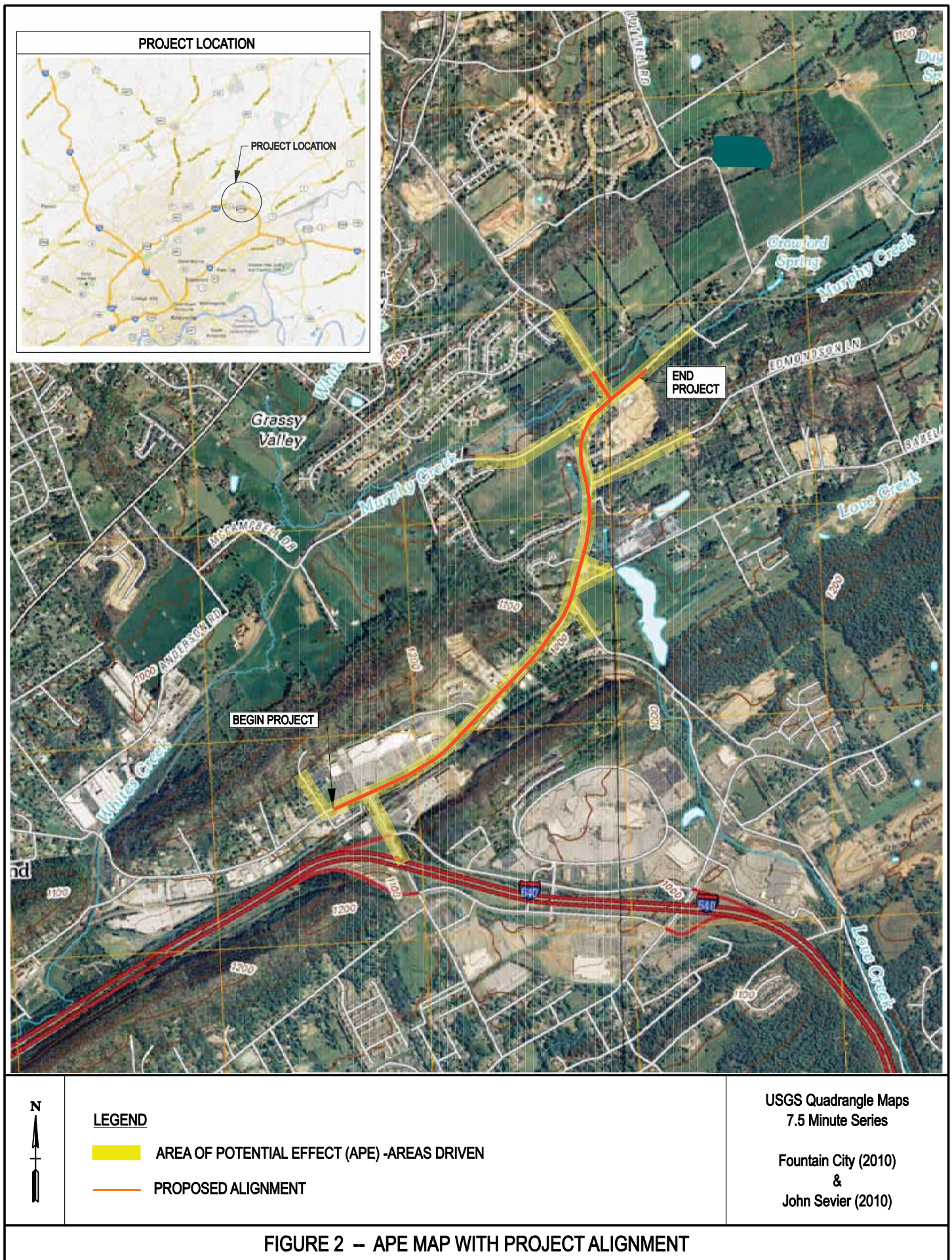
(See Figure 2 for a map of the APE)

Methodology

A literature review was conducted at the Tennessee State Historical Preservation Office (TN-SHPO) to identify previous surveys conducted in the area and any resources listed or eligible for listing on the NRHP in the vicinity of the project. The review revealed no resources listed on the NRHP in the project vicinity.

The Knoxville/Knox County Metropolitan Planning Commission conducted a historical and architectural survey of the County between 1982 and 1984 which resulted in a National Register multiple property listing, *Historic and Architectural Resources in Knoxville and Knox County, Tennessee* (Bennett 1994). (Refer to Appendix C for a map.) Three properties were surveyed that are within or near the project APE, the Babelay House (KN-2566), the Murphy House (KN-2586), and the LeCoultré House (KN-2568). Refer to Figure 5 for location of these properties. The Babelay House and the Murphy House were determined eligible and the LeCoultré House was determined not eligible. The Babelay House is not within the APE for this project due to obstructions to the viewshed. The Murphy House and the LeCoultré House are within the APE and are evaluated later in this document.

In 2000 Thomason and Associates conducted an architectural survey of Tazewell, Washington and Millertown Pikes for a TDOT Advanced Planning Report. (Refer to Appendix C for a map of surveyed properties.) Of the properties surveyed that are within the APE for this project, ten properties, of which seven are extant, were recommended not eligible to the National Register. The seven extant surveyed properties are KN-11040, KN-13239, KN-13237, KN-13232, KN-13231, KN-13230, KN-2568/13234. The survey also recommended that the Babelay House and the Murphy House were no longer eligible for the National Register due to deterioration and neglect of the Babelay House and lack of integrity of its original design of the Murphy House, although this design was present during the 1984 survey.



A field survey was conducted in April 2012 to identify historical resources that may be eligible for the National Register in accordance with National Register Criteria A, B, and C (36 CFR Part 60.4). The field survey revealed 14 properties that were inventoried and evaluated according to National Register criteria. Historical research was conducted at the Tennessee Historical Commission, the McClung Collection at the Knoxville County Public Library, and the University of Tennessee-Map Library to review the history of the area and develop a historic context in which to evaluate the historical significance of these resources. Property owners were interviewed when possible to obtain any pertinent information concerning their respective properties. Documentation for historic resources included color digital photography and notation on the *Fountain City, Tennessee* and the *John Sevier, Tennessee* 7.5 minute USGS topographic maps. In the opinion of the consultant, one inventoried property, the Murphy Springs Farm (KN-2586), meets the eligibility criteria for inclusion in the NRHP.

The eligible property was also evaluated for the potential for impacts by the proposed project in accordance with 36 CFR 800. In the opinion of the consultant, the project as proposed will have no adverse effect to the eligible historic property. Therefore, there will be no Section 4(f) use of a historic property.

Public Participation

The current project is Segment Two of a study developed in 2001 by the City to improve traffic conditions and accommodate future growth in the areas of the Knoxville Center Mall and I-640. The larger study involved four segments:

- Segment One- Widen Millertown Pike from Mill Road to I-640
- Segment Two - Widen Washington Pike from I-640 to Murphy Road
- Segment Three- Widen Washington Pike from I-640 to Millertown Pike
- Segment Four- Widen Millertown Pike from I-640 to Washington Pike

Working Group meetings were held with interested parties on July 18 and October 9, 2006 to discuss improvements to Washington Pike and Millertown Pike. Representatives were from the Alice Bell-Spring Hill Association, Knoxville Center Mall Area Businesses, Knox County Metropolitan Planning Commission, Northeast Knox Preservation Association (NEKPA), Fountain City, Knox County, and the City of Knoxville.

Comments from groups representing historical interests were as follows. Alice Bell-Spring Hill Association was supportive of improvements south of I-640 which is the area utilized by their residents most. NEKPA expressed concern for placing priority on improvements north of I-640. Fountain City expressed support of extending Murphy Road to alleviate Tazewell Pike traffic.

On August 17, 2012, TDOT mailed letters to five groups representing Native American interests and asked them if they wished to participate in the historic review process as consulting parties. Letters were sent to the following:

Tyler Howe
Eastern Band of Cherokee Indians

Lisa LaRue-Baker
United Keetoowah Band of Cherokee

Richard Allen
Cherokee Nation

Robin Dushane
Eastern Shawnee Tribe of Oklahoma

Kim Jumper
Shawnee Tribe

No responses were received. Copies of the consulting party invitation letters are in Appendix B.

Appendix B also contains a list of historic groups, county historians, and other such individuals or organizations that might be interested in the proposed project. A copy of this report will be mailed to these interested groups and individuals.

The City may choose to host a public meeting upon completion and approval of the Categorical Exclusion document and development of Preliminary Roadway Plans.

Environmental Setting

Knoxville lies in the Ridge-and-Valley physiographic region in eastern Tennessee which is between the Appalachian Plateau to the west and the Blue Ridge Mountains to the east. The long ridges and corresponding valleys lie generally northeast to southwest. Cultivation typically has occurred in the valleys whereas the ridges have remained forested. Water sources in the area include the Holston and French Broad Rivers which come together to form the Tennessee River at Knoxville. Numerous creeks feed the Tennessee River including First and Second Creeks. First Creek comes from the north of downtown Knoxville with White's Creek as a tributary from the east. Murphy Creek extends eastward off of White's Creek. Both feed the Grassy Valley area that is between Black Oak Ridge to the north and Sharp Ridge to the south. The Grassy Valley area is so named for the lush grasses located between the steep slopes of the ridges. This was an excellent area for agricultural development.

The project is in an area that is commercial at the west end and rural residential at the eastern end. At the west end the project begins at the interchange of Washington Pike and Interstate-640, which curves around Knoxville as a bypass. Washington Pike has seen a rise in commercial development in recent years at this location. Continuing eastward, the scene changes to rural residential with primarily mid-century housing on one-acre plots. New subdivisions have been constructed leading off of Washington Pike as the road continues east of Mill Road. The project area's eastern end has a large farm, convenience stores, and a 1970s development. The project ends at the Knoxville city limits on Murphy Road.

Historical Overview

Early Settlement

Knoxville lies in the ridges and valleys west of the Appalachian Mountains. The ridges are on a northeast to southwest axis which made crossing from the eastern colonies to newly opened lands in the west difficult. Nevertheless, by the time of the Revolutionary War, settlers had begun trickling over the mountains to settle along the river valleys of east Tennessee. The city of Knoxville grew up along the north bank of the Tennessee River just west of the confluence of the Holston and French Broad Rivers that form the Tennessee. Knoxville was actually the capital of the territory and then state of Tennessee until 1812. However, due to the difficulties in travel in the region, Knoxville grew slowly. The local economy was based on serving the immediate area and did not develop industries to serve the region. The surrounding topography of valleys and mountains made transportation of goods difficult. Small, relatively subsistent farms were the norm as opposed to the large plantations found elsewhere in the South (Bennett 1994).

Overland roadways such as Tazewell and Washington Pikes were established radiating from

Knoxville to burgeoning communities in the region. Tazewell Pike extended to the northeast to the community of Tazewell with access to nearby Cumberland Gap and Washington Pike also led northeast towards Washington County, Virginia just across the border. After the Civil War, Tazewell Pike was one of five roads chosen that led out of Knoxville to be improved as a toll road (Knoxville/Knox Co. MPC 2007). Several of the pikes located north of the city connected to North Broadway which led straight into downtown.

In 1848, at the invitation of the German-American East Tennessee Colonization Company, Swiss settlers arrived in the Knoxville area. Over the years, many families settled northeast of Knoxville and established farms. By 1850, the Swiss were the largest ethnic group of the new settlers in the area. One of these families, the Babelays, settled along Washington Pike and eventually established a large greenhouse business (Babelay 2009).

Industrial Growth

In 1855 the East Tennessee Valley and Georgia Railroad was constructed leading north out of Knoxville along Second Creek towards Bristol, Tennessee. When the Civil War began, Knoxville was seen as important to the Union effort due to the railroad. This line was a link between Virginia and the Mississippi River and used for transportation of troops and support goods (Sammartino 1996). To achieve control of the rail line, Union forces under Major General Ambrose Burnside occupied Knoxville by September 1863 after a short siege of the city from the north. Undaunted, Confederate forces under General James Longstreet lay siege to Knoxville that November but by early December had withdrawn leaving the city in the hands of the Union occupiers. The Civil War brought no serious destruction to the city and surrounding communities as in other parts of the region.

A result of Union occupation was the attention brought to Knoxville's resources to those in the Union army occupying the city. Several who had capital to invest came back after the war to begin Knoxville's industries (Bennett 1994). Industry in Knoxville was made possible due to its railroad connections. Service had been disrupted during the Civil War, but once restored it became the impetus to growth for areas north of downtown Knoxville. The creeks that feed into the Tennessee River acted as a water source to provide power to the factories. Also, as more railroads were constructed intersecting Knoxville, the city became a center in the region for wholesale businesses (Brown 1980).

One of the connecting rail lines constructed after the war was the Powell's Valley Railroad that was begun in 1887. This line led northeast out of Knoxville, paralleling Washington Pike, and connected to Middlesboro, Kentucky near the Cumberland Gap. This was a coal mining area of Kentucky and therefore the Powell's Valley line brought coal back to Knoxville for use in the iron foundries. It also provided coal to communities along the rail line. The line eventually became the Knoxville, Cumberland Gap and Louisville Railroad before being incorporated into the Southern Railway (Rule 1900). The line is now owned by Norfolk Southern. A bypass line that connected to this line was constructed in the early 1920s around the eastern edge of the city to the new John Sevier railyards. The community of Beverly, just west of the project and located at the juncture of these two lines, developed warehousing to service the rail lines.

Residential Growth

Manufacturing did not come to outlying areas along Washington Pike. Instead, the area was home to two known greenhouse businesses. As mentioned, the Babelay greenhouses were located along Washington Pike and Babelay Road. Another greenhouse business was Charles Baum's Home of Flowers established in 1889 along Tazewell Pike (Knoxville/Knox Co. MPC 2007). These two businesses grew the exotic and delicate flowers that were popular in the Victorian gardens of the

wealthy and upper middle-classes who were building new homes in the new suburbs of Knoxville. With the rise of new factories on the outskirts of Knoxville came the construction of neighborhoods to house the workers, managers, and owners of the new factories. Two such neighborhoods that contained the larger Queen Anne style homes and gardens were Fourth and Gill for middle-class professionals and Old North Knoxville which had more of the owner-class homes. Also, larger estates were established along Tazewell Pike leading away from the new suburban areas.

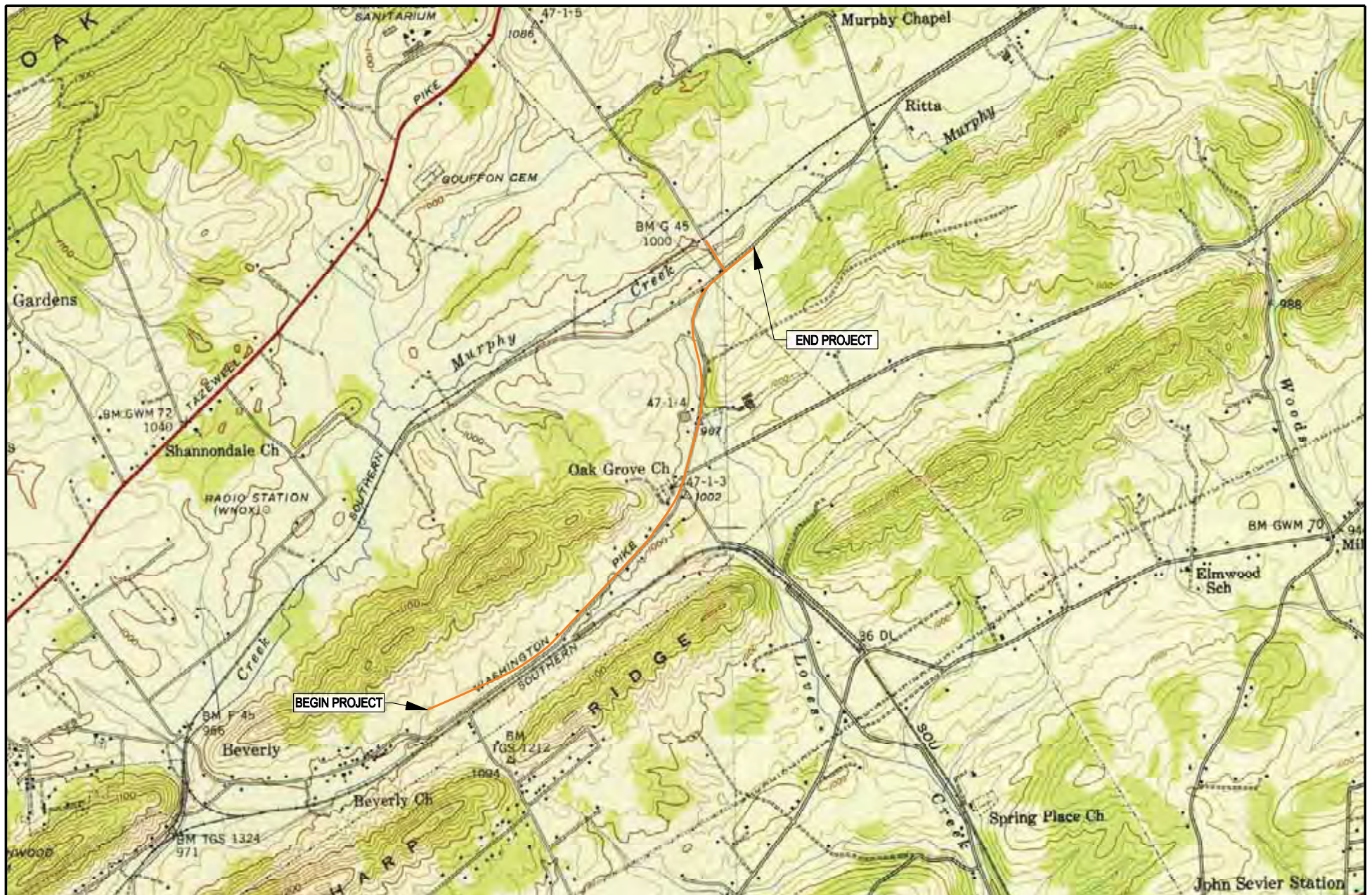
Streetcar lines, such as the Dummy Line that led to Fountain City along North Broadway, enabled the growth of these residential areas and attracted not just homes but businesses to serve the residences as well as churches and schools. Fountain City, so named for the fresh water springs, was the site of early camp grounds for the Methodist Church. By the 1880s the site became a health resort with a hotel, park, and lake. To reach the resort, a street car line, the Dummy Line since it was not a real rail line, was established in 1890. By the 1920s the area had become a commuter suburb with the coming of the automobile (Bennett 1984).

Another community that arose in the area was an African American community centered on the Oak Grove AME Zion Church that was established in 1868 at the corner of Washington Pike and Mill Road (as seen in Figure 3). It is unknown if this was the original location for the church but a building was constructed at this intersection in 1915 with the existing building constructed in 1926. AME Zion (African Methodist Episcopal) churches were established by missionaries in the southern states after the Civil War. Rural African American churches were frequently the focal point of community gatherings and social activism. Sometimes schools and fraternal lodges were built nearby (MTSU 2000). Several African American families associated with the Oak Grove church purchased land nearby along Washington Pike. For instance, William T. Johnson's land was located west of the intersection of Washington Pike and Mill Road. Upon his death in 1946, his land was divided into several parcels among his descendants who then built their own homes. The land has continued to be passed down to succeeding generations. Mr. Johnson's home is no longer extant.

The result of the spreading residential development was that by the mid-twentieth century, the farms located along the old pike roads that radiated from Knoxville were being replaced by subdivisions that could be reached by automobile along the pikes. The demand for housing, especially after World War II, accelerated the transformation of the farmland into residences (refer to Figure 4) (Knoxville/Knox Co. MPC 2007).

When I-640 was constructed in the 1970s around eastern Knoxville, the area began to take on a suburban feel. New subdivisions were constructed and the area of East Knoxville underwent revitalization. The Knoxville Center Mall was opened in 1984 with access from I-640 at Millertown and Washington Pikes. The area has continued to attract new commercial establishments and subdivisions with an increase in the past decade. Farms have been subdivided for the new subdivisions, further reducing the rural feel of Washington Pike in this area.

Following are historic topographic maps (Figures 3 and 4) that show the progression of development in the area with the project alignment overlaid along Washington Pike. The project alignment as shown reflects the current alignment of the roadway and not the historical alignment. The maps, including the map for Figure 5, do not reflect the northwesterly realignment of the west end of Washington Pike at Greenway Drive that occurred with the construction of I-640 in the 1970s. Project alignment departures from the roadway along the curves at the eastern end of the project reflect a proposed realignment of the roadway near McCampbell Road.



LEGEND

— PROPOSED ALIGNMENT

FIGURE 03-- HISTORIC TOPOGRAPHIC MAPS

USGS Quadrangle Maps
7.5 Minute Series

Fountain City (1941)
&
John Sevier (1940)
(Reprinted 1950)



**Fountain City (1966)
&
John Sevier (1966)**

FIGURE 04-- 1966 TOPOGRAPHIC MAPS

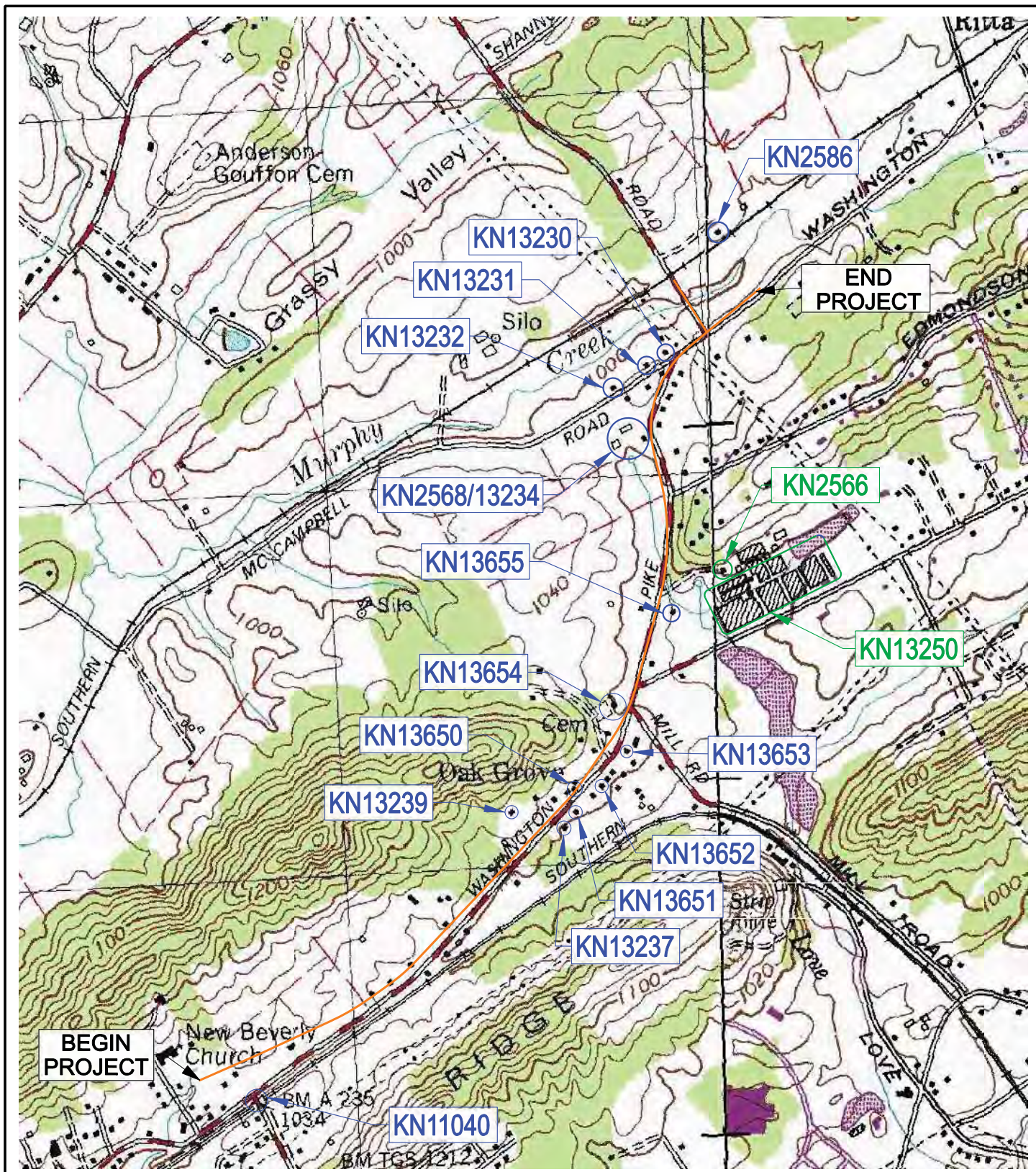


FIGURE 5 – MAP OF SURVEYED PROPERTIES

Field Survey Results

KN-11040

Old Washington Pike Bridge

Constructed c. 1930, this resource is a reinforced concrete beam bridge that carried a two-lane asphalt road, Old Washington Pike, over the former Southern Railroad tracks that connected to the John Sevier railyards. The bridge has two reinforced concrete piers and concrete abutments. The railings on top of the deck are steel with square concrete balustrades. It is located parallel to Washington Pike, crossing over the Norfolk Southern Railroad north of I-640. Use of the bridge was discontinued in the 1970s when Washington Pike was realigned due to the construction of I-640.



Figure 6 – KN-11040, east elevation

The bridge is a common type of concrete beam highway bridge of the 1930s era and does not display any significant architectural or engineering features that would qualify it as eligible under Criteria C. The bridge has no known associations with significant persons or events that would qualify it as eligible under Criteria A or B. KN-11040 is recommended not eligible for the National Register.

KN-13239
5609 Washington Pike

Situated on the north side of Washington Pike and facing south, this is a one and a half story frame house constructed c. 1925 in the Craftsman style and rests on a brick pier and concrete block foundation. The house is sheathed in vertical board panels and there are stamped metal panels skirting most of the foundation. The front façade has double entry doors in the center flanked by two 2/2 sash windows and two picture windows to either side. A second entry door is located on the left side and leads to an enclosed porch. Other windows on the house are 2/2 horizontal. The full-width front porch has vinyl columns and new square post railings and steps. The side gable roof has asphalt shingles, a large shed dormer with two 2/2 windows, and a brick chimney on the ridge. There is also a brick chimney flue on the exterior west elevation. The rear façade (north elevation) has a shed dormer with a row of aluminum sash windows. An enclosed walkway has been added to the rear to connect to an open three-bay garage.

There is one outbuilding, an original shed, located to the west that rests on rock and wood piers and is sheathed in horizontal boards with a standing seam metal roof and exposed rafters. There is a window on the west elevation and a door on the east elevation.



Figure 7 – KN-13239, south elevation

The house is currently rented and there are four small businesses on the property close to the roadway. The Craftsman-style house underwent several unsympathetic changes in the 1970s including the addition of the picture windows, vertical siding, enclosed porch, and double entry doors. Under Criteria A or B, KN-13239 has no known associations with significant persons, events, and does not retain sufficient architectural integrity of the Craftsman style features under Criteria C; therefore, KN-13239 is recommended not eligible for the National Register.

KN-13237
5608 Washington Pike

Situated on the south side of Washington Pike and facing north, this is a one-story frame house constructed c. 1930 in the Bungalow style and rests on a brick foundation covered by concrete stucco. This front gable house has asphalt shingles, exposed rafters, open eaves, and an interior brick chimney on the east elevation and an exterior brick chimney on the rear. The walls are sheathed in asbestos shingles. The engaged porch is partial-width with a paneled entry door and screen door and a 1/1 window. The porch has wood tapered piers on brick veneer columns and iron railing. The right side of the porch has been enclosed and contains a paneled entry door on the east elevation and a picture window with 1/1 sash sidelights on the façade that is surrounded by asbestos shingles and a brick veneer skirt wall under the window. To the rear on the west elevation is a side entry with iron steps that leads into an original shed porch. The shed porch has vinyl siding and a row of screened windows. The house has a partial basement.

There are two outbuildings, a concrete block garage and a concrete block shed. The garage has a gable, standing seam metal roof, paneled side door and metal garage door. The shed has a vertical paneled door, three-pane window, and a gable, corrugated tin roof.



Figure 8 – KN-13237, north elevation

The house is currently owned by Alfred Nance, a descendant of Josie Crippen, who received the property in 1955 according to tax records. The Crippen family was active members of nearby Oak Grove AME Zion Church (KN-13654) at the time of the 1926 construction. The Bungalow-style house underwent several alterations in the late 1950s including the addition of the picture window and enclosed porch, and windows. Additional alterations since the 19050s include covering the rear porch with vinyl siding, addition of iron steps to the rear entry door, and stuccoing the brick foundation. Under Criteria A or B, KN-13237 has no known associations with significant persons, events, and does not retain sufficient architectural integrity of the Bungalow-style features under Criteria C; therefore, KN-13237 is recommended not eligible for the National

Register.

KN-13650

5621 Washington Pike

Situated on the north side of Washington Pike and facing south, this is a one-story frame house constructed c. 1950 in the Ranch style. It has a side gable roof with asphalt shingles and has been sheathed in vinyl siding. The porch is an entry stoop that has been gated with iron fencing to form a patio. The door is a replacement and there are brick pilasters to either side that extend three-fourths of the height of the door. The windows throughout the house are 1/1 single pane with vinyl muntins forming a 6/6 pattern. There is a picture window with 1/1 sash sidelights and a partial brick surround to the right of the entry door. The house rests on concrete block foundation and has open, close eaves. An ell addition extends to the rear with rear entry door and a small concrete block shed has been added to the rear of this addition.



Figure 9 – KN-13650, southwest elevation

According to Isom Jamison, the owner is Theodora Jamison who currently rents the property to family members. Theodora's mother, Elizabeth Isom, inherited the land from the Johnson estate in 1946 according to tax records, and presumably lived here until her death in 1997. The Johnson family has been longstanding members of the Oak Grove AME Zion Church (KN-13654). The house has been altered with the addition of vinyl siding, closure of the entry porch, and unsympathetic additions to the rear. Under Criteria A or B, this house is not associated with a significant person or event, and does not possess significant architectural features of the Ranch style under Criteria C; therefore, KN-13650 is recommended not eligible for the National Register.

KN-13651
5610 Washington Pike

Situated on the south side of Washington Pike and facing north, this is a one-story frame house constructed c. 1960 in the Ranch style. It has a side gable roof with side gable wings to either side that are set back from the main façade. An extended roof covers the porch along the main façade and has square wooden supports and concrete slab flooring. The paneled door is new and there are 1/1 sash windows to either side with vinyl muntins forming a 9/6 pattern. The side gable wings each have a picture window with the one on the right having 1/1 sidelights. The front facade has brick veneer and the rest of the house is sheathed in vinyl. The gables in the main façade have masonite siding. There is a large exterior brick chimney on the west elevation. There are two cross gables extending to the rear. The cross gable to the west was a porch that has been partially enclosed and has a vinyl entry door leading to a wooden deck. The rest of the porch has framed screening with side entryway. The cross gable to the east has a sliding glass door leading to the wooden deck.

There is one outbuilding, a concrete block garage to the rear of the property. The garage has a new aluminum roll door, a 1/1 window, and a new vinyl door. There is a pence roof above the door. The gable roof is extended and has particle board and bracing in the eaves.



Figure 10 – KN-13651, north elevation

The house has been altered with the addition of vinyl siding and unsympathetic additions to the rear. Under Criteria A or B, this house is not associated with a significant person or event, and does not possess significant architectural features of the Ranch style under Criteria C; therefore, KN-13651 is recommended not eligible for the National Register.

KN-13652**5624 Washington Pike**

Situated on the south side of Washington Pike and facing north, this is a one-story frame house constructed c. 1960 in the Ranch style and rests on a concrete foundation. There is a brick chimney on the ridge. The house has a side gable roof with asphalt shingles and an extended front cross gable on the left side of the facade. The front façade has a shed roof entry porch with new paneled door, concrete steps and decorative iron railing. The cross gable and entry have brick veneer which extends across the rest of the façade as a skirt wall. There is vertical siding above the skirt wall and the rest of the house has asbestos siding. There is a picture window with 2/2 sash sidelights to the right of the entry door. The rest of the house has 6/6 paired windows. A side entry on the west elevation has concrete steps, iron railing, and a vinyl awning. On the east elevation is a new sliding glass door leading out to a new deck. There is also a sliding glass door on the rear that leads to a broad deck and a sliding glass door that leads out from the basement. Also on the rear façade is an exterior concrete block chimney flue and the windows in the basement are 1/1 horizontal.

There is one outbuilding on the property, a concrete block garage that has a gable roof with asphalt shingles. The two garage doors are aluminum roll doors.



Figure 11 – KN-13652, north elevation

According to the current owner, Mark Isom, he bought the property from Marion Wells in 2011 who had received the property in 1946 from the Johnson Estate. The house has been altered with the addition of the three sliding glass doors. Under Criteria A or B, this house is not associated with a significant person or event, and does not possess significant architectural features of the Ranch style under Criteria C; therefore, KN-13652 is recommended not eligible for the National Register.

KN-13653**5650 Washington Pike Road**

Situated on the south side of Washington Pike and facing north, this is a one-story house constructed c. 1952 in the Ranch style and rests on a concrete block foundation. The low-pitched roof is a side gable with asphalt shingles. The house is sheathed in synthetic siding and has a rock veneer skirt wall on the front façade. The rock veneer covers the wall to the right of the door. There are concrete block entry steps with decorative iron railing leading to the paneled door which has three diagonal lights. The roof extends slightly over the steps and walkway. The windows on the house are 1/1 horizontal with aluminum storm windows and there is a picture window with single pane sidelights to the left of the door. On the west elevation is a double carport with concrete slab. There is a wooden ramp leading to a side entry under the carport. To the rear is a shed roof extension with sliding glass doors on the west elevation leading to a wooden deck.

There are two outbuildings, sheds, on the property. One shed is modern corrugated tin and the other is of particle board with a gambrel, asphalt-shingled roof.



Figure 12 – KN-13653, northwest elevation

The current owner is Almeta Chesney who, with Paul Chesney, purchased the property in October 1951 according to tax records. The house has been altered with the addition of synthetic siding, the sliding glass door and wooden deck. Under Criteria A or B, the house is not associated with a significant person or event, and does not possess significant architectural features of the Ranch style under Criteria C; therefore, KN-13653 is recommended not eligible for the National Register.

KN-13654
Oak Grove AME Zion Church
5667 Washington Pike Road

Situated on the north side of Washington Pike and facing south, this is a one-story church on a full basement. According to a cornerstone, the church congregation dates to 1868 and the existing 1926 structure replaces a 1915 structure. Another plaque states the church was remodeled in 1976 (see Figure 13). The church is referred to as the Fullwood Chapel, AME Zion Church on the 1926 plaque and on a 1953 USGS topographic map. By the time of the remodeling in 1976 and on the 1941 and 1966 USGS topographic maps, the current name was in use. This church and several of the properties surrounding it have long been affiliated with a small African-American community at the crossroads of Washington Pike and Mill Road.

The 1926 portion of the church is a scaled-down Greek temple style which is a long rectangle with front gable entrance and windows along both sides. The row of 1/1 windows on either side have painted glass and there is a brick chimney on the north elevation that has been cut off at the roof line. To the rear is a hipped addition that stretches around both sides. This rear addition has an entry porch on the south elevation with a concrete walk leading to wooden steps, original paneled door and metal awning. There is also a paneled entry door with metal awning on the west elevation of the addition. The basement has stucco and has windows along the north elevation.

The 1976 changes include brick veneer added to the entire structure and a gable addition to the front façade. The gable addition is on the east elevation and wraps around to the south elevation where there are double, vinyl doors. There is a ribbon of lights along the roof line and an inset vinyl cross in the brick veneer on the east elevation. There are also 1/1 windows on the lower level of the east elevation.



Figure 13 – KN-13654, southeast elevation



Figure 14 – Cornerstone Plaques

There is a cemetery along the western portion of the property to the rear of the church that extends up the hillside. One of the oldest stones dates to 1874. There are approximately 70 headstones in the cemetery with many damaged or lying down. Some of the stones are grouped in family units but most are scattered. Many of the headstones date to the 1920s and 1930s, however, this is an active cemetery.

A context was developed for evaluating African American rural churches by the Center for Historic Preservation at Middle Tennessee State University (MTSU 2000). For churches from the 1890-1945 Jim Crow era, the vernacular frame, front-gable entrance style of church building was common for rural African American churches. Other themes associated with the enforced segregation of the era include activism by congregants, nearby community buildings affiliated with the church, documentation of church history on dedication plaques, and a historic cemetery establishing an overt African American identity.

This church has no known associations with a significant person such as a well-known minister or civil rights activist or an event such as education or social activism of the 1890-1945 Jim Crow Era or the 1945-1970 Modern Era to be eligible under Criteria A or B. Under Criteria C, the 1976 renovations have compromised the front-gable entrance style common to this era so that the church does not possess significant architectural features for a religious property of this type and ethnic affiliation. For these reasons, KN-13654 is recommended not eligible for the National Register.

KN-13655**5716 Washington Pike**

Situated on the east side of Washington Pike and facing west, this is a one-story frame house constructed c. 1949 according to the owner, Gene Babelay. This brick house is in the Ranch style and has a hipped roof with asphalt shingles and two cross gables extending to the front. The front door is paneled with a metal screen door and there is a multi-light bay window to the left. Other windows on the house are 6/6 sash with some single and some paired. The extended gable on the left side of the façade has a one-car garage with wood paneled roll door and row of lights at the top. There is a brick chimney on the interior and a brick chimney flue at the rear. On the north elevation is a side entry door with hipped roof, concrete steps and decorative railing. On the rear is a hipped wing with garage that leads to a full basement. There are windows at the basement level that have iron grates covering them. Also to the rear is a concrete patio area with concrete picnic table and low brick wall.

According to the current owner, Gene Babelay, the parcel has been in the Babelay family since the late 19th century. The Babelay House (KN-2566) c. 1910 and not covered in this survey, is located east of this property in a separate parcel and includes the Babelay Greenhouses business (KN-13250) established at the turn of the twentieth century (see Figure 5 for locations).



Figure 15 – KN-13655, west elevation

Under Criteria A or B, since the house is not associated with the Babelay Greenhouse business, then it is not considered associated with a significant person or event. Under Criteria C, it does not possess significant architectural features of the Ranch style. KN-13655 is recommended not eligible for the National Register.

KN-2568/13234- LeCoultre House
5820 Washington Pike

Situated on the west side of Washington Pike and oriented east, this property has a collection of three barns and a smokehouse constructed during the first half of the twentieth century for the purpose of a dairy operation. Barn 1 on the northern portion of the property has two bays open at either end and was probably used for equipment storage. The gable roof has exposed rafters and is covered in corrugated tin. Much of the board and corrugated tin siding has come off. Barn 2 is the main barn at the northwestern end of the property. It is constructed of vertical boards on a concrete block foundation. The foundation forms a basement level and has two windows on the north elevation with no glass. On the east elevation is an open bay into the basement level. There is an open bay on the north elevation and an entry door on the south elevation. There are several stalls with a hay loft above in the interior. The roof is gable with standing seam metal. Barn 3, not shown, is the milkhouse that is attached to the south elevation of the main barn. The building has a corrugated tin exterior and standing seam metal roof. There are windows on the west elevation. The east elevation is covered with vegetation. Attached to the corner of the south elevation is a concrete block gable wing with standing seam metal roof and hopper windows. In the southern portion of the property is a fallen shed with wood siding and a standing seam metal roof. Its location near a drained pond indicates it was probably a spring house to keep the milk cool. The last structure on the property in the eastern portion is a log smokehouse. Constructed in the half-dovetail method, it has particle board in the overhanging gabled eaves. A small paneled door is in the north elevation and the roof is standing seam metal.

When this property was surveyed in 1984 (KN-2568) and again in 2000 (KN-13234), the associated farm house was still standing but is no longer extant. The house was a two-story central hall built c.1880 with a c. 1930 wraparound porch. The original owner was Stoffell who had a dairy operation. Dairying was continued by the next owners, the LeCoultres, whose dairy operation was called Richelieu Dairy. The property is now bank-owned.



Figure 16 – KN-2568/13234, Barn 1-southeast elevation



Figure 17 – KN-2568/13234, Barn 2-east elevation



Figure 18 – KN-2568/13234, Smokehouse-north elevation

Under Criteria A, this property is not associated with a significant person and under Criteria B the barns do not constitute an outstanding representation of dairying in eastern Tennessee. Under Criteria C the barns do not possess significant architectural features of a farmstead. KN-2568/13234 is recommended not eligible for the National Register.

KN-13232**5817 McCampbell Drive**

Situated on the north side of McCampbell Drive and oriented to the east, this one and a half story frame house was constructed c. 1925 and rests on a brick and concrete block foundation. The gable roof has asphalt shingles and close eaves. The house is sheathed in weatherboard siding and there is a brick chimney on the ridge. The entry door does not face the street but rather is on the east elevation with a cement slab patio. The door is paneled with nine lights. Most of the windows on the house are paired 2/2 sash. On the south elevation facing the street in the upper story is a single pane window with three-light windows on either side. There is decorative trim along the south elevation between the first and second levels. There is a gable dormer addition on the west elevation with a large multi-light window and a small casement window. Also the west elevation exterior has vertical board paneling. On the east elevation is a cross gabled wing with entry door and windows. To the rear is a shed addition with paneled entry door that has three lights and a metal awning covering the concrete platform. There are knee braces in the gable of the north elevation.



Figure 19 – KN-13232, southeast elevation

This property is vacant and is currently owned by Carlos, Robert, and John Campbell who are descendants of Robert M. Murphy. The house has been altered with the addition of the gable dormer and exterior paneling on the west elevation. Under Criteria A or B, the house is not associated with a significant person or event, and does not possess significant architectural features of a 1920s cottage under Criteria C; therefore, KN-13232 is recommended not eligible for the National Register.

KN-13231**5831 McCampbell Drive**

Situated on the north side of McCampbell Drive and oriented to the east, this is a one-story house built c. 1940 and rests on a wood pier foundation with brick and concrete block infill. The house is sheathed in masonite and has a full-width, hipped porch. The concrete floor porch has metal supports and decorative iron railing. The gable roof is reminiscent of a saltbox gable and has asphalt shingles. The door is aluminum with a glass storm door and the windows are 1/1 sash. Some of the 1/1 windows on the house have vinyl muntins for an 8/12 or 6/6 pattern. At the rear the doorway has been enclosed. It once led to rounded concrete steps and patio. A new paneled door has been installed to the right and leads to a wood deck.



Figure 20 – KN13231, southeast elevation

Under Criteria A and B, this house is not associated with a significant person or event. Under Criteria C, this house has had several unsympathetic changes including new doors and windows, new porch, and removal of a rear door and patio configuration; therefore, KN-13231 is recommended not eligible for the National Register.

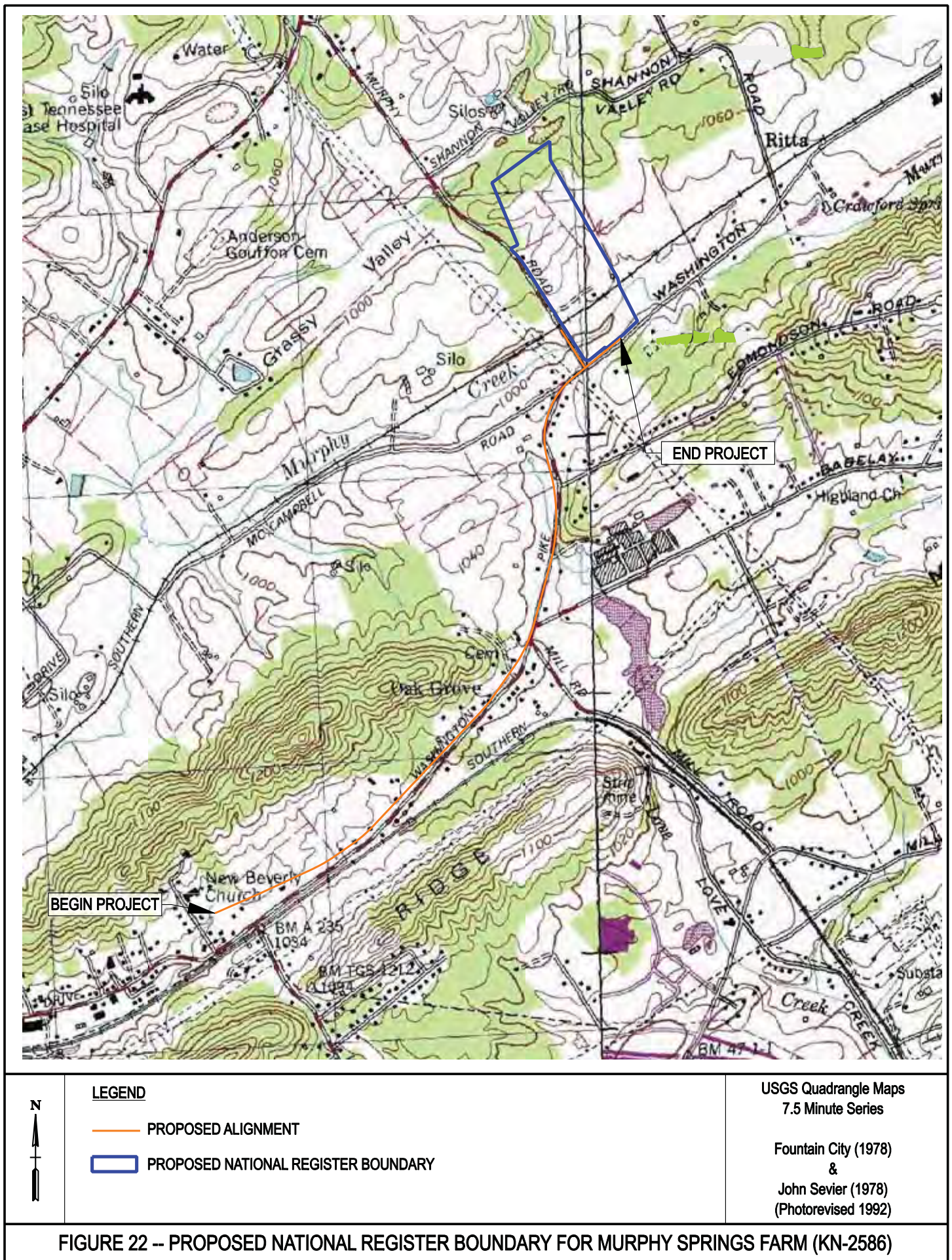
KN-13230**5835 McCampbell Drive**

Situated on the north side of McCampbell Drive and oriented to the east, this is a one-story house constructed c. 1930 and rests on a wood pier foundation with concrete block infill. The house is sheathed in weatherboard and there is a brick chimney in the interior of the gable roof. The roof is standing seam metal and has exposed rafters. The windows are 6/6 sash. On the west elevation is a shed roof wing with partially-enclosed porch. The porch has square wood posts and railings. The porch wraps around the enclosed portion from the southeast to the northeast. The enclosed portion has a row of three 6/6 windows. There are two entry doors from leading this porch that are paneled. The house is covered in vegetation.



Figure 21 – KN-13230, south elevation

The house is abandoned and bank-owned. Under Criteria A and B, this house is not associated with a significant person or event, and under Criteria C it does not possess significant architectural features and has lost some of its architectural integrity due to deterioration; therefore, KN-13230 is recommended not eligible for the National Register.



KN-2586**Murphy Springs Farm****4508 Murphy Road**

This farmstead has been determined eligible to the National Register by the Tennessee Historical Commission (THC). The owner, Kevin Murphy, is currently preparing a nomination form for listing on the National Register. The property is also a Tennessee Century Farm (see Appendix B for application form).

The farm is located on the east side of Murphy Road at the corner with Washington Pike along Murphy Creek in an area of Knox County known as Grassy Valley. The property includes a c. 1841 Gothic Revival house and a collection of outbuildings. The Norfolk Southern Railroad, constructed in 1887 as Powell's Valley Railroad, runs through the property alongside Murphy Creek. The farm was originally purchased in 1797 by Robert Murphy and reached 192 acres by 1826. His son Hugh built the current house and purchased additional acreage. The farm at times had fields for crops of corn, potatoes, flax, and cotton and later a dairy was established. Currently the farm is in timber, fallow fields, hay and grazing fields, and a seven-acre field that is plowed by the East Tennessee Draft Horse and Mule Owner's Association.



Figure 23 – Hugh Murphy House, west elevation

Description of Buildings

Hugh Murphy House – Oriented west toward Murphy Road, the two-story frame, Gothic Revival house has a steeply-pitched side gable, standing seam metal roof. The house is sheathed in weatherboard. A cross gable in the front façade has a tripartite window with two 8-pane windows and a three-paned stained glass sidelight to either side. Above are pointed arched louvers with a medallion attic vent above. The paneled entry door has three-light sidelights to either side and a molding surround. A slightly-pedimented molding surrounds each window on

the house which are 6/6 and have storm windows. The hipped roof porch is partial-width and features square wood columns and a wood floor on brick piers. On the north elevation is a wraparound porch that extends the length of the rear cross gable and wraps to the east elevation. The hipped roof porch is supported by wood Doric columns and has a wood floor and paneled entry door with the same surround and sidelights as the front entry door. In the cross gable are two, steeply-pitched gabled dormers. A triangular louver is above the windows and also above the second floor window of the side gable which also has a medallion attic vent. On the rear or east elevation the southeastern portion of the porch is enclosed and wraps around to the south elevation. It has an entry door from the porch, a fixed three-light window, paired 3/3 window, and a 6/6 sash window on the south elevation. There is a window in the second floor of the cross gable on the east elevation in the same configuration as the north elevation side gable window. The south elevation has a paired gable set slightly back from the main side gable. The windows on the second floor of this gable are 6/6 but smaller than the rest of the windows and there is a medallion attic vent above. There is a bricked cellar entrance at the bottom of this gable. The eaves of the house are open with enclosed rafters and a wide band of trim below. There is a corbelled brick chimney with metal cap on the ridge of the side gable and also on the ridge of the cross gable that extends to the rear.



Figure 24 – Hugh Murphy house, southwest elevation

A c. 1925 renovation introduced a Craftsman porch on the front façade that consisted of a shed roof and tapered columns on brick piers. Also, in 1925, bathrooms were added in the paired gable and rooms such as a mud room and nook were added to the kitchen on the first floor to form the enclosed porch. A wall separating the central hall from the living room was removed, and a fireplace was removed from the living room. When the rear porch was enclosed, an outside entry door and molding were removed and added to the corn crib in Garage 1.

The current owner has been restoring the house to its original form in the past few years. On the

advice of the THC, the front porch was rebuilt to its original configuration according to photographs. Recent renovations to the rear wraparound porch have included removal of c. 1980 plate glass that enclosed the wraparound porch, however the three foot extension of the porch made in the c. 1925 renovation was maintained; reconstruction of the kitchen within the same footprint; replacement of the door on the east elevation into the c. 1925 enclosed porch with double windows; and removal of a gable roof from the hipped roof over the enclosed porch on the south elevation. Other renovations included replacing the cross gable chimney and fireplace, replastering the interior, new cellar entrance, and renovating the kitchen and bathrooms.



Figure 25 – Hugh Murphy house, northeast elevation

The interior of the house retains the original woodwork, stairs and railing, doors, window sills, baseboards, some of the plastering, and pine flooring. The layout is the same with the exception of a recently added downstairs bathroom and laundry room.

Garage 1 – This is a two-bay garage with corn crib in the center, built c. 1925 that rests on a concrete block foundation. Entrance to the corn crib on the west elevation is a door and molding that is from the house. The garage has weatherboard siding and a standing seam metal, gable roof.

Garage 2 – North of Garage 1 is a concrete block, one-bay garage constructed c. 1950. It has a wooden roll door with a row of glass panes at the top and a side entrance that has been boarded up with weatherboard. The gable roof has standing seam metal and there are weatherboards in the gable.

Springhouse – Constructed c. 1905 in support of the dairy operation at the farm, the gable-roofed springhouse is constructed of vertical boards and has a standing seam metal roof. It has a concrete floor and concrete block foundation that is c. 1970. The entrance is on the east elevation with a pent roof above the door. The windows are fixed with six lights. In the northeast corner inside is a

cement water trough that catches the spring water flowing into this corner of the building. There is a brick chimney and fireplace south of the springhouse. The wash house surrounding the fireplace was recently torn down. The wash house was probably used to sanitize dairy equipment. The brick piers of this structure also remain.



Figure 26 – Garage 1 and 2



Figure 27 – Springhouse and chimney for wash house

Smokehouse – This smokehouse was constructed at the same time as the house as dated by core sampling. The logs are V-notched and there is a small vertical board door in the west elevation. The roof overhangs in front of the door and there are vertical boards in the gable. The

Smokehouse is currently undergoing renovations including reconstruction of the roof with shakes, construction of a rock foundation, and replacement of a few of the sills and lower logs.



Figure 28 – Smokehouse

Wood Shed – This gable-roof structure is constructed of vertical boards with unhewn corner posts and has a standing seam metal roof. It is open on the south elevation and there is a four-pane window on the west elevation. A small shed is attached to the northeast corner. It was originally the wood shed and was moved to its current position at the end of the driveway in the 1930s.



Figure 29 – Wood Shed

Chicken Coop – This shed-roofed structure c. 1900 with standing seam metal roof was originally a chicken coop with an entry door on the west elevation. The south elevation was opened up c. 1970 and the shed is now used for storage. It is constructed of vertical boards and rests on concrete block piers and has exposed rafters.



Figure 30 – Chicken Coop

Pole Barn – The pole barn was constructed in 2000 and is used to store farm equipment. It has one large gable-roof bay and a smaller shed bay to the east. It replaces a large c. 1925 hay barn that was severely deteriorated and recently demolished.



Figure 31 - Pole Barn and Shed

Shed – Located east of the pole barn is a vertical board shed with standing seam metal roof with open bays on the south elevation.

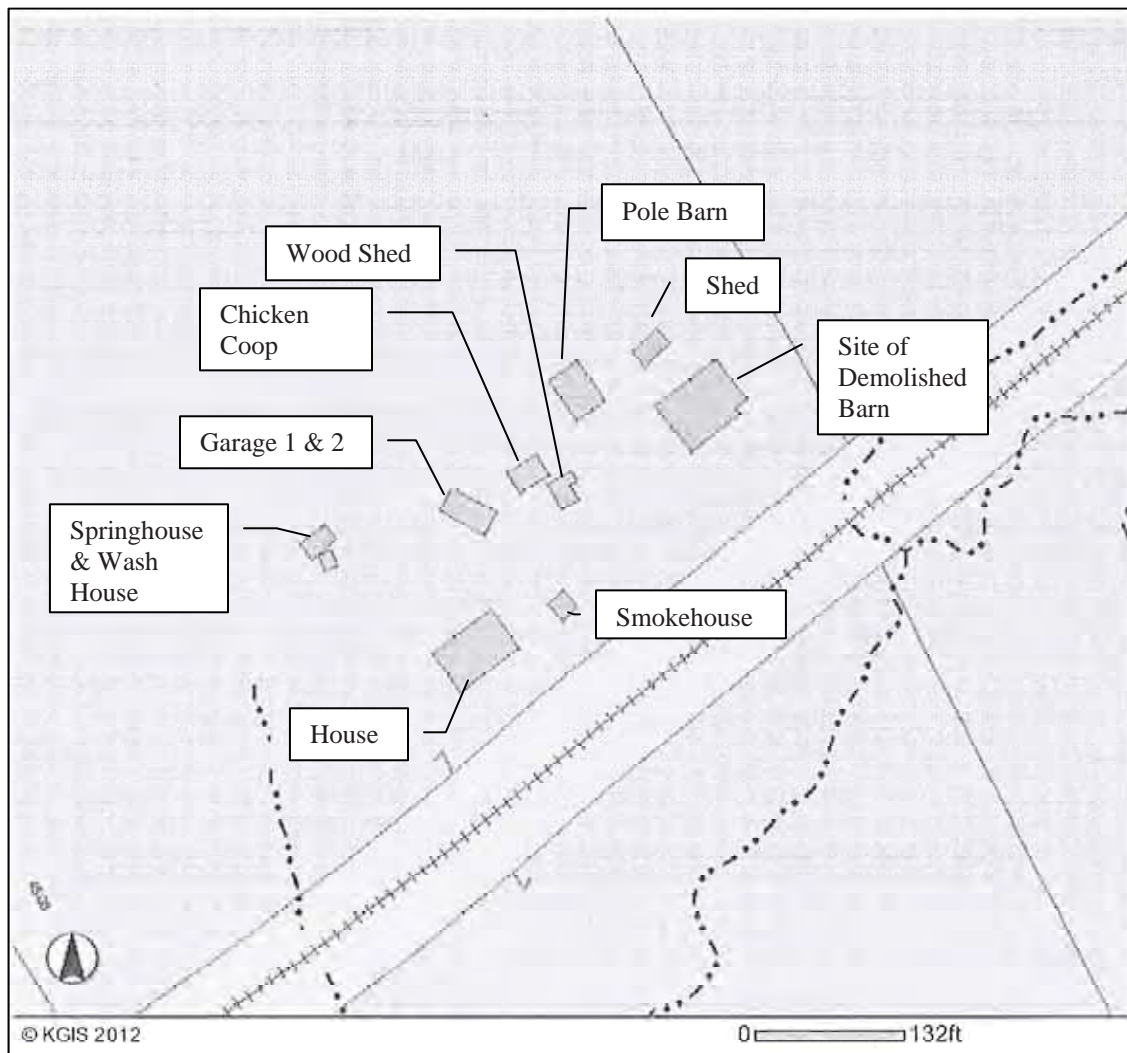


Figure 32 – Site Plan for Murphy Springs Farm complex

Eligibility for the National Register

KN-2586 is eligible for the National Register based on Criteria A as an example of a family farmstead in the Early Settlement of Knox County and Criteria C for its example of Gothic Revival architecture. The farm was purchased in 1797, less than a decade after the city of Knoxville was laid out. The acreage has been maintained as farmland or timberland and stayed within the family since that time. The farmstead, surrounded by agricultural fields, retains many buildings from the turn of the century dairy operation. The house has been restored to its original Gothic Revival appearance with characteristic steep gables, entry porch, and molding around the windows and doors.

The following buildings are contributing to the Murphy Springs Farm:

- Hugh Murphy House
- Springhouse
- Smokehouse

Wood Shed
Garage 1
Chicken Coop
Shed
Agricultural landscape of fields and timberlands

Non-contributing features include:

Garage 2
Pole Barn

Boundary of Eligible Property

The proposed boundary consists of the current parcel on which the Hugh Murphy house and its associated outbuildings sits. The parcel, 049 080, is approximately 49.50 acres with Murphy Road as its western boundary, Washington Pike as its southern boundary, parcel 049 077 forming its eastern boundary and various parcels along its northwestern and northern boundary (see Figure 32). The current owner, Kevin Murphy, had previously proposed the boundary be based on lands acquired by the original owner, Robert Murphy, which would total 207.92 acres and encompass various adjoining parcels now owned by family members. Prior submittal of this report to the TDOT resulted in a recommendation that the boundary reflect only the parcel containing the Murphy Springs Farm house and outbuildings that were associated with farming activities through the dairying period, approximately the 1920s. This would put the period of significance for Murphy Springs Farm to be from 1841, the construction of the Hugh Murphy house, to the 1920s, which marked the end of continuous farming activity. After dairying activities ended, the farm was further subdivided among family member who began their own homes and farms.



Figure 33 – Proposed National Register Boundary in blue for Murphy Springs Farm (KN-2586) with neighboring parcels shown in pink.

Assessment of Impacts under Section 106

In accordance with 36 CFR 800.5, the Criteria of Effect was applied to the proposed project improvements at the Murphy Springs Farm. Proposed improvements at the corner of Murphy Road and Washington Pike are to widen the roadway for the addition of travel and turn lanes and the installation of bike lanes, sidewalks, curb and gutter. Approximately 150 square feet for a temporary construction easement will be required along Murphy Road from within the proposed National Register boundary. Approximately 310 square feet will be needed for temporary construction easement along Washington Pike from within the proposed National Register boundary (see Figure 33).

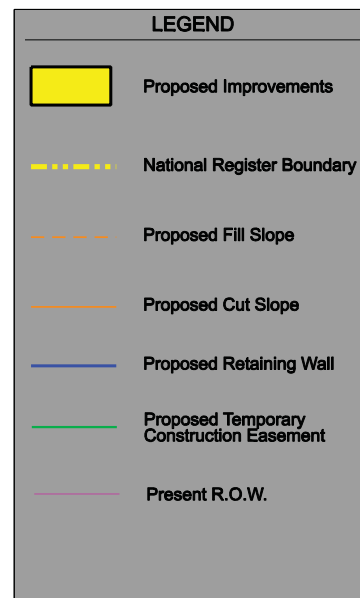
Murphy Road currently widens from 24 feet at the railroad to 36 feet at the intersection with Washington Pike to accommodate a right-turn lane. After proposed improvements are completed, the width of Murphy Road would be 44 feet at the railroad and 55 feet at the intersection in order to accommodate southbound dedicated right and left turn lanes and a northbound second travel lane that merges into one lane at the railroad. Retaining walls would be required where the roadway intersects Murphy Creek. These walls would be three to five feet in height and extend for 313 feet along the west side of the roadway and 200 feet along the east side. The material and aesthetics of the retaining wall would be determined during the design process after reviewing comments from the public received during the public hearing. Retaining walls were chosen for this area as opposed to a roadway embankment in order to avoid permanently impacting the proposed National Register boundary for the Murphy Springs Farm.

Washington Pike currently widens from 24 feet to 34 feet as it approaches the intersection with Murphy Road. After proposed improvements are completed, the width of Washington Pike would be 70 feet in order to accommodate a dedicated left turn lane separated by a median and sidewalks.

Only temporary construction easements would be necessary for the proposed improvements along Murphy Road and Washington Pike. No right-of-way is required from within the proposed National Register boundary for the proposed improvements. The proposed project would not cause the physical destruction or removal of any structure. The proposed easements contain grassy fields that are mowed for hay along Murphy Road and Washington Pike and once the proposed project is completed, the easement would be returned to grass. The proposed project will not change the property's function as agricultural fields or its setting in a rural environment that has some urban incursions.

With the proposed project's improvements of roadway widening and retaining walls, no visual, atmospheric or audible elements would be introduced that would diminish the National Register significance of the farm and its buildings. The grassy fields of the farm currently front a busy intersection that is signalized and has utilities and commercial businesses at the corner. The addition of turn lanes along Murphy Road will alleviate some queing of traffic in front of the farm. The traffic currently ques northward to beyond the railroad during peak traffic hours. Traffic patterns would not be changed due to the proposed project. No changes in access to the property are anticipated.

Figure 34
Roadway Improvements
at Murphy Springs Farm
(KN 2586)



The Hugh Murphy House and outbuildings are within view of the proposed project along Murphy Road near the railroad crossing. The house is approximately 530 feet from the proposed project's endpoint along Murphy Road at the railroad and approximately 580 feet from edge of right-of-way where the tree line along Murphy Creek intersects with Murphy Road. At this location the proposed improvements include fill, retaining walls in place of an existing guard rail, and widening of the roadway within right-of-way. The tree line then blocks the viewshed of the rest of Murphy Road (see Figure 34). There are no buildings within view of the proposed project along Washington Pike due to the tree line along Murphy Creek blocking the viewshed toward the roadway (see Figure 35). Proposed improvements along Washington Pike east of the intersection with Murphy Road include widening and fill within the right-of-way. Therefore, no impacts to the viewshed and setting of the historical property are anticipated that would diminish the qualities that make this resource eligible for the National Register.

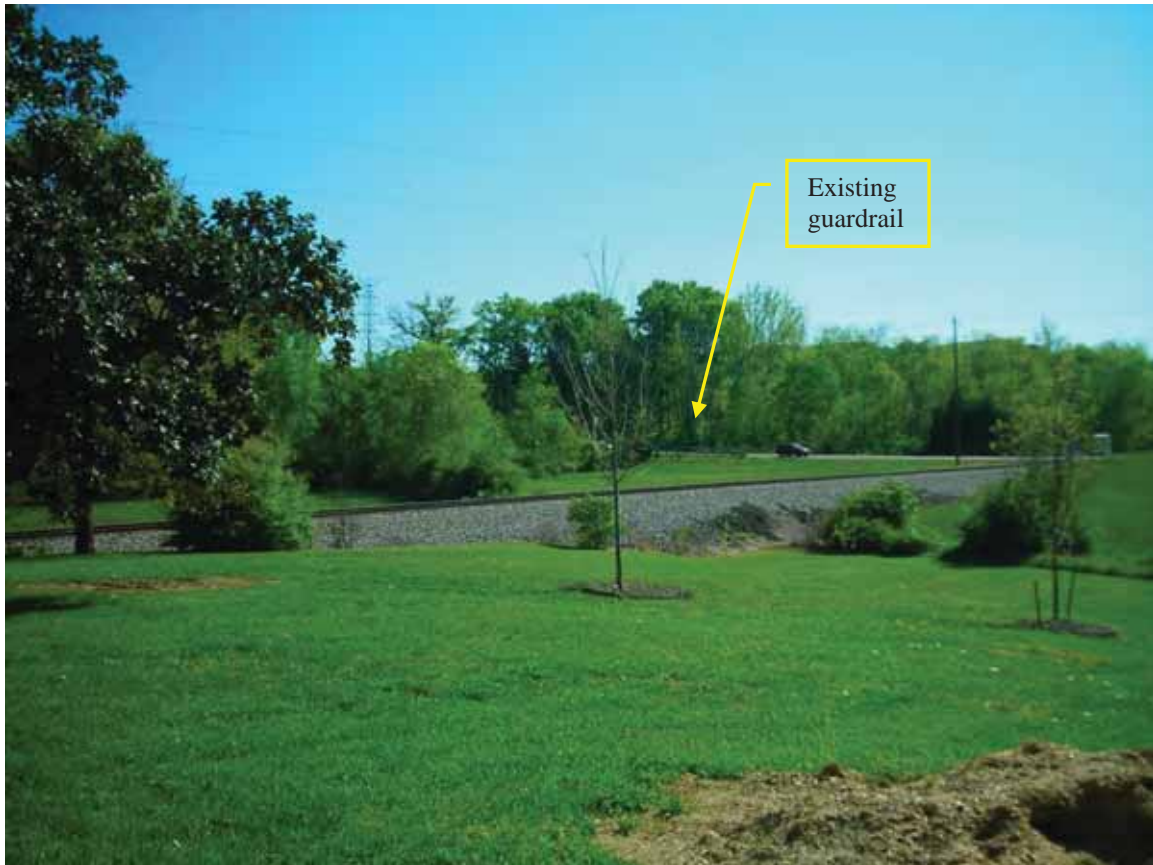


Figure 34 – View from front façade of the Hugh Murphy House southwest across railroad tracks toward Murphy Road.

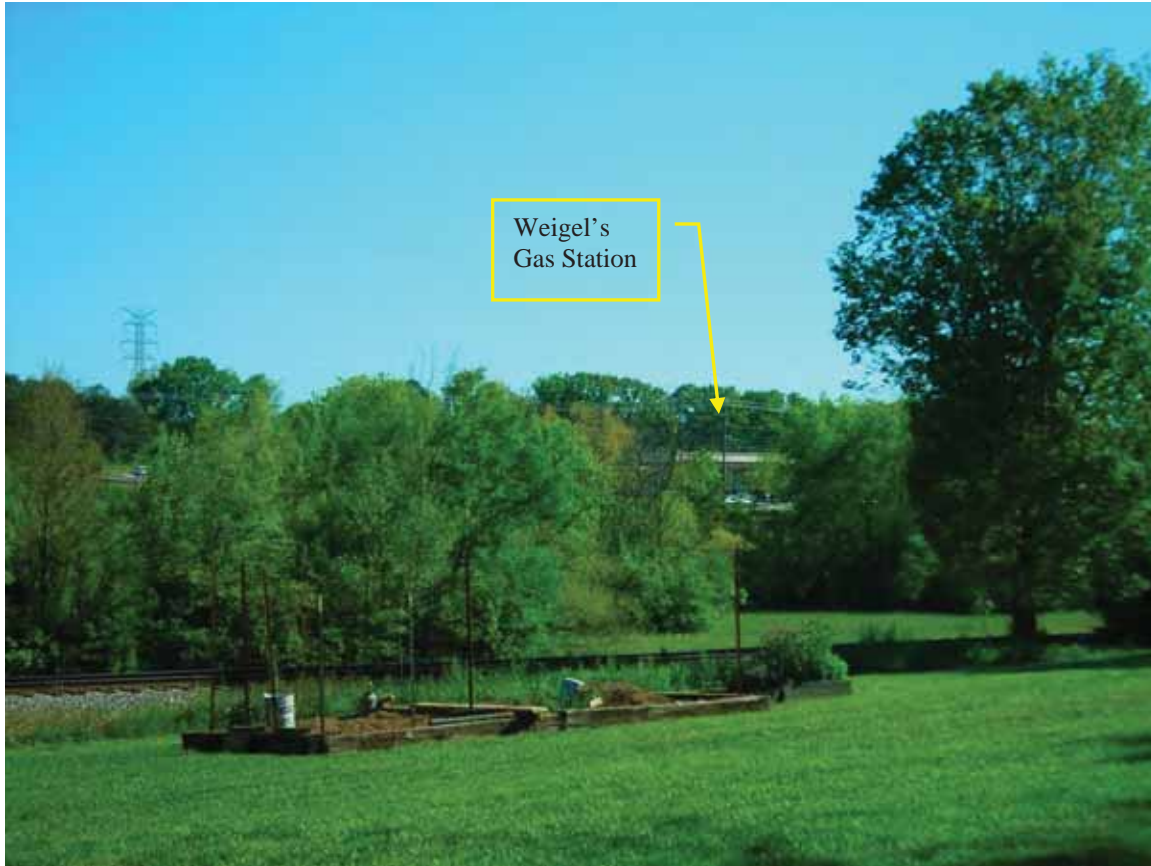


Figure 35 – View from the east elevation of the house south toward Washington Pike.

A noise study was conducted to assist in evaluating the potential for noise impacts to the Murphy Springs Farm. This study is on file with TDOT. The study found that the predicted noise level for 2012 (existing) at the Weigel's convenience store which is located at the southeast corner of Washington Pike and Murphy Road directly across from the Murphy Springs Farm is 63 dBA (a unit of noise measurement). If no actions are taken to improve the roadway, then the noise level will increase to 65 dBA by design year 2033 (future). If the proposed improvements are implemented then the noise level will remain at 63 dBA by 2033. The study also modeled a point in the field located on the west side of Murphy Road (Parcel 049 083) across from the Murphy Springs Farm. The point is located approximately 700 feet from the project endpoint at the railroad on Murphy Road. The existing noise level is 46 dBA, the future level is 48 dBA with no action and 48 dBA with proposed improvements (see Table 1).

Table 1 – Results of Noise Study at Murphy Springs Farm			
Location	Existing (2012)	Future (2033) with No Action	Future (2033) with Improvements
Weigels' at Washington Pike and Murphy Road	63 dBA	65 dBA	63 dBA
Parcel 049 083 west of Murphy Road	46 dBA	48 dBA	48 dBA

FHWA developed a Noise Abatement Criteria (NAC) based on land uses establishing base lines for various activities to determine when the level of impact from traffic noise occurs. The Murphy Springs Farm is considered a residential land use and therefore falls into Category B which has a baseline dBA of 67 (see Table 2).

Table 2 – FHWA Noise Abatement Criteria			
Activity Category	dBA	Location	Description of Activity
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67	Exterior	Residential
C	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreational areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	NA	NA	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, ship yards, utilities (water resources, water treatment, electrical), and warehousing.
G	NA	NA	Undeveloped lands that are not permitted for development.

Source: FHWA Noise Policy FAQs

An increase in noise is considered by TDOT to be “substantial” when the dBA increases 10 to 15 dBA. Noise levels in the area of Murphy Springs Farm are anticipated to increase by two dBA with or without roadway improvements by design year 2033. While noise levels may increase at the Murphy Springs Farm, the level of noise is not considered to be an impact according to the FHWA’s Noise Abatement Criteria or TDOT’s criterion of substantial increase. Therefore, the overall environment of the Murphy Spring Farm would not be diminished due to noise levels from the project.

It is the opinion of the consultant that the proposed project would not have an adverse effect to the Murphy Springs Farm.

Assessment of Impacts under Section 4(f)

The proposed project would require temporary construction easement from the property which does not constitute a “use” under Section 4(f) (23 CFR 771.135 (p)(7)). It is the opinion of the consultant that the proposed project would not have an adverse effect to the Murphy Springs Farm; therefore, there will not be a Section 4(f) use of the historic property.

Conclusion

CDM Smith conducted the historic structures survey for improvements Washington Pike. The project is located in the City of Knoxville in Knox County with its western terminus at I-640 and its eastern terminus at Murphy Road. This area was previously surveyed in 1984 and 2000 for resources eligible to the NRHP. Within the APE are 13 resources determined not eligible and one resource determined eligible for the NRHP. Murphy Springs Farm (KN-2586) is eligible for the NRHP based on Criteria A as an example of a family farmstead in the Early Settlement of Knox County and Criteria C for its example of Gothic Revival architecture. The eligible property was examined for potential effects by the project. It is the opinion of the consultant that the proposed project would have no adverse effect to the eligible property and, therefore, there would be no Section 4(f) use of a historic property.

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- 1978 7.5' *John Sevier, Tennessee Quadrangle*. Department of the Interior, Geologic Survey, Washington, D.C.; photo revised in 1992.

Appendix A
Resume for Principal Investigator

Jana L. Bean

Architectural Historian

Ms. Bean joined the Columbia, South Carolina office in 2003 and serves as an architectural historian and environmental coordinator. In these roles, she investigates and documents survey findings; supervises historic survey field personnel; completes NEPA documentation; conducts environmental assessments for transportation projects; and assesses the impacts related to human environmental conditions.

Principal Investigator, S-41 Blackstock Road over Norfolk Southern Railroad, Spartanburg County, South Carolina (2011-2012). This project involved an investigation and presentation of 3 alternative layouts for consideration by SCDOT for a new grade-separated bridge to carry S-41 (Blackstock Road) over the Norfolk Southern Railroad to replace existing at-grade crossing. Ms. Bean conducted field and written documentation of environmental conditions and assessed the impacts of the project. As the principal investigator, Ms. Bean developed a historic context, documented historic sites through mapping, photography, completed SHPO survey forms, and made recommendations of eligibility for the National Register and determinations of effect.

Principal Investigator, South Carolina Public Railways, Charleston Intermodal Facility, North Charleston, South Carolina (2011). As the principal investigator, Ms. Bean reviewed historic maps, performed background research on previous surveys, documented existing conditions at the former Charleston Naval Base through photography, surveyed additional properties and made recommendations of eligibility for the National Register, and determined the potential impacts of the project on eligible and listed historic sites and districts.

Principal Investigator, North Forrest Street (CR 138) Improvements, Georgia Department of Transportation, Valdosta, Georgia (2010). Ms. Bean performed an assessment of impacts to 2 historic districts and 3 historic properties. This process involved documentation in an Assessment of Effects report and Draft 4(f) Evaluation, analysis of avoidance alternatives, and negotiation of mitigation measures.

Principal Investigator, Donalsonville-Seminole County Airport Environmental Assessment, Donalsonville, Georgia (2010-2011). As the principal investigator, Ms. Bean developed a historic context, documented historic sites through mapping, photography, completed SHPO survey forms, and made recommendations of eligibility for the National Register and determinations of effect.

Environmental Coordinator, I-526 (Mark Clark Expressway) around Charleston, South Carolina (2008-2010). The extension of I-526 (Mark Clark Expressway) around Charleston, South Carolina will complete the Charleston Inner Belt Freeway and provide an interstate connection with West Ashley, Johns Island, and James Island. CDM Smith was selected by the South Carolina Department of Transportation to study alternative alignments, prepare an environmental impact statement, and produce right-of-way plans for this new interstate facility. For the environmental impact statement portion of this study, Ms. Bean was responsible for documenting environmental conditions, assessing impacts to Section 4(f) resources, and coordinating with local and state officials. She also

Education

M.A. - History,
University of
South Carolina,
2003

B.A. - History,
Southwest
Missouri State
University, 1996

Training

National
Preservation
Institute -
Identification and
Evaluation of Mid-
20th Century
Buildings

National
Preservation
Institute - Section
106 Review

Ohio Department
of Transportation -
Section
106/National
Register Eligibility
Training

Ohio Department
of Transportation
Section 4 (f)
Training

National Highway
Institute - NEPA
and the
Transportation
Decision-Making
Process

Years of Experience

Total Years: 8
CDM Smith: 8

served as the principal investigator for a historic structures survey involving documentation of historic sites, making recommendations of eligibility to the National Register and potential project impacts, and coordinating mitigation with the SHPO.

Principal Investigator, Hilton Head Island Airport - Environmental Assessment for Runway 21 Tree Removal, Hilton Head, South Carolina (2008-2012). This airport's primary approach contained hundreds of obstructions. The controversial environmental assessment focused on a strict tree removal ordinance as well as nearby historic properties, endangered species, and residential impacts. As the principal investigator for a historic architectural survey, Ms. Bean assessed determinations of eligibility to the National Register for historic structures, the eligibility of a Traditional Cultural Property, and the potential effect of the project on and possible mitigation for a Civil War earthwork and archaeological site.

Principal Investigator, Turner County Airport Runway Expansion Environmental Assessment, Ashburn, Georgia (2008-2009). As the principal investigator, Ms. Bean developed a historic context, documented historic sites through mapping, photography, completed SHPO survey forms, and made recommendations of eligibility for the National Register and determinations of effect.

Principal Investigator, State Route 9 Environmental Assessment, Lee and Union Counties, Mississippi (2008). As the principal investigator for this proposed widening and new alignment for SR 9, Ms. Bean developed a historic context, documented historic site survey. She conducted mapping, photography, completed SHPO survey forms, and made recommendations of eligibility for the National Register and determinations of effect.

Principal Investigator, Armuchee Connector, Floyd County, Georgia (2007). This project consisted of a 2-mile long, 2-lane rural and 4-lane urban connector with bike lanes. Also included was the design of a 2-lane bridge with a multi-use trail over the Oostanaula River. As principal investigator, Ms. Bean developed a historic context, documented historic sites through mapping, photography, completed SHPO survey forms, and made recommendations of eligibility for the National Register and determinations of effect.

Principal Investigator, Roadway and Bridge Design for Widening of I-26, North Charleston, South Carolina (2006-2007). For the South Carolina Department of Transportation, this project involved preliminary design, construction cost estimates, and an environmental assessment for the widening of a 6-mile section of I-26 between I-526 and Exit 217. It was completed on an accelerated 6-month schedule. As the principal investigator, Ms. Bean developed a historic context for World War II housing developments; field documentation of historic sites which included mapping, photography, and completion of SHPO survey forms; and recommendations of eligibility for the National Register and determinations of the effect of the project to historic resources.

Environmental Coordinator, I-73 Environmental Impact Assessment, South Carolina (2005-2007). CDM Smith worked with SCDOT on the planning and design of I-73, to run from Michigan to South Carolina. The team prepared two environmental impact statements and records of decision and obtained environmental permits within an unprecedented three-year period. For this project, Ms. Bean coordinated with the cultural resource firm subconsultant, documented environmental conditions, assessed impacts to Section 4(f) resources, coordinated with local and state officials, assisted at public meetings, and conducted public surveys.

Environmental Coordinator, Mississippi River Bridge Crossing Feasibility and Location Study, Memphis, Tennessee 2004-2007). This feasibility and location study, which included three counties in three states, identified and evaluated potential river crossing sites. CDM Smith conducted extensive public and community outreach as part of a context sensitive solutions program. The project received an ACEC award. Ms. Bean oversaw mapping and data collection of the environmental conditions, coordinated with public agencies and the general public, and developed the purpose and need for the project.

Principal Investigator, Southern Kentucky Intermodal Park Environmental Assessment, Somerset, Kentucky (2004). Environmental services were provided for the proposed intermodal park study for the Southern Kentucky Economic Development Corporation. A community impact report and a noise analysis report were prepared. A categorical exclusion, Level III report was submitted to and approved by KYTC and FHWA. As the principal investigator, Ms. Bean developed a historic context, documented historic sites through mapping, photography, completed SHPO survey forms, and made recommendations of eligibility for the National Register and determinations of effect.

Principal Investigator, North Campbell Station Road Advanced Planning Report and Environmental Assessment, Farragut, Tennessee (2003-2005). CDM Smith determined the need and feasibility of improving access to I-40 via Campbell Station Road. The study recommended widening the roadway to 5 lanes throughout, and evaluated the need for a new traffic signal and signal system upgrades. As the principal investigator, Ms. Bean developed a historic context, documented historic sites through mapping, photography, completed SHPO survey forms, and made recommendations of eligibility for the National Register and determinations of effect.

Principal Investigator, Proposed Route I-66 between Somerset to London, Section 106 Compliance, Kentucky (2001-2007). As the principal investigator, Ms. Bean developed a historic context, documented historic sites through mapping, photography, completed SHPO survey forms, and made recommendations of eligibility for the National Register and determinations of effect.

Environmental Coordinator, College Avenue (SC 133) Widening and Railroad Bridge Replacement, Clemson, South Carolina (2001-2010). For this project CDM Smith provided surveys and mapping, traffic analysis, environmental studies, evaluation of alternatives, coordination with Norfolk Southern Railroad and utility companies, temporary railroad detour planning, roadway and railroad bridge construction plans, and

geotechnical engineering for pavement and bridge foundation design. As the environmental coordinator, Ms. Bean conducted field and written documentation of environmental conditions and assessed the impacts of the project.

Environmental Coordinator, Veteran's Administration Enhanced-Use Market and Business Plan, Columbia, South Carolina (2005-2011). This study primarily included data collection, defining Veteran's Administration development objectives, refining preferred development objectives, real estate appraisal and market analysis for the future of the enhanced-use development of the VAMC campus. Ms. Bean served as the coordinator for Section 106 consultation between the Veteran's Administration and SHPO and between the Veteran's Administration and subconsultant.

Publications

Bean, J.L. "Historic Structures Report: The Slave Quarters of Redcliffe Plantation State Historic Site." July 2002

Bean, J.L. "National Register Nomination: Old Shandon Historic District." Columbia, South Carolina, December, 2002

Appendix B

Coordination



**STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION**

ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

August 17, 2012

The Cherokee Nation
17675 South Muscogee
Tahlequah, OK 74465
Attn: Dr. Richard Allen, Policy Analyst

SUBJECT: Section 106 Initial Coordination for Proposed Washington Pike Project from I-640 to Murphy Road NE, Knoxville, Knox County, Tennessee

Dear Dr. Allen:

The Tennessee Department of Transportation (TDOT) in cooperation with the Federal Highway Administration (FHWA) is proposing to improve Washington Pike from I-640 to Murphy Road NE in Knox County (maps attached). The project will widen the road from two lanes to four with turn lanes as required at intersecting side streets as well as add curb and gutter, sidewalks, and bike lanes; some sections of the road already feature a center turn lane. The intersection with McCampbell Drive near Murphy Road NE will be realigned. The project may eliminate or reduce some curb and gutter section with construction of grass swales. The approximate length of the project is 1.73 miles. Additional right-of-way will be needed.

The National Historic Preservation Act (NHPA) recognizes that federally funded undertakings, like the subject project, can affect historic properties to which your tribe attaches religious, cultural, and historic significance. In accordance with 36 CFR 800 regulations implementing compliance with Section 106 of the NHPA, I would like to know if you have information you could share with me about tribal concerns in the project area and if you wish to be a consulting party on the project? Early awareness of your concerns can serve to protect historic properties valued by your tribe.

If you act as a consulting party you will receive archaeological assessment reports and related documentation, be invited to attend project meetings with FHWA, TDOT, and the Tennessee State Historic Preservation Office (TN-SHPO), if any are held, and be asked to provide input throughout the process. If you choose to not act as a consulting party at this time, you can do so at a later date simply by notifying me.

Please respond to me via letter, telephone (615-741-5257), fax (615-741-1098), or E-mail (Gerald.Kline@tn.gov). I respectfully request responses (email is preferred) to project reports and other materials within thirty (30) days of receipt if at all possible. Thank you for your assistance.

Sincerely,

Gerald Kline
Transportation Specialist I
Archaeology Program Manager

Enclosure

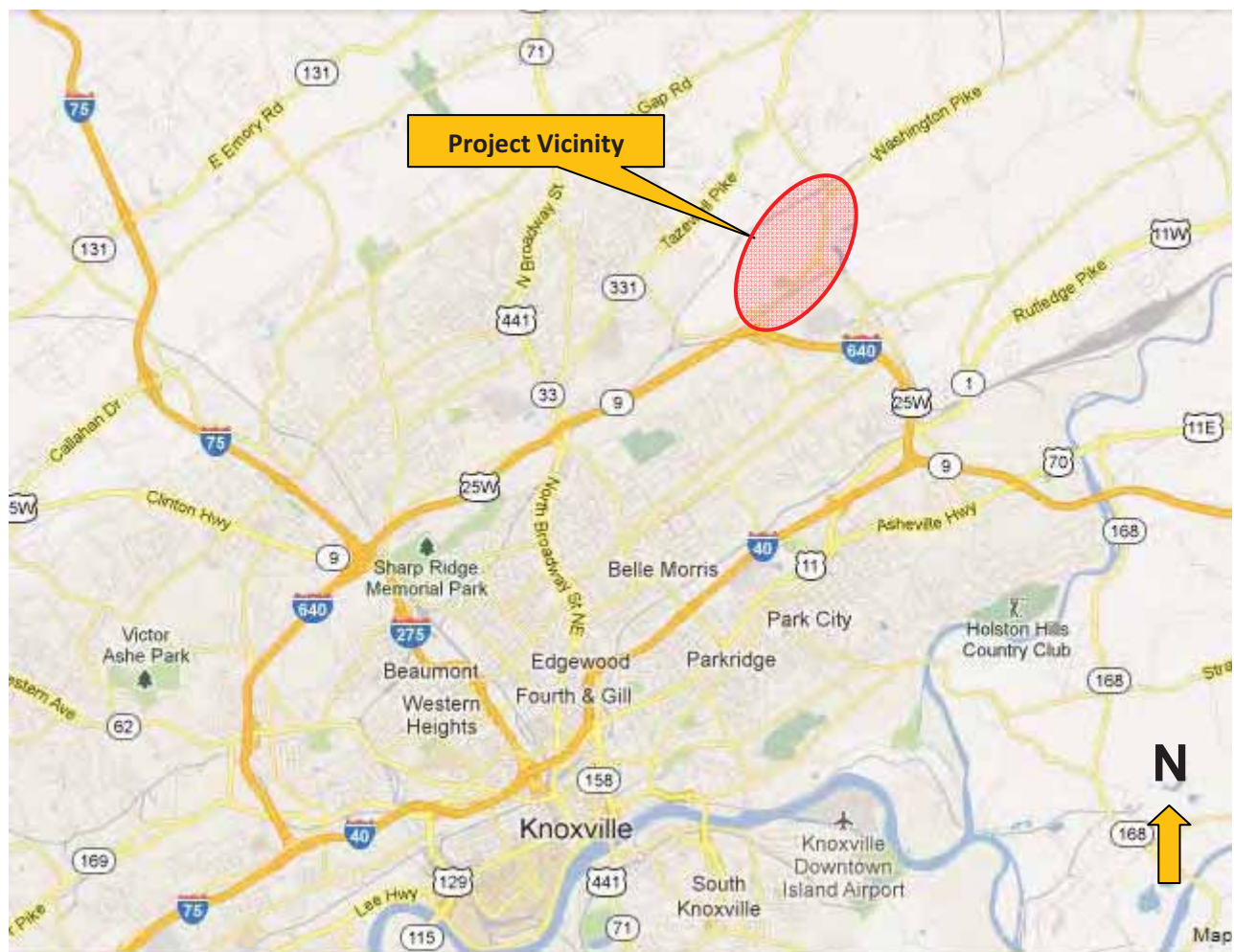
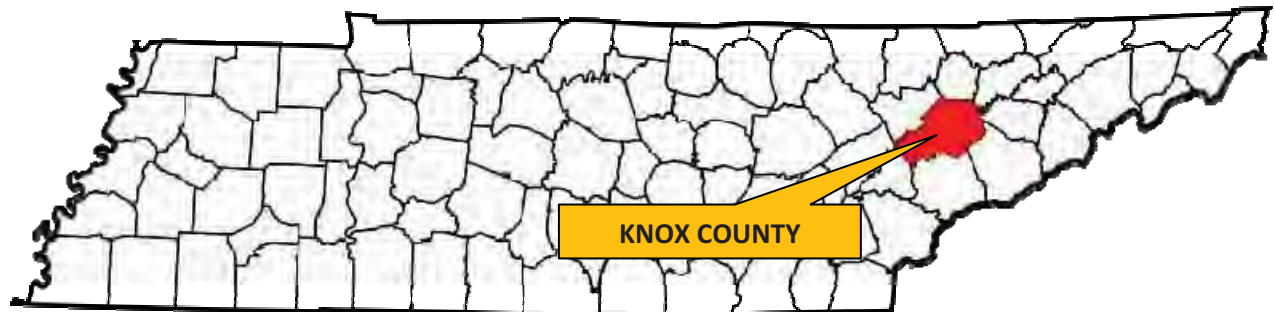
cc Robin Dushane, Eastern Shawnee Tribe of Oklahoma
Kim Jumper, Shawnee Tribe
Lisa LaRue-Baker, United Keetowah Band of Cherokee Indians
Tyler Howe, Eastern Band of Cherokee Indians



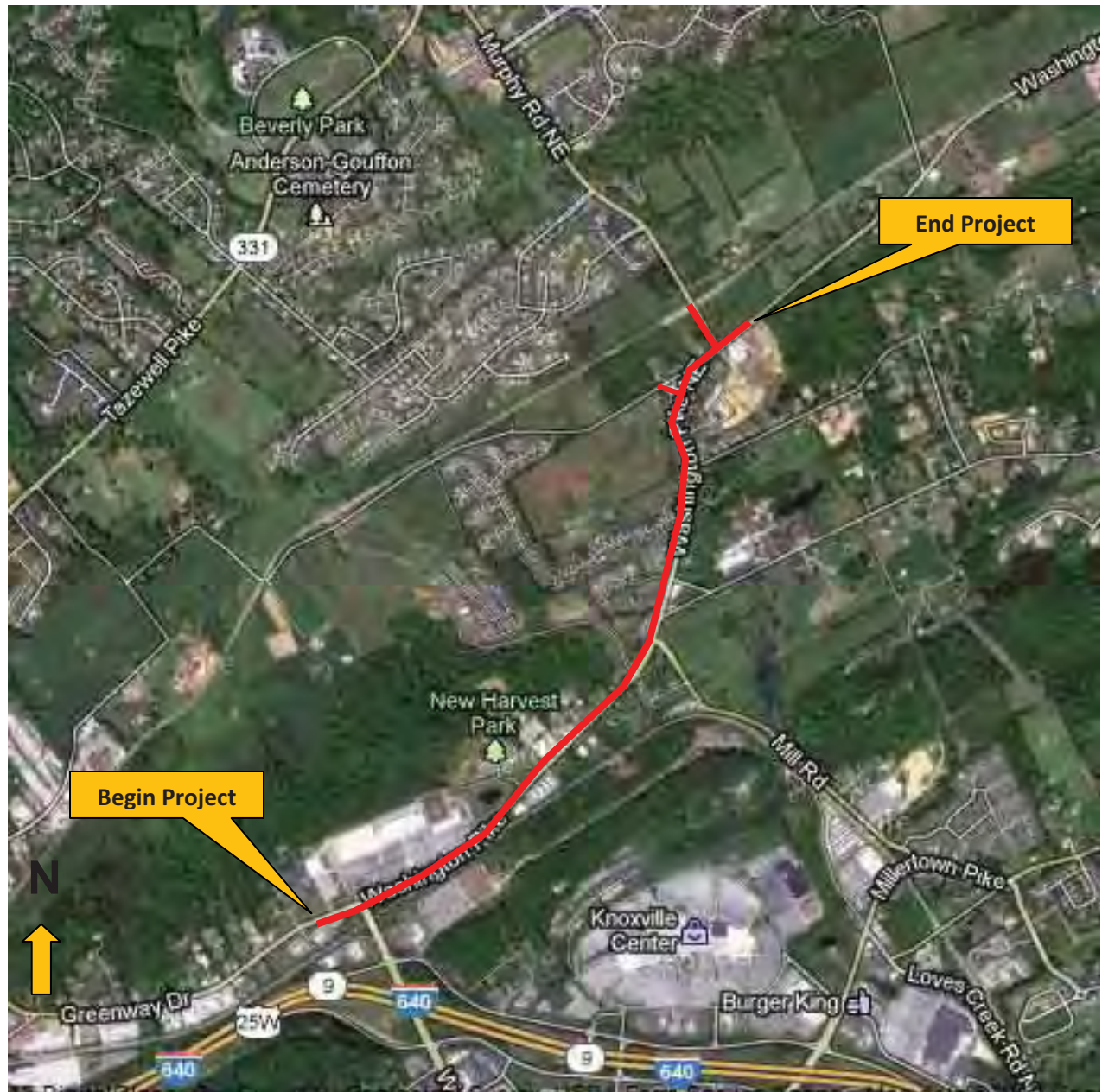
WASHINGTON PIKE PROJECT

FROM I-640 TO MURPHY ROAD NE

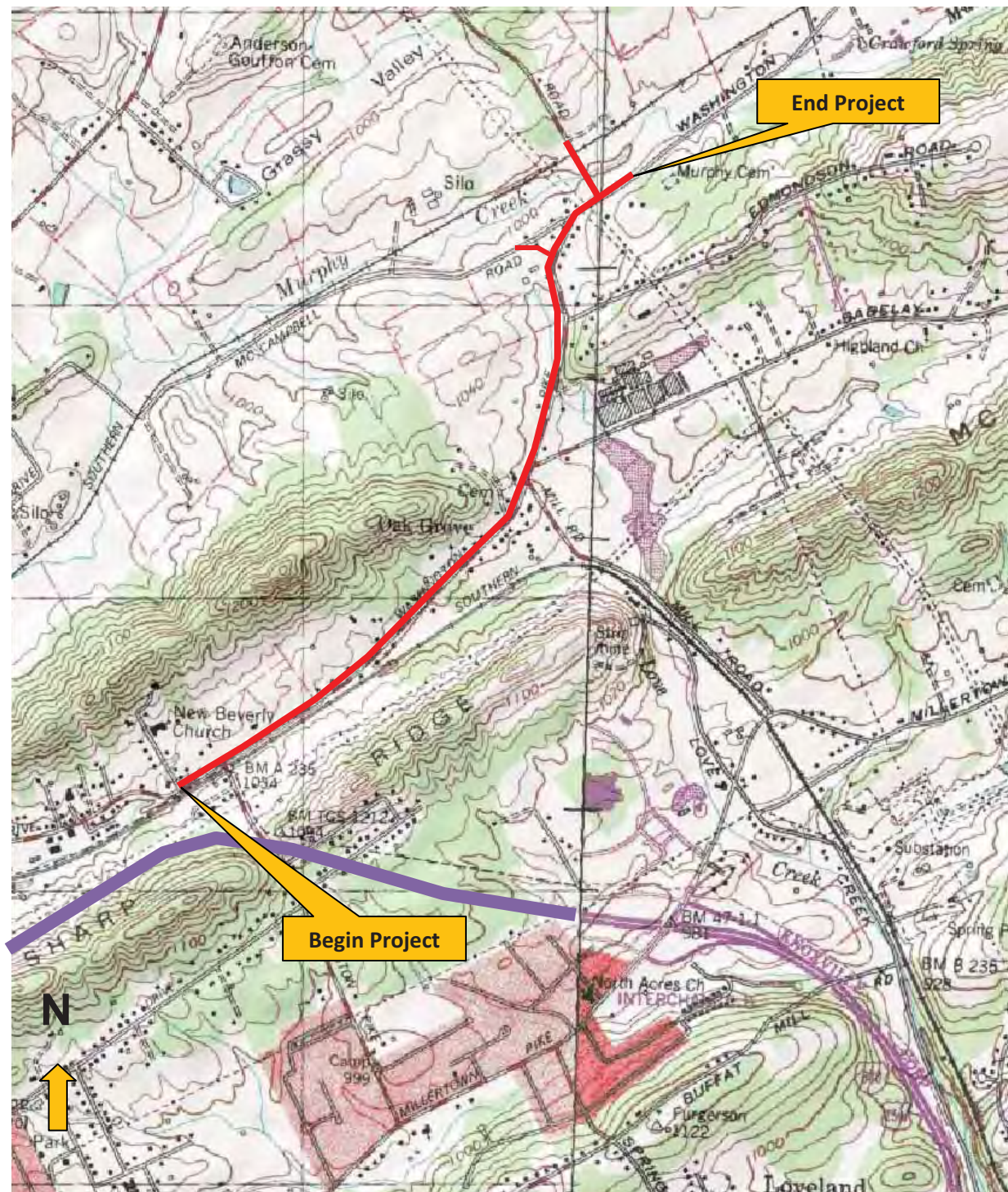
KNOXVILLE, KNOX COUNTY, TENNESSEE



PROJECT VICINITY MAP



Project Location Map



Project Location Map – USGS Fountain City (146 SW) & John Sevier (146 SE)

List of Interested Parties

East Tennessee Community Design Center
1300 North Broadway
Knoxville, TN 37917

Heather Bailey
Historic Preservation Planner
East Tennessee Development District
Post Office Box 249
Alcoa, TN 37701-0249

East Tennessee Historical Society
P.O. Box 1629
Knoxville, TN 37901

Knox County Mayor
Suite 615, City-County Building
400 Main Street
Knoxville, TN 37902

Tennessee Valley Authority
Cultural Resources
400 West Summit Hill Drive
Knoxville, TN 37902

Knox Heritage, Inc.
P. O. Box 1242
Knoxville, TN 37901

Knoxville Historic Zoning Commission
c/o Knoxville/Knox Co. Planning Commission
City County Building, Suite 403
400 West Main Street
Knoxville, TN 37902-2476

Steve Cotham
Knox County Historian
Knox County Public Library
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Ethiel Garlington
East TN Preservation Alliance
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Kevin Murphy
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Knoxville, TN 37918

Northeast Knox Preservation Association
P.O. Box 5863
Knoxville, TN 37928

Kevin P. Murphy
4508 Murphy Rd
Knoxville, TN 37918-9179
murphysprings@gmail.com
2012 April 15

RE: Washington Pike Widening

Via CERTIFIED MAIL and E-Mail

James R. Hagerman, Director of Engineering
1400 Loraine Street
Knoxville, TN 37921

Dear Mr. Hagerman,

I understand that a project is in the planning and engineering phase to widen Washington Pike from I-640 to the Murphy Road intersection. I also understand that federal funds are being used for this project.

The area of the widening project begins at a busy interstate and transits through a mix of commercial, residential and agricultural land before terminating at my family's farm. The Murphy Road / Washington Pike intersection is the gateway to northeast Knox County, which is still largely rural and agricultural in nature. Past the intersection, Washington Pike is identified as a Rural Heritage Corridor in the Northeast County Sector Plan. Also, the intersection is a sharp Growth Plan boundary line between the Urban Growth Area and Rural Area, with no transitional Planned Growth Area.

Improvements to the roadway should take into account:

- The large impact that it will have on the residences and neighborhoods
- National Register eligible structures and properties within the boundary area
- The transition from urban to rural that occurs in the 1.6 mile length of the project
- Enablement of the Washington Pike Heritage Corridor
- The generally one-way flow of high volume traffic during weekday rush-hour

First, I would like to make sure that the planners are aware of my farm's historical nature, that an impact analysis is performed as required by Section 106 since federal funds are being used, and that the impact of the project on the farm is mitigated.

The Murphy Springs Farm was settled in approximately 1797 by my ancestor Robert Murphy, and his family. His son, Hugh Murphy, built a house in 1841 that is about 850 feet from the current Washington Pike / Murphy Road intersection. That structure and its associated outbuildings have been identified as **National Register eligible** since the 1982-1986 Metropolitan Planning Commission survey of historic sites. During recent renovation and restoration, local and state historic preservation officials were consulted to ensure that the structure and farm would remain National-Register eligible.

In 2010 all of the parcels of the farm remaining in the family were certified by the Tennessee Department of Agriculture and Center for Historic Preservation at Middle Tennessee State University as a **Tennessee Century Farm**. Recently I have spoken with local preservation staff at Metropolitan Planning Commission as well as with Patrick McIntyre, the Executive Director of the Tennessee Historical Commission, and we decided to increase the scope of the National Register designation that I am preparing from just the Hugh Murphy House to the entire Murphy Family farm. I am enclosing a list of the parcels that will be listed on the National Register application, along with a rough map. I plan to submit the application to the Tennessee Historical Commission in June 2012.

Since 1797 when the Murphy's first acquired property for the farm, a number of takings have occurred that have impacted the value and historical integrity of the farm. They include:

- Early and continued use of Washington Pike, running through the center of the original farm
- Early and continued use of Murphy Road
- Railroad easement
- 200 foot TVA / KUB high voltage transmission easement on western parcels
- Water, gas and electrical utilities located adjacent to Murphy Road and Washington Pike that impact the peripheral use of the property
- Right of way acquisition for the Murphy Road widening in late 1990s

Given the historic nature of the Murphy Springs Farm and the adverse impact of prior takings, I hope and expect that all efforts will be taken to mitigate the impact to the farm, including:

- Minimal or no acquisition of farm property for right of way
- Noise mitigation measures
- Landscaping buffers
- Light pollution and trespass from streetlights and stoplights
- Location of utilities

Secondly, I hope that efforts are made to minimize the impact on other residents of the area. I have noticed that Knoxville does not utilize full-cutoff streetlights in many areas. This is a rural, residential area and full-cutoff streetlights should be a requirement.

Thirdly, Washington Pike is a route that has traditionally provided quick access for residents of the area to the interstate. There are not many stoplights. The last stoplight on Washington Pike is the light at the Murphy Road intersection; beyond that there are no lights or stop signs until the end of the road.

I have observed that Washington Pike's two-lane facility currently provides good service for most of the day, except for the morning and evening week day rush hours. At these times the traffic is generally uni-directional in nature – flowing into Knoxville in the morning and from the interstate in the evening.

Given the uni-directional nature of rush hour traffic, generally good service during non-rush-hour times, and the traditional quick transit times that Washington Pike has provided to residents, I would encourage the engineers to consider the use of high speed roundabouts instead of stop signs in the widening project. I have lived in areas of the United States and in other countries where roundabouts provide excellent service levels to travelers. In the case of Washington Pike, a multi-lane roundabout design can probably handle anticipated growth events.

I am requesting documentation on the traffic forecasting estimates that are being used as requirements in the engineering process. The Washington Pike Transportation planning Report study did not provide detailed information on the growth forecasts.

If there are any public meetings that will be held on this project, I request to be notified of them.

Sincerely,

A handwritten signature in black ink, appearing to read 'K. Murphy', is enclosed within a thin black rectangular border.

Kevin P. Murphy

CC via email:

Tom Clabo, Chief Civil Engineer, City of Knoxville
Lisa Starbuck, President, Northeast Knox Preservation Association
Ronnie Collins, President, Alice Bell / Spring Hill Neighborhood Association
Nick Della Volope, 4th District, Knoxville City Council
Dave Wright, 8th District, Knox County Commission
Nathan Benditz, Knoxville Regional Transportation Planning Organization
Kaye Graybeal, Knox Metropolitan Planning Commission Historic Preservation

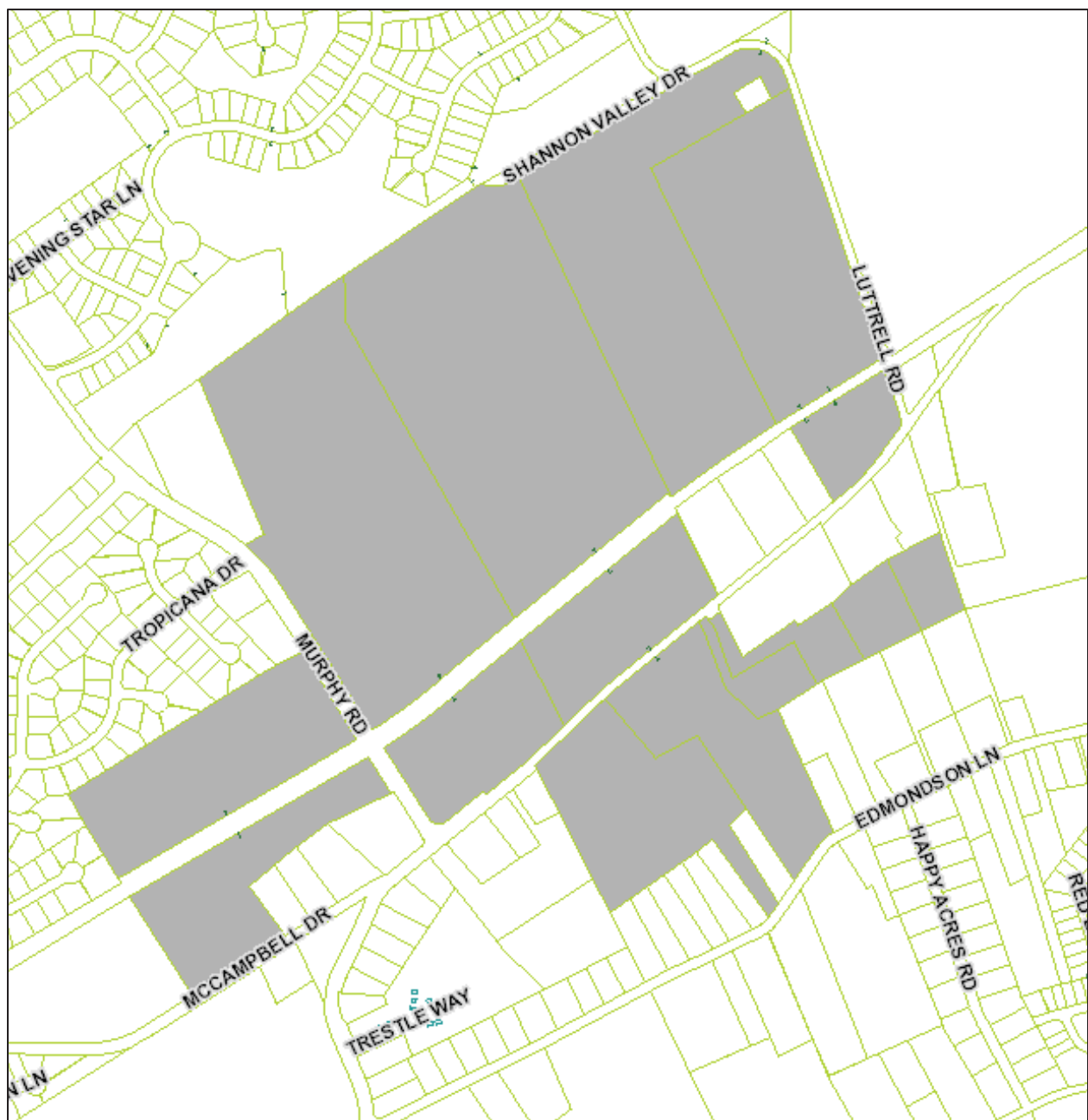


Figure 1 – Murphy Farm Map

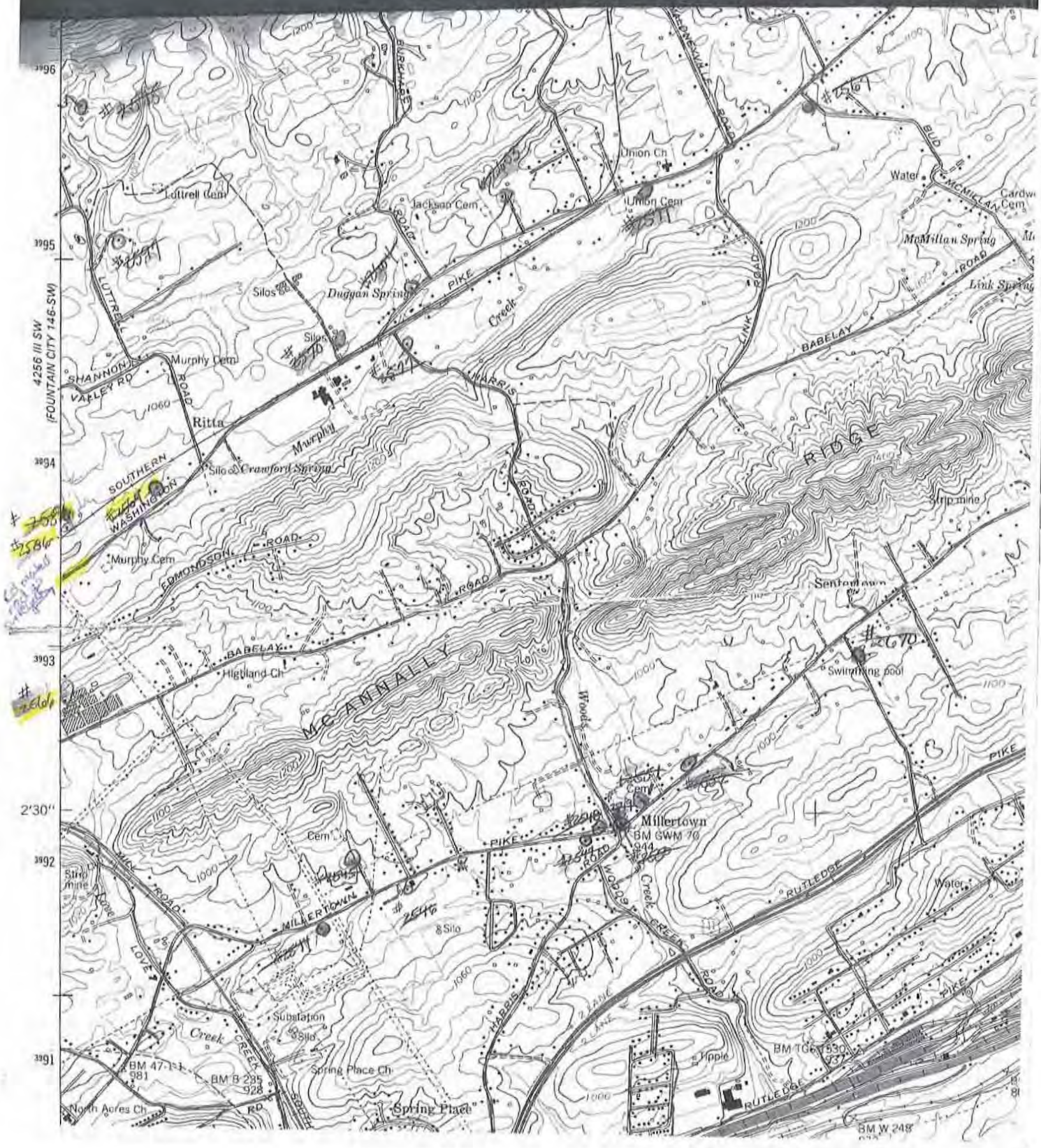
The parcels that constitute the Murphy farm are:

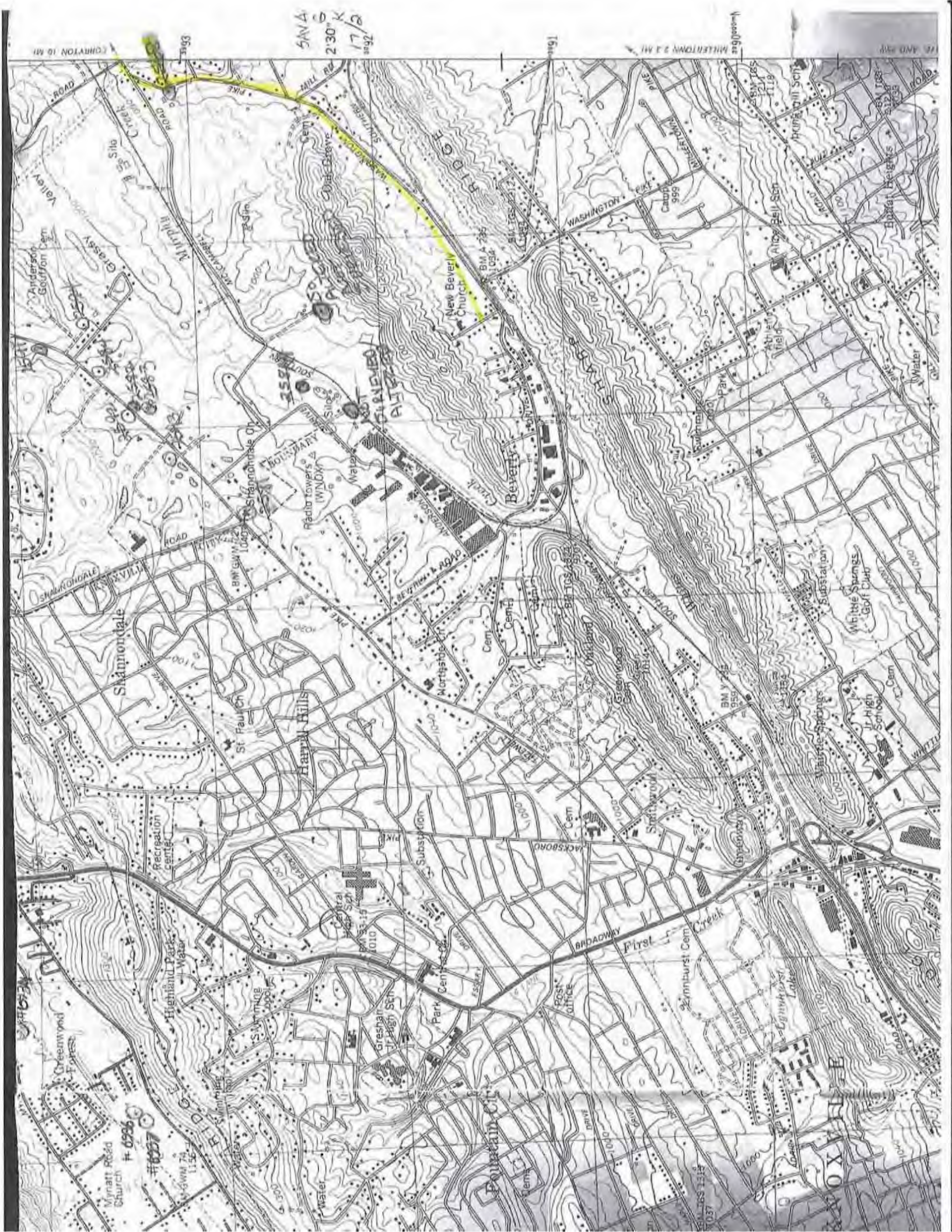
Address	Parcel ID	Size (Acres)
5817 McCampbell Dr	049 08301	3.17
0 Murphy Rd	049 083	20.88
4508 Murphy Rd	049 080	49.50
0 Washington Pike	049 077	58.78
4671 Luttrell Rd	049 071	26.84
6029 Washington Pike	050 001	25.00
5922 Washington Pike	049 078	14.38
5930 Washington Pike	049 07701	2.25
5932 Washington Pike	049 07702	2.60
5936 Washington Pike	050 00201	2.41
0 Washington Pike	050 00202	2.11

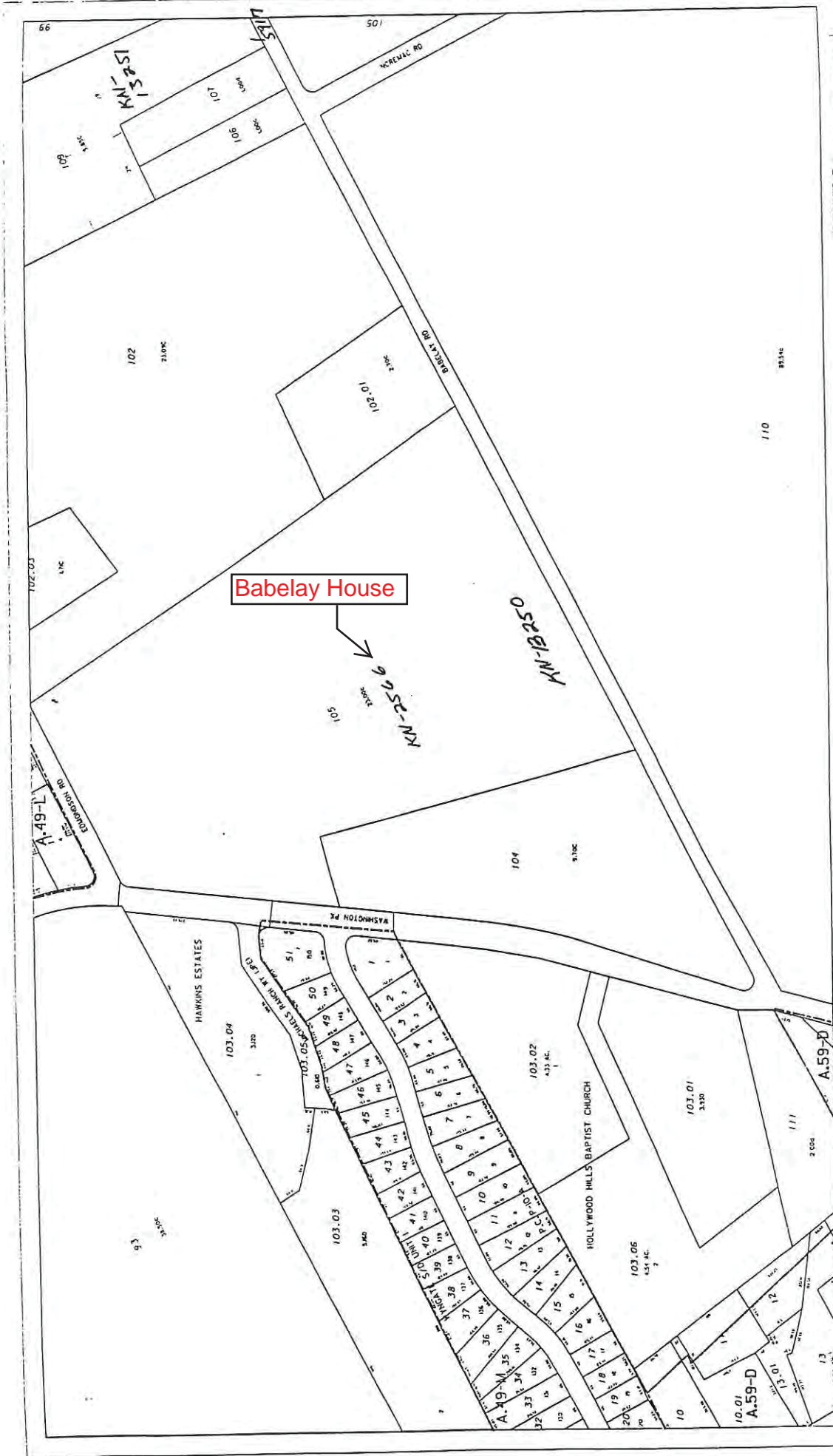
Table 1 – Murphy Farm Parcels

Appendix C

Previous Surveys - Maps



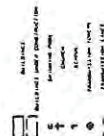




Babelay House

PROPERTY ASSESSORS OFFICE
KNOX COUNTY TN
SCHEIDT & SONS
PUBLISHED OCT 1948
MAP NO. 49-M

49-K	49-L	50-I
49-N	49-M	50-P
59-C	59-D	60-A

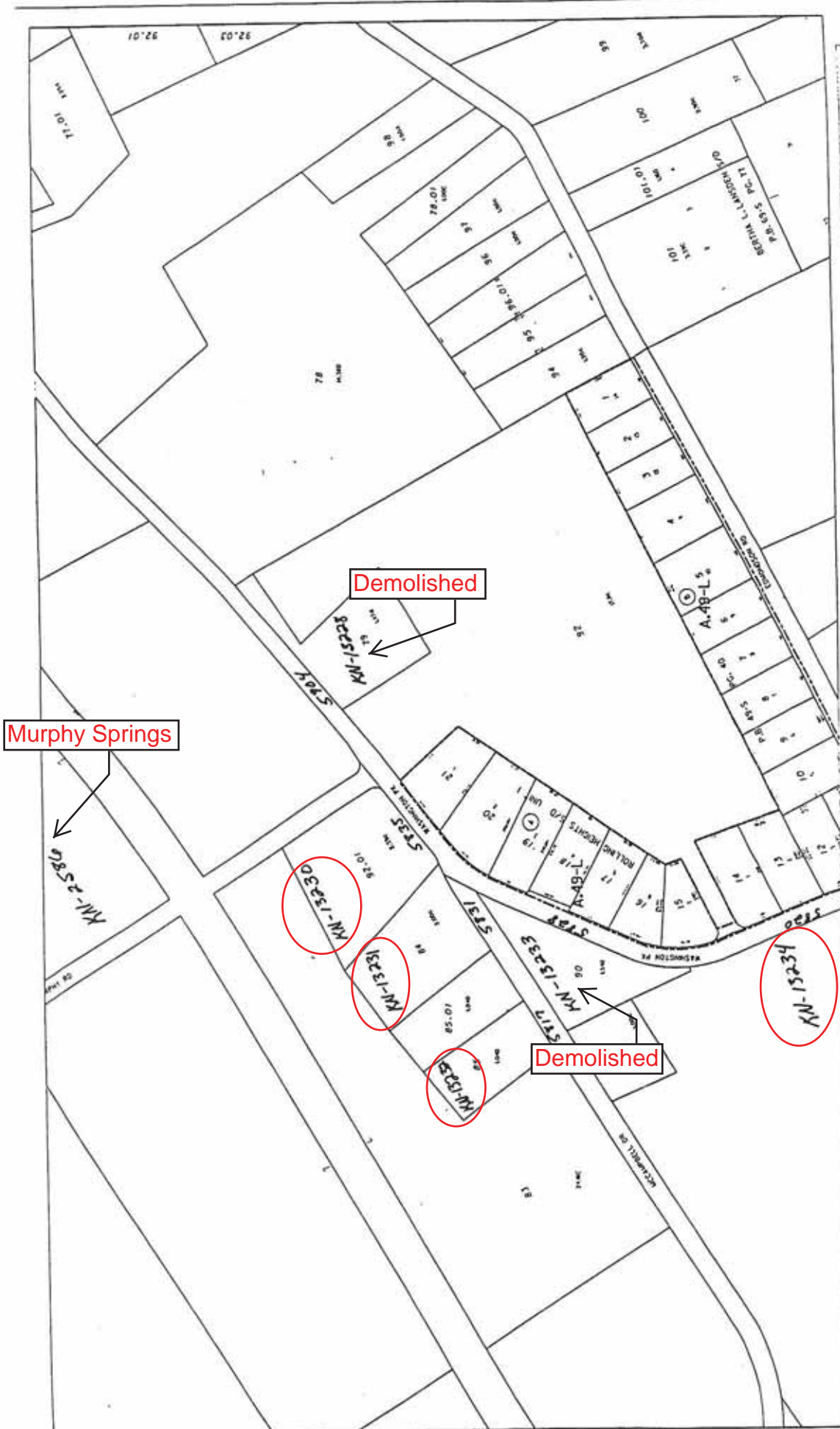


NAME _____
DATE _____
PERIOD _____
SCHOOL _____
CITY _____
STATE _____
ZIP _____

[illegible]

REF ID: A600





PROPERTY ASSESSORS OFFICE
KNOX COUNTY TN
SNL 1/1/00
REVISION 01/1/00
49-L

49-L	49-L	50-L
49-L	49-L	50-L
49-L	49-L	50-L



Legend
1. 1/2" = 1' Scale
2. 1/4" = 1' Scale
3. 1/8" = 1' Scale
4. 1/16" = 1' Scale
5. 1/32" = 1' Scale
6. 1/64" = 1' Scale
7. 1/128" = 1' Scale
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232. 1/690174634

Bean, Jana L

From: Joseph Garrison [Joseph.Garrison@tn.gov]
Sent: Tuesday, January 08, 2013 10:54 AM
To: Bean, Jana L
Subject: Survey Project along Washington Pike in Knox County.

Follow Up Flag: Follow up
Flag Status: Flagged

Ms. Bean,

Thank you for your recent email. I have checked my log and find that our office concurred with the TDOT in letters dated November 2, 2000 that there were no historic architectural resources located within that agency's proposed project Areas of Potential Effect along Washington and Millertown Pikes. That was 12 years ago, however, so any proposed projects with Areas of Potential Effects bounding Washington Pike must be treated by this office as new undertakings and re-surveyed for possible National Register properties.

Best,

Joseph Y. Garrison, PhD
Review and Compliance Coordinator
Tennessee State Historic Preservation Office
Tennessee Historical Commission
2941 Lebanon Road
Nashville, Tennessee 37243-0442

Joseph.Garrison@tn.gov

(615)532-1550-103



**STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION**

ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

MEMORANDUM

TO: Claudette Stager, TN-SHPO
Joe Garrison, TN-SHPO

FROM: Tammy Sellers, Historic Preservation Supervisor

DATE: February 5, 2013

SUBJECT: Draft Historic Architectural Assessment for the proposed Washington Pike Improvement Project
in Knoxville, Knox County, Tennessee PIN 043090.00

A consultant for the local government in Knoxville has prepared a draft Historic/Architectural Assessment for the proposed improvements on Washington Pike. It is the consultant's opinion that there is one National Register eligible property in the proposed project's area of potential effect (APE): Murphy Springs Farm. In the opinion of the consultant, the proposed project would have no adverse effect on the Murphy Springs Farm. TDOT historians have reviewed the documentation and agree with the consultant's opinion.

Please review and comment on the enclosed information before the document is submitted to you formally.

Thanks.

Tammy Sellers

From: Claudette Stager
Sent: Thursday, February 07, 2013 1:07 PM
To: Tammy Sellers

PIN 043090.00 Washington Pike. Agree with eligibility. Will give this one and the one for SR93 (that I forgot to give to Joe) to Joe today. I did not read the report for Washington Pike all that closely since I just wanted to get it done and maybe look over the Chattanooga project. I might have charted some of the buildings or just looked at the area as a district...but I am not the consultant.

Claudette Stager
Assistant Director for Federal Programs
Deputy State Historic Preservation Officer
Tennessee Historical Commission
2941 Lebanon Road
Nashville TN 37214
615/532-1550, ext. 105



**STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION**

ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

MEMORANDUM

TO: Claudette Stager, TN-SHPO
Joe Garrison, TN-SHPO

FROM: Tammy Sellers, Historic Preservation Supervisor

DATE: February 5, 2013

SUBJECT: Draft Historic Architectural Assessment for the proposed Washington Pike Improvement Project
in Knoxville, Knox County, Tennessee PIN 043090.00

A consultant for the local government in Knoxville has prepared a draft Historic/Architectural Assessment for the proposed improvements on Washington Pike. It is the consultant's opinion that there is one National Register eligible property in the proposed project's area of potential effect (APE): Murphy Springs Farm. In the opinion of the consultant, the proposed project would have no adverse effect on the Murphy Springs Farm. TDOT historians have reviewed the documentation and agree with the consultant's opinion.

Please review and comment on the enclosed information before the document is submitted to you formally.

Thanks.

*OK - agree with
eligibility of farm*

*NAE JG
2/8/13*

mailed Jana 7/15/13



**STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION**

ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

March 4, 2013

Mr. E. Patrick McIntyre
State Historic Preservation Officer
Tennessee Historical Commission
2941 Lebanon Road
Nashville, TN 37243

SUBJECT: Historic Structures Survey and Documentation of Effects for the proposed Washington Pike
Roadway Improvement Project in Knoxville, Knox County, Tennessee
PIN 043090.00

Dear Mr. McIntyre:

A consultant for the city of Knoxville, CDM Smith, submitted an architectural assessment and documentation of effects report for the above-referenced project. The consultant surveyed fourteen (14) properties and in their opinion one (1) property is eligible for listing in the National Register of Historic Places: Murphy Springs Farm. It is also the consultant's opinion that the proposed project would not have an adverse effect on the National Register eligible farm. A staff historian with the Tennessee Department of Transportation (TDOT) has reviewed the assessment and concurs with the consultant's findings.

Please review the enclosed report pursuant to 36 CFR 800. We look forward to your comments. Thank you for your help in this matter.

Sincerely,

A handwritten signature in cursive script that reads "Martha Carver".

Martha Carver
Historic Preservation Manager



**STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION**

ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

March 4, 2013

SUBJECT: Historic Structures Survey and Documentation of Effects for the proposed Washington Pike Roadway Improvement Project in Knoxville, Knox County, Tennessee

To Whom It May Concern:

The city of Knoxville, with funding from the Federal Highway Administration and with the Tennessee Department of Transportation (TDOT) acting as a flow-through agency for the funding, is proposing the above-referenced project. A consultant hired by the city prepared a historic survey and documentation of effects report indicating on National Register eligible property: Murphy Springs Farm. It is the consultant's opinion, and TDOT concurs, that the proposed project would not have an adverse effect on the historic property.

A federal law, the National Historic Preservation Act of 1966, requires that for road projects with federal funds, TDOT and local governments should identify and work to protect properties that are considered historic. Under this law, "historic" is defined as those properties that are listed in or eligible for listing in the National Register of Historic Places. Since this project includes federal money, a staff historian for TDOT reviewed the general project area in an attempt to identify historic properties which could be impacted by the proposed project.

The enclosed report discusses the survey findings. You are receiving this report because TDOT has identified you as a Knox County party or individual with historic preservation interests. The Advisory Council on Historic Preservation Regulations specify that members of the public with interests in an undertaking and its effects on historic properties should be given reasonable opportunity to have an active role in the Section 106 process. As such, TDOT would like to give you the opportunity to participate in that process. If you would like to learn more about the historic review process go to <http://www.achp.gov> for additional information.

If you have any comments on historic issues related to this project, please write me. Federal regulations provide that you have thirty days to respond from the receipt of this letter.

Sincerely,

Tammy Sellers

Tammy Sellers
Historic Preservation Supervisor

Enclosure

cc: Mr. Patrick McIntyre, TN-SHPO

PUBLIC PARTICIPATION

The Environmental Division of the Tennessee Department of Transportation prepared a list by counties of historic groups and other such organizations which might be interested in proposed projects. This list is regularly updated and refined.

From this list, TDOT identified a number of historical groups and individuals in the county in which the project is located. TDOT will mail a copy of this report to them.

East Tennessee Historical Society
P.O. Box 1629
Knoxville, TN 37901

Knoxville Heritage, Inc.
P. O. Box 1242
Knoxville, TN 37901

East TN Community Design Center
1300 North Broadway
Knoxville, TN 37917

Heather Bailey
ETDD Historic Preservation Planner
Post Office Box 249
Alcoa, TN 37701-0249

Knox County Mayor
Suite 651, City-County Building
400 Main Street
Knoxville, TN 37902

Tennessee Valley Authority
Cultural Resources
400 West Summit Hill Drive
Knoxville, TN 37902

Knoxville/Knox Co. Planning
Commission
City County Building, Suite 403
400 Main Avenue
Knoxville, TN 37902-2476

Steve Cotham
Knox County Historian
Knox County Public Library
500 West Church Avenue
Knoxville, TN 37902-2505

Ethiel Garlington
East TN Preservation Alliance
Post Office Box 1242
Knoxville, TN 37902

Knoxville Historic Zoning
Commission
c/o Knoxville-Knox County MPC
Suite 403, City County Building
Knoxville, TN 37902



TENNESSEE HISTORICAL COMMISSION
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
2941 LEBANON ROAD
NASHVILLE, TN 37243-0442
(615) 532-1550

March 12, 2013

Ms. Martha Carver
Tennessee Department of Transportation
505 Deaderick St/900
Nashville, Tennessee, 37243-0349

RE: FHWA, EFFECT DETERMINATION, WASHINGTON PIKE IMPVT./PIN# 043090, KNOXVILLE,
KNOX COUNTY

Dear Ms. Carver:

Pursuant to your request, received on Thursday, March 7, 2013, this office has reviewed documentation concerning the above-referenced undertaking. This review is a requirement of Section 106 of the National Historic Preservation Act for compliance by the participating federal agency or applicant for federal assistance. Procedures for implementing Section 106 of the Act are codified at 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739)

Based on the information provided, we find that the project area contains a cultural resource eligible for listing in the National Register of Historic Places: Murphy Springs Farm. We further find that the project as currently proposed will not adversely affect this resource.

Unless project plans change, this office has no objection to the implementation of this project. Should project plans change, please contact this office to determine what additional action, if any, is necessary. Questions and comments may be directed to Joe Garrison (615) 532-1550-103. Your cooperation is appreciated.

Sincerely,

E. Patrick McIntyre, Jr.
Executive Director and
State Historic Preservation Officer

EPM/jyg

Subject: Re: Historic Structures Survey for the Washington Pike Roadway Improvements Project
From: Kaye Graybeal <kaye.graybeal@knoxmpc.org>
Date: 4/8/2013 5:50 PM
To: "Kevin P. Murphy" <murphysprings@gmail.com>

Kevin, I'll scan and send some of the main pages to you. I only have a hard copy. You may come and look at it if you'd like. I received this report earlier last month, but didn't realize that it was time sensitive until today. We would need to send any comments to Tammy Sellers, the Historic Preservation Supervisor and I will let her know that we may have some comments forthcoming. We should send them this week, so I'm sorry for the short notice.

On Mon, Apr 8, 2013 at 5:43 PM, Kevin P. Murphy <murphysprings@gmail.com> wrote:

Hi Kaye,

I have not seen that report, or even was aware that it existed until you sent your email.

Is it possible to get a copy to me?

I'd love to comment on this, but the only details they've shared about the design are a 5 lane expansion from I-640 to Murphy Rd / Washington Pike and some concept cross-section drawings. I don't know the exact improvements planned, takings required, lighting, projected traffic counts, noise impact, or other environmental impact yet.

--Kevin

On 2013-04-08 4:10 PM, Kaye Graybeal wrote:

Hi Kevin, I wanted to let you know that I received a copy of the above-mentioned survey which state that the CDM consultant found there to be no adverse affect of the project on the Murphy Springs Farm. Have you received a copy of this report and recommendation? Do you have any further comments on this project?

--

Kaye Graybeal, AICP
Historic Preservation Planner
Knoxville-Knox Metropolitan Planning Commission
City-County Building, Ste. 403
400 Main Street, Knoxville, TN 37902
[865-215-3795](tel:865-215-3795) office
[865-215-2068](tel:865-215-2068) fax

--

Kaye Graybeal, AICP
Historic Preservation Planner
Knoxville-Knox Metropolitan Planning Commission
City-County Building, Ste. 403
400 Main Street, Knoxville, TN 37902
865-215-3795 office
865-215-2068 fax

Subject: Washington Pike Roadway Improvement Project in Knoxville
From: Kaye Graybeal <kaye.graybeal@knoxmpc.org>
Date: 4/9/2013 10:24 AM
To: Kevin Murphy <murphysprings@gmail.com>

Kevin, the city engineer has more information about the design details, beyond what was provided in the Section 106 Report. After reviewing the drawings, you can either send a letter to TDOT (address below) or to Patrick McIntyre at the TN-SHPO. If you send the letter directly to the TN-SHPO, copy TDOT and Tammy Sellers will make sure to follow-up with the local government. I know that you had sent a letter to Jim Hagerman in City Engineering in April of last year. If you would like to contact him to receive a copy of the drawings or view them, below is his phone and e-mail address.

Tammy Sellers

Historic Preservation Section
Tennessee Department of Transportation
Environmental Division
505 Deaderick Street
Suite 900 James K. Polk Building
Nashville, TN 37243
[615-741-5367](tel:615-741-5367)

James R. Hagerman, P.E.
Director of Engineering
jhagerman@cityofknoxville.org
Suite 480, City County Building
P.O. Box 1631
Knoxville, TN 37901
865-215-2027
Fax: 865-215-2631

--
Kaye Graybeal, AICP
Historic Preservation Planner
Knoxville-Knox Metropolitan Planning Commission
City-County Building, Ste. 403
400 Main Street, Knoxville, TN 37902
865-215-3795 office
865-215-2068 fax

Subject: Fwd: Washington Pike Roadway Improvement Project in Knoxville
From: Kaye Graybeal <kaye.graybeal@knoxmpc.org>
Date: 4/16/2013 10:59 AM
To: Kevin Murphy <murphysprings@gmail.com>

Good morning Kevin, below is the response I received from Claudette Stager of THC regarding the decision on the National Register-eligible boundaries for the farm. Perhaps we could invite them out to the farm again and re-walk the boundaries to ensure that we all feel confident that sufficient context is protected and included. Would you like for me to set up an appointment with Engineering to review the drawings?

----- Forwarded message -----

From: Claudette Stager <Claudette.Stager@tn.gov>
Date: Mon, Apr 15, 2013 at 3:11 PM
Subject: RE: Washington Pike Roadway Improvement Project in Knoxville
To: Kaye Graybeal <kaye.graybeal@knoxmpc.org>, Patrick McIntyre <Patrick.McIntyre@tn.gov>
Cc: Tammy Sellers <Tammy.Sellers@tn.gov>

Kaye:

Thanks for forwarding the information from Kevin Murphy. I worked with Tammy Sellers at TDOT on the boundaries in their report. Prior to that, when meeting with Mr. Murphy we had not set any boundaries, but suggested the house and outbuildings. The National Register criteria are different from the Century Farm criteria. We believe that using the current parcel 049 080 is the most appropriate boundary for a National Register nomination for the Murphy Farm.

The other issues Mr. Murphy has are design issues that I cannot comment on.

Claudette

Claudette Stager

Assistant Director for Federal Programs
Deputy State Historic Preservation Officer
Tennessee Historical Commission
2941 Lebanon Road
Nashville TN 37214
[615/532-1550, ext. 105](tel:6155321550)

From: Kaye Graybeal [kaye.graybeal@knoxmpc.org]
Sent: Friday, April 12, 2013 3:52 PM
To: Patrick McIntyre; Claudette Stager; Claudette Stager
Subject: Fwd: Washington Pike Roadway Improvement Project in Knoxville

Good afternoon -- below are the are the concerns of Kevin Murphy, owner of Murphy Farm, which I share, particularly the issue of the potential National Register boundary for the entire farm. Tammy Sellers recommended

that I send these comments to you.

----- Forwarded message -----

From: **Tammy Sellers** <Tammy.Sellers@tn.gov>

Date: Fri, Apr 12, 2013 at 4:33 PM

Subject: RE: Washington Pike Roadway Improvement Project in Knoxville

To: Kaye Graybeal <kaye.graybeal@knoxmpc.org>

Kaye,

Feel free to go ahead and forward them to Patrick McIntyre and Claudette Stager.
I will also be coordinating with them regarding Mr. Murphy's issues.

Tammy Sellers

Historic Preservation Section

Tennessee Department of Transportation

Environmental Division

505 Deaderick Street

Suite 900 James K. Polk Building

Nashville, TN 37243

[615-741-5367](tel:615-741-5367)

From: Kaye Graybeal [mailto:kaye.graybeal@knoxmpc.org]

Sent: Friday, April 12, 2013 3:17 PM

To: Tammy Sellers

Subject: Fwd: Washington Pike Roadway Improvement Project in Knoxville

Good afternoon Tammy, below are the concerns of Kevin Murphy, owner of Murphy Farm, which I share, particularly the issue of the potential National Register boundary for the entire farm. Are these comments that I should forward directly to Patrick McIntyre as well?

----- Forwarded message -----

From: **Kevin P. Murphy** <murphysprings@gmail.com>

Date: Fri, Apr 12, 2013 at 2:15 PM

Subject: Re: Washington Pike Roadway Improvement Project in Knoxville

To: Kaye Graybeal <kaye.graybeal@knoxmpc.org>

Cc: Ann Bennett <akbennett@knoxheritage.org>

Hi Kaye,

I haven't reviewed the complete report, but here are a few things that I see aren't addressed in the report, or have been reported incorrectly:

1. The map with the National Registry boundary recognizes the parcel on the northeast side (Knox County parcel 049 080) but does not recognize another impacted parcel that is part of the Century Farm and proposed National Register application, parcel 049 083. I did provide this information to the CDM Smith Consultant. Page 35 of the report states that TDOT recommended the boundary only encompass parcel 049 080, but I have previously consulted with the staff of the Tennessee Historical Commission and received guidance that the entire farm is eligible.
2. There is no assessment of an increase in traffic along Murphy Rd and Washington Pike, and the ensuing noise and light (headlight) pollution caused by traffic, due to the widening of Washington Pike and increased attractiveness of it as an interstate access for Tazewell Pike traffic inbound to Knoxville.
3. No provisions have been made to propose establishing a visual barrier between the project and the National Register boundary. This should have been evaluated and established during the Murphy Road widening project in the late 1990s, but TDOT and Knox County were negligent. This project should rectify the damage previously caused.
4. The impact assessment (page 38 and 39) reflects the viewshed during summer foliage and does not take into account the intrusive light from traffic during the winter when the tree line does not block the view of the proposed improvements. The project should implement measures to protect the viewshade of the farm house and fields from the visual intrusion and impact of the traffic and traffic lights.
5. No mention is made of any proposed street lighting. If any street lighting is installed, lighting should not be permitted to cross the National Register Boundaries.
6. No mention is made of any proposed sidewalks. Foot traffic along this area detracts from the rural, pastoral setting of the farm.

--

Kaye Graybeal, AICP

Historic Preservation Planner
Knoxville-Knox Metropolitan Planning Commission
City-County Building, Ste. 403
400 Main Street, Knoxville, TN 37902
[865-215-3795](tel:865-215-3795) office
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--

Kaye Graybeal, AICP
Historic Preservation Planner
Knoxville-Knox Metropolitan Planning Commission
City-County Building, Ste. 403
400 Main Street, Knoxville, TN 37902
865-215-3795 office
865-215-2068 fax

The Honorable Madeline Rogero
Mayor, City of Knoxville

April 17, 2013

Dear Madam Mayor,

Representatives from northeast Knoxville and Knox County are still waiting to hear back from you after our meeting on May 31, 2012. We met with you and Christi Branscom, Tom Clabo, and Jim Hagerman to discuss the project for widening Washington Pike from I-640 to Murpy Road. Our primary concern was that this project had been initiated by the City of Knoxville without advising the local neighborhood groups – Alice Bell / Spring Hill Neighborhood Association ("ABSHNA") and Northeast Knox Preservation Association ("NEKPA"). We were also unclear as to how this project impacted the overall traffic situation for northeast Knox County, including Washington Pike, Millertown Pike, Tazewell Pike, and Loves Creek Road. We left that meeting with a promise that you would examine the issue, discuss it with representatives from Knox County to understand the larger traffic issues and planning, and get back with us.

This is not the only time that the neighborhoods have requested to be involved and updated on this project and have not been informed:

- Above-mentioned meeting in May 2012 with the Mayor and staff from Engineering
- Meeting with ABSHNA, Tom Clabo and others from engineering at Loraine Street offices in 2011
- Letter from Kevin Murphy to Jim Hagerman in April 2012 requesting to be involved and updated on the project

ABSHNA and NEKPA have received no correspondence from anybody in your office or City Engineering in the eleven (11) months since our meeting in May 2012, nor any follow-up after the other two requests. 4th District Councilman Della Volpe has been in discussions with engineering and passed on items from those discussions to us, but we have not had any representative work directly with the impacted citizens' groups.

We are concerned that planning is progressing without any public meeting or public involvement. Recently, Kevin Murphy was informed through Knox MPC staff that a historic impact survey had been completed, which directly impacts a 215 year old Tennessee Century Farm. No communications were sent to Mr. Murphy despite him sending a letter in April 2012 to Mr. Hagerman specifically requesting to be contacted, and being listed as an interested party in the report. Moreover, the report states that copies of it will be mailed to interested parties, including NEKPA, Knox Heritage, East TN Preservation Alliance, and Mr. Murphy. None of those parties received the report.

We would appreciate hearing back from you about how this project fits into the overall context of traffic patterns in northeast Knoxville and Knox County, and if it is the best use of limited resources, or if other projects should be prioritized. Also, given the lack of response, we request that a representative from the City of Knoxville attend the monthly ABSHNA meetings for the duration of this project. We also request that all documents, reports, and studies related to this project and traffic studies and projects in northeast Knoxville be posted on a publicly accessible website, and that the repository be used for future communication and collaboration with the community.

We also request that a series of key points be identified in this project for public meetings to be held, and that approximate timelines for those public meetings be constructed. Our community is keenly interested in the impacts of this project and would like to work with the city and county to mitigate unfavorable impacts as well as direct resources and design to achieve maximum benefit. Without conversation and communication from the city, that will not happen.

Sent on behalf of:

Ronnie Collins, President, Alice Bell / Spring Hill Neighborhood Association
Lisa Starbuck, President, Northeast Knox Preservation Association
Kevin Murphy, Representative, Murphy Springs Farm

CC: Nick Della Volpe, Councilman, 4th District, City of Knoxville
R. Larry Smith, Commissioner, 7th District, Knox County
Dave Wright, Commissioner, 8th District, Knox County
James McMillan
Jamie Rowe, Fountain City Town Hall
Gene Mathis, ABSHNA
Bob Wolfenbarger, ABSHNA



May 13, 2013

Ronnie Collins
Kevin Murphy
Lisa Starbuck

Dear Mr. Collins, Mr. Murphy and Ms. Starbuck,

Thank you for your letter of April 17, 2013, to Mayor Rogero regarding the Washington Pike Roadway Project. I have met with the Mayor and other staff to discuss the issues you have raised, and she has asked me to respond on her behalf.

At the outset, I apologize for not keeping in touch with Alice Bell Spring Hill Neighborhood Association since meeting with you in May of 2012. You have a right to receive timely information on this project, and we will endeavor to provide more complete communication as this project advances.

You expressed concern that "planning is progressing without any public meeting or public involvement." I can assure you that you have not missed an opportunity for further consultation or public involvement as required by law as well as the City's own commitment to public involvement. This project is not moving that rapidly, in part because of federal regulations and in part because such projects must of necessity be executed over a multi-year period.

This project was in the environmental documentation stage in May of 2012, and we are still in that phase, although it is coming to a close. As you know, this project has been approved for 80% federal funding, which triggers a review of various possible impacts on air quality, noise, streams and wetlands, and archeological, architectural and historical resources. Those reports are being completed this spring, and they will be posted on the city website as they become available, as will the summary "Categorical Exclusion" (CE) document required by TDOT.

We cannot and will not proceed to the design phase — the next opportunity for formal public comment — until the CE has been approved by TDOT and the Federal Highway Administration. This approval is not expected before June 2013 at the earliest. Please see the project timeline attached to this letter.

To address another question raised in your letter, the City Administration did have two follow-up meetings, both in August of 2012, regarding the Washington Pike project after the May 31, 2012, Alice Bell Spring Hill meeting. We apologize for not directly communicating the results of these meetings to you.

First, the Mayor and her engineering staff met with Mayor Burchett and his engineering staff, along with City Councilman Nick Della Volpe. At this meeting, we updated the County on the Washington Pike and Millertown Pike projects, and we also discussed future county road needs, including the proposed extension of Murphy Road. County officials indicated they would confer with the one district and two at-large commissioners regarding the implications for the long range transportation plan and conduct public hearings as necessary in the future. Also, both the city and the county still believe the Washington Pike Roadway Project is an appropriate response to increased traffic congestion in the area.

I should also point out that any construction for the Washington Pike widening that is to be completed by the city must remain within city limits. The construction phasing would likely transition back to a two-lane road at the Murphy Road intersection inside the city boundary. While improvements to the intersection are, in our view, advisable and therefore included in the environmental report, any work beyond the city limit would fall to Knox County.

Also in August of 2012, the Mayor and her staff conferred with Mark Donaldson of Metropolitan Planning Commission, Knox County engineering staff, and Councilman Della Volpe, regarding concerns about the development of land along the section of Washington Pike that is to be widened. These concerns are similar to those voiced by others regarding corridor development in other parts of the city. As a result, MPC staff drafted an Ordinance that would enable the development of corridor overlay districts. As you may already be aware, MPC this month recommended this Ordinance to City Council. If adopted by City Council, the Ordinance would allow for comprehensive planning and zoning for major corridors and could be a useful tool for managing the appearance and function of any commercial development along a corridor such as the widened section of Washington Pike. A corridor overlay would be tailored to fit a particular area and public participation would be a necessary part of the overlay process.

Here is a brief response to other issues you raised:

- 1) *Copies of the architecture/historic impact report were not sent to Mr. Murphy or other interested parties.* TDOT has responsibility for mailing the report since this project is being completed under state oversight. Prior to this correspondence, we have verified that TDOT's Historic Preservation Section indeed mailed copies of the report to interested parties via standard mail. According to TDOT, copies were mailed to Kevin Murphy, 4508 Murphy Rd., Knoxville, TN 37918, and to Northeast Knox Preservation Association, P.O. Box 5863, Knoxville, TN 37928. If these addresses are incorrect, please let us and TDOT know. In the meantime, we have seen Mr. Murphy's comments on the report.
- 2) *How does the project impact the overall traffic situation for Northeast Knox County including Washington Pike, Millertown Pike, Tazewell Pike and Loves Creek Road?* The City continues to believe that the project will relieve congestion on these and neighboring

roads, particularly at morning and evening rush hour. The previous traffic studies, including an Advance Planning Report (APR) for the area, have all indicated the need for additional capacity. (These documents are now available on the City's web site; see Item 6 below.)

- 3) *Are monies spent on the Washington Pike Roadway Project the best use of limited resources or should other projects be prioritized?* This project was identified as a priority as far back as 2001 under then Mayor Victor Ashe. Given traffic patterns and congestion, it continues to be a priority today. Millertown Pike is also a priority, and we have chosen to phase in the needed improvements as necessary. The first phase of Millertown Pike is currently under construction.
- 4) *ABSHNA and other groups wish to work with the city and county to mitigate unfavorable impacts and to direct resources and design to achieve maximum benefit.* We welcome your ideas and especially encourage you to make detailed suggestions during the design public hearing. After the Environmental Phase is complete, TDOT and FHWA will give us a notice to proceed with the Final Design Phase. During that phase, we will hold at least one public meeting to encourage feedback about project specific details. We will advertise well in advance of having any public meetings. At this time, we are simply not at that phase of project development, and we cannot proceed with detailed design until the Environmental Phase is complete.
- 5) *We request that a representative from the City of Knoxville attend the monthly ABSHNA meetings for the duration of this project.* As noted previously, this project has a multi-year timeline. It is unlikely there would be much new to report or answer on a monthly basis for the remaining years of this project, and such a commitment would take staff time away from other duties, including attendance at other neighborhood meetings on other current projects. However, we will be happy to schedule a representative at your next meeting if you have additional questions after this correspondence. Also, we will attend future meetings, as appropriate, for updates on the project. Please contact me at 215-2027 to schedule a visit.
- 6) *We request that all documents, reports and studies related to this project and traffic studies and projects in northeast Knoxville be posted on a publicly available web site, and that the repository be used for future communication and collaboration with the community.* This is a good idea, and we have assembled those documents and created a page for them. A link to the Washington Pike project page can be found at <http://www.cityofknoxville.org/projects/>.

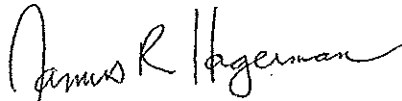
We appreciate your interest in this project and your concern for your community. We realize that you disagree with the City's determination — over three different mayors and a dozen years — that the Washington Pike project is needed. As Mayor Rogero often says, "reasonable people disagree." As administrators and stewards of public funds, local

governments have to balance many different interests and concerns from a wide variety of stakeholders.

At the same time, we, too, wish to mitigate any negative impacts. For example, we have worked with our consultant to develop a "complete streets" concept plan to make this section of Washington Pike user friendly not just to motorists but also to bicyclists and pedestrians. The concept includes a landscaped median and side slopes where possible, and storm water treatment that is above and beyond a normal roadway project. More about this can be discussed during the design phase.

Finally, going forward, we will certainly strive to communicate more regularly, and we ask that you do the same. Please do not hesitate to contact me at 215-2027 as other concerns or questions arise.

Sincerely,

A handwritten signature in black ink that reads "James R. Hagerman". The signature is fluid and cursive, with the first name "James" and last name "Hagerman" clearly legible.

James R. Hagerman, P.E.
Director of Engineering

Enclosure: Project Timeline

cc: Madeline Rogero, Mayor, City of Knoxville
Mayor Tim Burchett, Knox County
Nick Della Volpe, Councilman, 4th District, City of Knoxville
R. Larry Smith, Commissioner, 7th District, Knox County
Dave Wright, Commissioner, 8th District, Knox County
James McMillan
Gene Mathis, ABSHNA
Bob Wolfenbarger, ABSHNA
Mark Donaldson, Metropolitan Planning Commission
Dwight Van de Vate, Knox County Engineering
Cindy Pionke, Knox County Engineering
Christi Branscom, Director, Public Works, City of Knoxville

Washington Pike Road Widening Project Timeline

Date	Anticipated Length of Time	Comments
2001		Advance Planning Report prepared by the City of Knoxville identified and prioritized several northeast city road improvement projects — including the widening of Millertown Pike to a 3-lane section (with a center turn lane) from Kinzel Way to Loves Creek Road (under construction), the Washington Pike project, and a Phase 2 widening of Millertown Pike.
2010		The City of Knoxville updated the Transportation Planning Report (TPR) for the Washington Pike Roadway Project.
2012		Consultant (CDM Smith) retained to develop project plans
2012 - 2013		Environmental Documentation Phase
Summer 2013		Anticipated approval by the Federal Highway Administration of Categorical Exclusion environmental review
	18 months	Survey and Design Phase Public Meeting to be scheduled approximately 6 months after this phase is initiated.
	12 months	Right of Way Acquisition Phase
	2.5 years	Construction Phase

Subject: Re: copy of Historic Impact Report
From: Lisa Starbuck <lisa@aobe.com>
Date: 5/16/2013 9:58 AM
To: "Kevin P. Murphy" <murphysprings@gmail.com>

Hi Kevin - I did not

On 5/15/2013 9:29 PM, Kevin P. Murphy wrote:

Hi Lisa,

Did you receive a copy of the Historic Impact Report for the Washington Pike project at the NEKPA mailbox (listed as P.O. Box 5863, 37928)? I didn't get it, nor did East Tennessee Preservation Alliance. Wondering if NEKPA got it as well.

--Kevin

01directorycontents.txt
Allen-Birdwell Farm.pdf
Allendale Farm.pdf
Oak Hill Farm.pdf
Searcy-Matthews-Tarpley Farm.pdf

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Allen-Birdwell Farm
other names/site number Still Hollow Farm; Riverside; 40GN228

2. Location

street & number 3005 West Allen's Bridge Road ☐ N/A not for publication
city or town Greeneville ☒ vicinity
state Tennessee code TN county Greene code 059 zip code 37743

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this ☒ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set for in 36 CFR Part 60. In my opinion, the property ☒ meets ☐ does not meet the National Register criteria. I recommend that this property be considered significant ☐ nationally ☐ statewide ☒ locally. (See continuation sheet for additional comments.)

Signature of certifying official/Title Date
State Historic Preservation Officer, Tennessee Historical Commission

State or Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. (☐ See Continuation sheet for additional comments.)

Signature of certifying official/Title Date

State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that the property is:

☐ entered in the National Register.
☐ See continuation sheet

☐ determined eligible for the
National Register.
☐ See continuation sheet

☐ determined not eligible for the
National Register

☐ removed from the National
Register.

☐ other, (explain:)

Signature of the Keeper

Date of Action

Allen-Birdwell Farm

Name of Property

Greene County, Tennessee

County and State

5. Classification

Ownership of Property

(Check as many boxes as apply)

- ☒ private
☐ public-local
☐ public-State
☐ public-Federal

Category of Property

(Check only one box)

- ☐ building(s)
☒ district
☐ site
☐ structure
☐ object

Number of Resources within Property

(Do not include previously listed resources in count)

Contributing	Noncontributing	
10	4	buildings
2	0	sites
0	1	structures
0	0	objects
12	5	Total

Name of related multiple property listing

(Enter "N/A" if property is not part of a multiple property listing.)

The Transformation of the Nolichucky Valley, 1776-1960, Greene and Washington Counties, TN, MPN

Number of Contributing resources previously listed in the National Register

0

6. Function or Use

Historic Functions

(Enter categories from instructions)

DOMESTIC: Single dwelling; secondary structure

AGRICULTURE: animal facility; storage;

agricultural outbuilding; agricultural field

FUNERARY: graves/burials

Current Functions

(Enter categories from instructions)

DOMESTIC: Single dwelling; secondary structure

AGRICULTURE: animal facility; storage

agricultural outbuilding; agricultural field

FUNERARY: graves/burials

7. Description

Architectural Classification

(Enter categories from instructions)

GREEK REVIVAL

Materials

(Enter categories from instructions)

foundation Stone; Concrete

walls Weatherboard; Log, Vinyl

roof Wood Shingle; Metal

other Metal; Glass

Narrative Description

(Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance**Applicable National Register Criteria**

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- ☒ **A** Property is associated with events that have made a significant contribution to the broad patterns of our history.
- ☐ **B** Property is associated with the lives of persons significant in our past.
- ☐ **C** Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- ☐ **D** Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations

(Mark "x" in all boxes that apply.)

Property is: N/A

- ☐ **A** owned by a religious institution or used for religious purposes.
- ☐ **B** removed from its original location.
- ☐ **C** a birthplace or grave.
- ☐ **D** a cemetery.
- ☐ **E** a reconstructed building, object, or structure.
- ☐ **F** a commemorative property
- ☐ **G** less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance

(Enter categories from instructions)

Agriculture

Exploration/Settlement

Period of Significance

c. 1840 to 1960

Significant Dates

c. 1861—original house constructed

Significant Person

(complete if Criterion B is marked)

N/A

Cultural Affiliation

N/A

Architect/Builder

Unknown

Narrative Statement of Significance

(Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographical References**Bibliography**

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS): N/A

- ☐ preliminary determination of individual listing (36 CFR 67) has been requested
- ☐ previously listed in the National Register
- ☐ Previously determined eligible by the National Register
- ☐ designated a National Historic Landmark
- ☐ recorded by Historic American Buildings Survey # _____
- ☐ recorded by Historic American Engineering Record # _____

Primary location of additional data:

- ☐ State Historic Preservation Office
- ☒ Other State Agency TDOT
- ☐ Federal Agency
- ☐ Local Government
- ☒ University
- ☐ Other

Name of repository: MTSU Center for Historic Preservation and University of Tennessee

Allen-Birdwell Farm

Name of Property

Greene County, Tennessee

County and State

10. Geographical Data**Acreage of Property** 176 acres Cedar Creek 181 SW**UTM References**

(place additional UTM references on a continuation sheet.)

1	<u>17</u>	<u>328079</u>	<u>3992573</u>	3	<u>17</u>	<u>327281</u>	<u>3991122</u>
	Zone	Easting	Northing		Zone	Easting	Northing
2	<u>17</u>	<u>328363</u>	<u>3991690</u>	4	<u>17</u>	<u>326869</u>	<u>3991634</u>

☐ See continuation sheet**Verbal Boundary Description**

(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification

(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Carroll Van West and Elizabeth Moore
Organization Center for Historic Preservation date December 8, 2010
street & number Middle Tennessee State University, Box 80 telephone 615-898-2947
city or town Murfreesboro state TN zip code 37132

Additional Documentation

submit the following items with the completed form:

Continuation Sheets**Maps**A **USGS map** (7.5 Or 15 minute series) indicating the property's locationA **Sketch map** for historic districts and properties having large acreage or numerous resources.**Photographs**Representative **black and white photographs** of the property.**Additional items**

(Check with the SHPO) or FPO for any additional items

Property Owner

(Complete this item at the request of SHPO or FPO.)

name Mr. and Mrs. Jay Birdwell
street & number 3005 West Allen's Bridge Road telephone (423) 638-3967
city or town Greeneville state TN zip code 37743

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listing. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 *et seq.*)

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, P. O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Projects (1024-0018), Washington, DC 20303.

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Section number 7 Page 1

Allen-Birdwell Farm, Greene County, TN
Transformation of the Nolichucky Valley, 1776-1960, Greene and
Washington Counties, TN

7. DESCRIPTION

Located about ten miles south of the Greene County seat of Greeneville (pop. 15,453), adjacent to the Nolichucky River, the 176-acre Allen-Birdwell Farm consists of the circa 1861 farm house, barns, a well house, smokehouse, former granary and historic field patterns. The house and domestic complex are situated at West Allen's Bridge Road and separated from the farm complex by South Allen's Bridge Road. Five man-made ponds are located throughout the property and a modern cattle raising complex is located in the southeast corner of the property. West of the main farm and domestic complexes, the property is set within a rolling landscape with numerous trees and twentieth century agricultural fields. (See figures 5 and 6.)

Domestic Complex:

1. Allen-Birdwell House (c. 1861, 1951, 1972)

The Allen-Birdwell House is a braced frame, vinyl-sided two-story, symmetrical three-bay central hall I-house, with three brick interior chimneys and a metal hip roof, that rests on a stone block foundation. Contemporary to the house, an extension on the south (rear) elevation is two stories with a metal hip roof. The house sits approximately fifty feet from the road on a slight rise. Concrete steps lead from the road to a historic brick walkway up to the house. South Allen's Bridge Road runs just east of the house and domestic complex with a small driveway leading to the east porch of the house. A small creek runs along the west elevation of the house and domestic complex. A yard sits between the house and creek. Directly behind the house is the well house and smokehouse. (See figures 2 and 3.)

Exterior

The north façade has a "one-story, central bay porch with vernacular Greek Revival-style details and flush weatherboards, as well as second-level entrance to the porch".¹ A sawn wood balustrade embellishes the porch, while four square wood columns with molded capitals and bases support the porch roof. There are wood pilasters flanking the central entry. The wood-floor porch has three wood steps leading to it. Historic four-light sidelights and a historic four-light transom, all with red glass panes, surround the central entrance door. The historic wood double-leaf four-panel door is shielded by modern storm doors. The first floor windows are paired historic four-over-four double-hung wood sash windows; the second story windows are single historic six-over-six double-hung wood sash windows. The windows are shielded by modern storm windows and flanked by vinyl shutters. The family has the original wood shutters in storage. The second floor has a single historic four-panel wood door with a modern storm door. The entrance has historic four-light sidelights with red panes, and a historic four-light transom. The façade, and the other elevations, were clad in vinyl in 1972 but the siding "does not cover trim, moldings, or architectural elements."²

The two-bay east elevation of the hip roof section of the house has symmetrically-placed historic six-over-six double-hung wood windows on both stories. The windows are shielded by modern storm windows.

¹ Tammy Allison, "Report on Allen Farm, 3005 West Allen's Bridge Road, Greene County, Tennessee," Tennessee Department of Transportation, 2008, 10.

² Ibid.

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Section number 7 Page 2

Allen-Birdwell Farm, Greene County, TN
Transformation of the Nolichucky Valley, 1776-1960, Greene and
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Vinyl shutters flank the two southernmost windows, while the northernmost windows have closed wood shutters. An original interior brick end chimney is centered on this elevation.

Extending to the south is a two-story ell. The southernmost portion of the ell dates to c. 1861, contemporary with the central hall house, while the bay directly south of the central hall house was an original dogtrot that was enclosed as a hyphen sometime after a flood in 1901. The full ell has four bays, and the first floor bays have been enclosed within a screened porch, c. 1951. The porch was built in c. 1861 as an open porch. Concrete steps lead up to a wood screen door on the east elevation. Original wood porch posts remain, but the wire mesh dates to c. 1951. Within the porch are three historic wood doors and two historic wood six-over-six double-hung wood windows on the house walls. A four-light two-panel wood door leads into the kitchen, a four-panel wood door leads into the dining room, and a four-panel wood door is on the south wall of the porch leading into the east parlor. A c. 1972 fifteen-light wood door leads into the den. Flanking the windows are original wood shutters. Modern storm windows and doors shield these elements. Historic weatherboard, wood floors, and tongue-and-groove wood ceiling remain inside the porch. Above the porch in the second story are three historic six-over-six double-hung wood windows covered with modern storm windows. Vinyl shutters flank these windows.

The south elevation has a central bay with an original six-over-six double-hung wood window on the second story and a c. 1921 fixed six-pane window on the first floor. Vinyl shutters flank these windows. Flanking the first floor window are Colonial Revival-styled entrances that were added c. 2000 to the enclosed utility/bathroom wing on the west side and to the enclosed screen porch on the east side. Slender wood posts support a pediment with an asphalt shingle roof. Wood steps lead up to each entrance. The east entrance onto the screened porch has a wood screen door and the west entrance has a modern screen door shielding a c. 1972 six-light two-panel wood door. One historic six-over-six double-hung wood sash window is visible on either side of the ell in the second story of the south elevation of the central hall dwelling. Storm windows and doors shield the openings on this elevation. An original interior brick chimney is set within the ell between the kitchen and dining room.

The porch on the west elevation was fully enclosed on the first story c. 1972 when a utility room and a bathroom were installed in this section of the dwelling. The c. 1972 enclosure included an exterior brick chimney and six windows. The northernmost window on the enclosure is a four-over-four synthetic window while the other five are two-light synthetic windows that slide horizontally. The second floor retains the original symmetrical three-bay six-over-six double-hung wood windows of the dwelling's original ell. All of the windows on this elevation of the ell have vinyl shutters. A small open deck has been added at the southwest corner of the ell with a wood railing and wood steps. A vertical board wood door at the southernmost end of the ell leads into the basement. A modern smoker is set near the entrance to the basement, but it not connected to the house

The west elevation of the central hall dwelling has four historic six-over-six double-hung wood windows, two in the first story and two in the second. They are shielded by modern storm windows and vinyl shutters flank three of the windows. The northernmost window in the second story has closed wood shutters. An interior brick end chimney is centered on this elevation.

Central Hall Interior

United States Department of the Interior
National Park Service

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Allen-Birdwell Farm, Greene County, TN
Transformation of the Nolichucky Valley, 1776-1960, Greene and
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The front portion of the dwelling facing West Allen's Bridge Road has a central hall plan with one room on either side of the hall; the ell extends toward the south and is three rooms deep. An open dogtrot separated the two parts of the house but was enclosed around 1901. Roughly equal sized rooms flank the central hall. Throughout the house, "original, vernacular Greek Revival-style architectural detailing such as molded door and window surrounds (with „dog ears“) paneled doors, fireplace mantels" are intact as are "hardwood floors, plaster walls. . . and decorative light fixtures."³ The plaster walls have been covered with wallpaper and in the upper reaches of the central hallway and the family has uncovered traces of Victorian era wallpaper from the early years of the house.

The entrance hall open well staircase, which immediately fronts the central entrance on the west side of the hall, has its original heavy turned wood newel post and slender, turned wood balusters, railing, and stringers. A closet with a historic four-panel wood door is located beneath the stair. The main entry to the house is through narrow double-leaf four-panel wood doors. Paneled and glass sidelights and a transom window surround the entry and are, in turn, surrounded by shouldered architrave wood trim. The hall has historic molded wood baseboards and a wood floor. The walls are covered in wallpaper and the ceiling is covered with patterned, textured paint over historic plaster.

A historic four-panel wood door leads from the front hall into the east parlor, now used as a bedroom. The parlor contains historic wood floors, wood molded baseboards, wood picture rail, and wood window and door surrounds with shouldered architraves. Wallpaper covers the walls in the east parlor and the ceiling is covered with a textured, patterned paint over historic drywall. The east wall has an original historic Greek-Revival-inspired wood mantel. The mantel is dark-stained, has a simple mantelshelf and frieze, and simple molded pilasters flanking the fireplace. The fireplace is brick with a brick hearth. The bricks within the fireplace are original. An original closet is in the northeast corner of the room along the east wall. A historic four-panel wood door is located on the south wall that leads onto the east porch.

The west parlor is similar to the east parlor, but is a more formal space today than the east parlor. A four-panel wood door leads from the front hall into the west parlor. The parlor retains its historic wood floors, wood molded baseboards, wood picture rail, and wood window and door surrounds with shouldered architraves. The hanging ceiling light is also historic in the west parlor. Like the east parlor, the walls are covered in wallpaper. The ceiling and walls above the picture rail of the west parlor are also covered in historic wallpaper. A historic Greek Revival-inspired wood mantel similar to that of the east parlor is on the west wall and surrounds an original brick fireplace and hearth. The mantel in the west parlor, however, is painted white.

The open well stair leads to a landing with historic wood floors and molded baseboards, then turns and leads up to the second floor hall. The wood floors of the landing are the original parquet pattern with buttermilk paint and walnut stain. The upstairs hall retains its historic wood floor and wood stairwell railing with turned wood balusters. On the north wall of the hall is the single historic four-panel wood door with paneled and glass sidelights and transom that are surrounded by a shouldered architrave. Simple historic wood baseboards surround the hall and a historic light hangs from the center of the hall. Historic four-panel wood doors with wood shouldered architrave surrounds lead into the east and west bedrooms. Wallpaper covers the walls and plaster the ceiling.

³ Ibid, 11.

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Allen-Birdwell Farm, Greene County, TN
Transformation of the Nolichucky Valley, 1776-1960, Greene and
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The two second-floor rooms flanking the central hall are bedrooms. The east bedroom retains historic wood floors, simple wood baseboards, and window and door surrounds with shouldered architraves. On the east wall is a historic Greek Revival-inspired wood mantel like that of the downstairs parlors. The mantel is painted white. The fireplace and hearth are both brick. An original closet sits in the northeast corner and has a historic four-panel wood door. Wallpaper covers the walls in the east bedroom and historic plaster covers the ceiling.

The west bedroom is similar to the east bedroom with historic wood floors, simple wood baseboards, and window and door surrounds with shouldered architraves. The Greek Revival-inspired white wood mantel, brick fireplace, and brick hearth are similar to that of the east bedroom and are located at the center of the west wall. An original closet with a historic four-panel wood door is in the northwest corner of the room. A historic four-panel wood door is located in the south wall of the west bedroom that leads into a small hyphen between the central-hall house and the ell. Wallpaper covers the walls and textured paint over historic plaster covers the ceiling.

Ell Interior

Original paneled wood doors lead into small hyphens that serve as the connection between the central hall dwelling and ell. The hyphen connected the two structures c. 1901. The ell is thought to have been constructed at the same time as the central hall structure, c. 1861. On the first floor, a historic wood door leads from the front hall into what is currently being used as a den. The den retains simple historic wood baseboards and ceiling trim and historic door surrounds, some with shouldered architraves. The floors are covered in carpet, the walls in wallpaper, and the ceiling in textured drywall. A historic four-panel wood door leads into the front hall, a fifteen-light door leads onto the east porch, and a historic door opening leads into the dining room.

The dining room retains its historic wood floors, molded baseboards, molded ceiling trim, and window and door surrounds with shouldered architraves. The walls are covered in wallpaper and the ceiling in textured drywall. An original boxed staircase is enclosed in the northeast corner of the room and is entered through a historic four-panel wood door. Beneath the stair is a closet with a historic two-panel wood door. A historic four-panel wood door leads onto the east porch and historic door openings lead into the kitchen and office. A historic built-in serving pantry is located on the south wall east of the mantel. The serving pantry was once open to the kitchen through what is now a closet in the south wall of the kitchen. The pantry retains original hardware, doors, and serving shelves. The glass doors on the dining room side of the pantry are modern. The historic Greek Revival-inspired wood mantel like that of the parlors and bedrooms is in the center of the south wall and is painted off-white. A modern stove has been placed within the fireplace and the modern hearth is comprised of stone. Some wood floorboards directly around the hearth have been replaced due to deterioration over the years. On the west wall, a historic window has been enclosed as a built-in shelf.

The kitchen is the southernmost room of the ell and was modernized c. 1970 with floor tiles, cabinets, textured drywall, and appliances. Historic wood baseboards and simple door and window surrounds remain. The baseboards are like those of the upstairs rooms and are simpler than those of the parlors and dining room. On the east wall are the exposed lathes and framing structure of the kitchen. A large brick fireplace with brick surround, brick hearth, and wood mantelshelf is centered on the north wall of the kitchen. Original bricks remain along the back and sides of the fireplace. One historic four-light two-panel

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National Park Service

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Allen-Birdwell Farm, Greene County, TN
Transformation of the Nolichucky Valley, 1776-1960, Greene and
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door and one historic window are on the east wall of the kitchen that opens onto the east porch. A fixed window is on the south wall above the kitchen sink. The window is the top sash of a historic window that has been fixed in place. A historic door opening on the west wall leads into the laundry room of the enclosed west porch. The closet in the northeast corner was once open as the serving pantry to the dining room. It has been enclosed with a modern door.

The east porch is original to the house and was screened c. 1951. It retains the historic elements described above.

The west porch was enclosed c. 1972 to create spaces for laundry, an office, and a bath. The enclosed porch is three rooms deep. The laundry room is the southernmost space accessed through the Colonial Revival entrance on the south elevation. It retains the historic wood tongue-and-groove ceiling of the original porch, but other elements date to c. 1972 including the floor linoleum, beaded-board wainscoting, windows, and trim. A historic door opening on the east wall leads into the kitchen.

Just north of the laundry room and accessed through a c. 1972 door opening is the c. 1972 office. A historic door opening remains in the east wall and leads into the dining room. Unlike the laundry room, the historic wood ceiling of the porch has been covered with drywall. Other elements date to c. 1972 such as the floor linoleum, beaded-board wainscoting, windows, and trim.

A modern bath, c. 1972, is located just north of the office and is accessed through a c. 1972 door on the north wall of the office. The linoleum floors, windows, trim, and appliances are modern.

The second floor of the ell follows the same general floor plan as the first floor. The hyphen just south of the east and west bedrooms and stair hall was once a single room above the original dogtrot. Around 1901, when the dogtrot was enclosed, a wall was added to divide the space into two rooms, now the hall and bath. The hall is accessed through a historic four-panel wood door on the south wall of the west bedroom. A step leads down from the bedroom into the hall. The hall retains historic wood baseboards like those of the east and west bedrooms and simple historic wood window and door trim. The floors are carpet with original floors underneath, the walls covered in wallpaper, and the ceiling covered in historic plaster. A closet is located in the southwest corner of the hall and has a historic six-panel wood door. A historic door opening on the south wall leads into the middle bedroom and a historic four-panel wood door on the east wall leads into the bathroom.

A bath on the eastern side of the upstairs hyphen retains historic wood baseboards and historic wood window and door trim.

The middle bedroom is located just south of the hyphen and retains simple historic wood baseboards like those of the east and west bedrooms, historic wood floors, and simple historic wood window and door surrounds. The walls are covered with wallpaper and the ceiling covered in historic plaster. The historic box stair remains in the northeast corner of the room and is open with a historic wood railing and square balusters. A closet like those of the other bedrooms, is located in the southwest corner of the room and has a historic four-panel wood door. A Greek Revival-inspired mantel like those of the parlors and front bedrooms is centered on the south wall. The mantel is painted grey. It surrounds an original brick fireplace and brick hearth.

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The south bedroom is accessed through a historic four-panel wood door in the south wall of the middle bedroom. The south bedroom retains its historic wood floors, simple wood baseboards like those of the other upstairs rooms, and simple window and door trim like that of other rooms in the upstairs ell. The walls are covered with wallpaper and the ceiling with historic plaster. A historic Greek Revival-inspired off-white mantel like those of the other bedrooms and parlors remains in the north wall of the south bedroom. The brick fireplace has been modernized and made smaller with a pressed metal opening, also historic. The brick hearth has original bricks that have been re-laid.

The Allen-Birdwell house retains a high degree of integrity with a significant amount of original material and woodwork remaining. The only major non-historic alteration is the enclosure and modernization of the west porch for modern utility purposes and the modern siding. The Allen-Birdwell House is a contributing building. (C)

2. Well House (c. 1901)

Directly south of the rear of the dwelling is this one-story, with loft, frame weatherboard building with a stone foundation and a gable metal roof. At an unknown date, but probably c. 1921, the west end of the gable roof was extended and a small extension of the building for an engine room was installed. The engine room held an electric pump to make electricity for the property, which was the first in the area to have electricity. The loft overhangs past the first story façade, forming a covered porch area. Within this covered porch is an original hand-dug well with original hand pumps. The entrance is through a single leaf wood door. Two wood columns support the overhang. (C)

3. Smokehouse (c. 1840)

A saddle-notch one-and-one-half story log building, with a wood-shingle gable roof, the smokehouse has a single low entrance on its north façade. A prominent gable overhang shelters the façade entrance. It was built by William M. Crawford who owned and farmed the land in the 1840s to 1855. (C)

4. Domestic Complex Landscape Features

These site features are comprised of a stone retaining wall, which dates to c. 1840, that encircles the front and sides of the dwelling; the concrete sidewalks (c. 1950) that connect the house to outbuildings and to the driveway, the sidewalks around the front and sides of the house with original bricks (c. 1861) that have been re-laid, and an original patterned brick walk (c. 1861) that runs from the stone wall to the front steps of the dwelling. These elements constitute a contributing site to the domestic complex. (C)

Farm Complex:

5. Equipment Shed/Garage (c. 1980)

A one-story metal building with open bays on the north façade for the storage of automobiles and farm equipment. (NC, due to date).

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6. Granary (c. 1860)

"Constructed on a stone foundation, the frame structure has vertical and horizontal board covering the exterior."⁴ The interior was renovated into a gift shop for farm products and local crafts, with a new metal gable roof installed, in 2008. The renovation did not remove nor significantly alter the building from its historic appearance. Entrance is at the gable end and the building rests on stone, wood, and stone/wood pier foundation. (C)

7. Raised Walkway (2008)

This raised wood walkway structure, which connects the granary to an open shed to a restroom, was designed to allow handicapped access to the granary. (NC, due to date).

8. Shed (2008)

This open metal gable roof shed is a low one-story building with a concrete foundation. (NC, due to date).

9. Restroom (2008)

This small wood frame metal gable building sits on a concrete foundation (NC, due to date).

10. Stock Barn (c. 1901)

This two-story gable metal roof stock barn has a large center core, flanked by a closed shed addition on the west side and an open shed on the east side. Vertical board siding and dual sliding door entrances are on the gable ends. There is a stone pier foundation and a hay chute opening on the south gable end. (C)

11. Dairy Barn (c. 1840, 1950)

The lone-story log crib, with a stone pier foundation, was converted into a one-story dairy barn, c. 1950, as metal gable roof frame addition was installed on the west wall of the crib. Then a concrete wall and ramp was installed to provide more efficient cattle access to the interior. (C)

12. Burley Tobacco Barn (c. 1840, 1930)

This low pitch, two story, metal gable roof barn has entrances in both of its gable ends and has a concrete and concrete pier foundation. The frame exterior is covered in vertical board siding and encases a log section that dates to at least 1840 and was part of the original farm established by the first owner of the property, William M. Crawford. Due to the presence of such dating indicators as v-notching, mortise-and-tenon pegging, and a log puncheon floor, the log interior section of the barn could be dated earlier, to a time

⁴ Ibid, 11.

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frame of 1800-1820. Around 1930 the log section was encased by the shed additions and a metal gable roof, and the building became part of the farm's burley tobacco production. (C)

13. Burley Tobacco Barn (c. 1940)

On a hill overlooking the remainder of the farm complex is a second metal gable roof frame burley tobacco barn, with concrete pier foundation and vertical board siding. (C)

14. Tenant House (c. 1860, 2004)

Single-pen log tenant house, with metal gable roof and stone pier foundation. Original tenant house is intact. Weatherboard T-wing added to the south elevation, rebuilt c. 2004. Shed porch on north façade supported by four wood posts, rebuilt c. 2004. (C)

15. Cattle Raising Complex (c. 1980)

A concrete block dairy house flanked by three wood and metal feeding troughs and milking stalls, each with concrete foundation, wood posts, and metal gable roofs. (NC, due to date).

16. Burley Tobacco Barn (c. 1950)

A two-story frame stock barn with three symmetrical entrances on the west and east sides, vertical board siding, and concrete pier foundation. (C)

17. Field Patterns and Agricultural Landscape (c. 1861 - c. 1960)

The agricultural field located to the immediate north of the domestic complex was historically used for burley tobacco production for most of the twentieth century. The agricultural field to the south of the domestic complex, located between the two burley tobacco barns, was historic livestock pasture during the twentieth century. The agricultural production of both fields is related to significant trends in the farm's history. A cluster of three ponds located on a hill west of the historic farm buildings were installed c. 1980 and recently have been used for fresh-water prawns. A pond for watering cattle is located in the western half of the property. Another pond for watering cattle was installed at the Cattle Raising Complex, c. 1980. Historic farm roads, mostly packed dirt run throughout the property. Wire fences and metal gates separate some of the fields and section of the farm. (C)

The Allen-Birdwell Farm retains historical integrity and meets the registration requirements for historic family farms outlined in the "Transformation of the Nolichucky Valley, 1776-1960, Greene and Washington Counties, TN," Multiple Property Submission.

NOTE

40GN228. The Allen-Birdwell Farm contains a significant prehistoric burial site. Excavations by the University of Tennessee, under contract with the Tennessee Department of Transportation (TDOT),

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uncovered six burials, preliminarily dated to the Woodland Period. Both TDOT and the Tennessee Division of Archaeology (TDOA) have determined that the site is eligible for listing in the National Register. However, this resource is outside the period of significance for the farm nomination and would require its own nomination or context in order to be nominated. Due to the sensitive nature of the site, it is not being located on maps with this nomination. For additional information contact TDOA.

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8. STATEMENT OF SIGNIFICANCE

The Allen-Birdwell Farm at 3005 West Allen's Bridge Road, Greene County, Tennessee, is eligible for listing in the National Register of Historic Places under Criterion A for its local significance in the agricultural history and the history of settlement patterns of Greene County. Nestled by a historic crossing of the Nolichucky River, the historic buildings, structures, and sites that comprise the district date between c. 1840 and c. 1960. The farmhouse and associated outbuildings reflect the patterns of change representative in historic family farms of the Nolichucky River during those years. These changes are reflected in the changes to the house, the outbuildings, and the landscape. The nominated property meets the registration requirements for historic family farms outlined in "The Transformation of the Nolichucky Valley, 1776-1960, Greene and Washington Counties, TN."

Historical Background and Early Agricultural Practices

Human occupation and use of the land with the nominated historic district dates to Tennessee's prehistoric era, according to the preliminary dating of six burials near West Allen's Bridge Road and the historic farm dwelling.⁵

Documented history of the property begins with William M. Crawford, who settled here in the early eighteenth century. He and his brother Alexander acquired 200 acres, which includes the nominated property, from Michael Woods in 1795. The log smokehouse, the stone wall, and log sections of two barns are associated with Crawford's ownership of the property. In 1819, William M. Crawford married Margaret Ann Allen, the sister of Daniel Allen, who also was a young farmer living in the Nolichucky Valley. In 1855, a foreclosure seized Crawford's 560-acre farm to satisfy a debt owed the Bank of Tennessee. Crawford's nephew, James Allen, Sr., (Daniel Allen's son) acquired the farm under foreclosure in 1857. That same year, James Allen, Sr., acquired seven slaves and additional nearby property upon his father's death.⁶

As a new bridge was being constructed over the Nolichucky River, in 1861, James Allen, Sr., as he would later be known, contracted to have a new Greek Revival-styled home constructed on the property. The wider bridge, able to hold heavier loads, made the river crossing at Allen's farm more important to local commerce. Allen built an appropriate rural showplace fronting the bridge road.

But building and finishing the bridge proved no simple matter and a lawsuit involving the contractor and James Allen, Sr., (*William A. Stover v. James Allen*) eventually made its way to the Tennessee Supreme Court in 1870. This lawsuit documents several important facts: 1) the bridge was initially known as Johnson's and Allen's Bridge since it connected the farms of James Johnson and James Allen; 2) the bridge contractor was William A. Stover. He may have been the builder of the Allen house since family tradition states that the bridge builder and the house builder was the same person; 3) a flood in 1861 damaged the bridge before it could be completed; and 4) the delay of the flood implies that the bridge was not finished until 1862, which is the date carved in a stone taken from the bridge's foundation and now in the possession of the Allen-Birdwell Farm owners. The name on the stone, however, is G. A. Winslow, who has not been identified.

⁵ "Archaeologists Stay Busy at Nolichucky Village Dig," *Greeneville Sun*, November 24, 2009.

⁶ Allen-Birdwell Farm papers, Tennessee Century Farms Collection, MTSU Center for Historic Preservation.

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The new bridge attracted both Confederate and Federal attention during the war. According to a federal dispatch of April 16, 1865, transcribed in the *Tennessee Civil War Sourcebook* website, Allen was known as a "rich rebel," who perhaps was harboring Confederate guerillas still active along the Nolichucky. The day prior, a federal force had gone to Allen's bridge looking for possible Confederate soldiers. Brig. Gen. W. L. Elliott reported: "I sent the Twenty-fourth Wisconsin Volunteer Infantry, Maj. [Arthur] MacArthur [the father of later U.S. Gen Douglas MacArthur] commanding, accompanied by a sergeant and twelve men of the Eighth Tennessee Cavalry, familiar with the country and people, to Johnston's and Allen's Bridge, over the Chucky. The major has reported that five guerrillas of Tulle's band, from Hamilton, Cocke County, Tenn., were at the bridge on Friday last."⁷ On this scouting mission, however, the federal troops found nothing.

Another family story, which can only be verified in part, is that James Allen, Sr., in December 1864 became aware of two Unionists, William P. Seaton and John Davis, who were trying to visit with family in the area. Allen let Confederate authorities know of their whereabouts; on December 16, 1864, the two men were killed in nearby Parrottsville. Surviving Union widow pension records document that Seaton's wife, Sarah E., received a pension because her husband died in service on December 16, 1864.

An Allen family history recorded within the Tin Type Shop website (tintypeshop.com) confirms that the Allens were Confederates in what was largely a Union county. The website story states: "Because they were harassed, sought a better life and political climate, and wished to improve their condition, the Allens left Greene County. Most went to Whitfield County, Georgia, where they were influential in the rebuilding of that section. Daniel Earnest Allen, a Civil War veteran, went to Georgia. One of his sons, Ivan, became Mayor of Atlanta for one term. Ivan's son, Ivan Allen Jr., was elected to the same office for two terms."⁸

But James Allen, Sr., stayed in Tennessee and continued to farm his land, raising livestock, corn, and wheat, typical crops for that time in East Tennessee. His wife Laura M. Brown Allen died in 1878 and Allen remarried, choosing Mollie Birdwell Allen as his second wife. Because of debts contracted in 1861 by James Allen, Sr., and judgments rendered in circuit court in 1866 and 1884, James Allen, Jr., assumed the said debts of his father in 1885 for the exchange of 780 acres, 530 of which were from the original Crawford property. James Allen, Sr., died shortly after his son acquired the property.

Progressive agriculture practices, 1885-1960

James Allen, Jr., had married his stepmother's sister, Elizabeth J. Birdwell in 1884, a year before taking control of the family farm.⁹ Like other East Tennessee farmers wanting to practice more progressive agriculture practices in the late nineteenth century, Allen, Jr., focused more on pedigreed stock raising. Following a flood in 1901, which also damaged the 1860s bridge, Allen, Jr., also began to update the family dwelling. Between 1901 and 1920, he added indoor bathrooms and electricity to the dwelling. During these years, he was a leader in the Greene County Democratic party and as the bitterness over the war lessened

⁷ "April 15, 1865 - Unsuccessful Federal anti-guerrilla scout to Johnston's and Allen's bridge over Chucky River," Tennessee Civil War Sourcebook website, Tennessee Historical Commission, accessed September 2, 2010, <http://www.tennessee.civilwarsourcebook.com/>.

⁸ "The Robert Allen Family," Tin Type Shop website, accessed September 2, 2010, <http://www.thetintypeshop.com/family/Douglas/Surnames/AtoC/A/Allen/allenhstory.htm>.

⁹ One source, *The Biographical Directory of the Tennessee General Assembly*, has James Allen, Jr.'s mother as Mary Baker. Family history on the Tin Type Shop website and Century Farms file at the Center for Historic Preservation) and the 1850 census in Greene County have his mother as Laura Brown.

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in Greene County he found himself more successful in politics. He served in the Tennessee General Assembly from 1903 to 1907 and then from 1923 to 1925.¹⁰ As a farmer, Allen expanded his operations by adding new bred cattle, and a new stock barn, which was partially in reaction to new agricultural markets but also part of the family rebuilding part of the farm after a 1901 flood. During the 1920s, Allen also became interested in the potential of two new agricultural products, burley tobacco and modern dairy production, then being introduced in Greene County. Allen and his wife Elizabeth had no children but they had raised the wife's nephew, George Leo Birdwell, Sr. and her two nieces, Elizabeth and Louise Birdwell, and increasingly the nephew and nieces operated the farm. In 1928, Allen okayed George Birdwell's decision to add a dairy business to the farm. As part of its national expansion, the Pet Milk Corporation had just opened a new huge processing plant in Greeneville and company officials were actively recruiting farmers to go into the business and to produce Grade B milk for the factory, where it could be converted into such manufactured products as Pet Evaporated Milk. Beginning in 1928, Birdwell not only signed a contract to deliver his own milk to the factory, he also developed several milk routes, hauling his neighbors' milk as well as his own to the Pet Milk plant. (See Figure 4.) He initially used existing stock barns for his dairy operations; as state and federal regulations tightened after World War II, he formally converted a log crib into a dairy barn c. 1950. (#11)

In 1932, in the midst of the Great Depression, the federal government in partnership with the University of Tennessee Extension Service opened a 325-acre Burley Tobacco Demonstration Farm in Greeneville. This station encouraged local farmers to grow burley tobacco as an important cash crop. Within a decade two barns at the Allen-Birdwell Farm were dedicated to the curing of the annual burley crop. A 1840s barn was converted to use for tobacco around 1930 and a new tobacco barn was erected around 1940 (#12 and 13).

In 1934, the Allen-Birdwell Farm left the Allen name for the Birdwell name as niece Louise Birdwell, who had married Otis Harrison, became the next family owner of the farm. The Harrisons and George Birdwell built the first burley barns, meeting with immediate success as Greeneville burley prices in 1936 were the highest since the end of World War I.¹¹ Burley production helped the family during the Depression decade and into the 1940s. By the end of that decade, the family had added a new burley barn located near the fields in the southern end of the farm. During World War II, dairy production also increased as Pet Milk increased production to meet wartime demands, especially for milk products that could be shipped across the nation and into international markets.¹²

In 1952, George Leo Birdwell, Sr., obtained total control of the farm. When Pet Milk celebrated the 25th anniversary of its factory in 1953, it highlighted the contributions of George Birdwell. Its company publication noted:

George Birdwell brought his first load of milk to Greeneville on March 15, 1928. On that day he had five patrons who shipped 148 pounds of milk. The Birdwells themselves sold 29 pounds on that first day, and have been selling ever since. Today they are milking a large number of cows on their farm. Even though George himself has not driven his route in recent years, he always has supervised it

¹⁰ *Biographical Directory of the Tennessee General Assembly, III (1901-1931)* (Nashville: Tennessee Historical Commission, 1988), 11.

¹¹ Tom Lee, *The Tennessee-Virginia Tri-cities: Urbanization in Appalachia, 1900-1950* (Knoxville: University of Tennessee Press, 2005), 179.

¹² "25 Years of Progress in Dairying at Greeneville, 1928-1953," *Pet Dairy Chats* (March 1953).

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carefully, keeping in daily contact with his drivers. In addition to being a successful route owner, George also is a dairy farmer. He has sold milk from his farm near Allen's Bridge every day since the plant opened. „Selling milk has meant a better standard of living for our family, better furnishings for our home and more good equipment on the farm," George states. „Dairying helps to keep good tenants, and milk cows have improved our land greatly."¹³

The farm's leadership in dairy production, along with its adoption of burley tobacco production in the 1930s, marks it as a significant contributor to the county's agricultural history, as Greene County shifted from row crops and general livestock to producing specialized products, Grade B milk and tobacco for cigarettes, that were popular in the region's and nation's growing urban areas.

George Birdwell owned the property until his death in 1962 when the property passed to his wife Julia Gladys Russell Birdwell. She took ownership of about 1200 acres. During this time, they continued to produce dairy, tobacco, corn, wheat, and beef cattle. In 1973, George and Julia's son Jay Birdwell took over ownership of the farm. Jay and his wife Ann reside in the historic home and currently manage the operations of the farm, now with about 200 acres. Additional family members live on adjacent parcels and assist with these operations. The Birdwells currently produce sweet corn, fresh-water prawns, cattle, and tobacco. They recently opened the farm as an agritourism site in Greene County. The historic granary has been converted into a small gift shop and events such as wedding and community gatherings take place on the farm. The Birdwells have worked to uncover original elements of the historic farmhouse, such as the hardwood floors and historic woodwork. Their events highlight this history of the property as a working Tennessee farm.

¹³ Ibid, 21.

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10. GEOGRAPHICAL DATA

Verbal Boundary Description

The nomination property consists of 176 acres identified as parcel 156 002.00 on the attached Greene County Tax Map.

The nominated property is bounded roughly on the north by West Allen's Bridge Road and Meadow Creek; on the east by the Nolichucky River; and on the south and west by adjacent agricultural parcels.

Verbal Boundary Justification

The nominated property contains all of the extant acreage historically associated with the property.

See Figure 1

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PHOTOGRAPHS

Photographer: Elizabeth Moore
Middle Tennessee State University, Center for Historic Preservation
Murfreesboro, TN 37132
Date: December 2010
Digital Files: Tennessee Historical Commission
2941 Lebanon Rd.
Nashville, TN 37243-0442

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| 1 of 44 | Allen-Birdwell House, North façade, photographer facing south. |
| 2 of 44 | Allen-Birdwell House, North façade, entrance detail, photographer facing south. |
| 3 of 44 | Allen-Birdwell House, East elevation, photographer facing west. |
| 4 of 44 | Allen-Birdwell House, South elevation, photographer facing north. |
| 5 of 44 | Allen-Birdwell House, West elevation, photographer facing east. |
| 6 of 44 | Allen-Birdwell House, Stair Hall, photographer facing north. |
| 7 of 44 | Allen-Birdwell House, Stair Hall, photographer facing south. |
| 8 of 44 | Allen-Birdwell House, East Parlor, photographer facing southeast. |
| 9 of 44 | Allen-Birdwell House, West Parlor, detail of fireplace mantel, photographer facing west. |
| 10 of 44 | Allen-Birdwell House, West Parlor, detail of ceiling light, photographer facing west. |
| 11 of 44 | Allen-Birdwell House, Upstairs Stair Hall, photographer facing northeast. |
| 12 of 44 | Allen-Birdwell House, Upstairs Stair Hall, photographer facing southwest. |
| 13 of 44 | Allen-Birdwell House, East Bedroom, photographer facing northwest. |
| 14 of 44 | Allen-Birdwell House, West Bedroom, photographer facing west. |
| 15 of 44 | Allen-Birdwell House, Den/Hyphen, photographer facing southwest. |
| 16 of 44 | Allen-Birdwell House, Dining Room, photographer facing southeast. |

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| 17 of 44 | Allen-Birdwell House, Dining Room, detail of box stair, photographer facing north. |
| 18 of 44 | Allen-Birdwell House, Dining Room, detail of built-in cabinet, photographer facing south. |
| 19 of 44 | Allen-Birdwell House, Kitchen, photographer facing northeast. |
| 20 of 44 | Allen-Birdwell House, East Porch, photographer facing southwest. |
| 21 of 44 | Allen-Birdwell House, Laundry Room, photographer facing southwest. |
| 22 of 44 | Allen-Birdwell House, Office, photographer facing south. |
| 23 of 44 | Allen-Birdwell House, Bath, photographer facing north. |
| 24 of 44 | Allen-Birdwell House, Hall/Hyphen, photographer facing southeast. |
| 25 of 44 | Allen-Birdwell House, Bath/Hyphen, photographer facing northeast. |
| 26 of 44 | Allen-Birdwell House, Middle Bedroom, photographer facing northeast. |
| 27 of 44 | Allen-Birdwell House, Middle Bedroom, detail of fireplace, photographer facing south. |
| 28 of 44 | Allen-Birdwell House, South Bedroom, photographer facing northwest. |
| 29 of 44 | Well House (#2), photographer facing south. |
| 30 of 44 | Smokehouse (#3), photographer facing southeast. |
| 31 of 44 | Restroom (#9), Shed (#8), Granary (#6), Equipment Shed/Garage (#5), photographer facing north. |
| 32 of 44 | Granary (#6), photographer facing east. |
| 33 of 44 | Granary (#6), Raised Walkway (#7), Shed (#8), photographer facing northeast. |
| 34 of 44 | Restroom (#9), photographer facing southeast. |
| 35 of 44 | Stock Barn (#10), photographer facing south. |
| 36 of 44 | Dairy Barn (#11), photographer facing northwest. |
| 37 of 44 | Burley Tobacco Barn (#12), photographer facing northeast. |
| 38 of 44 | Burley Tobacco Barn (#13), photographer facing north. |

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- 39 of 44 Tenant House (#14), photographer facing east.
- 40 of 44 Cattle Raising Complex (#15), photographer facing east.
- 41 of 44 Burley Tobacco Barn (#16), photographer facing north.
- 42 of 44 Agricultural Landscape (#17), photographer facing east.
- 43 of 44 Field Patterns (#17), photographer facing north.
- 44 of 44 Agricultural Landscape (#17), detail of ponds, photographer facing northeast
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Figure 1. Tax map.

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Transformation of the Nolichucky Valley, 1776-1960, Greene and
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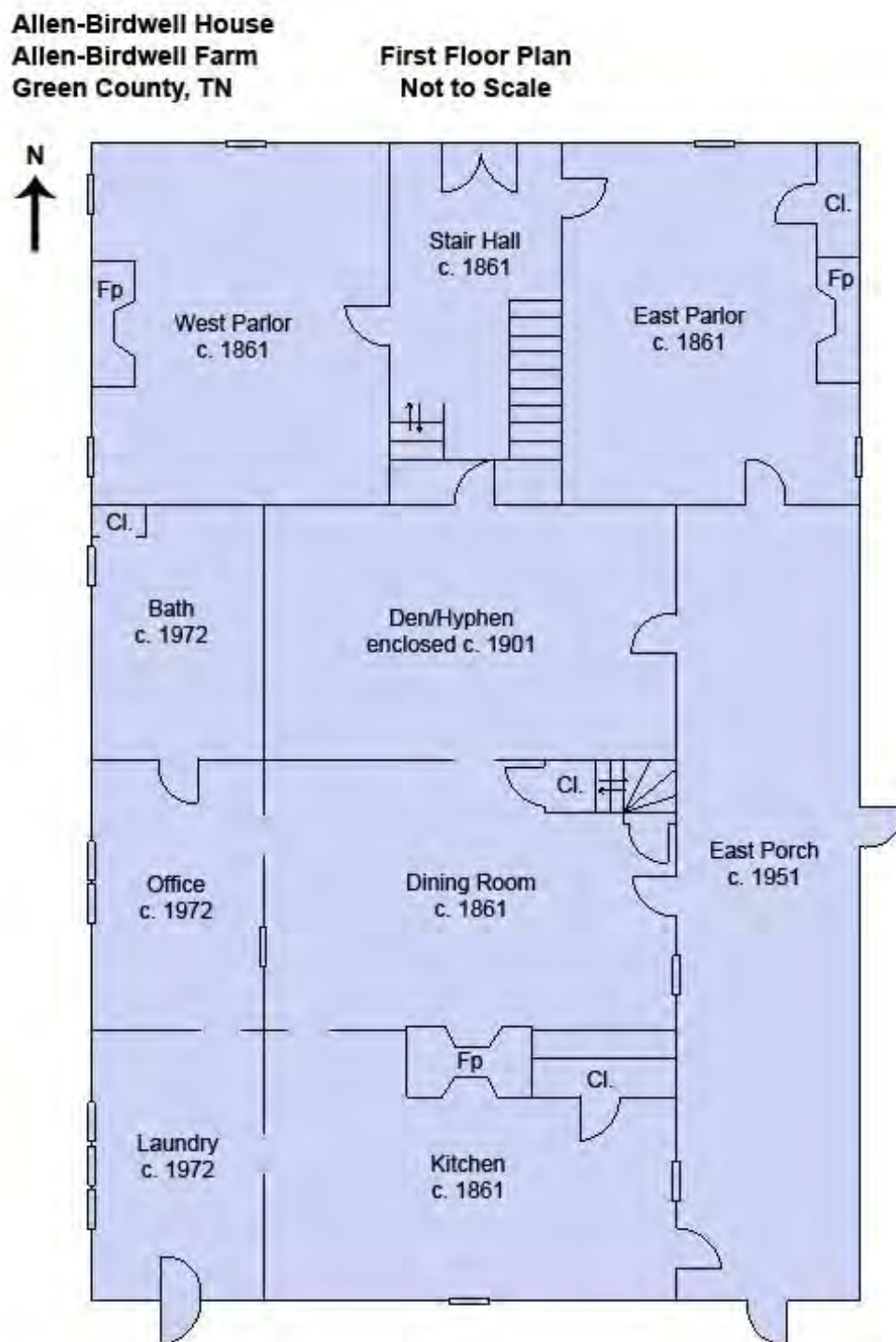


Figure 2.

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

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Allen-Birdwell Farm, Greene County, TN
Transformation of the Nolichucky Valley, 1776-1960, Greene and
Washington Counties, TN

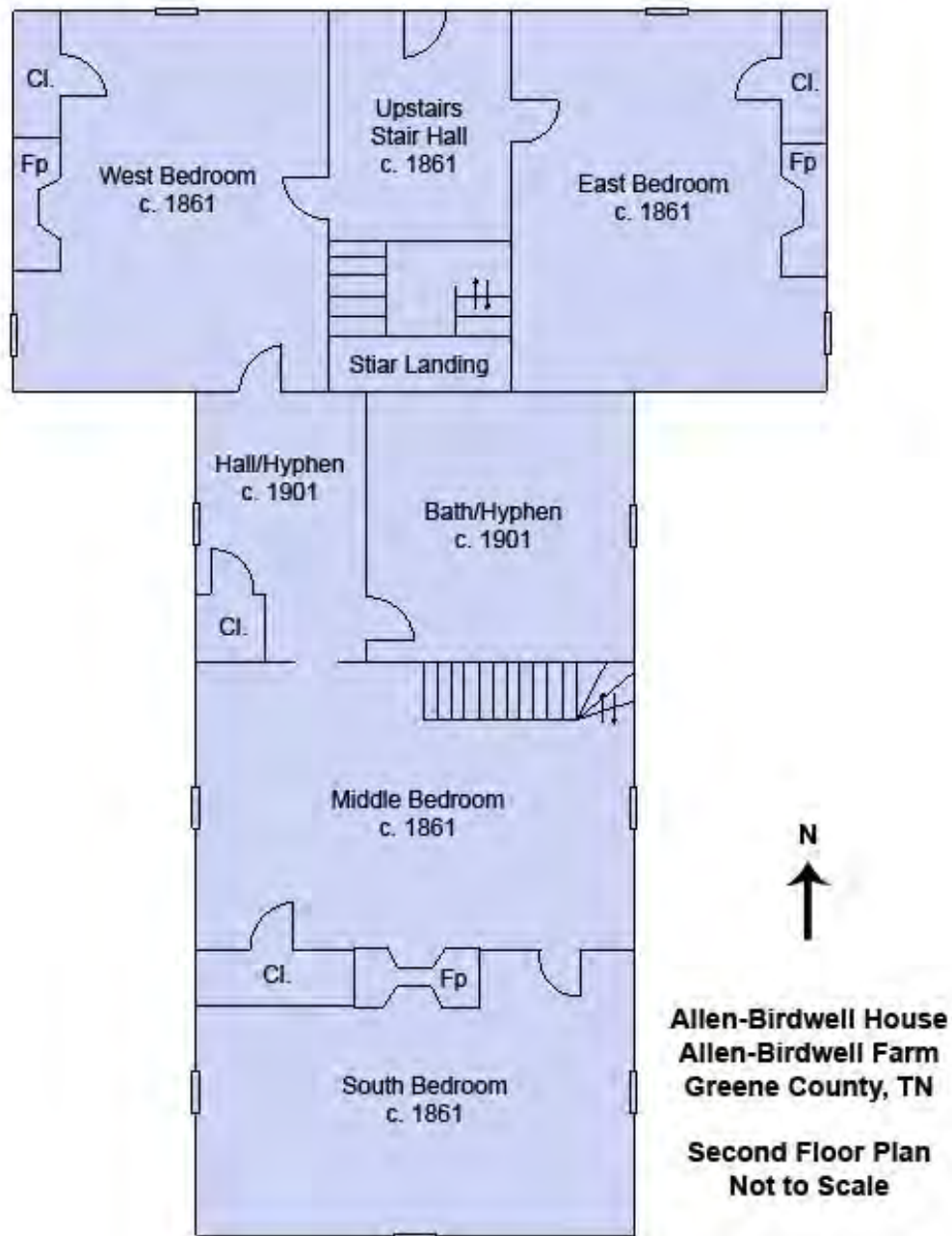


Figure 3.

United States Department of the Interior
National Park Service

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Figure 4. Aerial overview of Pet Milk Plan, Greeneville, 1947, TSLA Collections.

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Figure 5.

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National Park Service

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Figure 6.

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form*. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions.

1. Name of Property

Historic name Allen House (boundary increase and additional documentation)
Other names/site number Allendale Farm (preferred)
Name of related multiple property listing Historic Family Farms in Middle Tennessee
(Enter "N/A" if property is not part of a multiple property listing)

2. Location

Street & Number: 2401 and 2409 Allen Griffey Road
City or town: Clarksville State: Tennessee County: Montgomery
Not For Publication: ☐ NA Vicinity: ☒ x

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,
I hereby certify that this ☒ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property ☒ meets ☐ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

☐ national ☒ statewide ☒ local

Applicable National Register Criteria: ☒ A ☐ B ☒ C ☐ D

E. Patrick McElroy, Jr.

Signature of certifying official/Title:

February 1, 2013

Date

State Historic Preservation Officer, Tennessee Historical Commission

State or Federal agency/bureau or Tribal Government

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria.

Signature of Commenting Official:

Date

Title:

State or Federal agency/bureau or Tribal Government

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4. National Park Service Certification

I hereby certify that this property is:

- ☒ entered in the National Register
☐ determined eligible for the National Register
☐ determined not eligible for the National Register
☐ removed from the National Register
☐ other (explain:)

Joe Edson R. Beall
Signature of the Keeper

3.27.13
Date of Action

5. Classification

Ownership of Property

(Check as many boxes as apply.)

- Private ☒
Public – Local ☐
Public – State ☐
Public – Federal ☐

Category of Property

(Check only **one** box.)

- Building(s) ☐
District ☒
Site ☐
Structure ☐
Object ☐

Number of Resources within Property

Contributing	Noncontributing	
0	0	buildings
4	0	sites
8	3	structures
0	0	objects
12	3	Total

Number of contributing resources previously listed in the National Register

4 (2 buildings; 2 structures)

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6. Function or Use

Historic Functions

(Enter categories from instructions)

DOMESTIC: secondary structure

AGRICULTURE: Agricultural field

AGRICULTURE: Storage

AGRICULTURE: Animal Facility

AGRICULTURE: Agricultural Outbuilding

Current Functions

(Enter categories from instructions)

AGRICULTURE: Agricultural field

AGRICULTURE: Storage

AGRICULTURE: Animal Facility

AGRICULTURE: Agricultural Outbuilding

7. Description

Architectural Classification

(Enter categories from instructions.)

MID 19TH CENTURY: Federal

NO STYLE

Materials: (enter categories from instructions.)
Principal exterior materials of the property:

BRICK, STONE, CONCRETE, WOOD: log, WOOD:
weatherboard

Narrative Description

The Allen House (boundary increase and additional documentation) is located along Allen Griffey Road in northern Montgomery County, Tennessee.¹ The boundary increase encompasses 310.42 acres divided into two agricultural parcels. Along with the 3.9 acres previously listed in the National Register in 1978 (NR #78002619), the entire property totals 314.32 acres. Allendale Farm is bounded on the west by Peachers Mill Road, now a relatively busy road connecting Clarksville to the south with the northern portion of the county. On the south is Allen Griffey Road and on the north is West Boy Scout Road. The eastern portion of the property is set within the bend of the west fork of the Red River. Agricultural land is located on adjacent property to the north and southeast of the boundary increase. The previous nomination includes four resources identified in the current inventory as the Allen House (Resource #1 as included in proposed boundary increase nomination), the Log House (Resource #2), the c. 1950 Tractor Shed (Resource #5), and the c. 1880 Servants Quarters (Resource #6). This nomination includes additional information pertaining to

¹ Whereas the entire property as listed in 1978 is referred to as the "Allen House," this nomination refers to the main house as the Allen House, and the larger property as Allendale Farm. Although the farm was not formally given the name Allendale until 1928, the nomination henceforth refers to it as such. No other formal names have been documented.

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these four resources. The 3.9-acre property presently listed on the NR roughly encompasses what is being referred to in this nomination as the domestic complex (*see* Site Plan). In addition to the four resources from the previous nomination, the domestic complex also includes historic landscape features and fences that are part of the overall contributing landscape. Within the boundary increase are twelve additional contributing resources and one additional non-contributing resource. With its intact domestic buildings, agricultural structures, and landscape, Allendale Farm retains a high degree of integrity of material, design, workmanship, location, setting, feeling, and association.

The domestic complex is situated in the south central portion of the larger property. The Allen House (Resource #1) faces south toward Allen Griffey Road and consists of an 1858 Federal I-house connected to an original c. 1800 log house via a 1919 frame hyphen. The c. 1800 secondary log house (Resource #2) is located west of the main brick house. This log house was originally located approximately one-half mile north on the property, but was moved to its current location in 1976 when it was adapted for use as a modern home. The previously listed c. 1880 servants' quarters (Resource #6) and c. 1950 tractor shed (Resource #5) are located directly northeast of the Allen House (Resource #1). A non-contributing c. 1985 garage (Resource #3) and 1991 pool (Resource #4) are located within the domestic complex directly east of the secondary log house (Resource #2) and within the boundaries of the currently listed 3.9-acre property.

The agricultural landscape that makes up the boundary increase spreads west, north, and east from the domestic complex and the additional resources are scattered throughout. Clustered just west-northwest of the domestic complex are a c. 1900 tenant house (Resource #7), a c. 1890 tenant house (Resource #8), a 1947 stock barn (Resource #9), one c. 1945 pond (Resource #14), and a c. 1960 horse ring (Resource #13). Toward the southwestern corner of the boundary increase is an 1887 railroad bed (Resource #16). 1948 field terracing (Resource #15) and two additional 1948 ponds (Resource #14) are located in the northern and western sections of the agricultural landscape. A c. 1800 slave cemetery (Resource #12) is located north of the main house and George Allen's 1847 gravesite (Resource #11) is located in the northeastern section of the property. A c. 1990 non-contributing storage shed (Resource #10) is located just east of the stock barn. These resources are all relatively intact. The tenant houses are no longer used for occupation, but retain their historic forms and materials. The railroad has been removed, but the roadbed is clearly visible in the landscape. It is likely that the slave cemetery once had more fieldstone markers, but remnants remain of the rough grave markers.

The associated landscape elements of both the domestic and agricultural complexes add to its significance and setting and are part of both the additional documentation and boundary increase of this nomination. These features include the drives, fields, pastures, tree lines, fences, gates, and farm roads throughout the property. The domestic complex is accessed via a gravel drive extending from Allen Griffey Road. The drive extends east from the road, then turns north toward the domestic complex (Photo #1). Just southeast of the log house, the drive turns east and then circles in front of the domestic complex (Photo #2). Along the drive are mature trees, both natural and planted in rows. A secondary gravel drive is accessed on either side of the domestic complex from the main drive (Photo #53). It runs along the rear of the domestic complex, forming a dividing line between domestic and agricultural spaces, and heads east and north into the agricultural landscape. Both drives appear to follow historic patterns, although their dates of construction are unknown. The Allen House and associated domestic complex sit on a high knoll facing south toward a bend in the west fork of the Red River. A stone wall, likely dating to the mid-nineteenth century with the construction of the 1858 brick house, lines the yard in front of the main house. Mature trees dot the landscape of the entire nominated property, dating from the early settlement period to present. The

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agricultural land extends to the west, north, and east of the main domestic complex. The landscape consists largely of rolling fields with clusters and rows of mature trees separating sections of field. Many of the clusters of trees have grown naturally, while some rows were planted in the early to mid-twentieth century. Terracing is extant throughout the landscape, and is particularly visible in the fields to the north and northwest of the domestic complex.

Because this nomination is not only for a boundary increase, but also for additional documentation, the following inventory not only includes the additional resources but also includes a more thorough architectural description for the four currently listed resources than previously provided on the 1978 nomination.

1. Allen House (c. 1800, 1858, 1919, 1976, c. 2000, contributing building) (NR-listed 1978)

The Allen House is a two-story Federal I-house following a center-hall plan. The building features a brick foundation, brick walls laid in a common bond pattern, a side-gable composite shingle roof, and two interior brick end chimneys. Primary Federal features of the house include its five-bay symmetrical façade, prominent, central one-story porch, and historic six-over-six, double-hung wood sash windows. Attached to the rear of the 1858 dwelling is a 1919 hyphen connecting to a c. 1800 log house that is original to the property and sits in its original location. The hyphen rests on a brick foundation, has board-and-batten walls, and a composite shingle gable roof. The log house sits on a brick foundation, has board-and-batten walls, a composite shingle gable roof, and a stone exterior end chimney on the east side. The board-and-batten walls of the hyphen and log house, the brick foundations of all sections, and the brick porch foundation of the 1858 house are all 1950s changes to the home. Attached to the rear, or north, end of the log house is a 1976 addition with a brick foundation, board-and-batten walls, and a composite shingle gable roof. A c. 2000 garage is attached to the rear of the 1976 addition and has a brick foundation, board-and-batten walls, and a composite shingle gable roof.

Exterior

The five-bay south façade of the 1858 dwelling has a central entrance bay consisting of a one-story centered porch with simple square wood columns and a hipped roof (Photo 3). In the 1950s the platform of the porch was enlarged to extend almost the full-width of the facade and its original wood flooring was replaced with brick on a brick foundation at this time. The historic porch columns, openings, and roof remain intact. These materials are thought to date to 1858, and no documented evidence has been found to the contrary. Brick steps lead up to the porch. The central two-light, two-panel, wood door is set within a simple Federal surround with a two-light transom and four-light sidelights with a single wood panel below (Photo #4). Square, wood pilasters separate the entry door and flanking sidelights. Centered above the door is a single six-over-six, double-hung wood sash window with smooth limestone sills and lintels. Bays on either side of the central entry bay on both floors are occupied by identical windows. All of the windows are historic and are flanked by historic wood shutters.

The west elevation consists of the gable end of the 1858 brick house, the 1919 hyphen, the gable end of the c. 1800 log house, the 1976 addition, and the c. 2000 garage (south to north) (Photo #5). The gable end of the 1858 brick house is a plain brick elevation with a cornice return and interior end chimney. The one-story 1919 hyphen has two six-over-six, double-hung, wood sash windows with exterior storm windows and an original single-light wood door. The end gable of the c. 1800, one-and-one-half story log house faces west and features overhanging eaves, a single off-center six-over-six, double-hung wood sash window with an exterior storm window on the first floor, and a single, off-center four-light casement window in the half

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story. A rectangular wood vent is located between the upper window and the roofline. The one-story 1976 board-and-batten addition features two six-over-six, double-hung wood sash windows with exterior storm windows. There are two modern vents at the basement level. The one-story garage consists of three bays. The central bay has a double-door entrance with nine-light metal panel doors. Flanking the central bay are window bays with six-over-six, double-hung metal sash windows. A full-front, shed-roof porch is supported by simple wood posts with wood braces.

The rear, or north, elevation consists of the rear of the 1858 brick house and the rear of the c. 2000 garage (Photos #6 and #7). On the north elevation of the 1858 brick house, the first and fifth bays (from west to east) are exposed on the first floor. On the west side there is a six-over-six, double-hung wood sash window. On the east side is a two-light, two-panel wood door with brick steps. On the upper story, the first, second, fourth, and fifth bays are exposed and have six-over-six, double-hung wood sash windows. On the west side of the brick house is an in-ground cellar entrance with a raised-seam metal opening. The rear of the garage has a six-over-six, double-hung metal sash window on the first floor and a six-over-six, double-hung metal sash window in the attic.

The east elevation consists of the c. 2000 garage, the 1976 addition, the gable end of the c. 1800 log house, the 1919 hyphen, and the gable end of the 1858 brick house (north to south) (Photo #7). The east elevation of the garage addition contains two modern metal garage doors and a nine-light wood panel door. The 1976 addition has two six-over-six, double-hung wood sash windows with exterior storm windows. The c. 1800 log house features an original central stone exterior end chimney. On either side of the chimney on the first story are four-over-four, double-hung wood sash windows with exterior storm windows. On the upper story are two four-light wood casement windows. The east elevation of the 1919 hyphen projects slightly from the log house. It has a single eight-over-eight, double-hung wood sash window on the north side, a narrow three-light wood window on the south side, and a wood cellar entrance. The gable end of the I-house is a plain brick elevation with wood cornice returns.

Interior

The interior of the I-house retains its original central hall floor plan. The central hall is ten feet wide and the flanking rooms are sixteen feet square. The hall has relatively wide wood baseboards and ceiling molding (Photo #8). The hall retains original plaster walls and ceiling material. The wood floors were replaced c. 2000. The straight stair runs along the west wall of the hall and has a tapered wood newel post and simple wood railing with square balusters. A single wood panel door is located on the east wall of the hall and a single cased opening is located on the west wall. The door and opening feature identical simple wood surrounds and lead to the master bedroom to the east and the parlor to the west. An opening with simple heavy wood surrounds leads to the 1919 hyphen. Behind the stairs is a vertical beaded-board door leading to the basement. The stairs, baseboards, molding, and door surrounds appear to be original, as do the materials in the flanking rooms. The ceiling molding is identical throughout the first floor of the 1858 brick house, and the baseboards match in the hall and master bedroom. The baseboards of the parlor are slightly more decorative in their molding profile, suggesting a more formal space.

The first floor master bedroom has carpet covering the historic wood floors, wallpaper, and a plaster ceiling (Photo #9). The original fireplace has a brick hearth, brick firebox, and classical wood mantel with arched opening. Wood paneling fills the space above the fireplace. Small modern wood closets flank the fireplace. Two windows are located on the south wall. On the west side of the north wall, a wood panel door leads a bathroom. On the east side of the north wall, a two-light wood panel door leads to the outside.

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The first floor west parlor has wood floors that were replaced c. 2000, a plaster ceiling, and plaster walls covered in wallpaper (Photo #10). The wood floors match those of the hall, but are laid perpendicular. The fireplace has a tile hearth and has been converted to gas. The wood mantel is classical in style with an arched opening, similar to the mantel in the master bedroom. There are two original wood windows on the south wall. An open doorway on the north wall leads to the 1919 hyphen.

The stair extends straight to the second story. The stairs and the upstairs hall are carpeted but original wood floors remain underneath (Photo #11). On the south wall of the upstairs hall is the original wood window. Original four-panel wood doors lead to the upstairs bedrooms on the east and west walls of the hall. The wood baseboards and ceiling molding are simpler upstairs, but the door and window surrounds are the same. The hall and flanking rooms retain original baseboards, ceiling molding, and door and window surrounds.

The east bedroom has carpeted floors with the original wood floors underneath, wallpaper covering the plaster walls and a plaster ceiling (Photo #12). On the east wall is a fireplace with a glazed brick hearth and a brick firebox. The wood mantel is classical in style and has a simple flat opening as opposed to the arched mantel openings seen on the first floor. Modern closets flank the fireplace. Two windows are located on each the north and south walls.

The west bedroom (Photo #13) mirrors the east bedroom. It has carpeted floors with the original wood floors underneath, wallpaper covering the plaster walls, and a plaster ceiling. The fireplace and surround are identical to that in the east bedroom.

The basement of the I-house has been finished and is used as a recreation room. It has brick walls, a poured concrete floor, and an unfinished ceiling.

The 1919 hyphen consists of three rooms, a dining room, a small kitchen, and a bathroom. Occupying the west side is the dining area and on the east side are the kitchen and the bathroom. The dining room has a c. 2000 wood floor with simple 1919 wood baseboards (Photo #14). The dining room and kitchen have plaster walls and ceilings. There is no ceiling molding in this room. On the south wall is an open doorway leading to the hall of the 1858 house and an entrance to the parlor of the 1858 house. The openings have simple wood surrounds dating to 1919. On the east wall, a wood panel door leads to the small bathroom and a cased opening leads into the kitchen. On the west wall are two wood windows with simple wood surrounds and a wood door with simple wood surrounds leading to the outside. The kitchen has a linoleum floor and modern cabinets and appliances. On the east wall of the kitchen is a wood window with simple wood surrounds. On the north wall of the dining room is a cased opening with two steps leading up to the c. 1800 log house.

The interior of the log house is currently used as a den (Photos #15 and #16). It has wood floors that were installed over the original flooring in 1919. The walls are beaded vertical board and the ceiling is beaded board with exposed beams. The southwest corner of the log house has been converted into a bar area. On the west wall there is a single wood window with simple wood surrounds and a beaded board door with three steps that lead to a box staircase to the second story. Underneath the stairs is a small closet. On the east wall of the house is the fireplace that has a brick hearth, a brick fireplace with concrete facing, and a large wood mantel. Flanking the fireplace are two original wood windows with wood surrounds. An open doorway on the north wall of the main floor leads to the 1976 addition.

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The upper level of the c. 1800 one-and-one-half story log house has stuccoed walls (Photo #17). On the east and west walls are two four-light wood windows. A beaded-board closet is located on the north wall east of the stairway. On the south wall is an opening that is said to have been used as a rifle mount.

The 1976 addition consists of a hallway leading to a laundry room (Photo #18). Both have linoleum floors and wallpapered drywall walls. The hallway has a door to a bathroom on the west wall and a door to a bonus room on the east wall. The bonus room floor is carpeted and has wallpapered drywall walls (Photo #19). All of the windows are wood with simple wood surrounds. The laundry room has modern cabinets and appliances. On the north wall of the laundry room is a wood door leading to the c. 2000 garage.

The garage has a poured concrete floor, drywall walls and ceiling with an unfinished attic above (Photo #20). On the east wall are two modern garage doors and a wood door with simple wood surrounds. On the west wall are double doors and small wood windows on either side of the doors. All the doors and windows on the west wall have simple wood surrounds.

2. Log House (c. 1800, 1976, c. 1985, contributing building) (NR-listed 1978)

The original c. 1800 log house is a thirty-by-twenty-foot rectangular, one-and-one-half story, two-room hewn log structure with dovetail corner notches. It faces south and has a three-bay, two-room plan with a stone foundation and a side gable roof with composite shingles. The house once had two exterior stone chimneys on each gable end; however, the eastern end chimney is no longer extant. The log house originally stood approximately one-half mile to the northeast on part of the Allen farm, but was moved to its present location in 1976 in order to restore and inhabit the house. Following the relocation of the log house, a 1976 one-story board-and-batten irregular addition was attached to the north elevation of the log house, adding a living room, kitchen, two bedrooms, bathroom and a laundry/utility room. The addition sits on a brick foundation, has board-and-batten walls, and a composite shingle roof. A sunroom was added in c.1985 and projects from the east elevation. It also has a brick foundation, board-and-batten walls, and a composite shingle roof. At approximately the same time the sunroom was added, a small wood deck was added to the west elevation. Although large, the later additions are clearly distinguished from the original log dwelling and do not detract from the historic character of the original portion of the home. All but the c. 1985 sunroom and wood deck were present when the Allen House property was originally listed on the National Register of Historic Places.

Exterior

The façade features a full-front stone porch added in 1976 with four simple wood square posts supporting a shed roof with composite shingles and exposed rafter tails (Photo #21). The porch ceiling joists are exposed underneath. The central bay consists of a single-leaf vertical plank wood door with simple wood surrounds. The door is protected by a metal storm door. The door is flanked by six-over-six, double-hung wood sash windows with simple wood surrounds. The door and windows are historic. The windows are protected by metal storm windows. The south wall of the c. 1985 sunroom addition is set back but visible on the south façade. There is a set of three, eight-light casement windows on this wall (Photo#24).

The west elevation features the gable end of the c. 1800 hewn log house and the 1976 addition (from south to north) (Photo #22). The centrally located exterior end stone chimney is a prominent feature on the west elevation of the c. 1800 hewn log house. There is a metal opening at the bottom of the chimney once used to remove coals. Metal vents are located in the foundation on either side of the chimney. Board-and-batten siding covers the original hewn logs. The gable field is covered in horizontal wood siding. Original four-

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over-four, double-hung wood sash windows are located in the gable field on either side of the chimney. The 1976 addition forms an H with the c. 1800 hewn log house and rests on a brick foundation. The middle section is slightly recessed and has two bays, which consist of a single-leaf, six-light, two-panel wood door protected by a metal storm door and a pair of one-over-one, double-hung wood sash windows located to the right of the door. A canvas awning is located above the single-leaf door. A c. 1985 wood deck is located off of the slightly recessed, middle section. The one-story gable end section on the northernmost end of the 1976 addition has two asymmetrical one-over-one, double-hung wood sash windows and a wood vent located below the roofline.

The log exterior of the upper half-story of the c. 1800 hewn log house on either side of the 1976 addition is visible from the north elevation. The rear of the 1976 addition has two bays, which consist of two one-over-one, double-hung wood sash windows with applied muntin and rail grids to give the appearance of a nine-over-nine, double-hung sash window (Photo #23). A c. 1985 sunroom is set back on the east side of the 1976 addition. A bay window, consisting of four eight-light casement windows is located on the north elevation of the c.1985 sunroom addition.

The northernmost end of the eastern elevation is the 1976 gable end section (Photo #23). It features a set of sliding metal-and-glass doors with a canvas awning above the doors. Brick steps lead to the sliding glass doors. A one-over-one, double-hung wood sash window, protected by a metal storm window, is located to the left of the sliding glass doors. A wood vent is located below the roofline. A c. 1985 sunroom addition projects from the center of the east elevation (Photo 24). Stone and brick steps lead to what was originally sliding glass doors. The sliding glass doors are now a single-leaf door and a large full-height fixed window. The southernmost end of the eastern elevation is the c. 1800 hewn log house, which rests on a stone foundation (Photo #24). It has original hewn log walls. The gable field is covered in horizontal wood siding. Four-over-four, double-hung wood sash windows are located in the gable field. Wood steps lead to a single-leaf door. A 1976 twenty-four light fixed window is located to the north of the door where a stone chimney was once located.

c. 1800 Log House Interior

On the first floor, the main entrance of the c. 1800 log house leads from the south to a living room with original wood floors and wood baseboards (Photos #26 and #27). The south, west and north walls are hewn logs, while the east wall is vertical beaded board paneling. The ceiling is the exposed, original wood floor of the second story. The ceiling joists are also exposed. On the south wall are the single-leaf vertical plank door (Photo #25) and the six-over-six window. A stone fireplace and hearth with an original heavy wood mantel is centered on the west wall of the living room. The fireplace has been converted to gas. Historic window and door openings are located on the north wall of the living room; the window and door were removed when the 1976 addition was attached to the north wall. Centered on the east wall is an opening into the dining room. In the northeast corner of the room is an opening to a box staircase that leads to the upper level.

The dining room features original wood floor and wood baseboards (Photo #28). The south, north and east walls are hewn logs, while the west wall is vertical beaded board paneling with a wood chair rail. The ceiling is the exposed, original wood floor of the second story. The ceiling joists are also exposed. A single window is located on the south wall. A cased doorway to the living room is located on the west wall. An open doorway into the kitchen of the 1976 addition is located on the north wall. The east wall once contained a stone chimney, but now contains a large fixed wood window where the chimney once was. A wood panel

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door has been added just south of the window. A box staircase enclosed with vertical wood boards is located in the northwest corner. Beneath the staircase there is a closet with a vertical plank wood door.

A wood box staircase with wood treads and risers and vertical board walls leads to the second floor, which contains two rooms with a wood board door connecting the rooms. The staircase terminates in the east room of the second floor, and a wood balustrade with simple square wood balusters and a simple wood handrail is on either side of the opening (Photo #29). The east room retains historic wood floors (Photo #30). The south, north, and east walls of the east room are hewn log and wallpaper, while the west wall contains vertical wood planks. The ceiling is plaster covered in wallpaper. The east wall contains two windows.

Aside from the box staircase, the west room mirrors the east room.

1976 Addition Interior

Steps lead down from doorways located on the north walls of the dining room and living room of the log house to the 1976 addition. Directly north of the log house is a large single room with a half partition wall dividing the kitchen and breakfast area on the east from the living room on the west (Photos #31 and #32). The south wall of this room is the log exterior of the c. 1800 log house. The remaining walls are covered in wallpaper. The ceiling is drywall. The west wall contains a single door and two windows. The north wall has an opening leading to a T-shaped hallway. On the east wall, wood steps lead down to the c. 1985 sunroom.

Wood steps lead up to the T-shaped hallway, which contains recent wood floors with wood baseboards and drywall walls and ceiling (Photo #33). A modern bathroom is located on the west side of the hallway, while a laundry/utility room with a linoleum floor and modern cabinets is located on the east side of the hallway. Bedrooms are located on either side of the end of the hallway. Both bedrooms have carpeted floors with wood baseboards, wallpapered walls, and a textured drywall ceiling (Photo #34).

c. 1985 Sunroom Addition Interior

Wood steps lead from the kitchen of the 1976 addition down to the c. 1985 sunroom addition (Photo #32). The sunroom has a tile floor and drywall walls and ceiling. The south wall contains a set of three windows. The west wall contains a door to the exterior. The north wall contains four windows.

3. Garage (c.1985, non-contributing building due to date)

Directly east of the c. 1800 log house (Resource #2) is a c. 1985 two-car garage (Photo #35). The garage is a one-story structure with board-and-batten siding, a brick foundation, and an interior poured concrete slab floor. It has a side gable roof with cedar shingles. It faces south and is located approximately 30 feet to the east of the log house. The south elevation has two bays consisting of two metal, modern garage doors. The north elevation has three bays consisting of a central, double-leaf, six-light metal door flanked by six-over-six double-hung wood sash windows. A brick patio connects the east elevation of the log house with the north elevation of the garage. The garage is non-contributing due to date of construction.

4. Pool (1991, non-contributing structure due to date)

A rectangular-shaped, in-ground pool is located to the east of the log house (Resource #2) and behind the garage (Resource #3) (Photo #35). A concrete patio surrounds the pool. The pool is non-contributing due to date of construction.

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5. Tractor Shed (c. 1950, contributing building) (NR-listed 1978)

A three-bay tractor shed is located just north of the main brick house (Resource #1). It has a dirt floor, vertical board walls, and a raised-seam metal roof with exposed rafter tails (Photo #36). The three open bays face south and currently house farm tractors and equipment. The shed was constructed c. 1950 as part of the mid-twentieth century progressive farm initiatives. It was included in the 1978 National Register listing, but was not identified as contributing or non-contributing. No changes to the structure are evident and the construction date falls within the revised period of significance.

6. Servants Quarters (c. 1880, contributing building) (NR-listed 1978)

A c. 1880 structure originally used as domestic servants' quarters (Photo #37) is located just east of the c. 1950 tractor shed (Resource #5) and northeast of the Allen House (Resource #1). It is a small side-gable building with a stone pier foundation, and a raised-seam metal roof. The exterior siding is a mixture of board-and-batten and vertical board covered with tar paper panels. A single, five-panel wood door is off-centered on the facade. East of the door is a four-light wood casement window. A modern, one-over-one double-hung metal sash window is located on the west elevation. Two round wood posts support a full-front porch. A mid-twentieth century lean-to with a raised seam metal roof and vertical wood board walls was added on the east side. The structure is currently used for storage. This structure was included in the previous National Register listing and, although it was not identified as contributing, its construction date fell within the original period of significance. No changes are evident following the previous nomination. This additional documentation seeks to expand upon the earlier nomination and more closely tie the structure to agricultural activities of Allendale Farm.

7. Tenant House (c. 1900, contributing building)

A c. 1900 structure originally constructed as a tenant house (Photo #38) is located north-northwest of the c. 1800 log house (Resource #2). It is a side-gable structure with a concrete block pier foundation and a raised-seam metal roof with exposed rafter tails. It appears that this structure may have originally been two separate structures, as indicated by the exterior wall materials. The exterior walls of the western half are tongue-and-groove horizontal wood boards and the walls of the eastern half are vertical wood boards. Both are intermittently covered with tar paper panels. The structure faces south and has two entrances on the south façade, a four-panel wood door and a two-panel wood door. On the west side of each door is a single four-over-four, double-hung wood sash window. The rear, or north, elevation also has two entrances; one is a vertical board door while a full-height one-over-one double-hung metal sash window has replaced the other door. The east gable end has a boarded window in the attic level. The west elevation has a four-over-four, double-hung wood sash window on the main level and in the attic level. Both windows are covered with metal storm windows. The structure is currently used for storage.

8. Tenant House (c. 1890, contributing building)

Just northwest of and across a gravel farm road from the c. 1900 tenant house (Resource #7) is a c. 1890 structure originally used as a tenant house (Photo #39). It faces east and is a side-gable structure on a stone pier foundation with an extended raised-seam metal roof with a cantilevered shed-roof porch. A metal chimney hood tops the center of the roof. The east façade is covered in board-and-batten siding and has two wood six-panel doors. The north, west, and south elevations are all covered in vertical board siding and raised-seam metal sheets. The west elevation has remnants of a six-panel wood door like that of the façade. The south gable end has a boarded doorway. The structure is currently used for storage.

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9. Stock Barn (1947, contributing building)

A 1947 stock barn is located directly west of the c. 1800 log house (Resource #2). The barn has a poured concrete foundation with dirt floors on the interior, vertical board walls, and a gambrel roof with one-story shed-roof lean-tos on either side (Photo #40). The entrances are located on the north and south gable ends of the structure. The north elevation has a centrally located vertical board sliding double-door entrance flanked by a six-light wood fixed window and a boarded window opening. The eastern shed-roof extension has a vertical board door and a two-light metal fixed window. The western shed-roof extension has a vertical board double-door entrance. The south elevation has a central vertical board sliding double-door entrance flanked by six-light fixed wood windows on either side. A hay hood is centered on this elevation. The shed roof extension on the south elevation each has a single-bay opening. The east and west elevations each contain bay opening to allow cattle into the enclosed fenced areas. The interior of the stock barn retains historic materials as seen in the vertical board double-doors at the main entrances, horizontal board walls, vertical board stall doors, and exposed roof structure (Photo #41). A variety of wood rail, metal wire, and metal rail fencing surrounds the stock barn to create pens for cattle and horses. The structure maintains its historic function as a stock barn.

10. Storage Shed (c. 1990, non-contributing building)

Just east of the stock barn (Resource #9) is a small storage shed dating to c. 1990 (Photo #42). It has a wood foundation, vertical board walls, and a composite shingle gambrel roof. A double-door vertical board entrance is located on the east side.

11. George Allen Gravesite (1847, contributing site)

The gravesite of George Allen is located in the northeastern portion of the property along the edge of a treeline. No marker is extant, but the grave is marked by rough cut stones set within a cluster of trees (Photo #43).

12. Slave Cemetery (c. 1800, contributing site)

A small, approximately 0.5-acre cemetery used for Allen family slaves is located on the property north of the main brick house (Resource #1). The cemetery is set within a grouping of trees (Photo #44). All graves are unmarked, although a few rough fieldstones still remain (Photo #45). The earliest burial date is unknown, but likely dates to the early nineteenth century. According to family oral tradition, the last burial took place in 1906.

13. Horse Ring (c. 1960, contributing structure)

A small c. 1960 oval-shaped wood rail horse ring (Photo #46) is located in the field directly north of the domestic complex.

14. Ponds (c. 1945, 3 contributing structures)

Three man-made ponds are located on the Allen property and were constructed c. 1945 as part of the progressive farming initiatives of the mid-twentieth century. The larger pond is located directly north of the stock barn (Resource #9), is roughly circular in shape, and is approximately 2.3 acres in size (Photo #47). The smaller two ponds are located in the north-central portion of the property. The northernmost pond is approximately 0.5 acres in size and is roughly oval in shape (Photo #48). The southernmost of the two smaller ponds is irregularly shaped and is approximately 0.6 acres in size (Photo #49). All ponds are still used by grazing cattle.

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15. Terracing (1948, contributing structure)

Terraced fields dating to 1948 are seen across the western half of the agricultural landscape (Photos #50 and #51). The terracing was constructed as part of the soil conservation initiatives in the mid-twentieth century and continues to aid in preventing soil erosion.

16. Railroad Bed (1887, contributing site)

In the southwest corner of the property, remnants of an old railroad bed are still visible running on a southeast to northwest diagonal (Photo #52). Although no tracks are extant, the rail line once ran approximately 850 yards through the Allen property and was 100 feet wide. The path of the rail line is clearly visible through the landscape. Located at the northwest end of the rail line on the Allen property is a spot of gravel where the rail station once stood. The rail line was originally constructed in 1887, but was abandoned by the railroad in 1933. The track was mostly removed during World War II metal drives.

17. Agricultural Landscape (1796-1963, contributing site)

In addition to the terracing and ponds, the agricultural landscape includes fields, pastures, tree lines, fences, gates, hay enclosures, drives, and farm roads throughout the property (Photos #53-58). Stone, wood, metal, and wire fences are found throughout the property, as are dirt farm roads. Agricultural fields are located to the west, north, and east of the main domestic complex. These elements of the agricultural landscape are integral to the operation of a working farm and complement the built components.

As previously discussed, the historic portions of the main Allen house (Resource #1) have seen few changes on either the exterior or interior. In addition to the intact floor plans of the 1858 I-house, c. 1800 log house, and 1919 hyphen the dwelling retains original (to the three periods of construction) windows, doors, wood trim, window and door surround, mantels, plaster walls, and ceiling. The 1976 and c. 2000 additions are attached to the rear of the structure and are historically sensitive on the exterior and clearly distinguished from the historic sections on the interior. They have lower profiles, do not overwhelm the integrity of the primary home, and are constructed in a way that, if removed, would not substantially destroy historic fabric. The only major change to the structure since the previous 1978 nomination is the c. 2000 rear garage addition.

The secondary c. 1800 log house (Resource #2) also retains a substantial amount of original material as seen in the original rough-hewn log walls, entrance door, windows, stone chimney, floors, ceilings, and window and door surrounds. The 1976 addition is historically sensitive to the log house, has a lower profile, and is constructed in such a way that, if removed, would not substantially destroy historic fabric. Also, this addition was present when the Allen property was originally listed on the National Register of Historic Places in 1978. The c. 1985 minimal sunroom is the only addition following the previous nomination. The log home was moved from its original location approximately one-half mile north, but it has always been located on the nominated Allen property. The house was in poor condition and the move allowed for its restoration and use as a domestic building. The post-1976 additions are minor and do not detract from the historic character of the home.

The property retains a number of contributing historic support structures, both domestic and agricultural, that speak to the agricultural activities from 1796 to present. These resources have seen few changes since their dates of construction. Two of those structures were included in the 1978 nomination, the c. 1950 tractor shed and the c. 1880 servants' quarters. Although the nomination did not distinguish between contributing and non-contributing, both structures date to within the revised period of significance. No

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changes are evident to these structures since the original listing. The landscape retains several historic elements seen in the large mature trees, agricultural fields, terracing, fences, drives, and farm roads.

The proposed boundary increase has not been assessed for any archaeological significance. However, there is potential for additional archaeological information pertaining to the pre-1800 occupation of the farm.

The property retains integrity of location, design, setting, materials, workmanship, feeling, and association. The main Allen house sits in its original location (both the 1858 Federal block and the c. 1800 log house) and retains its original floor plan and stylistic elements. The historic materials are largely intact and the workmanship is evident in the extant woodwork and material found throughout the house. The agricultural setting and feeling are clearly evident as is the property's advantageous siting within a bend in the river. Its association with the early settlement and agricultural history of the area is clear in the architectural and landscape features of the property.

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8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- ☒ A Property is associated with events that have made a significant contribution to the broad patterns of our history.
- ☐ B Property is associated with the lives of persons significant in our past.
- ☒ C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- ☐ D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations N/A

(Mark "x" in all the boxes that apply.)

Property is:

- ☐ A Owned by a religious institution or used for religious purposes.
- ☐ B removed from its original location.
- ☐ C a birthplace or grave.
- ☐ D a cemetery.
- ☐ E a reconstructed building, object, or structure.
- ☐ F a commemorative property.
- ☐ G less than 50 years old or achieving significance within the past 50 years.

Areas of Significance

(Enter categories from instructions.)

AGRICULTURE

EXPLORATION/SETTLEMENT

ARCHITECTURE

Period of Significance

c.1800-1963

Significant Dates

c. 1800; 1858; 1919; c.1800-1880;
1880-1930;1930-1963

Significant Person

(Complete only if Criterion B is marked above.)

N/A

Cultural Affiliation

N/A

Architect/Builder

Unknown

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Statement of Significance Summary Paragraph

The Allendale Farm boundary increase and additional documentation is eligible for the National Register of Historic Places under Criteria A and C for its significance in Exploration/Settlement, Agriculture, and Architecture. Allendale maintains two original c. 1800 log buildings (Resources #1 and #2), one attached to an 1858 brick Federal I-house (Resource #1); and two outbuildings, a c. 1880 servants quarters (Resource #6) and a c. 1950 tractor shed (Resource #5) that are all presently listed on the National Register of Historic Places ("Allen House," 1978 -#78002619). The boundary increase seeks to add 310.42 acres to the National Register-listed 3.9 acres in order to include the larger agricultural landscape of Allendale Farm and twelve additional contributing resources. This updated nomination seeks to expand upon each area of significance, both through additional documentation and the boundary increase. The addition of considerable acreage and resources speaks to each of these areas of significance, but particularly to the agricultural significance. The boundary increase, as well as additional documentation, extends the overall period of significance to the fifty-year marker of 1963 to include important periods of agricultural development in the late-nineteenth century and early to mid-twentieth century. The additional documentation also expands the narrative during the Civil War and Reconstruction periods as it relates to Allendale Farm. As listed on the National Register in 1978, the period of significance is 1800-1899. The boundary increase and additional documentation seeks to adjust this period of significance to c.1800 to the fifty-year marker of 1963. Two original log structures are extant and the landscape and location along the bend in the river is indicative of the original settlement of the area. The farm also exhibits intact agricultural buildings and landscape features of the mid-twentieth century and displays the farm's role in progressive farming of the twentieth century, particularly the soil conservation movement.

The Allendale Farm boundary increase and additional documentation is eligible under Criterion A for state significance in the area of Agriculture. This nomination supports this level of significance by extending the period of significance to 1963. The original 3.9-acre nomination includes local significance for Agriculture from 1800-1899. The farm followed common patterns of agricultural production from its c. 1800 founding until 1880. The boundary increase includes the George Allen gravesite (Resource #11) and a slave cemetery (Resource #12) representing the early settlement period of Allendale Farm. After 1880, the Allen family took the farm into the modern era of agriculture and made it a model throughout the state for progressive farming efforts (1880-1930) and agricultural innovation (1930-1963). In the mid-twentieth century, the farm was linked with statewide farm demonstration programs at both Austin Peay State College and the University of Tennessee, making the Allen family leaders in the Tennessee agricultural arena. The addition of ten related agricultural resources in the boundary increase are representative of these significant periods. This is particularly evident in their involvement with better market access initiatives as seen in the extant railroad bed (Resource #16) and soil conservation marked by the landscape terracing of the agricultural fields (Resource #15). The two tenant houses (Resources 7 and 8), stock barn (Resource 9), horse ring (Resource 13), three ponds (Resource 14), and overall agricultural landscape (Resource 17) are also indicative of these important agricultural periods. The additional documentation related to the previously listed structures also contributes to the progressive farming home improvement efforts of the early-twentieth century evident in the addition of the 1919 hyphen of the main house to create bathroom and kitchen facilities (Resource #1).

Allendale Farm is currently listed under Criterion A for its local significance in Exploration/Settlement. The additional documentation and boundary increase of this nomination expands upon this area of significance. The boundary increase encompasses considerable more land originally settled by the Allen family in 1796. The agricultural landscape and siting of the domestic complex, developed c.1800-1880, within a bend in the

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river speak to the early settlement of the region. The Allen family was early settlers in the area, founding Allendale Farm in 1796, the same year Tennessee achieved statehood. The boundary increase also adds to this area of significance by including the c.1800 slave cemetery, also indicative of the early settlement and development of the farm.

Under Criterion C, the original nomination includes an area of significance from 1800-1899 for Architecture. Two periods of construction of the Allen House (Resource #1), c. 1800 and 1858, are included within this period of significance. However, the 1919 hyphen connecting the brick house to the original log cabin, and which added a kitchen and bathroom to the home, represents the significant domestic improvement efforts seen in farms across Tennessee during the progressive farming movement of the early-20th century (1880-1930). Therefore, the extension of the period of significance to 1963 allows for the inclusion of the 1919 hyphen as a significant architectural element of the property.

Narrative Statement of Significance

Early Settlement, 1796-1862

The human footprint on the land included in the present-day Allendale Farm extends at least to ca. 10,000-12,000 years ago during the Paleo-Indian period. Quad points and several uniface lithic tools have been uncovered on the farm that date to this period. Evidence from all four prehistoric American Indian cultures (Paleo-Indian, Archaic, Woodland and Mississippian) has been unearthed in present-day Montgomery County and specifically on the Allendale Farm. Hundreds of lithic tools and projectile points have been found via surface hunting after rain by the owners of Allendale for over forty years, most notably on top of a hill, which is the highest elevation on the farm that overlooks a horseshoe bend of the West Fork of the Red River. This location would have been favored by American Indians as a long-term encampment site for its higher elevation and for the ample water sources located nearby, which would have also drawn game to the area for subsistence. Most of the artifacts found on the farm date to the Woodland period (1000 BCE – 800 CE). A number of stone agricultural hoes found on the farm, date to this period, making the artifacts the earliest evidence of agricultural material culture found at the farm to date and evidence that humans have cultivated the soil of Allendale for at least 3,000 years.² No formal National Register-eligibility assessments have been conducted related to the archaeological significance of the property. As such, this nomination does not address Criterion D; however, there is potential for additional archaeological information pertaining to the pre-1800 occupation of the farm.

It was not until after the Revolutionary War that a considerable amount of settlers began to populate present-day Montgomery County. In 1785, North Carolina laid off a portion of its land located in present-day Middle Tennessee and issued land certificates or warrants to its soldiers and officers of the North Carolina Continental Line. The acreage given to the veterans was based on their rank and months of service. For example, privates received up to 640 acres, while captains received up to 3,840 acres.³ Often times, a warrant was sold several times before an individual surrendered the warrant for land for settlement; such was the case for Revolutionary War veteran James Campbell and the parcel of land that Allendale Farm resides on.

² Artifacts recovered from Allendale Farm were identified in consultation with the Tennessee Division of Archaeology as per e-mail communication with Mark Norton, State Programs Archaeologist, in March 2012.

³ Beach, 7; "Land Records in the Tennessee State Library and Archives."

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Campbell was granted 2,395 acres of land by the North Carolina land grant No. 65 for his service in the Revolutionary War. Campbell then sold his grant to Philemon Hodges, who in turn sold approximately 1,275 acres of the original 2,395 acres of property to Abraham Allen, Sr. of Orange County, North Carolina for 637 pounds and 10 shillings on July 11, 1796.⁴ Like Campbell, Abraham Allen, Sr. was a Revolutionary War veteran. He served as a captain in the Orange County, North Carolina militia and was "severely wounded" during a skirmish on September 12, 1781 at the Lewis Kirk farm, located near Hillsborough, North Carolina.⁵

Shortly after purchasing the 1,275 acres of land from Hodges, Allen relocated his family to the newly acquired property in Montgomery County, some five or six miles north-northwest of the town of Clarksville, which was established in 1784. That same year, Tennessee became the sixteenth state in the Union and Montgomery County was formed out of Tennessee County. Early deed records in Montgomery County indicate that the Allen family bought and sold land frequently in their first five to ten years of residence in the area.⁶ Abraham Allen, Sr. even sold portions of the Campbell land to his children.⁷ During the early period of the farm's history, the Allen family grew a number of crops, including corn, wheat and produce, and raised a number of animals including, sheep, hogs and cattle for subsistence.⁸ By 1812, Allen owned at least six horses, seventeen head of cattle, twenty sheep, and forty hogs.⁹ Shortly after moving to the property in 1796, the Allens built two log cabins (c. 1800) from tulip poplar trees located on the property. Both log houses are extant and have been incorporated into the two main dwellings on the property (Resources #1 and #2).

The Allens were not the only individuals residing on Allendale. The 1798 property tax indicates that Abraham Allen owned three African American slaves.¹⁰ By 1800, at a time when 13 percent of Tennessee's population was enslaved, the number of slaves Allen owned increased to four.¹¹ Whether these slaves were male or female or worked in the Allen's home or in the fields remains unknown. Just twelve years later,

⁴ "Land Book A. page 520," Allen, Abram (Abraham), Vertical Files, Clarksville-Montgomery County Public Library, Clarksville, TN; "Abraham Allen-Conveyance from Philemon Hodges for land on West Fork of Red River," Allen, Abram (Abraham), Vertical Files, Clarksville-Montgomery County Public Library, Clarksville, TN.

⁵ "Pension Application of George Waggoner (Wagner) S3484," Southern Campaign Revolutionary War Pension Statements & Rosters, <http://revwarapps.org/s3484.pdf> (accessed March 10, 2012); "Pension Application of James Mitchell," USGenWeb Archives, <http://files.usgwarchives.org/nc/orange/military/revwar/pensions/mitchell399gmt.txt> (accessed March 10, 2012).

⁶ "Early Allen Deeds in Montgomery Co., Tenn.," Allen, Abram (Abraham), Vertical Files, Clarksville-Montgomery County Public Library, Clarksville, TN.

⁷ *Ibid.*

⁸ Mark E. Johnson, "Every Farmer Has A Story: William Baily Allen Family, Abraham's Shillings," Tennessee Century Farm File: Allendale, MTSU Center for Historic Preservation, Murfreesboro, TN; William Bailey Allen, Sr., interview by Amy Kostine, February 28, 2012.

⁹ *Tennessee Records of Montgomery County: Wills & Inventories, Guardian & Bond Books*, Vol. A, 1797-1810, 297.

¹⁰ "List of the Taxable Property in Capt. Isaac Petersons Company Taken by Robert Dunning Esquire for the year 1798," Allen, Abram (Abraham), Vertical Files, Clarksville-Montgomery County Public Library, Clarksville, TN.

¹¹ "Captain Charles Stewarts Company by Charlest Stewart Esq., 1800," Allen, Abram (Abraham), Vertical Files, Clarksville-Montgomery County Public Library, Clarksville, TN; Gary J. Kornblith, *Slavery and Sectional Strife in the Early American Republic, 1776-1821* (Plymouth: Rowan & Littlefield Publishers, Inc., 2010), 25.

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though, a record of sale indicated that Abraham Allen owned at least six slaves. In 1812, Abraham Allen Sr. sold "one negro man named Jacob one negro woman named Milly one negro woman named Dorcus one negro boy named Anderson, one negro girl named Kozzy, one negro boy name Joe [and all Abraham Allen's] plantation Utensils of every kind" to his son, Abraham Allen, Jr. for two thousand dollars.¹² African Americans were a constant presence at Allendale and played an integral role on the farm from its early beginning through the mid-twentieth century.

Around 1815, Abraham Allen, Sr. and his sons, with the exception of George, relocated their families to Alabama, possibly to grow cotton, a lucrative crop at the time that was better suited for the Alabama climate than that of Tennessee. George remained in Tennessee with his wife, Elizabeth Blackwood Allen. They raised thirteen children at Allendale and continued to cultivate the land Abraham Allen, Sr. purchased in 1796 and raise livestock, such as hogs, cows and sheep.¹³ After George's death in 1847, much of his material property was sold on May 21, 1847. On September 17, 1847, Bailey F. Allen, Allendale's next owner and George's son, purchased some of his father's property, most notably 165 acres of land for \$635.00 and George's slave, Lewis, for \$600.00, indicating that George, like his father, used slave labor on the farm.¹⁴ George was buried on the property and his gravesite is identified in the northeastern portion of the Allendale Farm boundary increase (Resource #11).

During the 1850s and 1860s, Peacher's Mills, the unincorporated community two miles north of Allendale Farm, was a burgeoning manufacturing locale. Located eight miles north of Clarksville, the community's infrastructure consisted of a few roads, a Baptist church, a Masonic lodge, and a few stores and "mill commissaries."¹⁵ The area was known for its production of cloth, lumber, and a variety of crops. Like many of the thriving farms along the Red River's Big West Fork, Allendale Farm produced wheat, corn, swine, and tobacco, among other crops and livestock.¹⁶ Products destined for sale were moved to New Providence, approximately four miles from Allendale Farm at the southern end of Peachers Mill Road, where they could be shipped to markets.¹⁷ Once a small railroad town located on the northwest side of the confluence of the Cumberland and Red rivers from Clarksville, New Providence was annexed into the city of Clarksville in the 1960s. Tobacco was the most profitable crop to produce in Montgomery County during the 1850s, the market having been established in 1785 when North Carolina designated Clarksville as a "tobacco inspection site."¹⁸ Several stemmeries and warehouses in Clarksville processed the tobacco, which was then shipped to buyers in England where demand for "Clarksville tobacco" was great.¹⁹

¹² *Tennessee Records of Montgomery County: Wills & Inventories, Guardian & Bond Books*, Vol. A, 1797-1810, 297.

¹³ Philip I. Robertson, "The Thomas-Gattis Genealogy: Allen," Allen, Abram (Abraham), Vertical Files, Clarksville-Montgomery County Public Library, Clarksville, TN; "List of the Property Sold at the Sales of Geo. Allen, deceased, on the 21 May, 1847 and on 17 Sept. 1847," Allen, George, Vertical Files, Clarksville-Montgomery County Public Library, Clarksville, TN.

¹⁴ "List of the Property Sold at the Sales of Geo. Allen, deceased, on the 21 May, 1847 and on 17 Sept. 1847."

¹⁵ Ursula Smith Beach, *Along the Warioto or A History of Montgomery County, Tennessee*, (Nashville: McQuiddy Press, 1964), 77.

¹⁶ Allendale Farm, Tennessee Century Farms application, on file at MTSU Center for Historic Preservation.

¹⁷ Beach, 77.

¹⁸ *Ibid.*, 117.

¹⁹ *Ibid.*, 118.

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In 1850, the Allen family consisted of Bailey F. Allen (1816-1880), his wife Mary Jane Osburn Allen (1824-1902), their two children, and Bailey's sisters, Nancy and Elizabeth.²⁰ The family had grown by 1860, Bailey and Mary Jane having had two more sons, Henry and Noble.²¹ To make room for his growing family, Bailey built the brick Federal-style house using slave labor in 1858 (resource inventory # 1).²² In addition to the Allen family, two employees resided at Allendale in 1850: Levi Cooper and Samuel Sheppard. Sheppard was listed simply as a laborer, and Cooper served as the overseer²³ of Bailey's sixteen slaves.²⁴ Ranging in age from eight months to thirty-six years, there was an equal number of women and men slaves at Allendale Farm.²⁵ The number of Allendale Farm slaves rose to twenty-seven in 1860, fifteen men and twelve women ranging in age from infancy to forty-five years. The number of slave dwellings recorded was three.²⁶ Bailey's value of real estate in 1850 was listed at \$3,000.²⁷ By 1860, his real estate value had grown to \$15,240 with a personal estate valued at \$16,200.²⁸ Aside from the main house (resource #1) and two log houses (resources #1 and #2), no extant structures remain on the property from this period. However, the site of the Allen family slave cemetery survives north of the domestic complex (resource inventory # 12)

Civil War and Federal Occupation, 1862-1866

With the outbreak of war in 1861, the area's agricultural market took a major hit largely due to transportation obstacles. Federal forces effectively cut off down-river traffic by occupying Smithland, Kentucky, leaving Montgomery County farmers and manufacturers to find other markets for their products. Tobacco saw a drastic price decline, and "flour, corn, hay, shoes, textiles—all were in great demand and the county's productive capacity was strained to the limit."²⁹ The farm wasn't directly affected until after Federal troops reached Montgomery County. With the defeat of Confederate forces at Forts Donelson (NR/1966) and Henry (NR/1975) in neighboring Stewart County in February 1862, Federal naval forces under the command of Flag-Officer A. H. Foote travelled unchecked to Clarksville. Arriving on February 19, they found the Confederate Fort Defiance (NR/1982) abandoned and immediately demanded the surrender of supply stores.³⁰ Thus began an almost four year-long occupation of Montgomery County.³¹ Clarksville was effectively cut off from the rest of the world, and its citizens were subjected to life under occupation. Military officials took control of the telegraph, and mail from Confederate controlled areas was intercepted and went undelivered. Local newspapers ceased publication with the arrival of Federal troops, leaving

²⁰ 1850 Census, population schedule.

²¹ 1860 Census, population schedule.

²² Jack Barbee, "Allendale," *The Daily Star* Jan 31, 1940.

²³ 1850 Census, population schedule.

²⁴ 1850 Census, slave schedule.

²⁵ *Ibid.*

²⁶ 1860 Census, slave schedule.

²⁷ 1850 Census, population schedule.

²⁸ 1860 Census, population schedule.

²⁹ Stephen V. Ash, "A Community at War: Montgomery County, 1861-65," *Tennessee Historical Quarterly* 36 (1977): 30-43.

³⁰ *Ibid.*, 33.

³¹ *Ibid.*, 34.

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Unionist press as the only source of information.³² Court was disbanded, schools closed, and taxes went uncollected.

Occupation did not affect Clarksvillians alone; the lives of those residing in the countryside and smaller communities changed drastically as well. Rural citizens wishing to visit Clarksville also needed a pass, a stipulation Bailey's daughter Ella wasn't willing to tolerate. Disregarding the Federal troop's denial of passage, Ella "put the spurs to her horse and went on through the lines."³³ The government contracts that had supported local farmers, merchants, and manufacturers during those first few months of war ceased once the area was taken by Federal forces. Those employed in agriculture faced numerous waves of labor shortages, losing farm hands to enlistment and slaves to Federal protection. Farms produced little compared to their numbers in 1860, and what was produced was often foraged by Federal troops.³⁴ At Allendale Farm, a Federal forage party confiscated everything but a pony soon after the fall of Fort Donelson, the soldiers taking with them all of the Allen's turkeys, ducks, hens, cattle, hogs and crops. Food was hard to come by for the Allens, and Bailey's son Fountain, age fourteen at that time, asked for and received powder and shot from the Federal occupiers to hunt game in order to supplement the family's food supply.³⁵ The agriculture-based economy of Montgomery County was in tatters by 1865, Stephen Ash concluding, "Markets had been cut off, a large number of farms had been abandoned, slaves had disappeared, and fields lay fallow."³⁶

Federal occupation did not deter fighting in Montgomery County during the war years. In the absence of the Confederate army, guerilla forces maintained a presence in the countryside surrounding Clarksville, attempting to impede the war efforts of Federal troops and to maintain the social order between master and slave. In order to be successful, these "bushwhackers" relied on the support of friends, family, and sympathizers in the area.³⁷ To what extent the Allen family participated in active support of these roaming bands of armed men is not documented; however, during one of the winters under occupation, Bailey did offer his rail fence for firewood to Confederates suffering from exposure.³⁸ It was probably the only comfort Bailey could offer these suffering individuals, having lost all his livestock and crops to the Federal occupiers and the house being too small to shelter them all.

Middle Tennessee during the Civil War was more than a battlefield for the two armies. Stephen Ash describes it as also being "a turbulent arena of civil strife where every man and [woman] was a combatant, every neighborhood a battleground."³⁹ The burgeoning violence of the war reached the steps of Allendale in November, 1863, just days after the birth of son Bailey Jr. Bailey Sr. was approached by a group of men "[pretending] to be Southern soldiers wanting to know the route to some place not far off." When he refused to show them the way, their conversation quickly dissolved and the men resorted to violence. Cursing, one of them attempted to drag Bailey, who was an invalid, out of the house to the lawn. Some of the cohorts left as

³² *Ibid.*, 36.

³³ Interview with William Bailey Allen, November 12, 1971, Clarksville Tennessee

³⁴ Ash, "A Community at War," 39.

³⁵ Interview with William Bailey Allen, November 25, 1970, Clarksville Tennessee

³⁶ Ash, "A Community at War," 40.

³⁷ *Ibid.*, 217.

³⁸ Interview with William Bailey Allen, November 12, 1971, Clarksville Tennessee

³⁹ Ash, "Sharks in an Angry Sea," 229.

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the exchange escalated. The remaining men agreed to turn Bailey loose if he were able to pay them \$5,000. With this, Bailey realized they were simply robbers and began to fight back as best as he could. Family friend Serepta Jordan recorded this incident in her diary, concluding that Bailey would have been murdered had it not been for "the influence of his sisters and children."⁴⁰

Reconstruction, 1866-1880

In the early part of 1866, the Federal government withdrew its occupation force in Montgomery County, and citizens enthusiastically set about rebuilding their communities.⁴¹ Many local institutions were reopened in the first few years following the end of the war. Church services were held with regularity, social events were planned, elections for public offices took place, newspapers resumed publication, and mail service was restored.⁴² In December, 1865, a reestablished tobacco market made its first delivery to New Orleans since 1861. Business boomed in the city, and Clarksvillians saw a great economic resurgence in a short amount of time.⁴³ Farmers were not as lucky.

Reconstruction hit Allendale hard, as it did many farms across the south. Land values plummeted 31.4% from 1860-1870. The amount of tobacco produced fell 6.6%, from 5,199,156 pounds in the 1850s to 4,856,378 pounds by 1870. War and reconstruction spurred a dramatic shift in the agricultural social structure. Prior to the war there was a trend of "fewer and larger farms," farm numbers dropping from 1,227 farms in 1850 to 1,081 in 1860. The end of slave labor and the introduction of the sharecropping system resulted in a "decentralization of farming." The number of farms rose 52.1% to 1,644 by 1870. Average farm size decreased from 305 acres in 1860 to 180 acres in 1870.⁴⁴ Allendale's size reflected this trend, being whittled down to 300 acres during the Reconstruction era.⁴⁵

The 1870 population census gives great insight into the effects of the war and reconstruction time period. Bailey's value of real estate had dropped from \$15,240 in 1860⁴⁶ to \$12,000 in 1870.⁴⁷ His value of personal estate took an even bigger hit, dropping from \$16,200⁴⁸ to just \$2,500⁴⁹ in the same time frame. The labor relationship between the Allens and their former slaves continued under the sharecropping system, and in cross-referencing the 1870 census with the recorded births of slaves in the Allen family Bible, it is evident that many of the former slaves stayed on at Allendale Farm.⁵⁰ Stephen Ash asserts that nearly all freed men and women in rural locales "were earning their wages or crop shares under formal, written agreements"

⁴⁰ Serepta Jordan Journal, "Sunday Night Nov 15th 63"

⁴¹ Stephen V. Ash, "Postwar Recovery: Montgomery County, 1865-1870," *Tennessee Historical Quarter* 36 (1977): 209.

⁴² *Ibid.*, 210.

⁴³ *Ibid.*, 211.

⁴⁴ *Ibid.*, 216.

⁴⁵ Mark E. Johnson, "Abraham's Shillings," *Tennessee Cooperator* 51 (2010): 34.

⁴⁶ 1860 Census, population schedule.

⁴⁷ 1870 Census, population schedule.

⁴⁸ 1860 Census, population schedule.

⁴⁹ 1860 Census, population schedule.

⁵⁰ 1870 Census, population schedule; "Bailey F. Allen Bible," transcribed by the Works Progress Administration on 10/17/1936.

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known as labor contracts,⁵¹ and it is highly likely that the Allens and the freedmen who remained solidified their new labor relationship with a contract.

In addition to the Allen family house, there were three other dwellings with African American residents listed below Bailey's house in the 1870 Census. Presumably, these were the former slave dwellings that were enumerated on the 1860 slave schedule. A "P. Allen," listed as a black twenty-four year old female, was the head of one of the three households. When cross-referenced with the Allen family Bible, this person was more than likely a former slave named Pauline born around 1844. Her occupation was not listed, but living with her were three children also listed as Allens. Also residing in this dwelling were Horace and Rachel Tinsley and what appears to be their three children, though this family is not enumerated separately. A seventeen-year-old black male named Vince Allen, another former Allen slave born in May of 1853, inhabited the second dwelling. Two families, though not enumerated separately, occupied the third dwelling: Henry and Ann Allen, both former Allen slaves, and their children; and Bill and Barbara Trice and their children.⁵²

By 1880, most of the former Allen slaves had moved on, reflecting a shift noted by historian Robert Tracy McKenzie who concluded that "as late as 1880 the typical freedman was more likely to have been a wage laborer than a cropper or tenant."⁵³ This abandonment of Allendale and other plantations by former slaves was due to a desire of the freedmen to live "beyond the white man's scrutiny" and to create their own place within society.⁵⁴ Only four African American Allens remained at Allendale in 1880: Ellen, a twenty-five year old cook; Jim, a twenty-six year old laborer; and two children, Bettie and Ellen. Additionally, two other laborers resided at Allendale at this time: Walter Fortner, an eighteen year old white laborer, and Albert Boga, a twenty-five year old black laborer.⁵⁵

When the enumerator arrived in June of 1880 to put Allendale's residents in the census, he found both Bailey and his sister Nancy ill with what he documented as "malarial fever."⁵⁶ Two months after this information was recorded, Bailey and his sister succumbed to their disease two days apart, August 12 and 10, respectively.⁵⁷ In anticipation of his own death, Bailey had a will made up, acknowledging outstanding debts and ordering them to be paid by the sale of personal or real estate.⁵⁸

A Progressive Agriculture Era, 1880-1930

Upon Bailey F. Allen's death in 1880, his son Bailey F. Allen, Jr. (1863-1943), took over operation of the farm and assumed ownership upon his mother's death in 1902. Bailey F. Allen, Jr., took what had been a

⁵¹ Stephen V. Ash, *Middle Tennessee Society Transformed, 1860-1870: War and Peace in the Upper South*, (Knoxville: University of Tennessee Press, 2006), 201.

⁵² 1870 Census, Population schedule, Series: M593 Roll: 1551 Page: 209

⁵³ Robert Tracy McKenzie, *One South or Many?: Plantation Belt and Upcountry in Civil War—Era Tennessee*, (Cambridge: Cambridge University Press, 1994), 149.

⁵⁴ Ash, *Middle Tennessee Society Transformed*, 139.

⁵⁵ 1880 Census, Population schedule, Series: T9 Roll: 1272 Page: 196.

⁵⁶ *Ibid.*

⁵⁷ "Bailey F. Allen Bible," transcribed by the Works Progress Administration on 10/17/1936.

⁵⁸ Will of Bailey F. Allen, August 8, 1880

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typical middle-class, Middle Tennessee plantation into the modern era of agriculture. Influential agricultural reformer, Joseph B. Killebrew, the state commissioner of agriculture in 1880, was from Montgomery County (White Chapel NR/1986). Killebrew emphasized in various late-nineteenth century writings and speeches that Tennessee farmers needed to be diversified and look more to market products than agricultural self-sufficiency. He advocated for better farming techniques, including crop rotation, subsoiling, and the use of fertilizers. Killebrew also was a great promoter of what railroads, and better market access, could mean for Tennessee farm families. Killebrew's activism joined that of other agricultural leaders across Tennessee to convince the state government to establish the Tennessee Agricultural Experiment Station (only the fifth in the nation) in 1882. Five years later, Congress approved the Hatch Act, which provided federal funding to state experiment stations. What emerged out of this scientific and bureaucratic revolution in American agriculture was what became known as progressive agriculture. Allen followed the progressive agriculture outline for success as he guided the farm's operation from the late-nineteenth century forward.⁵⁹

For example, Allen aggressively joined local efforts to connect the farm to larger markets by railroad. On April 22, 1887, the Allen family conveyed "an unconditional right of way" through the southwestern part of their property to the Indiana, Alabama, and Texas Railroad (I. A. & T.) for the amount of three hundred dollars paid in full. The right of way, running from northwest to southeast through the Allen farm, was one hundred feet wide, "measured equally fifty (50) feet on each side of [the] rail line." Today the rails are gone, mostly removed for scrap metal during the metal drives of World War II. But long stretches of the roadbed remain, documenting the impact of the tracks on the landscape (resource inventory # 16). The Allen deed granted the rail company the right "to quarry and remove stone" from the right of way area to be used in the "construction of [the rail's] bridges, culverts, slope walls, etc"⁶⁰ along the surveyed route. Incorporated on February 21, 1882,⁶¹ the I. A. & T. sought to link Evansville, Indiana with Mobile, Alabama, running the line through "the richest agricultural regions of Kentucky and the inexhaustible coal and iron fields of Tennessee and Alabama." In "opening up an immense scope of yet comparatively undeveloped county," the company hoped to position itself as competition for the Louisville and Nashville Railroad (L&N).⁶²

Under the direction of Maj. E. C. Gordon, construction on the line began in Clarksville, Tennessee in 1882 with Princeton, Kentucky being the terminus for this fifty-one mile phase of development. By December 1883, roughly twelve miles extending from Clarksville north in the direction of Princeton were graded and lined with ties, and surveying for the route was completed to within ten miles of Princeton. Despite an ambitious 1884 completion goal, by the end of 1885 the first phase of the road had still not been completed.⁶³ The I.A. & T. was behind schedule and underfunded, failing in its goal of being competitive with the L & N. It was about this time that M. H. Smith, President of the L & N, took an interest in the failing railroad seeing this as a potential asset to his company saying, "its control [should] prevent the construction of other lines in

⁵⁹ Century Farms file; Connie L. Lester, "Joseph Buckner Killebrew," Carroll Van West, et al., eds., *Tennessee Encyclopedia of History and Culture* (Nashville: Tennessee Historical Society, 1998), 501-502; Thomas J. Whatley, *A History of the Tennessee Agricultural Experiment Station* (Knoxville: UT Institute of Agriculture, 1994), 3-4.

⁶⁰ Montgomery County Archives, Deed Book 22, pages 221-221.

⁶¹ Elmer G. Sulzer, *Ghost Railroads of Tennessee*, (Indianapolis: Vane A. Jones Company, 1975), 251.

⁶² *Ibid.*, 252.

⁶³ *Ibid.*, 252.

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this territory for some years.”⁶⁴

In August 1866, the L & N bought all of the I. A. & T.’s shares and formally assumed control over the line on April 9, 1887, just weeks before the Allens gave the rail this right of way. At the time of the buyout, the I. A. & T.’s railroad stretched only thirty-two miles, from Clarksville, TN to Gracey, KY.⁶⁵ The poor condition of the railroad prompted the L & N to make numerous changes upon acquisition. One of these changes shifted approximately six miles of the route to the west. The section of the line that ran through the Allen’s property was part of this new segment. This shift removed the southern terminus from Clarksville and relocated it two miles north at Princeton Junction, effectively connecting Smith’s new purchase with the already existing L & N route. Additionally, the L & N finished the line’s construction to Princeton, Kentucky in December 1887.⁶⁶ The 52.74 miles of track from Clarksville to Princeton became known the “Clarksville and Princeton Branch” (C & P Branch).⁶⁷

The line ran deficits in its first two years under L & N ownership and continued to struggle during the early 1890s. In 1894, the L & N accepted an offer from the Ohio Valley Railway and signed off on a 99 year lease of the C & P Branch. With that transaction, passenger trains ceased on the branch, and from 1894 until its abandonment the branch offered only mixed trains along its remaining 34.2 miles of track.⁶⁸

Locals referred to the mixed train as the “Buckberry Express” or “Buckberry’s Train” after its conductor William V. Buckberry.⁶⁹ People in the vicinity of the Allen property could catch the train on the right of way leased by them. Mr. Allen says the train had about five cars total: a passenger car, a caboose, and a few freight cars. He also remembers his mother boarding the train at this point to go to Clarksville. This boarding place had a small covered waiting area, the location of which is marked today by the remnants of gravel in the field at the northwest end of the old roadbed on the farm. Author Elmer G. Sulzer states the ties between the community and the train’s employees were great: “the patrons of the branch felt as though the road was theirs, and they treated the crews as part of their family, sharing with them their joys and sorrows. Anytime these patrons had a reunion (which was frequently), the crew was remembered with a bountiful box lunch.”⁷⁰

The role of the C & P Branch continued to diminish, servicing farms that produced hay, corn, wheat, and tobacco, the first two of which reached only local markets. The timber sources along the branch were quickly processed, and farmers began moving livestock other ways. New modes of transportation and a burgeoning road system stole much of the C & P’s freight and passenger business. Tonnage of freight plummeted from 22,822 in 1928 to 6,561 in 1932. Passenger numbers also took a hit, dipping from 2,396 in 1928 to just 695

⁶⁴ Maury Klein, *History of the Louisville and Nashville Railroad* (Lexington: University Press of Kentucky, 2003), 278.

⁶⁵ Kincaid A. Herr, *The Louisville and Nashville Railroad: 1850-1963*, (Lexington: University Press of Kentucky, 2000), 101.

⁶⁶ Klein, 278.

⁶⁷ Sulzer, 253.

⁶⁸ *Ibid.*, 254-255.

⁶⁹ *Ibid.*, 255; interview with Mr. Allen

⁷⁰ Sulzer, 256.

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in 1932. For these four years alone, the C & P Branch incurred a deficit of over \$140,000,⁷¹ leading to its abandonment by L & N on May 13, 1933.⁷²

Bailey F. Allen, Jr., also turned the farm into a more diversified, modern operation. He invested in the overall effort to improve Tennessee livestock through selective breeding of cattle, mules, horses, sheep, and swine. While most farmers in Montgomery County looked solely to the production of dark-fired tobacco for market, Allen diversified his tobacco operations in the 1920s and added burley tobacco.

His late marriage in 1919 to Eliza Lovinia Virginia Emery Allen (1879-1962) also impacted the farm's fortunes significantly as Eliza Allen took the gospel of progressive agriculture into the domestic sphere of the farm, in particular through updating the main house with a kitchen and bathroom. Eliza was known throughout Clarksville for her long-time efforts in the Clarksville Women's Club and the Better Homes movement of the early to mid-twentieth century. Before she was married she worked as a teacher in Clarksville from 1902-1906 at the Hazelwood School and the Howell School. She attended the Chautauqua Institute Summer School in the summer of 1908. Later she taught at the Farmville Normal School (now Longwood University) in Farmville, Virginia as the supervisor of the third grade in 1916, 1917, and 1918.

The Women's Club took part in many civic activities in Clarksville. The club was part of a larger movement to create clubs and institutions specifically for women to reform their communities. This also coincided with the growth of rural reform and home improvement. The Clarksville Women's Club was involved in the Better Homes Movement and under the direction of Mrs. Bryce Runyon the Federation won second price in the National Better Homes Contest in 1925 for which the club built and furnished two model homes. The women's club involvement in the Better Homes contest was part of the larger farm home improvement movement that was sponsored by the State Department of Agriculture Extension Service. Rural reformers encouraged domestic improvements as a way to enhance the quality of life and in turn encourage families to continue farming and increasing agricultural production.⁷³

Between the time of her 1919 marriage to 1928, she and her husband renovated the domestic side of the farm. They contracted to join the 1858 brick house to one of the c. 1800 log houses (resource inventory # 1). The resulting hyphen connecting the houses served as the space for the new kitchen and bathroom that were installed. New wood floors were added to the log house as well. When the Home Demonstration Department of the UT Agricultural Extension Service formally listed those farms that had joined its movement of improved country homes in 1928, Mrs. Bailey F. Allen (Eliza) gave the farm the name Allendale, which it retains today.⁷⁴ "Demonstration agents claimed that farmers cleaned up their property and repaired their houses before displaying their registered names, thus improving the general appearance of the countryside."⁷⁵

⁷¹ *Ibid.*, 257.

⁷² Herr, 102.

⁷³ Mary S. Hoffschwelle. *Rebuilding the Rural Southern Community: Reformers, Schools and Homes in Tennessee, 1900-1930* (Knoxville: The University of Tennessee Press, 1998).

⁷⁴ Almon J. Sims, ed. *Improved Country Homes in Tennessee* (Nashville, TN: Department of Agriculture State of Tennessee, 1928), 53.

⁷⁵ Hoffschwelle. 118.

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The general updating of the Allen House is significant evidence of how the progressive agricultural movement of the early-twentieth century shaped the farm. As the "Historic Family Farms in Tennessee" MPN states: "Another important piece of evidence that documents the participation of historic family farms in these home demonstration programs is the 1928 publication *Improved Country Homes in Tennessee*. This book lists county by county the farms that had registered their farm name with the extension division. Listing in the book [Allendale is listed on p. 53 as Allendale, Mrs. Bailey F. Allen] demonstrates that a family was involved in the program." Charles A. Keffer, director of the UT Agricultural Extension Service, explained why these home improvement programs were crucial for the betterment of Tennessee agriculture

The one outstanding need of farm life is better homes. To meet this need we must have better farms and more profitable farming. The writer can recall when even in towns of ten thousand population a bathroom was a luxury, enjoyed only by the rich. Nobody in town or country had electric lights. Most homes were heated by stoves. Today many mechanic's homes are electric lighted and provided with running water; heated by steam or hot air furnaces. Every country visitor in such a home longs for like luxuries, and thinks of leaving the farm to enjoy them. Electric conveniences are too expensive in most rural communities, but there are reasonable priced lighting and heating systems everywhere. A comfortable home lightens labor and increases interest. Money in the bank will not make a contented farm family. The best reason for better farming, which means economic production, due care of the soil and the livestock and successful marketing, is a better home, not an increasing cash balance. There is no antagonism between 'Better Homes and Better Farms.' Quite the contrary. Each of these ideas implies the other; they should be inseparable. Let us do better farming--more profitable farming--in order to have better living conditions in the country and no power on earth can lure our people from the farm.⁷⁶

In addition to updates to the main brick house, three support structures are extant on the farm from this period. Two tenant houses (resource inventory # 7 and # 8) dating to c. 1890 and c. 1900 are located just northwest of the domestic complex and a c. 1880 domestic servants' quarters (resource inventory # 6) is located to the northwest corner of the main brick house. These structures survive as physical reminders of the reorganization of southern agriculture following the Civil War. After emancipation, and particularly after 1880, farms across the south faced a labor problem that farmers sought to solve through the expansion of sharecropping and tenant farming. At Allendale, the two tenant houses and the domestic servants' quarters speak to the nature of farming in the post war period. The tenants and servants provided the work force to operate both the agricultural and domestic spheres of farm life from around 1880 into the 1940s.⁷⁷

⁷⁶ *Improved Country Homes in Tennessee*, 2.

⁷⁷ *Historic Family Farms in Middle Tennessee*, Multiple Property Nomination, NRIS 64500605.

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Agricultural Innovation in Mid-Twentieth Century Tennessee, 1930-1963

Bailey F. Allen in 1932 also took steps to improve the farm's cattle production by purchasing a Hereford cow and bull as part of a 4-H project of his son, William Bailey Allen. Pleased with the results, the family continued to purchase bred livestock from Nebraska Sandhills through the 1930s and 1940s, beginning the farm's switch to a livestock-first operation.⁷⁸

Bailey F. Allen, Jr., died in 1943, and his son William Bailey Allen returned to the farm to take over operation. Eliza continued to live at Allendale until her son married in 1949. At that time, William Bailey Allen and his wife Mary Elizabeth (Farmer) Allen became the primary residents at Allendale.

William Bailey Allen was a mid-twentieth century agricultural leader in Tennessee. He transformed the farm from 1947 to 1953 when he worked with faculty and students at Austin Peay State College in Clarksville to allow the property to be the college's demonstration farm. In 1953 Austin Peay officials received the donation of 400+ plus acres from the Pettus Foundation and they moved agricultural education to the new location. As Austin Peay left in 1953, Allen linked the farm in 1954 to the University of Tennessee's performance testing program for livestock, which it remains part of today.⁷⁹ The farm retains a 1947 stock barn (resource inventory # 9) and three c. 1945 man-made ponds (resource inventory # 14) that continue to serve the livestock operation of Allendale Farm.

As part of the demonstration farm program, Allen and Austin Peay introduced in 1948 a series of broad-base terraced fields, installed under the direction of agents of the U.S. Soil Conservation Service so students could learn how to farm with the latest in soil conservation techniques (resource inventory # 15). At roughly the same time, the farm planted its first Kentucky fescue, the first farm in the county to cultivate this rich, productive grass.

In 1949, workers at the farm planted pine tree shelters to prevent soil erosion and as protection for livestock from the elements. The timber crop was improved through a partnership with Tennessee State Forestry and family fenced timber from fields so to protect the woodlands from livestock. In the 1950s the family planted Serchia Lespedeza and Ladino clover, again for soil protection but also for livestock production.

William Bailey Allen was named to the county's Soil Conservation District's board of directors in 1952 and in the following year he became the secretary and treasurer of the county's Soil Conservation District. By 1955 Allen was the board chair for the county Soil Conservation District, a leadership position that he retained for many years.

Allen's leadership in soil conservation was documented periodically by feature articles in the *Clarksville Leaf-Chronicle* and various state and regional agricultural periodicals. A March 6, 1953 story in the *Clarksville Leaf-Chronicle* documents, with a photograph by Lester Solomon of the U.S. Soil Conservation

⁷⁸ John Bartee, "Longtime Tennessee Operation Balances Maternal and Growth," *Gelbvieh World* (May 2000): 34-35.

⁷⁹ *Ibid.*; William Bailey Allen statement, October 5, 2011, in "Allendale Farm, Montgomery County," Century Farms file.

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Service, of the planting of kudzu, another plant that mid-twentieth century reformers saw as a hedge against soil erosion, on the farm. An August 16, 1955 story in the *Leaf-Chronicle* highlights the farm's success with planting button clover on former tobacco farm as an effective way to re-energize the farm for future tobacco plantation. The story features a photograph of Toliver Coleman and his son Robert, African American tenant farmers, who worked and lived on the farm in the 1950s. An October 3, 1961, *Leaf-Chronicle* article discusses how Allen instituted grassland farming at Allendale over the past two years, using round hay bales (still extremely rare in Tennessee farms at that time) as both a conservation and labor-saving technique. The article documented that Allendale then had "200 acres for pasture crops, 40 acres rotation cropland, and 40 acres woodland," with Allen and his tenants Lee Moss and his son Joe Moss producing the fescue grass and lespedeza hay bales.

While specialized cattle production (Hereford-Simmental hybrids, Angus, Gelbvieh) increasingly dominated Allendale's livestock operation from the mid- to late-twentieth century, the Allen family also joined the Tennessee Walking Horse Industry. The modern Tennessee Walking Horse dates to the establishment of the registry of the Tennessee Walking Horse Breeders Association in the mid-1950s. After World War II, the industry expanded quickly and the Allens were active participants. In 1950, for instance, William Bailey Allen was 1st Vice-President of the Montgomery County Horesman's Association. He served in several leadership positions along with his wife, Mary Elizabeth Allen (1922-1980), who served as the secretary for the organization for several years. He has also served on the board of Pleasure Walking Horse Association of Tennessee. Amelia Allen Hartz (1950 -) was an accomplished walking horse competitor. She won the Walking Seat Equitation World Championship in Shelbyville in 1966, 1967, and 1968 along with numerous other awards. Her horse, "Go Boy's Greater Glory," was raised and trained on the Allen farm. Her brother William Bailey Allen, II (1953 -) and all of Amelia's children have shown Tennessee Walking Horses. The family continues to keep walking horses and have a small training ring on the farm that dates to c. 1960 (resource inventory # 13).

With the field patterns, broad-based terraces, and many buildings, including barns, fences, and a horse training ring from the mid-twentieth century still intact; Allendale Farm is an exceptional physical document of how the progressive agriculture ideas of contour plowing, crop rotation, and breded livestock reshaped Tennessee's rural landscape during this period.

The additional documentation and boundary increase of this nomination expands upon the significance of Allendale Farm documented in the 1978 nomination. The boundary increase adds twelve contributing resources to the original four that together represent an intact Middle Tennessee farm. The boundary increase and additional documentation expands the period of significance to the fifty-year marker of 1963 in order to include additional information related to the settlement of the farm as well as Allendale's significant contribution to the progressive farming efforts of the late-nineteenth and early to mid-twentieth centuries. The boundary increase includes ten contributing resources from this later period; and an important addition to the previously listed Allen House that added kitchen and bathroom facilities in 1919 is included as part of the additional documentation. Since their listing in 1978, only minimal changes have been made to the two dwellings: a garage addition at the rear of the Allen House, and a sunroom addition to the Log House. Changes to the interior of these buildings are also minimal. These alterations do not detract from the integrity of the buildings. The twelve contributing resources included in the boundary increase all remain

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relatively intact and represent the evolution of the property from the early farmstead operated by the slaves buried in the extant slave cemetery, to the tenant operation of the late nineteenth century during market expansion, to the progressive farming and innovations of the early to mid-twentieth century. The property continues to be actively farmed, and, as a result, its agricultural setting remains substantially intact.

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- 1850 Census, slave schedule.
- 1860 Census, population schedule.
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Allendale Farm
Name of Property

Montgomery County, TN
County and State

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Allendale Farm
Name of Property

Montgomery County, TN
County and State

Interviews

Interview with William Bailey Allen, Sr. November 25, 1970, Clarksville Tennessee.

Interview with William Bailey Allen, Sr. November 12, 1971, Clarksville Tennessee.

Interview with William Bailey Allen, Sr. Interview by Amy Kostine, February 28, 2012.

William Bailey Allen statement, October 5, 2011. In "Allendale Farm, Montgomery County," Century Farms file.

Previous documentation on file (NPS):		Primary location of additional data:	
<input type="checkbox"/>	preliminary determination of individual listing (36 CFR 67 has been requested)	<input checked="" type="checkbox"/>	State Historic Preservation Office
<input checked="" type="checkbox"/>	previously listed in the National Register	<input type="checkbox"/>	Other State agency
<input type="checkbox"/>	previously determined eligible by the National Register	<input type="checkbox"/>	Federal agency
<input type="checkbox"/>	designated a National Historic Landmark	<input type="checkbox"/>	Local government
<input type="checkbox"/>	recorded by Historic American Buildings Survey #	<input checked="" type="checkbox"/>	University
<input type="checkbox"/>	recorded by Historic American Engineering Record #	<input type="checkbox"/>	Other
<input type="checkbox"/>	recorded by Historic American Landscape Survey #	Name of repository: MTSU Center for Historic Preservation	
Historic Resources Survey Number (if assigned):			

Allendale Farm
Name of Property

Montgomery County, TN
County and State

10. Geographical Data

Acreage of Property	310.42	USGS Quadrangle	New Providence, Tenn 301 SW and Clarksville, Tenn 301 SE
----------------------------	--------	----------------------------	---

UTM References

Datum (indicated on USGS map):

☐ NAD 1927 or ☒ NAD 1983

1. Zone: 16S	Easting: 466093	Northing: 4050905
2. Zone: 16S	Easting: 466190	Northing: 4051675
3. Zone: 16S	Easting: 467684	Northing: 4051664
4. Zone: 16S	Easting: 468041	Northing: 4051084

Verbal Boundary Description (Describe the boundaries of the property.)

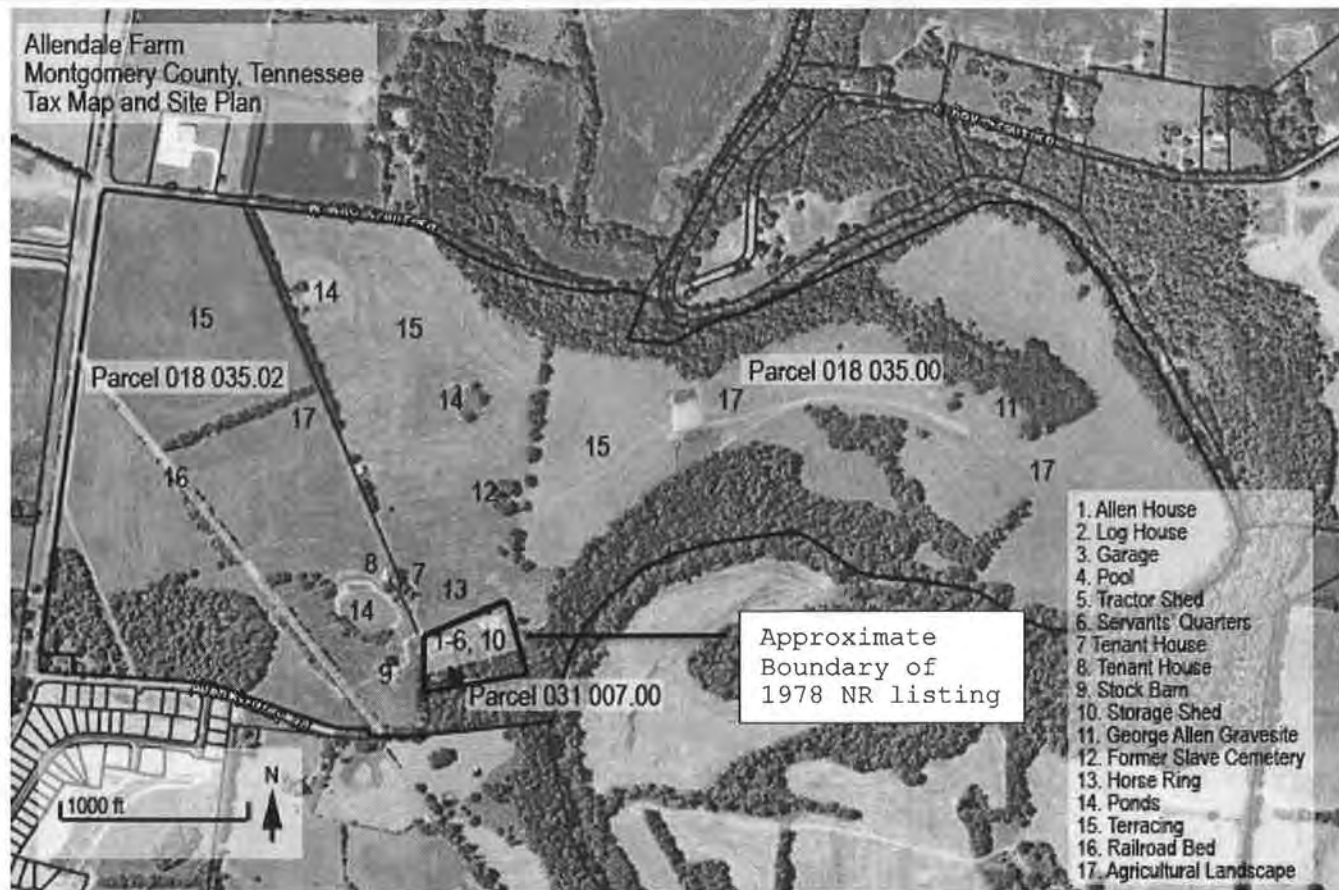
The Allendale Farm boundary increase expands the existing 3.9-acre National Register listed "Allen House" to a total of 314.32 acres, adding 310.42 acres of additional land. The 314.32-acre farmstead is comprised of three parcels identified on the attached Montgomery tax map as parcels 018 035.02 (95.4 acres), 018 035.00 (218 acres), and 031 007.00 (0.92 acres).

Boundary Justification (Explain why the boundaries were selected.)

The boundary increase includes the current parcels of land for which Allendale Farm is presently associated, including the 3.9 acres currently listed on the National Register. The entirety of the farmstead is a portion of the larger farm originally purchased by Abraham Allen Sr. in 1796.

Allendale Farm
Name of Property

Montgomery County, TN
County and State



**Tax Map Showing Boundary of Nominated Property and the
Approximate Boundary of the 1978 NR Listing**

Allendale Farm
Name of Property

Montgomery County, TN
County and State

11. Form Prepared By

Name	Carroll Van West, Elizabeth Humphreys, Jessica Bandel, Jessica French, Amy Kostine		
Organization	Center for Historic Preservation, MTSU		
Street & Number	MTSU Box 80	Date	September 20, 2012
City or Town	Murfreesboro	Telephone	615-898-2947
E-mail	Elizabeth.Humphreys@mtsu.edu	State	TN Zip Code 37132

Additional Documentation

Submit the following items with the completed form:

- **Maps:** A USGS map or equivalent (7.5 or 15 minute series) indicating the property's location.
- **Sketch map** for historic districts and properties having large acreage or numerous resources. Key all photographs to map.
- **Photographs** (refer to Tennessee Historical Commission National Register *Photo Policy* for submittal of digital images and prints)
- **Additional items:** (additional supporting documentation including historic photographs, historic maps, etc. should be included on a Continuation Sheet following the photographic log and sketch maps)

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 100 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Office of Planning and Performance Management, U.S. Dept. of the Interior, 1849 C. Street, NW, Washington, DC.

Allendale Farm
Name of Property

Montgomery County, TN
County and State

Photo Log

Name of Property: Allendale Farm
City or Vicinity: Clarksville
County: Montgomery State: Tennessee
Photographer: Elizabeth Humphreys and Carroll Van West
Date Photographed: January and February 2012

- 1 of 58. Entrance to Allendale Farm. Photographer facing east
- 2 of 58. View of domestic complex (Resource #1 and #2). Photographer facing northwest.
- 3 of 58. Allen House (Resource #1), façade. Photographer facing north.
- 4 of 58. Allen House (#1), detail of entrance on façade. Photographer facing north.
- 5 of 58. Allen House (#1), west elevation. Photographer facing east.
- 6 of 58. Allen House (#1), north elevation. Photographer facing south.
- 7 of 58. Allen House (#1), east elevation. Photographer facing west.
- 8 of 58. Allen House (#1), downstairs hall. Photographer facing south.
- 9 of 58. Allen House (#1), east master bedroom. Photographer facing southwest.
- 10 of 58. Allen House (#1), west parlor. Photographer facing northwest.
- 11 of 58. Allen House (#1), upstairs hall. Photographer facing northwest.
- 12 of 58. Allen House (#1), east bedroom. Photographer facing east.
- 13 of 58. Allen House (#1), west bedroom. Photographer facing northwest.
- 14 of 58. Allen House (#1), dining room. Photographer facing north.
- 15 of 58. Allen House (#1), log den. Photographer facing east.
- 16 of 58. Allen House (#1), log den. Photographer facing west.
- 17 of 58. Allen House (#1), attic of log house. Photographer facing west.

Allendale Farm
Name of Property

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- 18 of 58. Allen House (#1), hall of 1976 addition. Photographer facing north.
- 19 of 58. Allen House (#1), bonus room of 1976 addition. Photographer facing north.
- 20 of 58. Allen House (#1), garage. Photographer facing north.
- 21 of 58. Log House (Resource #2), south façade. Photographer facing north.
- 22 of 58. Log House (#2), west elevation. Photographer facing east.
- 23 of 58. Log House (#2), northeast oblique of rear addition. Photographer facing southwest.
- 24 of 58. Log House (#2), east elevation. Photographer facing northwest.
- 25 of 58. Log House (#2), detail of entrance door. Photographer facing south.
- 26 of 58. Log House (#2), c. 1800 living room. Photographer facing southwest.
- 27 of 58. Log House (#2), c. 1800 living room. Photographer facing north.
- 28 of 58. Log House (#2), c. 1800 dining room. Photographer facing north.
- 29 of 58. Log House (#2), box stair of c. 1800 house. Photographer facing north.
- 30 of 58. Log House (#2), attic of c. 1800 house. Photographer facing northwest.
- 31 of 58. Log House (#2), living room and kitchen of 1976 addition. Photographer facing south.
- 32 of 58. Log House (#2), breakfast room and sunroom. Photographer facing southwest.
- 33 of 58. Log House (#2), hall of 1976 addition. Photographer facing north.
- 34 of 58. Log House (#2), east bedroom of 1976 addition. Photographer facing northeast.
- 35 of 58. Pool (#4) and Garage (#3). Photographer facing southwest.
- 36 of 58. Tractor Shed (#5). Photographer facing northwest.
- 37 of 58. Servants' Quarters (#6). Photographer facing northeast.
- 38 of 58. Tenant House (#7). Photographer facing northwest.
- 39 of 58. Tenant House (#8). Photographer facing northwest.
- 40 of 58. Stock Barn (#9). Photographer facing north.

Allendale Farm
Name of Property

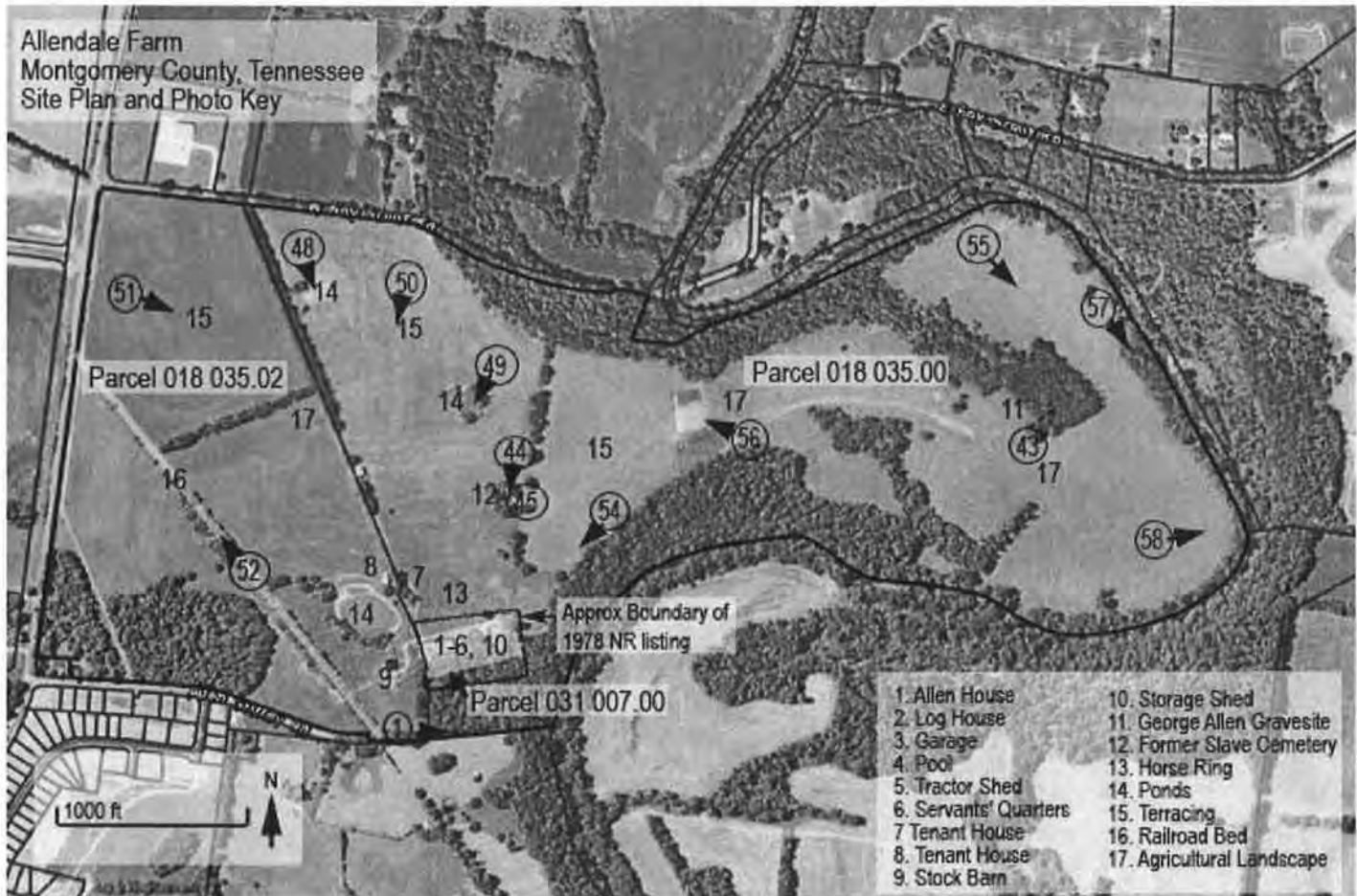
Montgomery County, TN
County and State

- 41 of 58. Stock Barn (#9), interior. Photographer facing north.
- 42 of 58. Storage Shed (#10). Photographer facing west.
- 43 of 58. George Allen Gravesite (#11). Photographer facing northeast.
- 44 of 58. Slave Cemetery (#12). Photographer facing southwest.
- 45 of 58. Slave Cemetery (#12), detail of fieldstone.
- 46 of 58. Horse Ring (#13). Photographer facing northwest.
- 47 of 58. Large Pond (#14). Photographer facing southeast.
- 48 of 58. Northernmost Small Pond (#14). Photographer facing southeast.
- 49 of 58. Southernmost Small Pond (#14). Photographer facing southwest.
- 50 of 58. Central Terraced Field (#15). Photographer facing south.
- 51 of 58. Western Terraced Field (#15). Photographer facing east.
- 52 of 58. Railroad Bed (#16). Photographer facing northwest.
- 53 of 58. Road dividing domestic complex from agricultural space (#17). Photographer facing west.
- 54 of 58. Landscape view from agricultural fields (#17). Photographer facing southwest.
- 55 of 58. Agricultural Landscape, east fields (#17). Photographer facing southeast.
- 56 of 58. View of hay enclosures (#17). Photographer facing northwest.
- 57 of 58. View along river on east boundary (#17). Photographer facing southeast.
- 58 of 58. View of bluff on east side of property (#17). Photographer facing east.

Allendale Farm
Name of Property

Montgomery County, TN
County and State

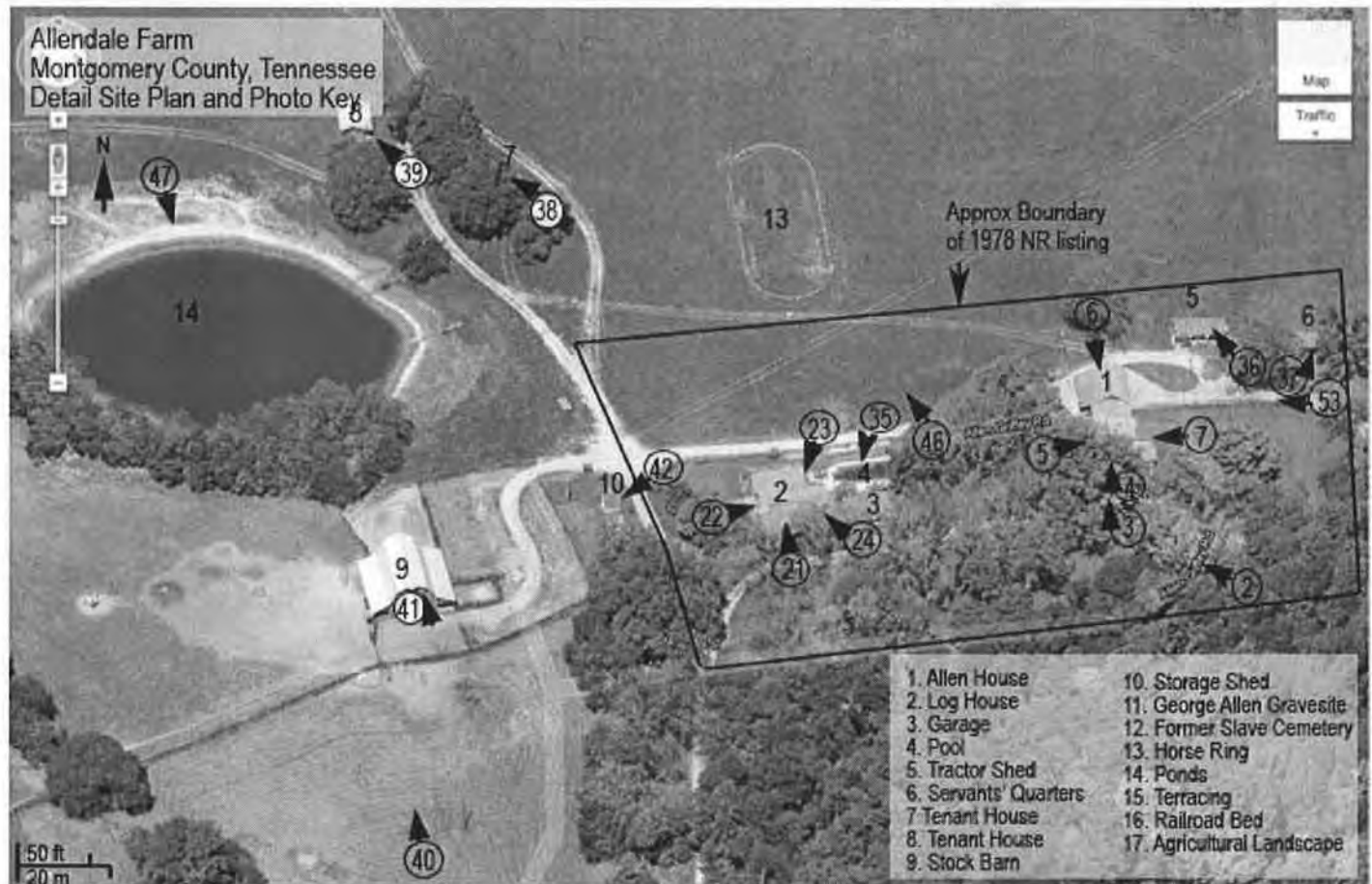
Site Plan (insert site plan with photo locations keyed to plan)



Site Plan and Photo Key of Allen House (boundary increase)/Allendale Farm

Allendale Farm
Name of Property

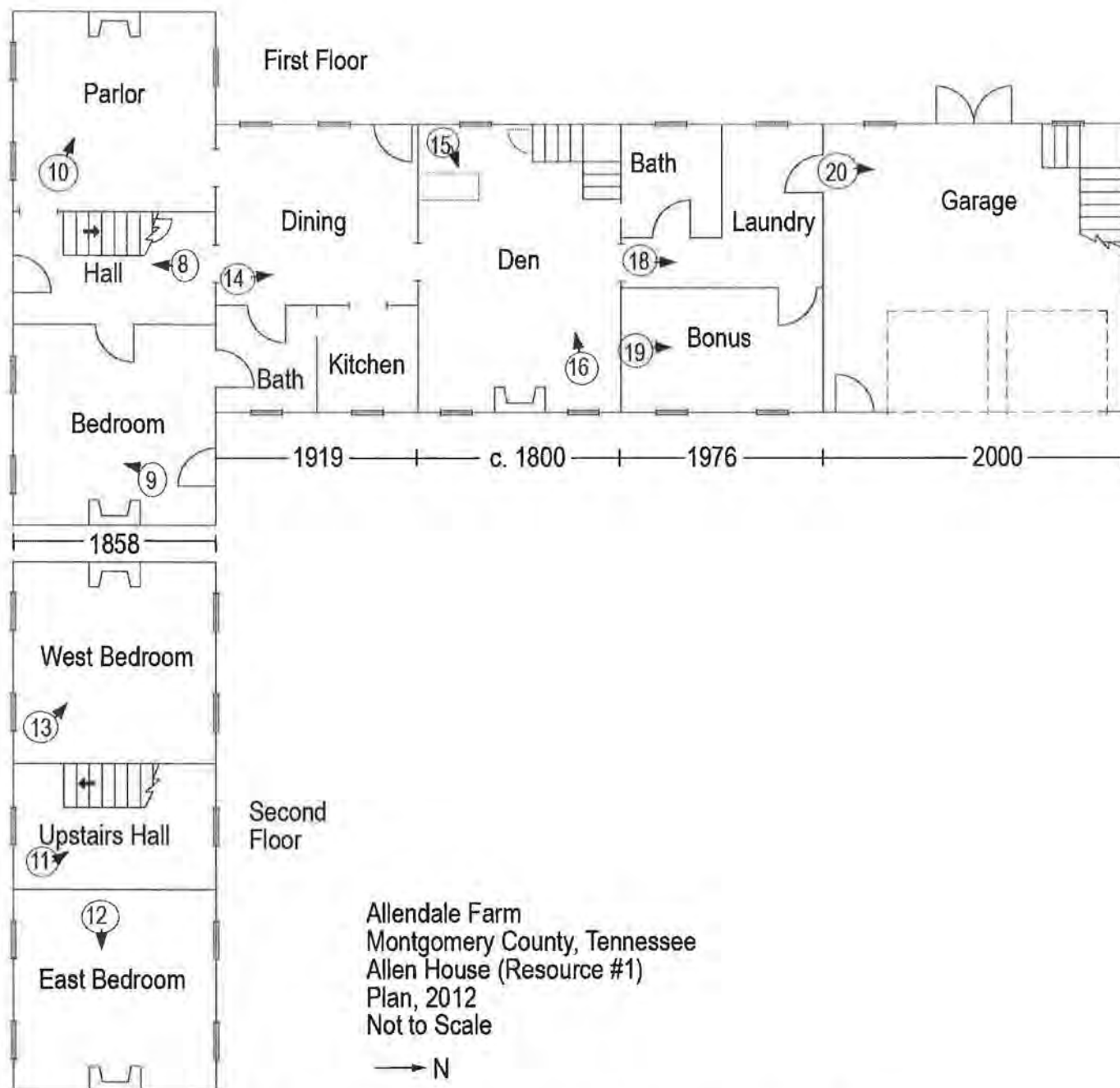
Montgomery County, TN
County and State



Detail Site Plan and Photo Key of Allen House (boundary increase)/Allendale Farm

Allendale Farm
Name of Property

Montgomery County, TN
County and State

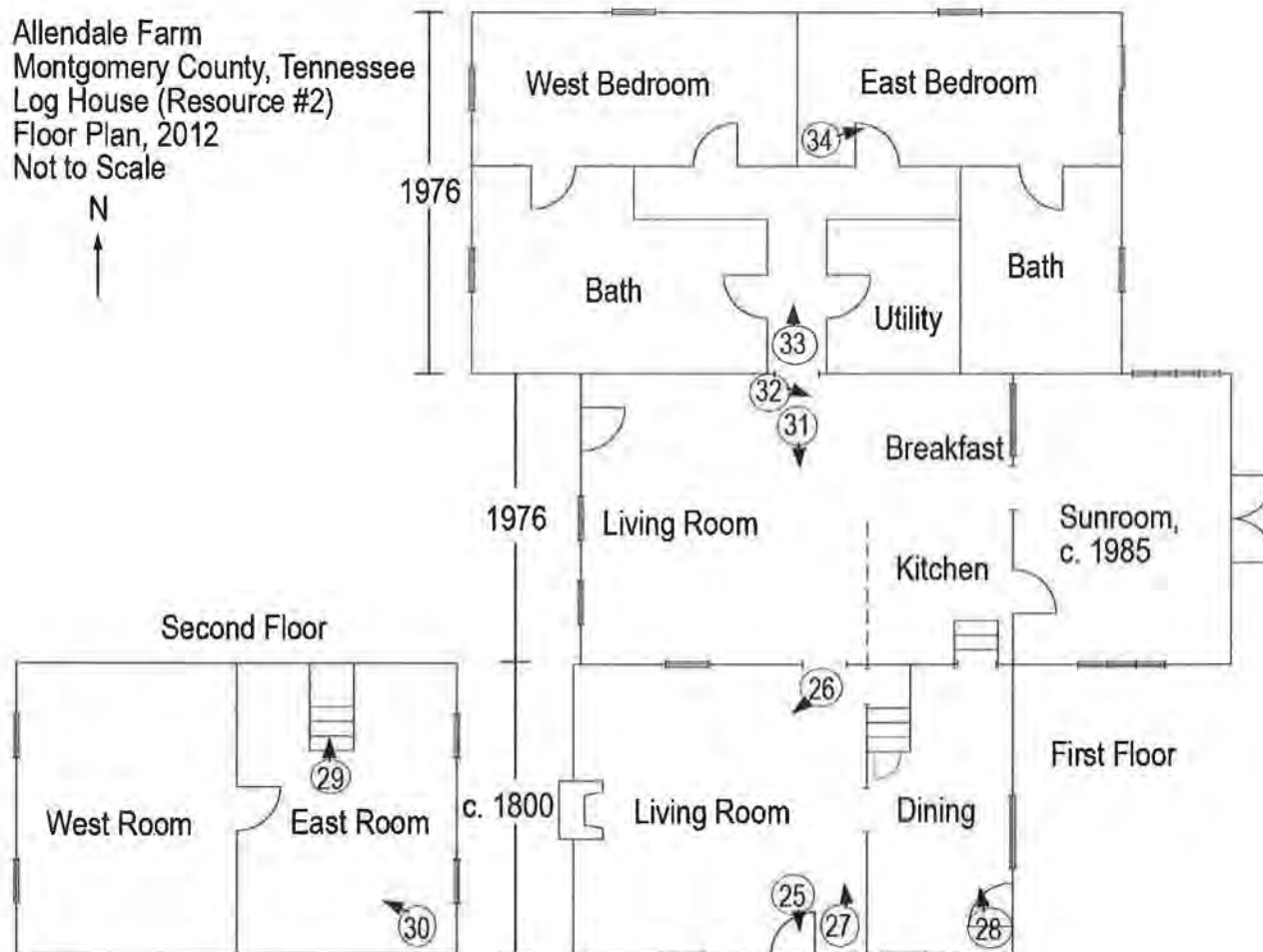


Allen House (Resource #1) Floor Plan and Photo Key

Allendale Farm
Name of Property

Montgomery County, TN
County and State

Allendale Farm
Montgomery County, Tennessee
Log House (Resource #2)
Floor Plan, 2012
Not to Scale



Log House (Resource #2) Plan and Photo Key

Allendale Farm
boundary increase
+ add 1000 ft. to
2401 + 2409 Allen
Cov. Hwy. 82
Clarksville, Montgomery
County, TN

1) US 466093 4050905
2) US 466190 4051675
3) US 467684 4051624
4) US 468241 4051084



Mapped by the Defense Mapping Agency
Published for civil use by the Geological Survey
Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs
taken 1951. Planimetric detail revised from aerial
photographs taken 1956. Field checked 1957

Polyconic projection. 10,000-foot grid ticks based
on Tennessee coordinate system

1000-meter Universal Transverse Mercator grid ticks,
zone 16, shown in blue

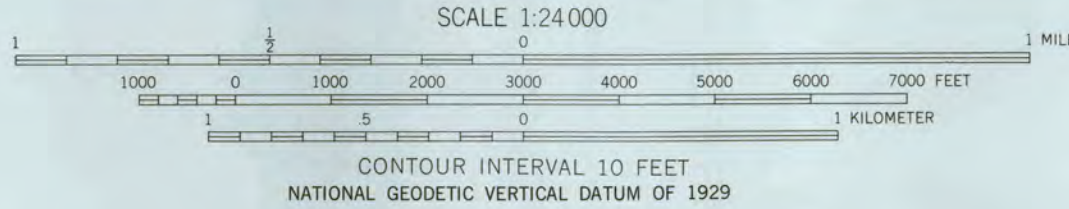
1927 North American Datum

To place on the predicted North American Datum 1983
move the projection lines 5 meters south and
1 meter east as shown by dashed corner ticks

Red tint indicates area in which only landmark buildings are shown

There may be private inholdings within the boundaries of
the National or State reservations shown on this map

MAP SALES
AND
SERVICES
1100 Lenoir Rd.
Nashville, TN 37216
615-242-3386



ROAD CLASSIFICATION

Primary highway, hard surface ———— Light-duty road, hard or improved surface ————

Secondary highway, hard surface ———— Unimproved road ————

Interstate Route ———— U. S. Route ———— State Route ————

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
AND TENNESSEE DEPARTMENT OF CONSERVATION, DIVISION OF GEOLOGY, NASHVILLE, TENN. 37243
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Revisions shown in purple and woodland compiled by
the Geological Survey in cooperation with State of
Tennessee agencies from aerial photographs taken 1981
and other sources. This information not field checked
Map edited 1984

Purple tint indicates extension of urban areas

CLARKSVILLE, TENN.
36087-E3-TF-024

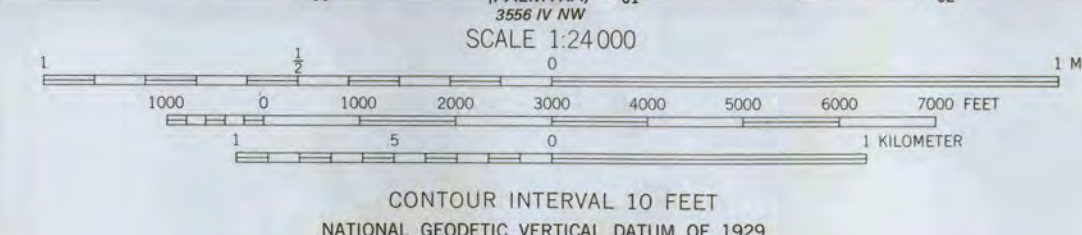
1957
PHOTOREVISED 1984
DMA 5557 III SE—SERIES V841



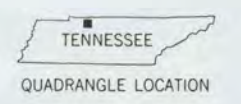
Maped by the Defense Mapping Agency
Published for civil use by the Geological Survey
Control by USGS, NOS/NOAA, and USCE
Topography by photogrammetric methods from aerial
photographs taken 1951. Planimetric detail revised from
aerial photographs taken 1956. Field checked 1957
Polyconic projection. 10,000-foot grid ticks based on
Tennessee coordinate system
1000-meter Universal Transverse Mercator grid ticks,
zone 16, shown in blue. 1927 North American Datum
To place on the predicted North American Datum 1983
move the projection lines 5 meters south and
2 meters east as shown by dashed corner ticks
Unchecked elevations are shown in brown
There may be private inholdings within the boundaries of
the National or State reservations shown on this map



Revisions shown in purple and woodland compiled by the
Geological Survey in cooperation with State of Tennessee agencies
from aerial photographs taken 1981 and other sources. This
information not field checked. Map edited 1986
Purple tint indicates extension of urban areas



THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
AND TENNESSEE DEPARTMENT OF CONSERVATION, DIVISION OF GEOLOGY, NASHVILLE, TENN. 37219
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



ROAD CLASSIFICATION
Heavy-duty ——— Light-duty ———
Medium-duty ——— Unimproved dirt ———
U.S. Route ——— State Route ———

NEW PROVIDENCE, TENN.
SW/4 CLARKSVILLE 15' QUADRANGLE
36087-E4-TF-024

1957
PHOTOREVISED 1986
DMA 3557 III SW-SERIES V841



PRIVATE
DRIVE
NO
TRESPASSING

NO
PARKING



















































































































National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form*. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions.

1. Name of Property

Historic name Oak Hill Farm
Other names/site number N/A
Name of related multiple property listing N/A
(Enter "N/A" if property is not part of a multiple property listing)

2. Location

Street & Number: 1280 Keeling Road
City or town: Stanton State: TN County: Tipton & Haywood
Not For Publication: ☐ NA Vicinity: ☒ X

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this ☒ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property ☒ meets ☐ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

☐ national ☐ statewide ☒ local

Applicable National Register Criteria: ☒ A ☐ B ☒ C ☐ D

Clarence M. Smith
Signature of certifying official/Title:

2/7/13
Date

☒ State Historic Preservation Officer, Tennessee Historical Commission

State or Federal agency/bureau or Tribal Government

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria.

Signature of Commenting Official:

Date

Title:

State or Federal agency/bureau or Tribal Government

Oak Hill Farm

Name of Property

Tipton & Haywood, TN

County and State

4. National Park Service Certification

I hereby certify that this property is:

- ☒ entered in the National Register
☐ determined eligible for the National Register
☐ determined not eligible for the National Register
☐ removed from the National Register
☐ other (explain:)

Jon E. Beall
Signature of the Keeper

3.27.13
Date of Action

5. Classification

Ownership of Property

(Check as many boxes as apply.)

- Private ☒
Public – Local ☐
Public – State ☐
Public – Federal ☐

Category of Property

(Check only one box.)

- Building(s) ☐
District ☒
Site ☐
Structure ☐
Object ☐

Number of Resources within Property

(Do not include previously listed resources in the count)

Contributing	Noncontributing	
9	5	buildings
2	0	sites
1	0	structures
0	0	objects
12	5	Total

Number of contributing resources previously listed in the National Register 0

Oak Hill Farm

Tipton & Haywood, TN

Name of Property

County and State

6. Function or Use

Historic Functions

(Enter categories from instructions)

DOMESTIC: single dwelling

AGRICULTURE: animal facility

AGRICULTURE: storage, processing

AGRICULTURE: agricultural outbuilding

FUNERARY: cemetery

AGRICULTURE: agricultural field

Current Functions

(Enter categories from instructions)

DOMESTIC: single dwelling

AGRICULTURE: animal facility

VACANT/NOT IN USE

AGRICULTURE: storage

FUNERARY: cemetery

AGRICULTURE: agricultural field

7. Description

Architectural Classification

(Enter categories from instructions.)

FEDERAL

CRAFTSMAN

NO STYLE

Materials: (enter categories from instructions.)

Principal exterior materials of the property:

WOOD; BRICK; ASBESTOS; METAL

Narrative Description

The Oak Hill Farm Historic District includes approximately 213 acres of farmland straddling the Tipton and Haywood County lines. The district is comprised of two dwellings, including an 1834 Federal-style I-house, and a collection of outbuildings associated with the mid-20th century period of rural reform and agriculture. The main house, referred to as the Taylor House, is a good surviving example of early settlement Federal-style frame architecture in West Tennessee.¹ The house retains a high degree of integrity dating to its original construction and the postwar period of agricultural innovation (1945-1963). The dwelling's mid-20th century additions are situated on the south and southeast portions of the house and reflect postwar emphasis on modernizing and improving the quality of life for the farm family. For example, the rear addition (dating to 1945-1946) replaced an original ell on the rear of the house (resource #10) and added a kitchen and bath to the home, introducing indoor plumbing for the first time. At the same time these additions were made, electricity was installed throughout the main dwelling.

¹ James Patrick, *Architecture in Tennessee, 1768-1897* (Knoxville: University of Tennessee Press, 1981), 95.

Oak Hill Farm

Tipton & Haywood, TN

Name of Property

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Oak Hill Farm includes both domestic and agricultural spaces. The built environment is concentrated at the center of the nominated acreage. The Taylor House (resource #1) anchors the property and the agricultural complex surrounds it on the east and south. Most of the supporting agriculture-related resources date to the postwar period of agricultural innovation. To the east of the house sits the barn (resource #3), the dairy parlor (resource #4), the Keeling House (resource #6), the granary (resource #7), the smoke house (resource #8), and the well house (resource #9). To the south of the house are the machine shed (resource #13) and the chicken house (resource #14). The tenant houses are situated further out from the agricultural and domestic complex. This placed tenants closer to the fields and animals they tended. Tenant House 1 (resource #10) is situated the closest to the main house of any of the tenant buildings because it was physically removed intact from the main body of the Taylor House, while the other houses (resources #11 and #12) were erected on site in wooded areas.

Access to the property is along Keeling Road in Tipton County, and extends east into Haywood County. The Taylor House and mid-20th century buildings are located in Tipton County while portions of the agricultural land are situated in Haywood County. The agricultural land was used primarily for row crop production from the early settlement period. Some row crop production continued through the mid-century, but beginning in 1918, the land most notably served as pastureland for the dairy stock and to produce the feed and roughage necessary to support the dairy operation. The agricultural fields from this period of innovation and progressive agriculture (1918-1940) are still extant. During the mid-20th century, the property owner, Lancelot Maclin, Jr., transformed the landscape through an extensive program of soil reclamation and terracing to create productive acreage from land exhausted by cotton and other row crops during the 19th century. The fields were re-terraced later in the 20th century, but the new terracing is visible in the same fields as the historic terracing. The landscape of both the domestic complex and the agricultural fields contribute to the historic character of the property. The driveway follows its historic path and mature trees remain from the early settlement period. Other landscape features such as the fields, pastures, tree lines, fences, gates, and farm roads date to the 20th century periods of progressive agriculture and postwar innovation. The nominated property is comprised of a total of twelve contributing buildings and structures dating to the early settlement period, the progressive agriculture period, and to the postwar innovation period. Two contributing sites are also extant, a c. 1860-1880 cemetery and the overall agricultural landscape, c. 1918-1963. Non-contributing resources include five buildings that are either less than fifty years old or whose present condition is so deteriorated that it no longer contributes to the overall historic integrity of the district.

1. Taylor House (1834, Contributing building)

The Taylor House is a two-story, wood frame, Federal-style I-house completed in 1834. There is no record of who designed the house. Among the character-defining Federal-style detailing are the symmetrical, five-bay façade, entry door and central hall plan, original fireplace mantels, and decorative interior detailing. Small, single-story additions dating to 1945-1946 are situated on the east and south elevations. Brick used for the continuous brick foundation and external end chimneys was produced on-site, and portions of the foundation have been replaced to stabilize the house, mainly during the mid-20th century period of improvements.² The side-gabled roof is asphalt shingled. A single-story, Craftsman-style porch with hipped roof is centered on the façade and was likely constructed during the early to mid-20th century. Above this porch is situated a later, single bay, gabled porch that is not accessible. Unless otherwise specified, primary

² Family oral tradition has held that the bricks were produced on-site; see the photo log for images featuring above-ground evidence of the brick kiln.

Oak Hill Farm

Tipton & Haywood, TN

Name of Property

County and State

windows are two-over-two, double-hung wood sash. The façade windows feature fixed, wood louvered shutters. These windows, though historic, replaced the original windows during the mid-20th century.³

The single-story shed roof additions to the east and south elevations are clad in weatherboard and have asphalt shingle roofs. The east elevation addition sits on a brick foundation, and the south elevation addition sits on a mixed brick and concrete block foundation. The south elevation addition houses a kitchen, a room currently used as an office, and a modern bathroom. This addition took the place of a large gable-roof wing which was relocated to an area south of the Taylor House and converted into a tenant house (*see* resource #10). The east elevation addition houses a mudroom and functions as the primary entry from the farm and outbuildings. The construction of the mudroom reduced the amount of farm dirt and mess tracked into the home; a common modification during the mid-20th century period of rural farm improvements.

Exterior

The façade (north) of the Taylor House sits on a continuous brick foundation (Photo 1). The structure of the house is wood frame with weatherboard siding, and the side gable roof has a boxed cornice and is clad in asphalt shingle. Two brick external end chimneys are visible. The façade is divided into five symmetrical bays, and the central bay is dominated by an early- to mid-20th century, single-story, one-third-width porch featuring Craftsman-style influences. The porch sits on a continuous brick foundation with concrete flooring. The porch features a hipped, asphalt-shingle roof with exposed rafter tails. The roof is supported by square wooden columns with brick piers. The porch is accessed by a central concrete stair with brick balustrade. Centered above the porch is situated an inaccessible single-bay, gabled porch. This porch features a plain vertical plank balustrade and a gable-front asphalt shingle roof with visible rafter tails and is supported by two square wooden columns. The underside of both porch roofs is beadboard.

The façade's central bay includes the main entrance to the house on the first level: a Federal-style, single-leaf, eight-panel wood door flanked by fluted Ionic pilasters and four-light sidelights. An elliptical fifteen-light fanlight is situated above the door. The door retains its original hardware, and is protected by a c. 1950s wrought-iron and glass storm door (Photo 5). The second level of the central bay includes an eight-over-eight, double-hung, wood sash window, and is the smallest on the façade. All of the windows on the façade have been fitted with storm windows. The north elevation of the east mudroom addition is visible behind the access point to the basement, both of which extend from the east elevation of the house. The north elevation of the enclosed, exterior basement access features a brick foundation with weatherboard-clad walls and an asphalt-shingle roof pitched down toward the house. The north elevation of the mudroom addition features a three-over-one, double-hung, wood sash window.

The west elevation of the Taylor House is dominated by the wide brick exterior end chimney, which narrows at the attic level. On the second level, a two-over-two double-hung, wood sash window is situated south of the chimney. The west elevation also includes the west elevation of the rear shed-roof additions from 1945-1946. A rectangular louvered vent sits near where the shed roof touches the Taylor House, and on a projection at the south end of the addition there is a three-over-one, double-hung, wood sash window with a fixed metal awning (Photo 2).

³ The windows were most likely replaced between 1935 and 1947; at one point during that period, a tree fell on the northwest corner of the house, and Maclin, Jr. likely replaced all of the windows when repairs were made to that corner of the house.

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The south elevation includes the main core of the 1834 house, the 1945-1946 shed roof addition, and the south elevation of the mudroom addition. The 1945-1946 shed roof addition occupies the east two-thirds of the south elevation. The west end of the south elevation (the main body of the 1834 house) includes four windows, two on each floor. The windows match those on the façade, with the exception of the eastern-most second-story window, which is a one-over-one, double-hung, wood sash window. The south elevation of the 1945-1946 addition includes five, three-over-one, double-hung, wood sash windows. The south elevation of the mudroom addition includes a single three-over-one, double-hung, wood sash window (Photo 3).

The east elevation includes the gable end of the house, the one-story mudroom addition, the east elevation of the south/rear addition, and the enclosed access point to the basement. The east elevation of the 1834 portion of the house is dominated by the wide brick exterior end chimney, which narrows at the attic level. On the second floor, a two-over-two, double-hung, wood sash window with fixed louvered shutters is situated south of the chimney. On the first floor, a one-over-one replacement metal sash window is located north of the chimney, behind the enclosed basement stairwell. The mudroom addition sits on a continuous brick foundation, and includes a contemporary glass storm door on the south end of the east elevation and a pair of three-over-one, double-hung, wood sash windows on the north end.⁴ The enclosed basement stairwell is shorter than the other additions, and includes a glass storm door at the top of the stairs. The enclosure of the stairwell was undertaken by Lance Maclin, Jr. when he converted a portion of the basement into his farm office, likely c. 1960 when the concrete basement floor was poured. It is most likely that the entrance to the basement existed before Maclin made his updates (Photo 4).

Interior

The 1834 house follows a central hall plan featuring parlors on either side and a dog-leg staircase at the hall's south end. This plan is more or less reflected upstairs, with a central hall and two flanking bedrooms. The north end of the upstairs hall, however, is enclosed to form a small bedroom. The 1834 section of the house retains a high degree of integrity, including the majority of its historic tongue-and-groove hardwood floors, paneled wainscoting with simple molded chair rails on the lower level, eight-inch baseboards, brick fireplaces and Federal-style wood mantels, original multi-paneled wood doors with original hardware, and plaster walls. The upper and lower levels have the same molded square architrave surrounds on doors and windows, except where otherwise noted.

The imposing formal front entry opens to the central hall. The hall features an original dog-leg wood staircase leading up to the second floor. The banister is plain and curved with square balusters and decorative turned newel posts (Photo 11). The carriage of the stairway extends to the floor and features historic wood paneling. Historic hardwood floors survive and are hidden beneath contemporary carpeting. In addition to the historic features seen throughout the lower level, the central hall also features a picture rail as well as wood paneled wainscoting. There are five openings in the hall, including the Federal-style front door. A simple molded and arched trim surrounds the entryway and the door retains its historic hardware (Photo 6). Directly across from the front entrance on the south end of the hall is a matching wood door that once served as the rear entrance to the house, but now provides access to the rear additions. Near the north end of the hall on the east and west walls are single-leaf, six-panel wood doors with original hardware, each allowing access

⁴ The brick used for the addition foundations is most likely the brick that originally supported the gable end addition that was moved south of the house. The brick matches the foundation brick elsewhere on the 1834 part of the house, but the mortar does not, suggesting that the material was reused. See resource #10 for information on the tenant house created from the gable end addition.

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to their respective parlors. The fifth door is a six-panel wood door with original hardware on the east wall beneath the staircase, and allows interior access to the basement (Photo 7).

Accessible from the central hall, the dining room is a large room occupying the entire west end of the first floor (Photo 8).⁵ The walls and ceiling in this room have been replaced with drywall, but retain their historic wood-paneled wainscoting, baseboards, and crown molding. The west wall is dominated by a brick fireplace and hearth which includes what appears to be an original wood mantel and mantelshelf. The mantel is an excellent example of modest Federal-style vernacular detailing with its thin lines and formality. The sides of the mantel include pilasters with a stylized pedestal, stylized column shafts with channeling, a plain mantelpiece with central block and architrave detailing, and a molded cornice with implied capitals on which the mantelshelf rests (Photo 9).

Like the dining room, the east parlor occupies the entire east side of the original I-house (Photo 10). Partial renovations in 1959 of this room included laying a new floor, replacing the plaster walls with drywall (historic baseboards, and crown molding were retained), replacing the hearth on the east wall fireplace (the mantel, which matches the mantel in the dining room, was retained), the partial enclosure of the firebox opening, and the installation of a cabinet built into the wainscoting for firewood storage. The firebox opening has been fitted with a wood-burning stove insert, which does not compromise the historical fabric. Historic wood-paneled wainscoting, less formal than the hall and dining room, surrounds the room. There are five openings in the east parlor; the six-panel wood door leading from the central hall on the north end of the west wall, two windows on the north wall, a single window north of the fireplace on the east wall, and a cased opening on the east end of the south wall leading to the kitchen.⁶

The stair from the first floor runs north along the eastern wall and reaches a landing along the northern wall of the interior. The landing has historic wood floorboards, simple square wood balusters, turned wood corner posts, and a simple wood handrail. The stair then turns south and runs along the western wall of the well to reach the second floor hall. The hall is confined to the southern end of the second floor, while a bedroom occupies the northern end of the central portion of the house on the second floor. The second floor hall retains historic tongue-and-groove wood flooring, simple baseboards, and plaster walls. Unlike the first floor hall, this hall does not include wainscoting (Photo 12). The southern end of the central hall consists of the stairs on the west and an open well on the east. The stairs and the open well retain a historic balustrade like that of the landing. A secondary, modern wood railing has been added along the western wall of the stair for additional support. Three openings are located in the second floor hall: a non-cased opening on the west wall into a modern hallway and west bedroom; a historic six-panel wood door on the north wall leading into the north bedroom; and a historic six-panel wood door on the east wall that leads to the east bedroom. The two historic doors match the other interior doors of the 1834 house and retain simple molded surrounds.

Directly across from the stairs, is a small bedroom accessed through an historic six-panel wood door (Photo 13).⁷ The room retains the other shared features of the second floor, though its plaster has been replaced with drywall. The west wall has been altered to include a c. 1950 built-in closet and drawers with plain fronts and plain button drawer pulls. A window is centered on the north wall. This window is smaller than all others on

⁵ This room is thought to have originally been a formal parlor.

⁶ This open doorway once included a six-panel wood door with original hardware that matches the other interior doors on the lower level. It is currently located in storage on the property.

⁷ There is no indication that this room is not original to the house, and family record supports that assessment.

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the 1834 house suggesting that it is not original to the house and may have been replaced at some point during the building's history.

The second floor central hall leads west into a modern area altered c. 1960 to accommodate a second-floor half bath. A non-cased opening where the door to the west bedroom was originally located leads into the modern section. This section is composed of a small secondary hall to the north and a small half bath to the south. The secondary hall has vinyl floor tiles over the original hardwood, drywall walls, and a drywall ceiling. Plain built-in wood cabinets are located on the north wall of the secondary hall. On the south wall of the secondary hall is a plain wood door within a simple wood surround. This door leads into a small half bath composed of vinyl floors, and drywall walls and ceiling. A small window is located on the south wall of the bath. On the west wall of the secondary hall is a historic six-panel wood door set within a simple wood surround that leads into the west bedroom. The c. 1960 addition made the west bedroom smaller, but the door and surround were moved from the original location.

The west bedroom occupies the remainder of this end of the original house (Photo 15). It retains its historic wood flooring, but the walls are a combination of plaster and drywall. It retains a decorative milled chair rail, eight-inch baseboards, and has a drywall ceiling. There are four windows in this room: two on the north wall, one on the west wall south of the fireplace, and one on the south wall. The north section of the east wall has been fitted with a c. 1950 built-in closet with sliding doors and a pair of cabinets above. The west wall is dominated by a brick fireplace with a brick hearth and a simpler version of the mantelpiece and mantelshelf from the first floors—the details are the same, though smaller and there is no central block on the frieze.

The east bedroom occupies the east end of the original house and retains its historic floorboards, baseboards, chair rail, molding, and plaster walls and ceiling (Photo 16). The room is accessed via its original door on the west wall from the upstairs hall. There are three windows: two on the north wall, and one south of the chimney on the east wall. There is a c. 1950 closet built into the room in the southwest corner. This closet matches the one built into the west bedroom, and this bedroom features a fireplace and mantel on the east wall that matches the one in the west bedroom (Photo 17). There is no evidence to suggest that there were ever windows on the south wall of this room, likely because the gable end ell (which was later removed when then shed roof addition was made c. 1945/1946) prevented the addition of windows on this side of the house.

1945-1946 Additions: South and East Elevations

In 1945-1946, a shed roof addition was added to the south elevation of the house. A mudroom addition was made at the same time extending from the east elevation of the house and the south addition. The south elevation shed room addition introduced the first indoor plumbing to the home, and at the same time, electricity was added throughout the home. The south addition created a kitchen, an open area currently used as an office, a hallway with closets, and a full bathroom. Unless otherwise noted, these spaces have hardwood floors, drywall walls, plain four-inch baseboards, architrave trim on the window and doorframes, and crown molding.

The kitchen occupies the east end of the south addition (Photo 18). It has a vinyl-covered floor. The north and east walls are clad in vertical tongue-and-groove plank. The room has three doors, all located on the north end. The north wall has had the door removed between the kitchen and the east parlor.⁸ A doorway on

⁸ This original c. 1834 door is in storage; it originally allowed access to the gable end wing that was removed c. 1945/1946.

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the west wall opens into the office space. A six-light, wood-glazed door on the east wall opens onto the mudroom addition. The west wall includes cabinets, the refrigerator, and the original ceramic sink with stainless trim where it meets the countertop. A peninsula with open cabinets projects to the east on the south end of the west wall cabinets to form a separate breakfast nook at the south end of the kitchen. There are four windows on the kitchen's south end: one on each the east and west ends of the breakfast nook, and a double window on the south wall. The kitchen cabinets date to c. 1960, and are solid wood with bevel detail and original hardware. A soffit fills the gap between the top of the cabinets and the ceiling, and the countertops are c. 1960 plastic laminate. The cabinets and stove occupy the north two-thirds of the east wall. There are additional built-in cabinets along the lower portion of the north wall, with open shelving up to the soffit level.

The space being used as an office has two doorways: one on the north end of the east wall, and one on the north end of the west wall. It has a cased opening with architrave trim on the east wall, which occupies the space above the kitchen sink. There are two windows on the south wall. An open closet with architrave trim is built into the south end of the west wall (Photo 19).

A short hall runs lengthwise along the north end of the addition from the office space to the west end of the addition (Photo 21). The hall has five openings: the open doorway separating the office and the hall, the original door connecting the addition to the central hall of the 1834 house on the north wall, a modern closet door on the west end of the hall, and two six-panel wood doors on the south wall. The door on the east end of the south wall opens to a storage closet. The door on the west end of the south wall opens into the bathroom.

The downstairs bathroom occupies the southwest corner of the addition (Photo 20). The bathroom was updated c. 1950, and has a vinyl floor, ceramic tile and drywall walls, and a drywall ceiling. The room is accessed via a door on the north side, and has a window on the south wall. Another six-panel wood door on the north end of the west wall opens to a storage cabinet. The south end of the west wall is occupied by a bathtub with shower and ceramic tile, all c. 1950. The north end of the east wall includes the c. 1950 cabinetry with laminate countertop and ceramic sink with stainless steel trim. The cabinets feature decorative trim and retain their original hardware. A half-wall separates the cabinets from the contemporary replacement toilet at the south end of the east wall.

The mudroom addition extending from the east elevation shares the exterior walls of the original 1834 house and the 1945-1946 kitchen addition. The mudroom has a linoleum floor, drywall walls, with the exception of the west wall, which reflects the exterior siding of the main house and rear addition. The mudroom features a drywall ceiling. It is accessed from the exterior of the house via a contemporary glass storm door on the north end of the east wall. Interior access is through a wood-glazed door opening to the kitchen on the north end of the west wall. There are four windows in the mudroom: one on the south wall, one on the north wall, and a pair of windows on the east wall. A small utility closet with a five-panel wood door is built onto the south end of the west wall. A small ceramic utility sink sits below the window on the south wall, which speaks to the room's function as a transitional space to keep the dirt and mess of farm life out of the house (Photo 22).

The original, 1834 I-house section of the Taylor House includes a basement, which is currently used for storage. Interior access is via a set of wooden stairs below the central stair on the main floor. The basement walls are the brick of the foundation, with some evidence of plastering or whitewashing. The ceiling is the exposed rafters and floorboards of the first floor. The space under the west end of the house is largely open

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except for brick support piers. The east section is divided by a brick wall with a four-panel wood door with plain trim on the north end. The east quarter of this space was converted into a farm office by Maclin, Jr. and has a plywood partition and vertical plank door with plain trim. The office also has a door leading to an enclosed stairwell. The door is a single-light wood-glazed door that has been sawed off on the bottom portion to accommodate the non-standard height of the doorframe. The floor of the basement was dirt until 1956, when Maclin had concrete poured. There are two fireplaces (one on the east exterior wall, one on the west exterior wall) in the basement that appear to feature stucco or concrete over brick with a plain hearth. Neither feature mantels (the mantel on the east fireplace is not attached and not original to the house) (Photo 23).

2. Second Residence (1979, Non-Contributing building due to age)

The second dwelling on the Oak Hill property is a west-facing brick-veneer, frame Colonial Revival two-story house (Photo 24). It sits on a brick foundation and features an asphalt-shingle roofing. The house is divided into three sections: the side-gabled, two-story building with a two-story, full-width colonnade; and two front-gabled wings connected to the principal massing by side-gable hyphens. The centered, two-story massing consists of three bays. The central bay includes the main entry on the lower level and a French door opening onto a balcony with a wrought-iron balustrade on the second floor. The flanking bays feature two six-over-six, double-hung, vinyl sash windows with fixed louvered shutters. Each front-gabled wing includes two of these same windows. A rear, external brick chimney is visible above the roofline.

3. Barn (1959, Contributing building)

The barn was built in 1959 and is situated just north of east to the main house (Photos 25 and 26). The wood structure is built directly into the ground following a pole barn construction technique, and the center section has a raised-seam metal gable roof running east to west with lean-to sections on the north and south sides. The walls are board-and-batten, and the barn has a packed dirt floor. The structure is supported by creosote-treated telephone poles and was built to accommodate Lance Maclin, Jr.'s growing dairy operation. He described the space as a "loafing barn" where his dairy cattle waited to be milked twice a day. The interior space has been modified to include pens on the south end to accommodate the current residents' hog operation. The wood fencing that served as chutes to move the cattle into the attached dairy parlor are still extant. The west end of the barn includes a covered hyphen connecting it to the dairy parlor where cows were milked (Photo 27).

4. Dairy Parlor (1948, Contributing building)

The one-story dairy parlor was built in 1948 and is situated slightly northeast of the main house (Photo 28). It is attached to the barn (resource #3) via a connecting gabled roof hyphen, which would have been gated to feed the cows from the barn into the milking area. It sits on a poured concrete and concrete block foundation. The lower portion of the walls are brick, and the upper portion are board-and-batten. A raised seam metal gable roof extends from the barn west over the hyphen. Within the gable breezeway/hyphen are a series of wood chutes that allowed the cattle to move from the barn into the dairy parlor for milking. The dairy parlor is a center aisle structure with elevated concrete stalls where the cows stood to be milked, and the metal milking apparatuses remain (Photo 29). The north and south walls feature screened openings to allow light to enter the building. At the west end of the center aisle, a wood glazed door allows access to the storage area where the milk was kept until it could be transported for sale.

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5. Hog House (1944, Non-Contributing building)

The hog house is situated in a field southeast of the main house and well south of the barn (Photo 30). It is a rectangular building on a concrete block foundation, clad in vertical wood planking, with a corrugated metal gable roof. The interior is visible through windows and the structure still contains some of the fencing and pens associated with hog-keeping. The building no longer retains its integrity of design, workmanship, or materials.

6. Keeling House (1950, Contributing building)

The Keeling House was originally located in the town of Keeling and its date of construction appears to be c. 1920 (Photos 31 and 32). It was relocated to Oak Hill Farm c. 1950. It is situated southeast of the main house, and south of the barns. It is a rectangular, frame, one-story structure on a concrete block pier foundation with board-and-batten siding and a raised-seam metal gable end roof. There is a shed roof extending from the south elevation with square wood columns to support it, and the house is accessible by a wood door on the west elevation. The house itself is used for storage, and the shed roof projection provides shelter for the hogs whose field surrounds the house.

7. Granary (1956, Contributing building)

The granary was built in 1956 and is situated directly east of the house (Photo 33). This one-and-one-half story structure has a raised-seam metal, side gable roof that runs east-west, and it has shed roofs with square wooden post supports situated along the north and south sides. This board-and-batten structure has large double wood doors centered on the east and west elevations. Three window openings are located in the half story on both the east and west gable ends. Board-and-batten panels shelter these openings. A wood attic vent is located in each of the gable ends. The interior includes a center aisle, dirt floor, and mesh and wood structures originally built to hold feed. The building is now used primarily for storage. This building was constructed according to plans provided by the University of Tennessee Agricultural Extension Service (*see* Figure 7).

8. Smoke House (c. 1920, Contributing building)

The one-story smoke house is situated east of the house between the barn (resource #3) and the granary (resource #7; Photo 34). It sits on concrete block piers, is clad in board-and-batten, and has a corrugated metal gable front roof. The roof features overhanging eaves with exposed rafter tails. The vertical plank wooden door has a wide wood lintel and is located on the west elevation beneath the gable. Interior wood flooring appears to be tongue-and-groove. This structure is currently used for storage.

9. Well House (c. 1960, Contributing building)

The well house is situated east of the main house and west of the smokehouse (resource #8), between the barn and the granary (Photo 35). The well house is a small square building on a concrete block foundation with asbestos cladding and a corrugated metal shed roof that pitches down to the east. It is accessed by a vertical wood plank door on the north elevation. A concrete block addition is located on the south end of the well house and features a flat metal roof and screened walls. This building includes a set of narrow wood troughs arranged to form shelves. Each trough originally contained charcoal, and this system was used to filter the well water.

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10. Tenant House 1 (c. 1834 and c. 1945, Contributing building)

This tenant house was historically the rear ell of the main house built at the same time as, or shortly after, the original construction in 1834. It was removed from the main house in 1945-1946 and moved to its present location south of the main house to serve as a tenant house.⁹ The sill beams on the tenant house match those found on the main house, and the façade retains one of its earliest windows, a twelve-over-twelve, double-hung, wood sash window. The façade windows also retain louvered wood shutters, which match those found on the main house. The boxed cornice on the tenant house also matches that found on the main house.

This tenant house is a plain, one-story, frame, side-gabled structure (Photo 36). It sits on a concrete block foundation, is clad in weatherboard on the façade with asbestos siding on the south, east, and north elevations, and has an asphalt shingle roof. An interior brick chimney is centered on the roofline. The west façade has three bays: a central multi-light wood-glazed door under a shed-roof awning porch supported by decorative wrought-iron columns. Single windows occupy the outer bays. The window on the south end is the original window, while the one on the north end is twelve-over-one (the glass on the bottom sash has been replaced). The east elevation is obscured by shed roof porch additions that have been incorporated into the house.

The removal of this ell from the main house and its use as a tenant structure reflects the changing demands of farming during the early- to mid-20th century. Not only was housing needed for tenant farmers or farmhands, but the removal of the addition allowed for much-needed modernization of the Taylor House.

11. Tenant House 2/Mr. New's House (c. 1940, Non-contributing building)

Mr. New's House (so called for its last resident) is located in the woods to the south of the main house and farm complex. It is a vernacular, one-story rectangular house on a concrete block foundation (Photo 37). The structure is frame and clad in a variety of forms of wood (board-and-batten being the most common) and has a corrugated metal side gable roof. Small internal end brick chimneys are visible at the peak of the roofline. The rear of the house includes a gable addition and an enclosed shed roof porch. The west-facing façade includes a central five-panel wood door with a four-over-four, double-hung, wood window to the north and an enclosed porch to the south. It is worth noting that this house has access to running water and electricity.

Though the house no longer retains its integrity of design, workmanship, or materials, its location is notable as it reflects the patterns of tenant-based agriculture on the farm.

12. Tenant House 3/Albert's House (c. 1920, Non-contributing building, due to condition)

Albert's House (so called for its last resident) is located in the woods east of the Taylor House and barn (Photo 38). It is a one-story building that appears to follow a gable-front-and-wing pattern, but this is difficult to confirm because of its advanced state of deterioration. The foundation is indiscernible, but the building is frame and clad in board-and-batten with a corrugated metal roof.

Though the house lacks sufficient integrity to be contributing to the district, its location is notable as it reflects the patterns of tenant-based agriculture on the farm.

⁹ This is based on information from Lance Maclin, Jr.'s son, as well as on-site observations.

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13. Machine Shed (1976, Non-contributing building, due to date of construction)

The large metal machine shed was built in 1976 to house farm equipment and replace a wooden machine shed that was no longer adequate (not extant) (Photo 39). The machine shed is located south of the Taylor House. It sits on a concrete slab foundation, and the metal walls are pitched inward to the low-sloped front-gabled roof. The shed is accessed via a large set of sliding metal doors below the gables on the east and west elevations.

14. Chicken House (c. 1952, Contributing building)

The chicken house is situated just south of the main house (Photo 40). It is a single-story shed-roof building on a concrete slab foundation. It is clad in board-and-batten siding with a raised seam metal roof. The shed roof slopes down toward the north. A wood door on the south end of the east elevation allows access to the interior. The chicken house opens to the chicken yard from the west wall. The fenced-off coop portion of the interior occupies the northwest corner of the chicken house. Two screened windows on the south elevation provide light.

15. Cemetery (c. 1860 – c. 1880, Contributing site)

The small historic cemetery at Oak Hill is situated to the west of the main house and farm complex and southeast of the 1979 secondary residence (resource #2) (Photo 41). It includes three marked graves: Lucy Lyne Maclin (buried 1869) (Photo 42), James Bullock Maclin (buried 1860) (Photo 43), and Charles Maclin (buried 1880). Lucy and James' graves are slightly more ornate. Lucy Maclin's tombstone includes a carved wreath and the phrase "OUR MOTHER" below. James Maclin's grave includes scrolling details at the top. The tombstones have suffered some damage from the root systems of the oak trees that shade the cemetery, but are not beyond repair. The burials appear to be arranged facing east. The cemetery is protected from the surrounding agricultural space by a metal fence erected in 2008, and the owners are not certain as to whether there may be other family members or farm residents buried in the vicinity, as no other graves were marked.

16. Pond (c. 1956, Contributing structure)

The cow pond, located north of the house across the driveway, was created by 1950.¹⁰ The pond was filled by taking advantage of a spring that served as the farm's original water source until a well was successfully dug around the turn of the 20th century.¹¹ The construction of the pond speaks to the conversion of the agricultural landscape to dairy farming, as such a pond would be unnecessary or even a hindrance to row cropping. The man-made nature of the pond is clearly visible from the levee running along the north end (Photos 49 and 50).

17. Agricultural Landscape (c. 1918-1963, Contributing site)

In addition to the built resources of Oak Hill Farm, the associated landscape elements of both the domestic and agricultural complexes add to its significance and setting. These features include the historic gravel driveway, fields, pastures, tree lines, fences, gates, and farm roads throughout the property. The domestic complex is accessed via a gravel drive extending from Keeling Road. The driveway, which is cut deep into the hillside to accommodate the elevation change between the road and the farm, extends east and turns south to divide the house from the agricultural buildings to the east. In the early part of the 20th century, the driveway split and turned, passing close to the front of the house. This was most likely altered when the 1946

¹⁰ 1950 is the approximate date by which the farm won a Soil Conservation Service contest, and newspaper accounts specifically mention the pond.

¹¹ The farm is now on city water and sewer.

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east addition was constructed and the family began using the east mudroom as the primary access point for the house, rather than the front door. Mature trees flank the driveway at Keeling Road, and the post-and-rail fencing flanks the driveway.

The driveway currently extends east past the agricultural complex, where it become a dirt road following the tree line to the Haywood County portions of the property, and bending to the south (Photos 44, 45, and 46). The driveway appears to follow the historic pattern, but the date of its construction is unknown. The Taylor House sits on the highest point of the property and overlooks the surrounding agricultural space. Mature trees dot the landscape, including some that appear to date to the settlement period. Other wooded spaces are much younger, having been used throughout the property's history to supply construction material and firewood.

The agricultural landscape includes the fields surrounding the built complexes. The fields on the west, north, and east section of the house have been in agricultural production since the farm was first settled in 1834. However, the agricultural fields from the early settlement period that were used for row-cropping were altered during the early- to mid-20th century to accommodate for changing agricultural patterns and practices. Field fencing is primarily barbed wire, indicating that they likely date to the dairy farming period. This fencing is situated both along windbreaks and in wooded areas near the tenant farms.¹² There is likely more fencing, but a more extensive foot survey would be required to locate it.

In addition to large mature trees, the pond (resource #16), the driveway and farm road, and fencing, the fields have also been terraced and re-terraced repeatedly since Lance Maclin, Jr.'s tenure starting in 1941. The combination of terracing and general soil renovation means that there is little left of the 19th century landscape, aside from mature trees and the historic driveway (Photos 47 and 48).

¹² Windbreaks are also known as shelterbelts; areas where trees were planted along the edge of fields to prevent soil erosion

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8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- ☒ A Property is associated with events that have made a significant contribution to the broad patterns of our history.
- ☐ B Property is associated with the lives of persons significant in our past.
- ☒ C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- ☐ D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations N/A

(Mark "x" in all the boxes that apply.)

Property is:

- ☐ A Owned by a religious institution or used for religious purposes.
- ☐ B removed from its original location.
- ☐ C a birthplace or grave.
- ☐ D a cemetery.
- ☐ E a reconstructed building, object, or structure.
- ☐ F a commemorative property.
- ☐ G less than 50 years old or achieving significance within the past 50 years.

Areas of Significance

(Enter categories from instructions.)

AGRICULTURE

ARCHITECTURE

EXPLORATION/SETTLEMENT

Period of Significance

1834, c.1918-1963

Significant Dates

1834

1918-1940

1941-1963

Significant Person

(Complete only if Criterion B is marked above.)

N/A

Cultural Affiliation

N/A

Architect/Builder

UNKNOWN

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Statement of Significance Summary Paragraph

Settled during the 1830s, Oak Hill Farm is eligible for listing in the National Register of Historic Places under Criterion A for its significant associations with the early settlement of Tipton and Haywood counties, and for its local significance in agriculture between c. 1918 to the fifty-year marker of 1963. Not only has the district been continuously farmed since its early settlement, its present agricultural-related resources reflect significant agricultural trends of family farms during this period, including tenantry, or sharecropping, and the transformation of crops and production. Two distinct periods of agricultural development are seen at Oak Hill Farm, innovation and progressive agriculture from 1918-1940 and postwar agricultural innovation from 1941-1963. Intact agriculture-related buildings dating largely from the postwar period especially demonstrate the impact of the Plant-to-Prosper program sponsored for the Mid-South region by the Memphis *Commercial Appeal* and agricultural organizations in the late 1950s. The Taylor House at Oak Hill Farm is also significant under Criterion C as an excellent example of a vernacular Federal-style I-house built in West Tennessee in 1834.

Settlement

Oak Hill Farm is significant at the local level for its contributions to the early settlement of Tipton County. The Taylor family established the property as a cotton plantation within the first ten years of the county's history. Tipton County was established in 1823, and Covington was made the county seat in 1825, but settlement in the 1820s was slow as the Chickasaw Indians left the area. Settlement took off in the 1830s and the arrival of the Taylor family coincided with this boom.

The first Taylor to arrive in West Tennessee was Major William Anderson Taylor, who arrived in 1833 with a slave to claim a land grant. The majority of the Taylor family followed him between 1833 and 1834. William's brother, Captain John "Jack" Taylor (1773-1847), began purchasing the land that would become the Oak Hill Farm in 1833, and began building the main house at Oak Hill as a wedding present to his daughter, Lucy Lyne Taylor (1820-1869), who was engaged to a cousin, Drury Smith Taylor (1805-1838), and married around Christmas in 1835. The Oak Hill house was completed by 1834, making it one of the oldest extant dwellings in the county.¹³

The Taylors, like many other Virginia/North Carolina tobacco farmers, moved westward in the early 1800s in search of new land, having exhausted the soil at their plantation in Mecklenburg County, Virginia. The Taylors' arrival was part of a broader trend of increasing cash crop production in Tennessee. West Tennessee soil yielded an average of 1,000 pounds of seed cotton per acre, and land cost between \$2.00-\$5.00 per acre, a high yield and low cost ratio compared to the weakened soil in Virginia and North Carolina. From 1827 to the mid-1830s, cotton prices rose from eight cents to fifteen and sometimes twenty cents a pound. The combination of promising land and rising cotton prices proved an irresistible lure to planter families like the Taylors.¹⁴

¹³ David A. Gwinn, "Tipton County History," *Tipton County History*, n.d., accessed December 20, 2012, <http://www.tiptonco.com/History.html>. Gwinn cites an 1847 church as "the oldest structure building in the County."

¹⁴ Thomason and Associates, "Architectural and Historical Survey: Tipton County, Tennessee," October 2010, 1912; 12.

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Drury Smith Taylor took ill in 1838, and Dr. James Bullock Maclin (1805-1860), a family friend from Granville, North Carolina, was called in to treat him to no avail. Dr. Maclin married Lucy Lyne Taylor the following year, in 1839.¹⁵ The Maclins had twelve children, ten of whom survived to adulthood. The family was well-off, with most of their money invested in slaves and other property as to be expected for a wealthy cotton-planting family. In the years preceding the Civil War, much of the family moved further west, however, Dr. Maclin remained and received an additional 400 acres when the rest of the family left. Captain Taylor, Lucy's father and owner of the estate, died in 1847, leaving his roughly 1,000 acres to Lucy and Dr. Maclin. Dr. Maclin continued to expand his property holdings, adding acreage to the Tipton and Haywood County property and adding a property in Fayette County. When Dr. Maclin died in 1860, only 46 other planters in Tennessee owned more than 100 slaves.¹⁶ He owned 164 slaves in three counties (32 in Tipton, 33 in Haywood, and 99 in Fayette County) and nearly 5,000 acres of land (the Tipton and Haywood properties were 3,500 acres). There is a badly deteriorated ledger that seems to indicate that the Fayette County property, referred to as the "Maclin Quarter" near Belmont (or Bellemonte), engaged much of its slave population in outside work, leasing skilled enslaved workers to nearby plantations.

Lucy Lyne Maclin died in 1869, and the estate was divided among eight children who drew lots, breaking up a property that by then consisted of approximately 3,500 acres.

Agricultural History

The farm was primarily a cotton plantation from its founding in 1833 to 1918, a long pattern of agriculture practice that was common in the cotton South. Historian Pete Daniel points out in his book, *Breaking the Land: The Transformation of Cotton, Tobacco, and Rice Cultures since 1880*, that the "annual work cycle persisted from the late eighteenth century well into the twentieth," meaning that "cultivation practices changed little for a century and a half."¹⁷ What changed significantly was labor as slavery gave way to tenant farming. At Oak Hill Farm, like many in the cotton South, the second major transformation came with the impact of the boll weevil plague, which began to impact West Tennessee farms c. 1908-1910. It was at that time, in 1910, when Lancelot Minor Maclin, Sr. began to operate a 220-acre section of the original family farm.¹⁸

Innovation and Progressive Agriculture at Oak Hill Farm, 1918-1940

The 1910s were years of agriculture innovation and change aligned with the Progressive Era in American politics which stretch from the turn of the century to the Great Depression. Congress approved the Smith-Hughes Act (1916), which spread agricultural extension programs, placed more agriculture specialists in rural communities, and gave increased impetus to new agricultural techniques. As Pete Daniel summarizes, "the long arm of government reached into the recesses of the southern hinterland. In many respects these

¹⁵ John Walker Marshall (local historian), in discussion with the author, January 7, 2012.

¹⁶ Anita S. Goodstein, "Slavery," in *Tennessee Encyclopedia of History and Culture*, University of Tennessee Press, 2002-2012. Article updated February 27, 2011, accessed December 20, 2012, <http://tennesseeencyclopedia.net/entry.php?rec=1211>.

¹⁷ Pete Daniel, *Breaking the Land: The Transformation of Cotton, Tobacco and Rice Cultures since 1880* (Urbana: University of Illinois Press, 1985), 4.

¹⁸ Maclin formally inherited the property in 1935.

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government institutions encouraged social engineering as they wrenched farmers from dependence on a single poorly cultivated crop and led them into diversification and the utilization of machines, chemicals, and ledger books.”¹⁹

L.M. Maclin is a good example of this trend as he turned the farm from cotton into dairy production, a significant trend in Tennessee agriculture as discussed in the Historic Family Farms in Middle Tennessee, 1780 to 1955 MPN. He introduced for-profit dairy farming to the property with the purchase of Jersey cattle in 1918. According to Glenn Minor Maclin (Lance Maclin Sr.’s grandson), Lance Maclin, Sr. sold the cream from the cows to a creamery in Louisville, Kentucky where it was made into butter. The cream was shipped from the railroad depot at Keeling in Tipton County. Maclin, Sr.’s decision to introduce dairy farming took place in the context of Progressive Era efforts to encourage rural reform and agricultural diversification. Dairy offered more potential for profit than cotton, and the extra income subsidized the cotton Maclin, Sr. and most West Tennessee farmers continued to grow on land exhausted by nearly a century of cotton production.²⁰ In an effort to increase cotton production, Maclin, Sr. also purchased a two-row planter c. 1925, which was one of the first in the county, according to a photograph in the Maclin family collection (Figure 2). The mechanization movement was another key strategy in the progressive agriculture approach. Historian Paul K. Conkin of Vanderbilt University has observed that most farmers did not turn to such new machinery until after 1930; therefore, the family oral tradition is probably correct for Tipton and Haywood counties.²¹

Maclin, Sr. expanded the family’s business in other ways. He owned a cotton gin and store in Keeling, which failed during the Depression and were repossessed by creditors who also attempted to seize the house and farm. Oral tradition from the family indicates that Maclin, Sr. was able to save the property through a loan from the Farmers Home Administration (FmHA), but the FmHa did not exist until after the Depression. It is most likely that Maclin, Sr.’s original loan was either part of the Standard Rural Rehabilitation Loan Program, which was the forerunner to the FmHA’s farm loan programs, or was held by a private lender and modified according to another Farm Security Administration (FSA) program called Debt Adjustment and Tenure Improvement. The latter program involved the intervention of an FSA county supervisor who would work with the farmers and their creditors to arbitrate agreements and prevent foreclosure.²² Whichever program was utilized, Lance Maclin, Sr. was able to retain the property until 1941, when he was killed and his wife seriously injured in a vehicle collision on Highway 70 near the property.²³

¹⁹ Daniel, xiv.

²⁰ Stanley J. Folmsbee, Robert E. Corlew, and Enoch L. Mitchell, *Tennessee: A Short History*, (Knoxville: University of Tennessee Press, 1969), 508-509.

²¹ Paul K. Conkin, *A Revolution Down on the Farm: The Transformation of American Agriculture since 1929* (Lexington: University Press of Kentucky, 2008), 5-15.

²² “About FSA: Agency History,” USDA Farm Service Agency, last modified January 9, 2008, accessed June 27, 2012, <http://www.fsa.usda.gov/FSA/webapp?area=about&subject=landing&topic=ham-ah>.

²³ Tennessee Century Farm application, MTSU Center for Historic Preservation.

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Postwar Agricultural Innovation, 1941-1963

Historian Paul K. Conkin documents that "From 1950 to 1970, American agriculture grew at an astonishing rate."²⁴ Political historian Dewey Grantham also recognized how this period of transformation affected the post-war rural South. Grantham emphasizes:

Revolutionary changes in agriculture made up a significant part of the South's postwar economic transformation. Within a generation the structure of the region's agriculture was profoundly reshaped. The number of farmers in the South plummeted, the number of farms declined sharply while the average size of those that remained steadily increased, the production of cotton and other traditional crops gave way to new farm commodities, and farming became more capital-intensive, more centralized in operation, more mechanized and scientific, and more efficient and productive.²⁵

In 1941, Lance Maclin, Jr. guided Oak Hill Farm in the postwar era of agriculture (1941-1963). Lance Maclin, Jr. had been living in Houston, Texas as a factory foreman at the time of the accident that took his father's life and moved home to care for his mother and take over the family farm upon his father's death. He did not inherit the property until his mother passed, but took over the farming operation. Maclin, Jr. expanded the farm's commercial dairy operations, switching to Grade A dairy around 1948.²⁶ The family continued to retain other livestock such as hogs and chickens and produced basic crops for their own use and to feed the cattle. At the time Maclin, Jr. inherited the property, there was little beyond the house that remained. Maclin, Jr. was able to restore the farm to 213 acres during the mid-20th century, and it was under his tenure that the farm transformed into a large-scale dairy operation using modern farming techniques.

The only building, aside from the Taylor House, dating to Maclin, Sr.'s tenure is the c. 1920 smokehouse. The rest of the farm structures were added during Maclin, Jr.'s era, and the dates are easily determined because the farm records include account books listing all of the buildings, livestock, and acreage use. In many cases, the farm's files also include the plans from the University of Tennessee Agricultural Extension Service, which contain advice not only on construction, but on location as well. The placement of these secondary structures (granary, chicken house, hog house, dairy parlor, well house, and cow pond) follows the general guidelines and suggestions offered by the Agricultural Extension Service. Maclin, Jr.'s commitment to following the best advice available from the most professional and scientifically advanced sources available, as well as the extensive nature of records he kept, reflects the attitudinal and practical shift noted by Grantham.

The landscape of the farm today is a direct reflection of Maclin, Jr.'s commitment to postwar agricultural innovation. He entered contests like the Save/Enrich Our Soil Contest, a regional competition run by the Memphis *Press-Scimitar* and the Plant-to-Prosper Program, a regional competition run by the Memphis

²⁴ Conkin, 87.

²⁵ Dewey W. Grantham, *The South in Modern America: A Region at Odds* (New York: HarperCollins, 1994), 260.

²⁶ Lance Maclin, Jr., 1959 Plant-to-Prosper Report Book, unpublished document.

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Commercial Appeal. Maclin, Jr. was also an active member of the Associated Milk Producers, Inc., and appeared before Congressional committees as a representative of that organization. Lance Maclin, Jr. took farming seriously and used every advantage he could find to improve the quality of the land and his technique. The farm's archives include soil conservation materials dating to 1945, when Maclin began an aggressive campaign to improve the quality of soil at Oak Hill, which included extensive terracing of the fields. Remnants of the terracing are evident today. Maclin administered this project with guidance from the Soil Conservation Service (SCS). SCS agents came to the farm over a period of years, and issued Maclin advice on how to work with his soil (see Figures 3 and 4). The farm records also include several years' worth of books with testing results from when Maclin sent soil samples out to the SCS for analysis.

In 1956, Maclin entered the Save-enrich Our Soil Contest run by the Memphis *Press-Scimitar* and won first place for Tipton County in the farm operator division. The prize was a trip to the Smoky Mountains, which the Maclins took in 1957. The Maclins' victory was written up in local newspapers, and the Tipton County Soil Conservation District Board of Supervisors sponsored an open house to see "The Farm That Won a Vacation." P.A. Turner, the President of the West Tennessee Industrial Association appeared and spoke on agriculture and industry. (See Figure 5)

The SOS campaign helped Maclin focus on improving the land in order to produce enough forage for his dairy herd. Maclin also produced his own silage using in-ground pits built according to plans sent by the Agricultural Extension. These pits are no longer extant, but can be seen in an aerial photograph of the farm most likely taken in the 1960s (Figure 1). The SOS contest articles also reference the cow pond Maclin built to water his dairy herd. The pond was filled by a natural spring that, according to family lore, was the reason the location was originally chosen in the 1830s.

In 1959, Maclin entered the Plant-to-Prosper Program, organized by the Memphis *Commercial Appeal* newspaper. The *Appeal* contest was designed to encourage farmers to move away from the one-crop farming that was typical in the South and left farmers at the mercy of a fluctuating market. The contest included divisions for landowners of different scales, as well as sharecroppers and tenants, and was divided by race. The idea for the competition was prompted by the passage of the Agricultural Adjustment Act, and in 1934, the *Commercial Appeal* launched the first contest for farmers in West Tennessee, northern Arkansas, and the boot heel of Missouri. The Agricultural Committee of the Memphis Chamber of Commerce added a cash prize, and the contest became extremely popular. The idea behind it was that even if a farmer did not win the prize, he and his family would benefit from improved techniques and find greater prosperity. Farmers were recruited by county extension agents, who helped farmers create plans to improve their soil, diversify their stock, and increase their yield. Along with farm improvement, another goal of the contest was to promote the live-at-home ideal by assigning marks in part on the ability to produce as much as possible on the farm (and reduce grocery shopping), and improving the home itself. In 1942, extension agents and their Farm Security Administration supervisors reported that Plant-to-Prosper brought \$28.5 million dollars into the 229 counties covered by the competition, and the production of hogs, cattle, poultry, soybeans, and dairy went up between 18-30 percent. Plant-to-Prosper prided itself on its ability to help poor farmers pull themselves up by their

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bootstraps and become debt-free landowners.²⁷ Its continued success during the mid-20th century further emphasizes the importance of innovation in farming technology.

In 1959, Maclin tied for second place in the Plant-to-Prosper White Landowner Division. In addition to testifying to Maclin's improvements on the farm, the handbook he filled out gives an excellent snapshot of life on a farm during the model farming period. During 1959, the Maclins made a number of improvements to the house at Oak Hill, including laying a new floor over the original in what is now the living room; adding electric outlets to heat the living room with electricity; cosmetic repairs; and weather-stripping of the windows. They also replaced the linoleum in the kitchen, which was also renovated during the 1950s, and bought a "new automatic washing machine, with plans to buy a dryer by the end of the year, along with a television." These sorts of improvements were part of the broader quest of modern agricultural innovation to elevate the quality of life for farmers, and making material improvements to the house was as important as improving the land the farm itself. As historian Ronald R. Kline notes, rural farmers were as much a part of the postwar efforts to increase consumption as suburban dwellers. The introduction of electricity to the home, rather than just the barn, meant that rural families could use the same electricity-dependent appliances as the rest of the postwar community.²⁸ The Maclins were very much a part of this movement, having received electricity through the Rural Electrification Act (established c.1936), as demonstrated by a photograph of the Maclins with their "Electrofarm" sign (Figure 6), in addition to Lance Maclin, Jr.'s interest in purchasing modern appliances.

The competition was not the start of Maclin, Jr.'s efforts to improve the farm. A gable end addition was wheeled off the main house in 1945 and Maclin used that opportunity to add a modern addition to the rear. This addition included a modern kitchen and bathroom that added indoor plumbing to the house for the first time. At the same time, Maclin installed electricity throughout the home. It is worth noting that the house was continually inhabited since its construction, so this was truly the first introduction of modern conveniences to the Taylor House. He also added a mudroom to the east elevation to allow more direct access from the farm structures to the main house. The mudroom cut down on the amount of dirt that the family tracked into the house, which would not have been an issue in the 19th century when most farm labor would have been done by slave or later paid laborers who did not live in Taylor House.

The year 1959 also saw the construction of the barn (resource #3) using materials Maclin accumulated over two years, including creosote-treated telephone poles purchased from the local electrical co-operative.²⁹ The barn was attached to the dairy parlor to improve the efficiency of the milking process. It was in this year that Maclin also converted to bulk milk handling from cans by purchasing a 335-gallon bulk tank and bought a new wash vat for the dairy barn.

One section of the 1959 entry book asks what the competition has meant to the farmer and his family. Maclin states that one of the main advantages of the program has been the encouragement to balance improvements

²⁷ "The Story of Plant to Prosper: One of the greatest programs ever created for the lasting betterment of an entire section of America," published by the *Memphis Commercial Appeal*, 1944.

²⁸ Robert R. Kline, *Consumers in the Country: Technology and Social Change in Rural America*, (Baltimore: The Johns Hopkins University Press, 2000), 215-271.

²⁹ *Ibid*; The existence of the electrical co-op is also a testimony to the advances of the REA in the postwar period.

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to the farm with improvements to the home. While Maclin had made improvements to the house prior to 1959, he continued this at a more accelerated pace after the competition, remodeling the kitchen and downstairs bathroom in the early 1960s.

Maclin's commitment to dairy farming in Tennessee was also demonstrated through his activism with Associated Milk Producers, Inc (AMPI), on whose behalf he testified before Congress in 1973. The farm continued to operate the dairy until 1987 when small-scale dairy production became unprofitable due to competition from large commercial dairy operations. After dispersing the dairy herd, the farm switched to commercial cow-calf production. Glenn Minor Maclin, Lance Maclin, Jr's older son, joined the operation in 1976 and took over until the mid-1990s, when Lance Maclin, Jr. retired and Glenn left the farming business. The row crop and hay fields were rented to neighbors, and a portion was kept in the Conservation Reserve Program. The current residents of the Taylor House, Ted and Elizabeth Maclin, continue to operate a small-scale sustainable family farm, raising hogs and chickens and maintaining a vegetable garden and fruit trees.³⁰

Architectural Significance

The central hall form is one of the two most common house plans (the other being the hall and parlor) in early Tennessee. The most common central hall plan is the I-house, a plan found in Tennessee from the early-19th to early-20th centuries that was generally one room deep with either three or five symmetrical bays and a gable end chimneys.³¹ The choice of a central hall plan reflects the values of the Taylors as they moved westward and sought to expand their social and economic horizons. As Clifton Coxe Ellis points out,

In general, the central passage house is associated with newfound wealth based on a growing antebellum economy and a desire on the owner's part to present a facade to the world that announced his success and place in society.³²

As such, the house speaks to family's social aspirations as much as it does their stylistic preferences. The house is a statement regarding the wealth and associated status of the Taylor family at the time of its construction, which is reflected in the formal, symmetrical exterior and extensive intact interior detailing. Wainscoting, crown molding, and elegant mantelpieces testify to the impressive impression the owners hoped to convey.

³⁰ Tennessee Century Farms application, MTSU Center for Historic Preservation.

³¹ Claudette Stager, "Vernacular Domestic Architecture," in *Tennessee Encyclopedia of History and Culture*, University of Tennessee Press, 2002-2012. Article updated January 1, 2010, accessed December 20, 2012, <http://tennesseeencyclopedia.net/entry.php?rec=31>.

³² Clifton Coxe Ellis, "Early Vernacular House Plans," in *Tennessee Encyclopedia of History and Culture*, University of Tennessee Press, 2002-2012. Article updated January 1, 2010, accessed December 20, 2012, <http://tennesseeencyclopedia.net/entry.php?rec=659>.

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The Taylor House follows the I-house plan, and originally had a gabled ell at the rear of the house. As Ellis points out:

Central passage houses often had a wing, or ell, built perpendicularly to the main house giving the entire plan the appearance of an L or T in shape. These wings often contained kitchens and other service rooms. Scholars continue to investigate the significance of these ells, but it appears they were built in an effort to accommodate the presence of slaves as they served the household. The ell allowed the master to observe the coming and going of slaves even as he maintained a segregation and hierarchy of both space and race.³³

The Taylor House was certainly designed to accommodate the lifestyle Ellis describes, as Dr. Maclin (who took over the household after marrying Lucy Lyne Taylor not long after its construction) was among the largest owners of slaves in the state. Other aspects of the house, including the existence of fireplaces in the basement, which had a dirt floor and the unheated room at the north end of the upstairs hall, suggest that these may have been slave spaces that remain extant in the structure.³⁴

In addition to architectural form, the Taylor House is an excellent surviving example of Federal-style architecture. As a Federal-style home, character-defining elements include the formal, symmetrical, five-bay façade, a centered entry door with elliptical fanlight and sidelights; and elegant, formal mantels. Although the Craftsman-influenced porch is a later addition, the Federal-style configuration and elements remain clearly evident.

The frame construction also speaks to the vernacular aspects of the Federal style, in which the builders used the most readily available material: wood. Brick produced on site (according to oral history and some above-ground archaeological evidence) was used for the construction of the basement and chimneys. As Stager points out:

In addition to the use of design elements that mimicked academic styles, vernacular house styles adapted to such regional variations as the local landscape, available building materials, and the skills of local craftsmen or builders.³⁵

In addition to these qualities, the Taylor House is a rare surviving example of frame Federal-style houses in Tennessee.³⁶ Though the I-house layout is not uncommon in Tipton County, a recent survey of Tipton County architecture makes no mention of Federal-style architecture.³⁷ This same source recommends Oak

³³ Ellis, "Early Vernacular House Plans."

³⁴ Michael A. Strutt, "'Yes I was a house slave I slept under the stairway in a closet,' Slave Housing and Landscapes of Tennessee 1780-1860: An Architectural Synthesis," Ph.D. diss., Middle Tennessee State University, 2012, 474-475.

³⁵ Stager, "Vernacular Domestic Architecture."

³⁶ Patrick, 85.

³⁷ Thomason and Associates, 25-35.

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Hill as "a notable example of 19th century, two-story I-House" and points out that "few of these dwellings remain extant in the county."³⁸

The original core of the I-house remains largely intact, but the adaptations of the mid-20th century are also significant. These adaptations, including the front porch (early to mid-20th century) and rear additions (1945-46), occurred during periods of progressive and modern agricultural reform, which emphasized improvements to domestic life alongside advances in agriculture. The replacement of the original rear ell with a fully modern addition with a kitchen and bath added both indoor plumbing and electricity for the first time. It is a testament to the great pride that the Maclin family has taken in the integrity of the house for generations that these alterations are minimally invasive to the house itself. Vernacular architecture is remarkable for its ability to reflect the changing needs of the residents of a space, and Taylor House reflects this. The upstairs half-bathroom was added when a relative came to live with the family and needed greater privacy than the single shared downstairs bathroom permitted. This notion of private space in the mid-20th century is a very different idea than what James Maclin would have considered necessary. At the same time, these changes were made with great sensitivity to the integrity of the original house, and preserved as much of the original materials as possible. As a result, despite being a private residence continually inhabited since its construction, Taylor House retains a tremendous degree of integrity of craftsmanship, workmanship, and feeling.

With its intact 1834 Federal-style I-house, eleven contributing agriculture-related resources, and 20th century agricultural landscape, Oak Hill Farm retains a high degree of integrity as it relates to its establishment in 1834 and its agricultural development throughout the early to mid-20th century. The 1834 I-house remains largely intact and also includes later mid-20th century additions that contributed to the modernization of the domestic sphere with the addition of indoor plumbing. The field patterns of the agricultural landscape reflect the changing nature of the farm as the owners shifted focus to dairy cattle during the progressive agriculture era. Most of the surviving outbuildings date to the post World War II period and represent further emphasis on dairy and the full modernization and commercialization of the farm. The landscape itself retains several contributing features in both the domestic complex and the agricultural landscape that include the historic driveway and mature trees from the early settlement period and farm roads, tree lines, fences, gates, fields, and pastures from its 20th century development. Together, the contributing built features and landscape elements represent early settlement architecture as well as the modernization of agricultural practices in the 20th century. The property continues to be actively farmed, and, as a result, its agricultural setting remains substantially intact.

³⁸ *Ibid.*, 48.

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"The Story of Plant to Prosper: One of the greatest programs ever created for the lasting betterment of an entire section of America." *Memphis Commercial Appeal*, 1944.

Thomason and Associates. "Architectural and Historical Survey: Tipton County, Tennessee." October 2010. Accessed December 20, 2012. www.tiptonco.com/docs/2010_Tipton_County_Historical_Survey.pdf.

Walker, John Marshall, ed. "Letters from Dr. James Bullock Maclin of 'Oak Hill' Plantation in Tipton County, Tennessee to Rev. Robert Hall Morrison of 'Cottage Home' Plantation in Lincoln County, North Carolina (1853-1860)." Unpublished annotated transcripts, January 2009.

Archival Records

Oak Hill Farm. Tennessee Century Farms application and file, on file at MTSU Center for Historic Preservation.

Extensive primary source documentation located at Oak Hill Farm.

Oak Hill Farm

Tipton & Haywood, TN

Name of Property

County and State

Interviews

Gwinn, David A. Interview by Abigail Gautreau. January 9, 2012.

Walker, John Marshall. Interview by Abigail Gautreau. January 7, 2012.

Previous documentation on file (NPS):		Primary location of additional data:	
preliminary determination of individual listing (36 CFR 67 has been requested)	<input checked="" type="checkbox"/>	State Historic Preservation Office	
previously listed in the National Register	<input type="checkbox"/>	Other State agency	
previously determined eligible by the National Register	<input type="checkbox"/>	Federal agency	
designated a National Historic Landmark	<input type="checkbox"/>	Local government	
recorded by Historic American Buildings Survey #	<input checked="" type="checkbox"/>	University	
recorded by Historic American Engineering Record #	<input checked="" type="checkbox"/>	Other	
recorded by Historic American Landscape Survey #	<input type="checkbox"/>	Name of repository: MTSU Center for Historic Preservation; Oak Hill Farm	
Historic Resources Survey Number (if assigned):			

Oak Hill Farm
Name of Property

Tipton & Haywood, TN
County and State

10. Geographical Data

Acreage of Property 212.98 **USGS Quadrangle** Stanton, Tenn 423 NW

UTM References

Datum (indicated on USGS map):

☐ NAD 1927 or ☒ NAD 1983

1. Zone: 16S	Easting: 275134	Northing: 3926348
2. Zone: 16S	Easting: 276312	Northing: 3926374
3. Zone: 16S	Easting: 276289	Northing: 3925690
4. Zone: 16S	Easting: 275116	Northing: 3925731

Verbal Boundary Description

Oak Hill Farm is comprised of six parcels totaling 212.98 acres in Tipton and Haywood Counties as identified on the attached tax map as parcels 104 007.01 (43.48 acres, Tipton County), 104 007.02 (2.5 acres, Tipton County), 104 007.03 (1.5 acres, Tipton County), 104 007.00 and 135 010.00 (125.5 acres, Tipton County and Haywood counties, respectively), and 135 010.01 (40.0 acres, Haywood County). The property is bounded on the west by Keeling Road and on the north, east, and south by adjacent agricultural property.

Boundary Justification

The nominated property includes all the property historically farmed by Lance Maclin, Jr.

Oak Hill Farm
Name of Property

Tipton & Haywood, TN
County and State



Oak Hill Farm
Name of Property

Tipton & Haywood, TN
County and State

11. Form Prepared By

Name	Abigail Gautreau, Elizabeth Humphreys, and Dr. Carroll Van West		
Organization	Center for Historic Preservation, MTSU		
Street & Number	MTSU Box 80	Date	September 20, 2012
City or Town	Murfreesboro	Telephone	615-898-2947
E-mail	<u>carroll.west@mtsu.edu</u>	State	TN Zip Code 37132

Additional Documentation

Submit the following items with the completed form:

- **Maps:** A USGS map or equivalent (7.5 or 15 minute series) indicating the property's location.
- **Sketch map** for historic districts and properties having large acreage or numerous resources. Key all photographs to map.
- **Photographs** (refer to Tennessee Historical Commission National Register *Photo Policy* for submittal of digital images and prints)
- **Additional items:** (additional supporting documentation including historic photographs, historic maps, etc. should be included on a Continuation Sheet following the photographic log and sketch maps)

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 460 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 100 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Office of Planning and Performance Management, U.S. Dept. of the Interior, 1849 C. Street, NW, Washington, DC.

Oak Hill Farm

Tipton & Haywood, TN

Name of Property

County and State

Photo Log

Name of Property: Oak Hill Farm

City or Vicinity: Stanton

County: Tipton & Haywood State: Tennessee

Photographer: Carroll Van West and Abigail Gautreau

Date Photographed: January 2012, August 2012, and November 2012

- 1 of 50 Main House (#1) north façade. Photographer facing south.
- 2 of 50 Main House (#1) west elevation. Photographer facing east.
- 3 of 50 Main House (#1) south elevation. Photographer facing north.
- 4 of 50 Main House (#1) east elevation. Photographer facing northwest.
- 5 of 50 Main House (#1) front entry. Photographer facing south.
- 6 of 50 Main House (#1) front entry from central hall, 1st floor. Photographer facing north.
- 7 of 50 Main House (#1) front entry view of stair and basement door, 1st floor. Photographer facing south.
- 8 of 50 Main House (#1) dining room entrance, 1st floor. Photographer facing east.
- 9 of 50 Main House (#1) dining room fireplace, 1st floor. Photographer facing northwest.
- 10 of 50 Main House (#1) east parlor, 1st floor. Photographer facing northeast.
- 11 of 50 Main House (#1) central stair, 1st floor. Photographer facing south.
- 12 of 50 Main House (#1) upstairs hall, 2nd floor. Photographer facing west.
- 13 of 50 Main House (#1) north bedroom, west wall, 2nd floor. Photographer facing northwest.
- 14 of 50 Main House (#1) upstairs bath, 2nd floor. Photographer facing south.
- 15 of 50 Main House (#1) west bedroom, 2nd floor. Photographer facing northwest.
- 16 of 50 Main House (#1) east bedroom 2nd floor. Photographer facing east.
- 17 of 50 Main House (#1) east bedroom mantel, 2nd floor. Photographer facing east.
- 18 of 50 Main House (#1) kitchen, 1st floor. Photographer facing south.

Oak Hill Farm

Tipton & Haywood, TN

Name of Property

County and State

-
- 19 of 50 Main House (#1) office, 1st floor. Photographer facing southeast.
 - 20 of 50 Main House (#1) downstairs bath, 1st floor. Photographer facing south.
 - 21 of 50 Main House (#1) downstairs hall, 1st floor. Photographer facing west.
 - 22 of 50 Main House (#1) mudroom, 1st floor. Photographer facing south.
 - 23 of 50 Main House (#1) basement, east fireplace. Photographer facing southeast.
 - 24 of 50 Second Residence (#2) west façade. Photographer facing east.
 - 25 of 50 Barn (#3) east elevation. Photographer facing west.
 - 26 of 50 Barn (#3) south elevation. Photographer facing northeast.
 - 27 of 50 Barn (#3) connection to dairy parlor. Photographer facing south.
 - 28 of 50 Dairy Parlor (#4) north elevation. Photographer facing south.
 - 29 of 50 Dairy Parlor (#4) interior. Photographer facing west.
 - 30 of 50 Hog House (#5) northwest corner. Photographer facing southeast.
 - 31 of 50 Keeling House (#6) south façade. Photographer facing northeast.
 - 32 of 50 Keeling House (#6) northwest elevation. Photographer facing southeast.
 - 33 of 50 Granary (#7) west façade. Photographer facing northeast.
 - 34 of 50 Smokehouse (#8) northwest elevation. Photographer facing southeast.
 - 35 of 50 Well House (#9) west façade. Photographer facing southeast.
 - 36 of 50 Tenant House 1 (#10) northwest elevation. Photographer facing northeast.
 - 37 of 50 Tenant House 2 (#11) west façade. Photographer facing southeast.
 - 38 of 50 Tenant House 3 (#12). Photographer facing south.
 - 39 of 50 Machine shed (#13) south elevation. Photographer facing north.
 - 40 of 50 Chicken House (#14) east elevation. Photographer facing west.
 - 41 of 50 Cemetery (#15). Photographer facing southeast.

Oak Hill Farm

Tipton & Haywood, TN

Name of Property

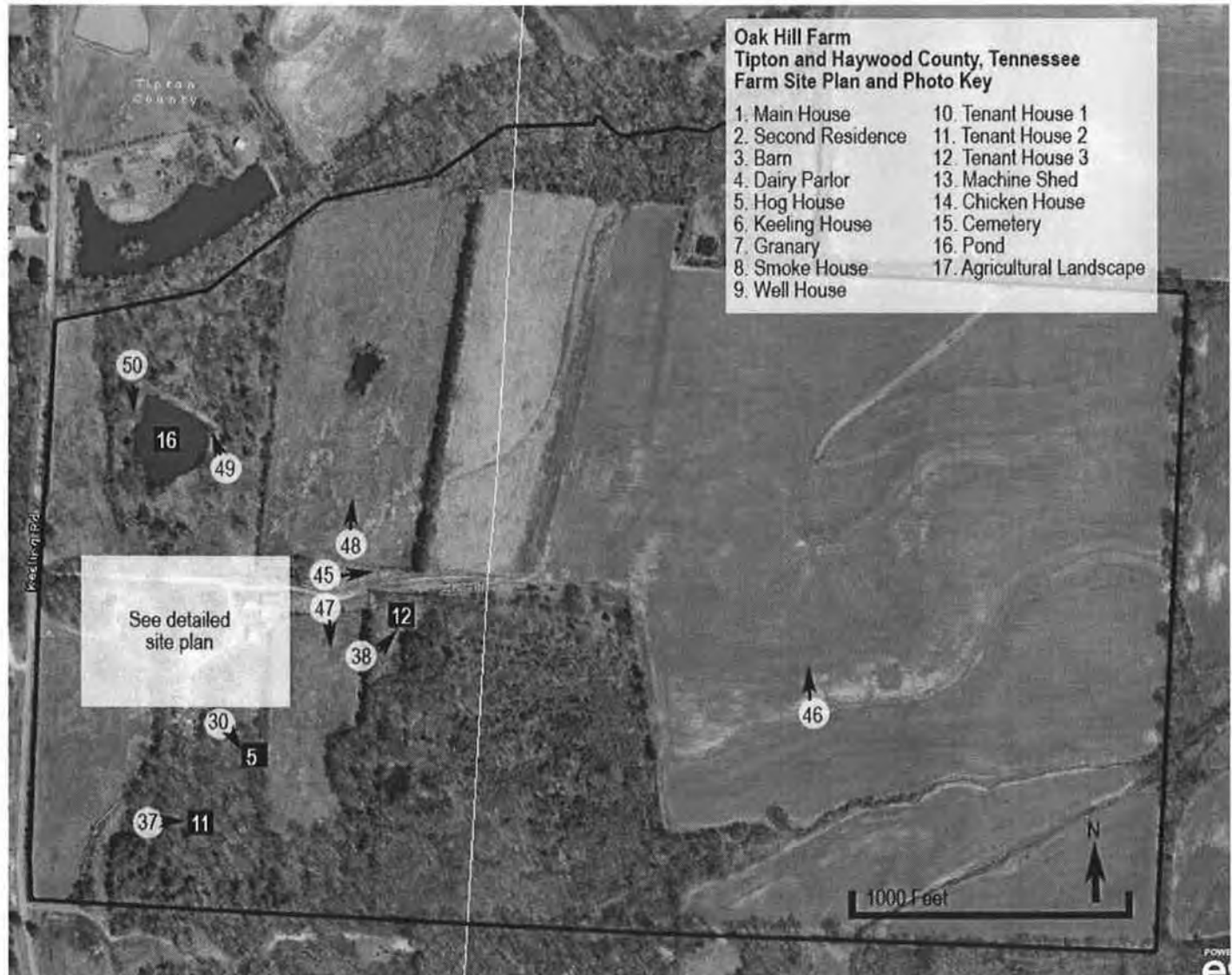
County and State

-
- 42 of 50 Cemetery (#15) grave marker.
- 43 of 50 Cemetery (#15) grave marker.
- 44 of 50 Agricultural landscape (#17) farm road leading east. Photographer facing east.
- 45 of 50 Agricultural landscape (#17) Haywood county parcel. Photographer facing northeast.
- 46 of 50 Agricultural landscape (#17) Haywood county parcel. Photographer facing north on east/west farm road.
- 47 of 50 Agricultural landscape (#17) Tipton County parcel east of farm complex. Photographer facing south.
- 48 of 50 Agricultural landscape (#17) parcel. Photographer facing north.
- 49 of 50 Pond (#16) parcel. Photographer facing west. Note the levee that serves as the dam for the pond.
- 50 of 50 Pond (#16) parcel. Photographer facing southeast.

Oak Hill Farm
Name of Property

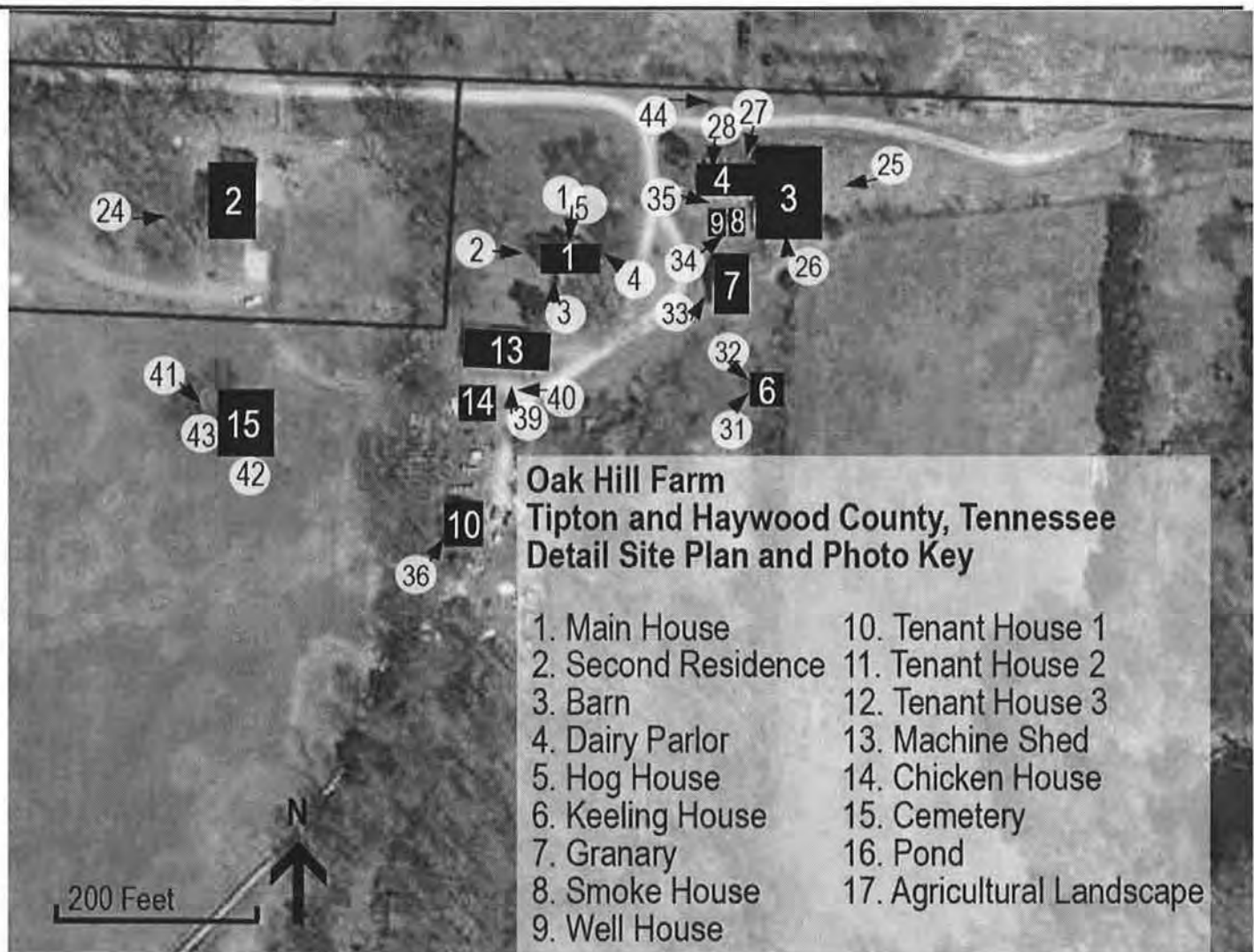
Tipton & Haywood, TN
County and State

Site Plan



Oak Hill Farm
Name of Property

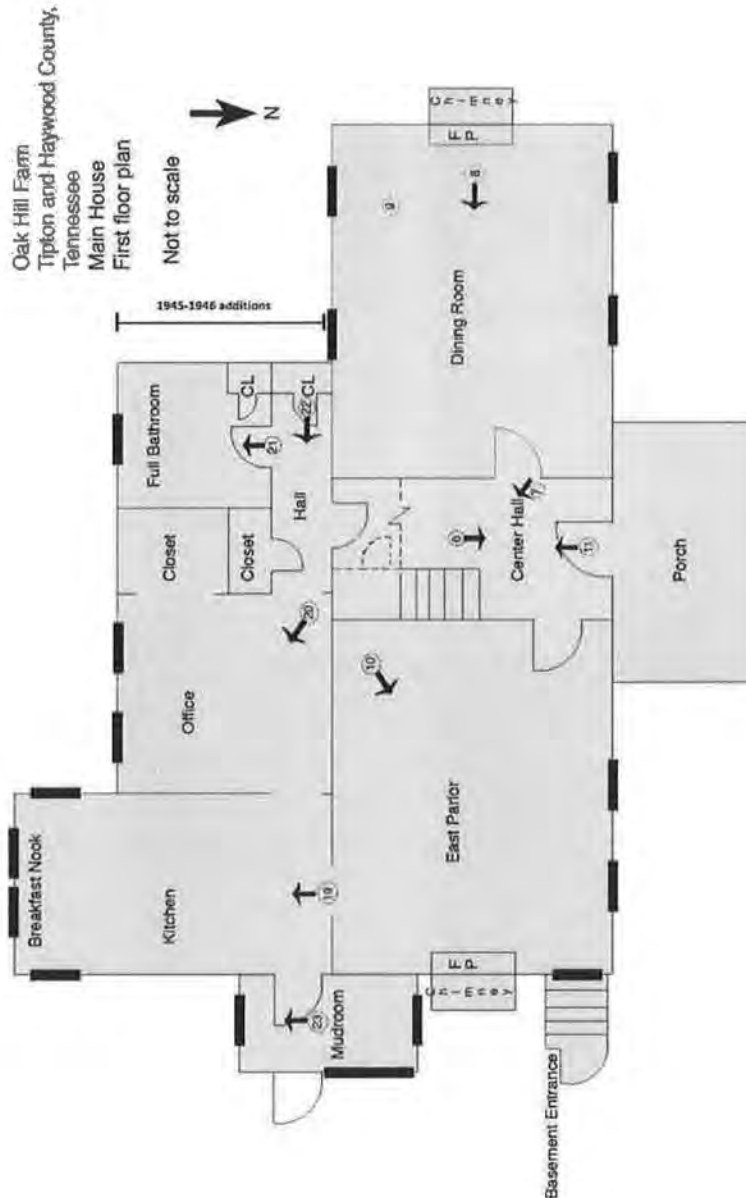
Tipton & Haywood, TN
County and State



Oak Hill Farm
Name of Property

Tipton & Haywood, TN
County and State

Floor Plan – Taylor House



United States Department of the Interior
National Park Service

**National Register of Historic Places
Continuation Sheet**

Oak Hill Farm

Name of Property

Tipton & Haywood, Tennessee

County and State

N/A

Name of multiple listing (if applicable)

Section number Figures Page 37



Figure 1. Aerial overview of the farm, c. 1980. Note the silage pits visible in the foreground, north of the barn.

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Oak Hill Farm

Name of Property

Tipton & Haywood, Tennessee

County and State

N/A

Name of multiple listing (if applicable)

Section number Figures Page 38



Figure 2. Caption reads: "L.C. Taylor, standing
Glenn Maclin on planter
Lancelot Maclin "fiddling around"
Jr.!"

This planter was one of the first two-row planters brought into this county by my father, Lancelot Maclin, Sr., about 1925.



Figure 3. Caption reads: "2-361-2Tenn-Tipton-4-28-47 L.M. Maclin
Rt. 2, Stanton, Tenn

L.M. Maclin and L.B. Alexander, Soil Conservation Service technician.
SCS Photo by John W. Busch."

United States Department of the Interior
National Park Service

**National Register of Historic Places
Continuation Sheet**

Oak Hill Farm

Name of Property

Tipton & Haywood, Tennessee

County and State

N/A

Name of multiple listing (if applicable)

Section number Figures Page 39



Figure 4. Caption reads: "2-2292-4
Tenn-Tipton-12-10-61 L.M. Maclin
Stanton, Tenn.

Oats on terraced land drilled on the contour.

SCS Photo by C.M. Richards
PLEASE CREDIT
SOIL CONSERVATION SERVICE
PHOTO BY: "

United States Department of the Interior
National Park Service

**National Register of Historic Places
Continuation Sheet**

Oak Hill Farm

Name of Property

Tipton & Haywood, Tennessee

County and State

N/A

Name of multiple listing (if applicable)

Section number Figures Page 40



Figure 5. Flyer publicizing Oak Hill's win in the S.O.S. completion, c. 1957.

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Oak Hill Farm

Name of Property
Tipton & Haywood, Tennessee

County and State
N/A

Name of multiple listing (if applicable)

Section number Figures Page 41



Figure 6. Undated photo, likely c. 1950s. Lance Maclin, Jr. is on the far left.

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Oak Hill Farm

Name of Property
Tipton & Haywood County, Tennessee
County and State

Name of multiple listing (if applicable)

Section number Additional Photos Page 42

(Digital TIFF images of the additional photographs included on archival CD-R with primary photographs)

Photographer: Jaime L. Destefano, Tennessee Historical Commission

Date: January 22, 2013



Additional Photo 1. Dining Room, Photographer Facing Northwest.



Additional Photo #2. Mudroom, Photographer Facing Southwest.

United States Department of the Interior
National Park Service

**National Register of Historic Places
Continuation Sheet**

Oak Hill Farm

Name of Property

Tipton & Haywood County, Tennessee

County and State

Name of multiple listing (if applicable)

Section number Additional Photos Page 43



Additional Photo #3. Second Floor Hall, Photographer Facing West.



Additional Photo #4. East Bedroom, Second Floor, Photographer Facing Northeast.

United States Department of the Interior
National Park Service

**National Register of Historic Places
Continuation Sheet**

Oak Hill Farm

Name of Property
Tipton & Haywood County, Tennessee
County and State

Name of multiple listing (if applicable)

Section number Additional Photos Page 44



Additional Photo #5. North Bedroom, Second Floor, Photographer Facing Northwest.



Additional Photo #6. Agricultural Complex (Granary, Barn, Dairy Parlor, Smoke House, and Well House), Photographer Facing Northeast.

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Oak Hill Farm

Name of Property
Tipton & Haywood County, Tennessee
County and State

Name of multiple listing (if applicable)

Section number Additional Photos Page 45



Additional Photo #7. View Toward Main House, Machine Shed, and Chicken Coop,
Photographer Facing Northeast.



Additional Photo #8. View Toward Cemetery and Surrounding Setting,
Photographer Facing Southwest.



Oak Hill Farm
1280 Keeling Rd.
Stanton, Tipton &
Haywood Counties
Tennessee

1) 16S 27 5134E
39a 6348N
2) 16S 27 6312E
39a 6374N
3) 16S 27 6289E
39a 6340N
4) 16S 27 5110E
39a 6373N

Mapped, edited, and published by the Geological Survey
Control by USGS and NOS/NOAA

Planimetry in part by photogrammetric methods
from aerial photographs taken 1951
Topography by planimetric surveys 1952
Polyconic projection, 10,000-foot grid ticks based on
Tennessee coordinate system
1000-meter Universal Transverse Mercator grid, zone 16
1927 North American Datum
To place on the predicted North American Datum 1983
move the projection lines 7 meters south and
7 meters east as shown by dashed corner ticks
Revisions shown in purple and woodland compiled from
aerial photographs taken 1980 and other sources. This
information not field checked. Map edited 1983

MAP SALES
AND
SERVICES
1100 LEBANON RD.
NASHVILLE, TN 37216

UTM GRID AND 1983 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

SCALE 1:24,000
(LAMBERT)
3184 N SW
3184 E SW
3184 S SW
3184 W SW

CONTOUR INTERVAL 10 FEET
DASHED LINES REPRESENT HALF-INTERVAL CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, RESTON, VIRGINIA 22092
AND TENNESSEE DEPARTMENT OF CONSERVATION, DIVISION OF GEOLOGY, NASHVILLE, TENN. 37219
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ROAD CLASSIFICATION

Primary highway, hard surface	Light-duty road, hard or improved surface
Secondary highway, hard surface	Unimproved road
Interstate Route	U. S. Route
	State Route

STANTON, TENN.
NW/4 STANTON 15' QUADRANGLE
35089-D4-TF-024

1952
PHOTOREVISED 1983
DMA 3154 IV NW-SERIES V841





































































































OUR MOTHER!



JAMES M. WRIGHT
DIED
Apr. 21 1860
AGED
70 yrs. 2 mo. 14 days















(Oct. 1990)

**United States Department of the Interior
National Park Service****National Register of Historic Places
Registration Form**

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Propertyhistoric name Searcy-Matthews-Tarpley Farmother names/site number N/A**2. Location**street & number 455 West Jefferson Pike N/A ☐ not for publicationcity or town Walter Hill ☐ vicinitystate Tennessee code TN county Rutherford code 149 zip code 37129**3. State/Federal Agency Certification**

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this ☒ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set for in 36 CFR Part 60. In my opinion, the property ☒ meets ☐ does not meet the National Register criteria. I recommend that this property be considered significant ☐ nationally ☐ statewide ☒ locally. (See continuation sheet for additional comments.)

Signature of certifying official/Title

Date

State Historic Preservation Officer, Tennessee Historical Commission

State or Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. (☐ See Continuation sheet for additional comments.)

Signature of certifying official/Title

Date

State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that the property is:

☐ entered in the National Register.☐ See continuation sheet☐ determined eligible for the
National Register.☐ See continuation sheet☐ determined not eligible for the
National Register.☐ removed from the National
Register.☐ other,

(explain:) _____

Signature of the Keeper

Date of Action

_____	_____
_____	_____
_____	_____
_____	_____

Searcy-Matthews-Tarpley Farm

Name of Property

Rutherford County, Tennessee

County and State

5. Classification**Ownership of Property**

(Check as many boxes as apply)

- ☒ private
☐ public-local
☐ public-State
☐ public-Federal

Category of Property

(Check only one box)

- ☒ building(s)
☐ district
☐ site
☐ structure
☐ object

Number of Resources within Property

(Do not include previously listed resources in count.)

Contributing	Noncontributing	
5		buildings
1		sites
5	4	structures
1		objects
12	4	Total

Name of related multiple property listing

(Enter "N/A" if property is not part of a multiple property listing.)

Historic Family Farms in Middle Tennessee

Number of Contributing resources previously listed in the National Register

N/A

6. Function or Use**Historic Functions**

(Enter categories from instructions)

Domestic/single dwelling

Domestic/secondary structure

Agriculture/agricultural field

Agriculture/storage

Agriculture/animal facility

Agriculture/agricultural outbuilding

Current Functions

(Enter categories from instructions)

Domestic/single dwelling

Domestic/secondary structure

Agriculture/agricultural outbuilding

Agriculture/agricultural field

7. Description**Architectural Classification**

(Enter categories from instructions)

GREEK REVIVAL

Materials

(Enter categories from instructions)

foundation STONE

walls WOOD, SYNTHETIC

roof ASPHALT

other WOOD, GLASS

Narrative Description

(Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance**Applicable National Register Criteria**

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- ☒ **A** Property is associated with events that have made a significant contribution to the broad patterns of our history.
- ☐ **B** Property is associated with the lives of persons significant in our past.
- ☒ **C** Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- ☐ **D** Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations N/A

(Mark "x" in all the boxes that apply.)

Property is:

- ☐ **A** owned by a religious institution or used for religious purposes.
- ☐ **B** removed from its original location.
- ☐ **C** a birthplace or grave.
- ☐ **D** a cemetery.
- ☐ **E** a reconstructed building, object, or structure.
- ☐ **F** a commemorative property
- ☐ **G** less than 50 years of age or achieved significance within the past 50 years.

Narrative Statement of Significance

(Explain the significance of the property on one or more continuation sheets.)

Areas of Significance

(Enter categories from instructions)

AGRICULTURE

ARCHITECTURE

SETTLEMENT

Period of Significance

c. 1830-1961

Significant Dates

c. 1830—construction of original portion of house

c. 1871—addition of ell wing

c. 1952—addition to southeast portion of house

Significant Person

(Complete if Criterion B is marked)

N/A

Cultural Affiliation

N/A

Architect/Builder

unknown

9. Major Bibliographical References**Bibliography**

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS): N/A

- ☐ preliminary determination of individual listing (36 CFR 67) has been requested
- ☐ previously listed in the National Register
- ☐ Previously determined eligible by the National Register
- ☐ designated a National Historic Landmark
- ☐ recorded by Historic American Buildings Survey # _____
- ☐ recorded by Historic American Engineering Record # _____

Primary location of additional data:

- ☒ State Historic Preservation Office
- ☐ Other State Agency
- ☐ Federal Agency
- ☐ Local Government
- ☐ University
- ☐ Other

Name of repository: _____

Searcy-Matthews-Tarpley Farm

Name of Property

Rutherford County, Tennessee

County and State

10. Geographical Data

Acreage of Property 106 acres Walter Hill, TN

UTM References

(Place additional UTM references on a continuation sheet.)

1
Zone Easting Northing
2

3
Zone Easting Northing
4

☐ See continuation sheet

Verbal Boundary Description

(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification

(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Cheri LaFlamme (CHP Graduate Research Assistant) and Elizabeth Moore (Projects Coordinator)

organization MTSU Center for Historic Preservation date January 24, 2011

street & number MTSU Box 80 telephone 615-898-2947

city or town Murfreesboro state TN zip code 37132

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

A **USGS map** (7.5 or 15 minute series) indicating the property's location

A **Sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs

Representative **black and white photographs** of the property.

Additional items

(Check with the SHPO or FPO for any additional items.)

Property Owner

(Complete this item at the request of SHPO or FPO.)

name Tarpley Family Limited Partnership (contact Laws Nelson, 455 West Jefferson Pike, Murfreesboro, TN 37129)

street & number 1524 Veranda Cr. telephone 615-804-9936

city or town Murfreesboro state TN zip code 37130

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listing. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 *et seq.*)

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, P. O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Projects (1024-0018), Washington, DC 20303.

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Section number 7 Page 1 Searcy-Matthews-Tarpley Farm
Rutherford County, Tennessee

7. NARRATIVE DESCRIPTION

Overview

The Searcy-Matthews-Tarpley Farm is approximately 106 acres in Rutherford County, Tennessee, and is bounded by West Jefferson Pike to the east, an unnamed road to the north, the east fork of Stones River to the west, and private property to the south. The cultivated fields are separated by mature tree lines, and sections of the property remain wooded. The main house was built c. 1830 and faces east toward West Jefferson Pike. It is a Middle Tennessee I-House with a dominating two-story Greek Revival portico. The house sits on a limestone foundation, is covered in weatherboard, and has two exterior end chimneys. An ell wing was added to the rear of the structure c. 1871. An original c. 1830 kitchen was once a separate structure, but was attached to the house c. 1952. The house underwent renovations c. 1952 to modernize and improve the house that left a majority of the original materials and woodwork intact. A driveway leads from West Jefferson Pike up to the domestic complex. It circles in front of the house and continues behind the house to the garage and carriage house. The entrance to the driveway is flanked by square, stone pillars made of Crab Orchard stone that are contributing resources.

The house and adjacent outbuildings sit on a relatively cleared area with several mature trees. Eleven contributing outbuildings are extant. Located behind the house are a garage, chicken coop, carriage house and well. Toward the north of the house and leading back to the dairy barn and silo are additional contributing outbuildings including a cook's house, milk house, and well house. One non-contributing structure, the foundation of a demolished silo, is located in the area between the dairy barn and the carriage house, and three non-contributing chicken coops are vacant and in poor condition in the woods at the north end of the property. A line of mature trees separates the domestic complex from the agricultural fields to the north, south, and west.

Inventory

1. Searcy-Matthews-Tarpley Farm Main House (c. 1830, c. 1871, c. 1952, c. 1972, contributing building).

The I-house and kitchen were constructed c. 1830 as separate buildings, and a series of renovations and additions in the twentieth century connected them. An ell-wing was added c. 1871 extending west from the north end of the I-house and included a dining room, kitchen, and porch. In the early 1950s, this porch was enclosed to create a den and connect the c. 1830s kitchen to the house, a new patio was built on the south elevation, and a small addition was constructed on the southeast corner of the I-house including a bedroom and full bathroom. In the 1970s, the patio was enclosed to create a second den and add a full bathroom, and a new patio was constructed on the south elevation.

EXTERIOR

The Greek Revival main house is a two-story, three-bay, central-hall design with a side gable roof and weatherboard walls. It has a limestone foundation. Single, exterior brick chimneys are located on each gable end, which are on the north and south elevations of the c. 1830 I-house. The front façade faces east and features a full-height, central portico. The façade walls within the portico are covered in original board-

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

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Rutherford County, Tennessee

and-batten wood panels. The pediment is supported by four square wood columns and has a single round wood vent and wood boards in the gable field. The front double-door entrance is flanked by five-light rectangular sidelights and topped by a four-light transom. The original two-panel wood doors are protected by wood screen storm doors. The portico floor is limestone. There are two eight-light casement windows above the main entrance door on the second floor that replaced original second floor balcony doors c. 1952. The original four-light transom and four-light sidelights remain of the second floor entrance. This surround is flanked by wood shutters. The shutters are historic, dating to at least the 1920s when they appear in a historic photograph of the house. They have recently been restored and repainted. The original balcony was removed c. 1952 due to deterioration and safety concerns. A light fixture hangs from the center of the porch roof. Flanking the central entrance bay are single bays with single windows on the first and second story. The front façade windows were replaced c. 1952 and are double-hung, twelve-over-twelve wood windows on the first floor and double-hung eight-over-eight wood windows on the second floor. All are flanked by wood shutters. The c. 1952 bedroom addition is visible on the south end of the front façade. It is one-story with a hipped asphalt roof and paired, double-hung, six-over-six wood windows flanked by shutters.

The south elevation of the 1830s I-house has an exterior brick chimney with a double-hung, nine-over-nine wood window to its west. To its west is the c. 1952 addition, which has no details on the south elevation. To its west is the 1970s addition, which features a flat roof, vertical board siding, and multi-light door, and a small patio. To its west is the original kitchen building, which features a gabled, asphalt roof and paired, double-hung, six-over-six wood windows flanked by shutters. All windows were replaced c. 1952.

The west elevation of the original kitchen features one double-hung, four-over-four wood window flanked by shutters. The entrance to a cellar is located beneath the window. Between the original kitchen and the c. 1871 ell will is the c. 1952 addition that connected the two. A wood panel door sheltered by a wood screen door provides access to the c. 1952 connection and a multi-light fixed window is located just north of that door. The west elevation of the c. 1871 ell wing consists of the laundry room that was once a closet off the porch and the west wall of the c. 1871 kitchen. The west wall of the laundry room has a set of paired, double-hung, four-over-four wood windows. The west elevation of the c. 1871 kitchen has one double-hung, six-over-six wood window. All windows were replaced c. 1952.

The north elevation of the original kitchen features one wood board entrance door and a full porch with a shed roof and iron columns. To its east is the north elevation of the c. 1871 ell-wing, which features paired, double-hung, six-over-six windows flanked by shutters and a large, twelve-over-twelve double-hung window flanked by six-over-six double-hung windows. To its east is the north elevation of the I-house, which features one double-hung, nine-over-nine wood window and an exterior brick chimney. All windows were replaced c. 1952.

INTERIOR

I-House Interior

The interior of the I-house is the original two-over-two, central hall plan. The entrance door surround is original wood. The central hall features original chair rails and a central ceiling light fixture. Original molded wood door surrounds and wood baseboards remain in the hall. The wood floor dates to c. 1952, but the

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original wood floors remain underneath. The stair has a heavy turned newel post and slender turned balusters supporting a wood handrail. The undercarriage of the stair has a small closet and is filled in with wood panels.

On the first floor, the central hall leads to the master bedroom, or south parlor, to the south; the living room, or north parlor, to the north; and the c. 1952 den to the west. An open doorway leads into the living room, an original four-panel wood door with original hardware leads into the master bedroom, and an original four-panel wood door with original hardware leads into the den. The bedroom and sitting room are the original parlors of the I-house. Both rooms retain original window and door surrounds, original baseboards, and original brick fireboxes. The fireplace in the north parlor, or living room, has a marble hearth, a slate firebox surround, and a fluted wood mantel. The fireplace in the south parlor, or master bedroom, has a tile hearth, a glazed brick firebox surround, and a paneled wood mantel. Both mantels date to c. 1952, after the original mantels were burned following a family dispute. Both parlors have c. 1952 wood floors with original wood floorboards underneath. The walls and ceilings are plaster. The living room, or north parlor, has an open doorway in its west wall leading into the c. 1871 ell wing. The master bedroom, or south parlor has a c. 1952 four-panel wood door leading into the c. 1952 bedroom addition.

The second floor of the c. 1830 I-house has a central hall and two original bedrooms. The original staircase extends upward along the north wall to a landing, which extends along the west wall, then continues upward along the south wall to the second floor. The second floor central hall is used as a small sitting area and has original wood floors, original baseboards, an original chair rail, original door surrounds, and an original balustrade with turned wood balusters. The walls and ceiling are plaster. On the east wall is the original door surround with original transom and sidelights that led out onto the second floor balcony. In c. 1952, the door was replaced with a pair of eight-light casement window for safety purposes. The north and south bedrooms are accessed from the hall through original four-panel wood doors with original hardware. The bedrooms have original wood floors, original wood baseboards, and original wood window and door surrounds. The walls and ceiling are plaster. The south bedroom has a fireplace that has been filled. The hearth and surround are glazed brick. The wood mantel dates to c. 1952, has wood paneled pilasters supporting a denticulated wood frieze and mantelshelf. The fireplace in the north bedroom has been removed.

c. 1871 Ell Wing Interior

Extending west from the north parlor, or living room, is the c. 1871 ell wing. The living room leads directly into the dining room that has original wood baseboards, original molded wood chair rails, original wood ceiling molding, and original window and door surrounds. The firebox is brick with surrounding glazed bricks and a tile hearth. The mantel dates to c. 1871 and is larger and more distinctive than the parlor mantles. Wood pilasters flank the opening to support a wood mantleshelf, and a plain wood frieze tops the opening accented with wood dentils underneath. On either side of the frieze is a fluted wood block. The mantel extends beyond the traditional width on the north side. The pilasters, frieze, and mantle shelf match the main portion of the mantle, but another cabinet opening with a wood door with molded detailing sits between the pilasters. The wood floors date to c. 1952, but the original wood floors are underneath. The walls and ceiling are plaster. An original six-panel wood door with original hardware is on the south wall into the den and an original six-panel wood door is on the west wall into the kitchen.

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The dining room leads west into the c. 1871 kitchen. The kitchen has original wood window and door surrounds, original wood wainscoting, and original built-in shelves on the south wall. The cabinets and appliances have been updated. The floor is tile, and the walls and ceiling are plaster. An original four-panel wood door with original hardware is located on the south wall leading into the c. 1952 addition.

The c. 1952 den was originally the c. 1871 porch. A room at the west end of that space, now used as a laundry room, appears to date to c. 1871 and may have been a closet at the end of the porch. The room has tongue-and-groove wood walls, a bead-board ceiling, wood baseboard, and wood window surrounds. The floor is modern tile.

c. 1952 Addition Interior

C. 1952, a porch running from the central hall westward along the dining room and kitchen was enclosed into a den. This portion of the den has c. 1952 wood paneling, built-in wood cabinets and shelving, wood door surrounds, and wood baseboards and ceiling molding. The floor is covered with carpet, with original wood underneath. The ceiling is plaster. On the west end of the den, a four-panel wood door leads into a small c. 1952 hallway with linoleum floors, plaster walls and ceilings, and wood baseboards and surrounds. At the west end of this hallway is a four-panel wood door opening onto the laundry room.

Also constructed c. 1952 is the bedroom wing to the west of the master bedroom, or south parlor. The bedroom is accessed via a small hallway from the c. 1952 den and the master bedroom, or south parlor. The hall has carpeted floors, plaster walls and ceilings, and wood baseboards and door surrounds. On the west wall of the hall is a c. 1952 bathroom. The c. 1952 bedroom is on the south end of this hall. The bedroom has hardwood floors, plaster walls and ceiling, and wood baseboards and window and door surrounds. West of this bedroom is a c. 1972 bathroom.

c. 1972 Addition Interior

In 1972, a final addition was made to the house that filled in the space between the c. 1952 bedroom addition and the original kitchen. This addition is an extension of the c. 1952 den and consists of tile floors, wood paneled walls, wood board ceilings with exposed beams, and a large fireplace on the west wall. The fireplace is brick, with a brick hearth and wood mantel. Also a part of this addition is a c. 1972 bathroom accessed through both the c. 1972 den and the c. 1952 bedroom.

Original Kitchen Interior

Connected to the house via the c. 1952 and c. 1972 additions is the original kitchen building. This building dates to c. 1830 and consists of two rooms. The easternmost room is the kitchen and is now accessed through a small enclosed porch connecting the kitchen to the c. 1952 den addition. The exterior weatherboard of the original kitchen is exposed on this porch. The kitchen is accessed through the south wall of this porch through a wood board door. A screen door is on the west wall of this porch leading out onto the open porch of the north elevation.

The kitchen retains is original bead-board wall and ceiling, but the original fireplace has been filled. To the west of the kitchen is a second room that is accessed through the door off the exterior porch and through a

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small door on the west wall of the kitchen. This room may have been used for the preparation of meals or as servants' quarters and retains original tongue-and-groove walls and ceiling. Underneath the kitchen is a restored cellar with plaster walls, exposed wood beams in the ceiling, and wood floors.

OUTBUILDINGS

2. Garage (c. mid-1900s, contributing building)

The garage is a small, one-story frame structure with three walls, weatherboard siding, and a dirt floor. It has a metal shed roof that overhangs the opening facing north. It is located to the south and west of the main house and is used for equipment storage. Equipment sheds became popular with gas-powered machinery, which is typically what was stored in them.

3. Chicken Coop (c. 1930s, contributing structure)

The chicken coop is a one-story frame building with a shed metal roof, vertical board cladding, and a dirt floor. It features exposed rafters and four rectangular windows facing south on its front façade. A small entry door is on the east elevation. The building is located to the west of the main house.

4. Well (c. 1830, contributing structure)

An original well is located between the chicken coop and carriage house. The well is no longer in use, but the stone opening and stone surround remain. No well house is known to have ever covered the well.

5. Carriage House (c. 1830s, contributing building)

The carriage house is a one-story frame building with gabled metal roof, vertical board cladding, and a dirt floor. It features a large opening in the east façade that connects with the original driveway. It has a small shed roof addition that extends to the north with an entry on its east façade. Neither opening has a door. It was originally used for the storage of carriages, and now is used for equipment storage. The building is deteriorating and requires stabilization.

6. Cook's House (c. 1830s, contributing building)

The cook's house is a one-story, frame building with a hand-cut stone foundation, an asphalt gabled roof, and weatherboard siding. It features double-hung, four-over-four windows flanked by shutters and a wood vertical board door. On the east elevation of the cook's house is a set of three four-light sliding windows. The front façade faces south. The interior has original tongue-and-groove walls and a bead-board ceiling. Original wood floors, baseboards, and window and door surrounds also remain. It is located to the northwest of the main house and has recently been cleaned out and restored.

7. Milk House (c. early to mid-1900s, contributing structure)

The milk house is a small, one-story, frame building with a poured concrete foundation, a metal gabled roof, and exposed rafters. The façade is covered in horizontal wood boards and the elevations in vertical wood boards. The front façade features a wood board door and faces south. It has a four-pane window on the west elevation. It is located northwest of the main house, directly west of the cook's house. Milk houses are associated with a boom in the dairy industry in twentieth-century Tennessee and they stored modern dairy equipment.

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8. Well House (c. early to mid-1900s, contributing structure)

The well house is a small concrete block building with a vertical board door and no windows. It has a raised-seam metal gable roof and exposed rafters. The door faces the adjacent milk house directly to its south. Well houses were constructed over dug-out or drilled wells to underground water, and were commonly built beginning in the twentieth century.

9. Dairy Barn (c. 1930s-1940s, contributing building)

The three-portal barn is a two-story, frame building with a metal gambrel roof, weatherboard siding, a dirt floor, exposed rafters, and sheds on either side of a center aisle. There are large openings in both sheds as well as the center of the barn on both stories. A smaller pedestrian entry is also on the front façade, which faces south. The sheds feature feeding racks for dairy cows, and the barn contains original farming equipment. Tongue-and-groove wood paneling is extant on the interior of the barn. It is located the farthest from the main house and to the northwest.

10. Concrete Block Silo (c. 1930s-1940s, constructing structure)

A concrete block silo is attached to the south façade of the Dairy Barn. The circular silo sits on a concrete foundation.

11. Original Silo (c. pre-1930s, non-contributing structure)

The foundation of a silo is located between the barn and the carriage house. It was probably constructed 1900-1920 when circular, wooden structures were common, and used to store ensilage.¹

12. Crab Orchard Stone Pillars (c. 1952, contributing object)

At the entrance to the property from West Jefferson Pike, on either side of the driveway, are pillars made of brick and Crab Orchard stone. Crab Orchard stone forms the pillars with brick quoins on the edges. A concrete slab tops the pillar with concrete flower urns sitting on top.

13. Chicken Coops (c. 1930s non-contributing structures)

Three chicken coops are located in the woods toward the northern end of the property along an area recently cleared for a TVA right-of-way. The coops have vertical board and board-and-batten siding and are all vacant and in poor condition.

14. Agricultural Landscape (c.1830-1961, contributing site).

The agricultural landscape includes fields, pastures, tree lines, fences, gates, ponds, and farm roads throughout the property. Stone and barbed-wire fences are found throughout the property as are dirt farm roads. Agricultural fields are located to the north, west, and south of the main domestic complex. These elements of the agricultural landscape are integral to the operation of a working farm and complement the built components.

The Searcy-Matthews-Tarpley Farm retains many of its original buildings and much of its historic material. It reflects common trends in rural domestic architecture with early construction c. 1830 and addition in the

¹ Historic Family Farms in Middle Tennessee Multiple Property Nomination to the National Register of Historic Places, 1995 (hereafter cited as Multiple Property Nomination).

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post-Civil War period and mid-20th century. The farm retains a high degree of integrity of location, setting, materials, and association.

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8. STATEMENT OF SIGNIFICANCE

Searcy-Matthews-Tarpley Farm is located in Walter Hill, a rural unincorporated community approximately 10 miles north of Murfreesboro, Tennessee. The property is being nominated to the National Register under Criteria A and C for its local significance in settlement, agriculture, and architecture. It is significant under Criterion C for architecture as it embodies distinctive characteristics from its periods of construction, including the c. 1830 construction of a Middle Tennessee I-house with a dominating two-story Greek Revival portico, the addition of an ell wing c. 1871, and the 1952 modernization and restoration of the home.

It is significant under Criterion A for settlement and agriculture as it follows the themes outlined in the Multiple Property Nomination, Historic Family Farm in Middle Tennessee. It exhibits significance during the settlement and subsistence farming period as one of the first farms established following the creation of Rutherford County in 1803. William Washington Searcy planted his first crop in 1804 and established a productive agricultural environment. The c. 1830 farmhouse was one of the earliest constructed in the area; it and the surviving outbuildings from the c. 1830 period portray the prominence of the family to the early history of the area and stand to represent the settlement and anti-bellum period in Middle Tennessee agriculture. The farm continues to follow agricultural trends in subsequent periods outlined in the Multiple Property Nomination, expanding into market production during the second half of the nineteenth century by adding crops such as cotton. In the first half of the twentieth century, the family introduces progressive trends such as dairy production that is seen in the extant Dairy Barn, Silo and Milk House. During the post-war period, the family modernizes the farm, adding electricity and plumbing, a trend seen across Middle Tennessee in the 1950s.

The Searcy-Matthews-Tarpley Farm maintains 106 acres of original agricultural land and retains its original c. 1830 farmhouse and numerous historic outbuildings. The outbuildings and agricultural landscape remain intact to represent continuous agricultural production from its founding until present-day. The farm is registered as a Tennessee Century Farm, having been in continuous agricultural production by the same family for at least 100 years. The surrounding area includes a number of other agricultural complexes, including the National Register-listed Riverside Farm (NR 12/12/2006), but is undergoing rapid suburban development. Amid this development pressure, the Searcy-Matthews-Tarpley Farm stands as an intact rural historic landscape. The period of significance ranges from the construction of the house c. 1830 until 1961.

HISTORICAL NARRATIVE

William Washington Searcy was born January 1, 1769 in Granville, North Carolina, to Bartlett and Lucy Searcy.² After his father died, William and his mother moved to Kentucky. In 1803, the same year that Rutherford County was created, William settled on land along the East Fork of the Stones River in what is now the Walter Hill area. Historically, this area was called Blacks Crossroads in honor of a prominent family in the area, but was renamed Walter Hill in 1895 when postmaster Walter Hill named the local post office for

² Donald Detwiler and Susan G. Daniel, eds., *Rutherford County, Tennessee Deaths & Estate Settlements, Volume I, 1804-1849*, (Murfreesboro, TN: Rutherford County Historical Society, 2008), 188.

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himself. William Searcy's land holdings along the river and near the intersection of Jefferson Pike and Lebanon Pike were extensive and included the 106 nominated acres. Family records indicate that William planted his first crop in 1804. It is not know whether crops were planted on the nominated acreage at this time, but he likely expanded his cultivated acreage quickly.³

Settlement and Subsistence Farming (1780-1850)

William Searcy was an important figure in the early history of the county. He was active in the local militia, heading up the W.W. Searcy Company of the first local militia company in 1805. He later was commissioned as lieutenant colonel commandant of the Rutherford County, Tennessee, militia in 1810.⁴ He served in public office as Justice 4th Division (1813), as a Senator in the 14th General Assembly (1821-1823), and as Trustee for Union University (1825).

William married three times, first to Elizabeth T. Searcy, then to Sarah Morton Searcy, and finally to Sarah Searcy.⁵ William and his second wife Sarah Morton Searcy had several children, one being Anderson Searcy, Sr., born in 1811.⁶ Anderson, Sr., married Elizabeth White in 1833, and by the time of his father's death in 1846, Anderson was living on the nominated property with his wife and five children. However, it is unclear whether William or Anderson constructed the house c. 1830 and who was primarily responsible for the agricultural activity on the farm during this period. William continued to own the property and likely maintained control of farm activities until his death. Constructed c. 1830, the house was built around the same time as the c. 1831 Pierce-Randolph home of Riverside Farm just west of the Searcy homeplace on Jefferson Pike (NR-12/12/06). William's daughter Lucy married Beverly Randolph of the Pierce-Randolph family.

Upon his death on January 8, 1846, it appears that William left the farm, including the nominated property, and eight of his slaves to Henry and Levi White (grandfather and father of Elizabeth White Searcy) as trustees for his son Anderson, Sr., who was living on the property with his family.⁷ His only son, Anderson, Jr., was only twelve at the time but would later come to own the property.

Only a year after William's death in 1846, Anderson Sr. passed away. It seems that his children went to live with other relatives in the area, but records are unclear as to what happened with the occupation of the house after 1847.

The original founding of the farm up through the construction of the house c. 1830 until the death of William and Anderson in the late 1840s falls within the Settlement and Subsistence Farming Period identified in the Historic Family Farms of Middle Tennessee Multiple Property Nomination. This identified period ranges

³ Tarpley Family Personal Collection.

⁴ "Rutherford County-History of Tennessee", by Goodspeed Publishing Co. 1887, available on TN Gen Web, <http://www.tngenweb.org/rutherford/goodspeeds.htm> (accessed March 21, 2011).

⁵ Detwiler and Daniel, *Deaths and Estate Settlements, Volume I*, 188.

⁶ Tarpley Family Personal Collection.

⁷ William W. Searcy Will, Tarpley Family Personal Collection.

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from 1780 to 1850 with the earliest founding date of a farm in Rutherford County listed as 1807.⁸ Although the location of William's first crop in 1804 is unknown, the larger acreage owned by William is a particularly important early farm and land holding in the area.

Like many Middle Tennessee Farms in the first half of the eighteenth century, farm operation required a large labor force. This can be documented through census records from 1810, 1820, 1830, and 1840 while the land was owned by William Searcy. In 1810, William reported 18 slaves; in 1820, 24 slaves with 18 working in agriculture; in 1830, he owned 73 slaves. The 1840 census, the first census following the construction of the nominated house lists both William and his son Anderson as slave owners. William Searcy reported owning forty-six slaves: eighteen under ten years old, fifteen that were ten to twenty-three years old, six that were twenty-four to thirty-five years old, six that were thirty-six to fifty-five years old, and one over fifty-five years old. He also reported nineteen persons were employed in agriculture. His son Anderson reported owning five slaves: one under ten years old, three between ten and twenty-three, and one between thirty-six and fifty-four years old. One of these was employed in agriculture.

While the extent of the products grown by William and Anderson Sr. is not known, later generations produced corn, wheat, cattle, mules, pigs, and cotton, all common trends in Middle Tennessee during this period. The most popular crops produced by Middle Tennessee farms before 1850 included corn, cattle, pigs, wheat, horses/mules, hay, tobacco, sheep, cotton, and grains (listed in order of most production to least). The production of subsistence products, especially corn, tops the list while market crops, like tobacco and cotton, were produced much less.⁹

Subsistence farming and slave labor is also reflected in the buildings of the domestic complex. The c. 1830 buildings include the I-house dwelling, separate kitchen, carriage house, and cook's house. The I-house is a common form for farmhouses of this period and has been identified by Stager and Straw as a Middle Tennessee I-house, a vernacular I-house with a dominating two-story Greek Revival portico.¹⁰ Oral tradition indicates that slave houses were located in the side yard south of the house; however, no documentation is available to verify the location. An 1830s well is extant on the property, although a new wellhouse was constructed in the early to mid-twentieth century. All of the surviving elements are intact and serve to portray the early settlement period of the farm. The farm was largely self-sufficient and relied heavily on farm and house slaves and laborers for productivity and efficiency.

Expansion and the Market Economy (1850-1900)

At some point between 1847 and 1871, the house came under the ownership of Lunsford Pitts Black. Lunsford and his father Thomas C. Black were both physicians in Rutherford County, and Thomas C. Black was named power of attorney over some of William Searcy's property in county records. It is also possible that Thomas's wife Catherine Morton was related to William's wife Sarah Morton. No documents have been located to verify the exact lineage of the nominated property during this period, but following Anderson Sr.'s

⁸ Multiple Property Nomination. Founding dates are according to Tennessee Century Farms files that are able to trace ownership clearly back to a founder. The founding date of the Searcy-Matthews-Tarpley farm in Century Farms files is 1871, as this is the earliest clear deed on record.

⁹ Multiple Property Nomination.

¹⁰ Ibid.

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death in 1847, Thomas C. Black may have acquired the property and then passed it to his son Lunsford. The next clear record found for this property dates to 1871 when Lunsford Pitts Black sold 150 acres to Anderson Searcy, Jr.¹¹

Anderson Searcy, Jr., was born July 26, 1834 to Anderson Searcy, Sr., and Sarah Morton Searcy. Although he did not acquire the farm from Lunsford Pitts Black until 1871, it is likely that he lived in the area with other family after the death of his father in 1847. In April 1855, he married Amanda Batey in Rutherford County and had ten children.¹² After the death of Amanda in 1881, Anderson, Jr., remarried Nancy K. Speer.

Like many Middle Tennessee families, the Searcy family was impacted by the Civil War. Anderson, Jr., left to join the Confederate army and helped recruit the 45th Tennessee Infantry Regiment. He was captain of Company C until 1862 when he was promoted to colonel of that regiment. He served until the end of the war, participating in the battles at Shiloh, Stones River, Chickmauga, Missionary Ridge, Atlanta, and Baton Rouge, all with heavy losses.¹³ At the dedication of the Confederate Monument in the Murfreesboro Square on November 7, 1901, Colonel Bennett Young spoke about the regiment: "It was the man in the ranks, the man who carried the musket, who was the true Southern hero... the men who carried the guns and never reasoned why, but only dared to do and die."¹⁴

Following the Civil War, Anderson, Jr., returned to Rutherford County and soon purchased his family's farm in 1871 from Lunsford Pitts Black. The condition of the house at this time is unknown, but the original c. 1830 I-house and c. 1830 detached kitchen were extant along with outbuildings. After acquiring the home, Anderson, Jr., added an ell-wing to the house and likely made interior renovations. Although a few smaller additions have been made to the house, the c. 1871 building phase undertaken by Anderson, Jr., is evident and intact today.

Although little is known about the activities of the farm between 1847 and 1871, the family has documented the agricultural production following the purchase of 150 acres of the farmstead by Anderson Searcy, Jr., in 1871. Searcy produced corn, wheat, cattle, mules, pigs, and cotton during his ownership from 1871 until 1895. These are particularly significant products as they portray the shift to market crops as outlined in the Historic Family Farms in Middle Tennessee during the Expansion and the Market Economy from 1850-1900.

Wheat, livestock hides, tobacco, and cotton became more common products for Middle Tennessee farms with the coming of the railroads by 1860.¹⁵ The Searcy-Matthews-Tarpley Farm continued to produce subsistence items, especially corn, but also began producing wheat, cattle, and cotton for market. The farm is adjacent to Stones River and Jefferson Pike, both of which may have been used to transport goods south to the railroad in Murfreesboro or north to Nashville.

¹¹ Rutherford County Deeds.

¹² Mike West, "Remembering Colonel Searcy's Roots," *Murfreesboro Post*, www.murfreesboropost.com/news.php?viewStoryPrinter=6097 (accessed August 27, 2007).

¹³ Lamb, *Images of 19th Century Rutherford County*, 158.

¹⁴ West, "Remembering Colonel Searcy's Roots."

¹⁵ Multiple Property Nomination.

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After the Civil War, market goods like wheat, cattle, and cotton remained important in Middle Tennessee. In the 1890s, state officials promoted the inclusion of poultry, winter cover crops, silage, percheron horse breeding, truck farming, and new cultivation techniques for tobacco production.¹⁶ As with many farms in Middle Tennessee, the Searcy-Matthews-Tarpley Farm did not subscribe this trend until the 1930s, during the progressive era, with the addition of the chicken coops.

Farm outbuildings from this era feature distinct qualities. Outbuildings became more specialized and silos common. Silos were usually constructed of wood, and were rectangular at first with round shapes becoming common by 1900.¹⁷ The original silo at the Searcy-Matthews-Tarpley Farm may have been constructed during this era, around the turn of the century.

Rural Reform and Agriculture (1900-1945)

On January 19, 1895, Anderson, Jr.'s son-in-law, Andrew Johnson Matthews, took possession of 105 acres.¹⁸ Matthews had married Anderson, Jr.'s daughter, Elizabeth "Lizzie" Searcy, November 13, 1878.¹⁹ Anderson, Jr., may have continued to live with his daughter and son-in-law until his death on May 11, 1910.

A.J. Matthews owned it until his death in 1936 and during this period, he introduced dairy production to the farm, a significant progressive trend in Middle Tennessee agricultural production of the period identified in the Historic Family Farms in Middle Tennessee Multiple Property Nomination as the Rural Reform and Agriculture period from 1900-1945. In the early twentieth century, beef and dairy cattle became increasingly important to Middle Tennessee agriculture, followed by gas-powered machinery in the 1940s.²⁰

The introduction of dairy farming can be seen in the extant dairy barn, silo, and milk house that were constructed in the 1930s. Dairy farming had been encouraged to Middle Tennessee farmers by the University of Tennessee agricultural extension service who built a demonstration dairy farm in Marshall County outside of Lewisburg. Farmers across Middle Tennessee begin adopting this technique, including the Matthews family. Also extant from this period of development is a chicken coop, ponds, and a new well house. These all reflect agricultural practices pushed by reformers during the first half of the twentieth century, particularly the construction of ponds to aid in cattle production and the construction of well houses of shield water pumps from the elements.

A.J. Matthews died in 1936 and left numerous tracts of land to his son Grover Cleveland Matthews. Over the next twelve years, the property transferred ownership within the Matthews family several times. On July 29, 1940, G.C. Matthews sold 160 acres that included the nominated parcel to his brother Epps Edwin Matthews. Just a few weeks later, E.E. Matthews sold the property to his sister Erline Matthews Erwin on August 22, 1940.²¹

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ Rutherford County Deeds.

¹⁹ Century Farms File, Center for Historic Preservation, Middle Tennessee State University.

²⁰ Multiple Property Nomination.

²¹ Rutherford County Deeds.

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Post-War Transformations (1945-1960)

In 1948, E.E. Matthew Sr., E.E. Matthews Jr., and Thomas M. Tarpley (married to Jane Matthews) jointly purchased the property from Erline. Four years later in 1952, Thomas M. Tarpley and his wife Jane Matthews Tarpley acquired full ownership of the property, but E. E. Matthews, Jr., continued to farm the land.

In the late 1940s and 1950s, the Searcy-Matthews-Tarpley Farm continued to follow common trends in Middle Tennessee farms during the Post-War Transformations period from 1945-1960 as outlined in the Historic Family Farms of Middle Tennessee Multiple Property Nomination. The family continued to farm the land, and during this time Epps Edwin Matthews, Jr., planted and harvested wheat and soybeans on the property, common crops during the post-war period.

The most significant changes during this period were with the house. When the Tarpleys acquired the property in 1952, the house had not been occupied for several years and was in need of restoration. The Tarpleys made important improvements and modernizations to the house that included the enclosure of a c. 1871 porch to create a den and connect the c. 1830 kitchen to the main house, the addition of a bedroom and bathroom on the southwest end of the house, and the replacement and repair of windows, woodwork, and floors throughout the house. It is thought that this is when plumbing, and perhaps electricity, was added to the house with construction of the bathroom. The additions are minimal and the restoration of the house sought to restore the historic character of the original farmhouse.

Increasing urban and suburban growth marked the years immediately following World War II. Industry boomed in Tennessee with TVA projects, Oak Ridge, and the Milan Arsenal, resulting in many rural people moving into cities and in turn causing many city residents to move to the suburbs. This was especially true along major transportation corridors, including Lebanon Road, less than a mile east of the nominated property. Areas of Jefferson Pike around the farm saw some 1950s housing development with several ranch houses constructed on large lots of land, but the community but remained mostly agricultural until later in the 20th century.

Many farms shifted from diverse products to specialized farming, and they relied more heavily on machinery than human labor. Specialization resulted from the influence of extension agents and soil conservation practices, and beef cattle, dairy products, and tobacco remained popular products in Middle Tennessee. The family focused largely on cattle, wheat, and soybeans in the Post-War period. Modern elements were added to the landscape to house equipment, seen here in the mid-1900s, probably 1950s, garage. Farmhouses also depicted modernization of the farm, and many have additions that added indoor bathrooms, including the Tarpley farmhouse.

The Farm Today (1960-2011)

In 1972, the Tarpleys added a final addition to the house, extending the c. 1952 den and enclosing the patio between the c. 1952 bedroom and c. 1830 kitchen. A second bathroom was added at this time.

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In 1976, the Tarpley's reported the farm was still operated by Epps Edwin Matthews, Jr. and produced cattle.²² In 1986, Middle Tennessee Century Farms were producing beef cattle, hay, corn, tobacco, soybeans, wheat, pigs, pasture, dairy cattle, and grains (in order from most production to least).²³ While the Tarpleys retain the historic acreage of 106 acres, they have reduced the acreage in cultivation, currently using approximately 70 acres on the production of soybeans, dairy cattle, and wheat, which are not major market products in the region today. The remaining acreage is left untouched as wooded areas. The farm remains in the possession of the Tarpley family under the ownership of the Tarpley Family Limited Partnership.

Architecture

Originally constructed c. 1830, the Searcy-Matthews-Tarpley house stands to represent common architectural patterns on Middle Tennessee farms. The house is a Middle Tennessee I-house with a dominating two-story Greek Revival styled portico. As identified in the Historic Family Farms in Middle Tennessee Multiple Property nomination, this is a vernacular house type common to the area between 1830 and 1875. In the 1830s and 1840s, the Greek Revival front was popular, while the later years saw the introduction of more Victorian designed fronts. Vernacular forms such as the Middle Tennessee I-house were often built on farms geared toward subsistence agriculture rather than market production. In addition to the main house, the 1830s detached kitchen, well, carriage house, and cook's house are all intact as physical representations of a self-sufficient farm in the mid-nineteenth century. Built around the same time as the NR-listed Pierce-Randolph home of Riverside Farm just west of the nominated property on Jefferson Pike, these two houses are two of the earliest extant structures remaining in the Walter Hill area.

Like the Pierce-Randolph home, a large ell wing was added to the house c. 1871 when Anderson Searcy, Jr., purchased the property. This was a common trend in the Reconstruction period to improve housing and increase living space as farms were moving more into market production of crops such as cotton. The addition was made in keeping with the vernacular style of the original building.

Another important architectural phase of the house was in 1952 when Thomas and Jane Tarpley moved into the home. They undertook significance renovations and modernizations after it had been vacant for several years. These modernizations, most importantly, included the introduction of plumbing and electricity to the house. A bathroom, bedroom, and den were added on to the rear of the house, connecting the original c. 1830 detached kitchen to the house. Additions such as these were common post-war trends in rural areas.

The area around the Searcy-Matthews-Tarpley farm has experienced immense development pressure, particularly in the late-nineteenth and early twentieth centuries as Murfreesboro has expanded in all directions. The farm remains intact amid this modern development and the property owners have made great efforts to maintain the historic character of the property. A majority of the historic materials remain in both the farmhouse and domestic and agricultural outbuildings, making the farm an excellent intact example of a Middle Tennessee rural landscape.

²² Century Farms File, Center for Historic Preservation, Middle Tennessee State University.

²³ Multiple Property Nomination.

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9. MAJOR BIBLIOGRAPHICAL REFERENCES

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West, Carroll Van. "Historic Family Farms in Middle Tennessee." Multiple Property Nomination to the National Register of Historic Places, 1995.

West, Mike. "Remembering Colonel Searcy's Roots." *Murfreesboro Post*.
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10. GEOGRAPHICAL DATA

Verbal Boundary Description

The nominated property consists of 106 acres identified as parcel 04300 on the attached Rutherford County Tax Map.

The nominated property is bounded on the northeast by West Jefferson Pike, on the south by adjacent rural and residential parcels, on the west by Stones River, and on the north adjacent rural properties and an unnamed road.

Verbal Boundary Justification

The nominated property contains all of the extant acreage historically associated with the property.

See figure 1.

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PHOTOGRAPHS

Photographs by: Elizabeth Moore, Projects Coordinator
MTSU Center for Historic Preservation

Date: September 2010; December 2010

Digital Files: Tennessee Historical Commission
Nashville, Tennessee

Searcy-Matthews-Tarpley Farm
Rutherford County, Tennessee

- | | |
|-------|--|
| 1 of | Main House, east façade, photographer facing west. |
| 2 of | Main House, east façade, detail of second floor windows, photographer facing west. |
| 3 of | Main House, south elevation, photographer facing northwest. |
| 4 of | Main House, south elevation, photographer facing north. |
| 5 of | Main House, west elevation, photographer facing east. |
| 6 of | Main House, north elevation of c. 1830 kitchen, photographer facing southeast. |
| 7 of | Main House, north elevation, photographer facing south. |
| 8 of | Main House Interior, Central Hall, photographer facing northeast. |
| 9 of | Main House Interior, Central Hall, stair, photographer facing northwest. |
| 10 of | Main House Interior, North Parlor, photographer facing north. |
| 11 of | Main House Interior, South Parlor, photographer facing south. |
| 12 of | Main House Interior, Second Floor Hall, photographer facing northeast. |
| 13 of | Main House Interior, Second Floor Hall, photographer facing southwest. |
| 14 of | Main House Interior, North Bedroom, photographer facing northeast. |
| 15 of | Main House Interior, South Bedroom, photographer facing southwest. |

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- 16 of Main House Interior, Dining Room, photographer facing west.
- 17 of Main House Interior, Kitchen, photographer facing west.
- 18 of Main House Interior, Laundry Room, photographer facing west.
- 19 of Main House Interior, c. 1952 Den, photographer facing west.
- 20 of Main House Interior, c. 1952 Rear Hall, photographer facing west.
- 21 of Main House Interior, c. 1952 Bedroom, photographer facing south.
- 22 of Main House Interior, c. 1972 Den, photographer facing west.
- 23 of Main House Interior, Rear Enclosed Porch, photographer facing southwest.
- 24 of Main House Interior, c. 1830 Kitchen, photographer facing west.
- 25 of Main House Interior, c. 1830 Kitchen, photographer facing south.
- 26 of Main House Interior, Cellar below c. 1830 Kitchen, photographer facing east.
- 27 of Garage (#2), photographer facing northeast.
- 28 of Chicken Coop (#3), photographer facing northwest.
- 29 of Well (#4), photographer facing southwest.
- 30 of Carriage House (#5), photographer facing west.
- 31 of Cook's House (#6), photographer facing north.
- 32 of Cook's House Interior, photographer facing south.
- 33 of Milk House (#7), photographer facing north.
- 34 of Well House (#8), photographer facing northeast.
- 35 of Dairy Barn and Concrete Block Silo (#9 and 10), photographer facing north.
- 36 of Dairy Barn, detail of hay loft, photographer facing north.
- 37 of Dairy Barn, Interior, photographer facing north.

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- 38 of Original Silo (#11), photographer facing northwest.
- 39 of Crab Orchard Stone Pillars (#12), view down driveway from house, photographer facing east.
- 40 of Crab Orchard Stone Pillars, detail.
- 41 of Agricultural Landscape (#13), west field, photographer facing west.
- 42 of Agricultural Landscape, north field, photographer facing northeast.
- 43 of Agricultural Landscape, chicken coop near north field, photographer facing west.
- 44 of Agricultural Landscape, stone wall beside Dairy Barn, photographer facing northwest.

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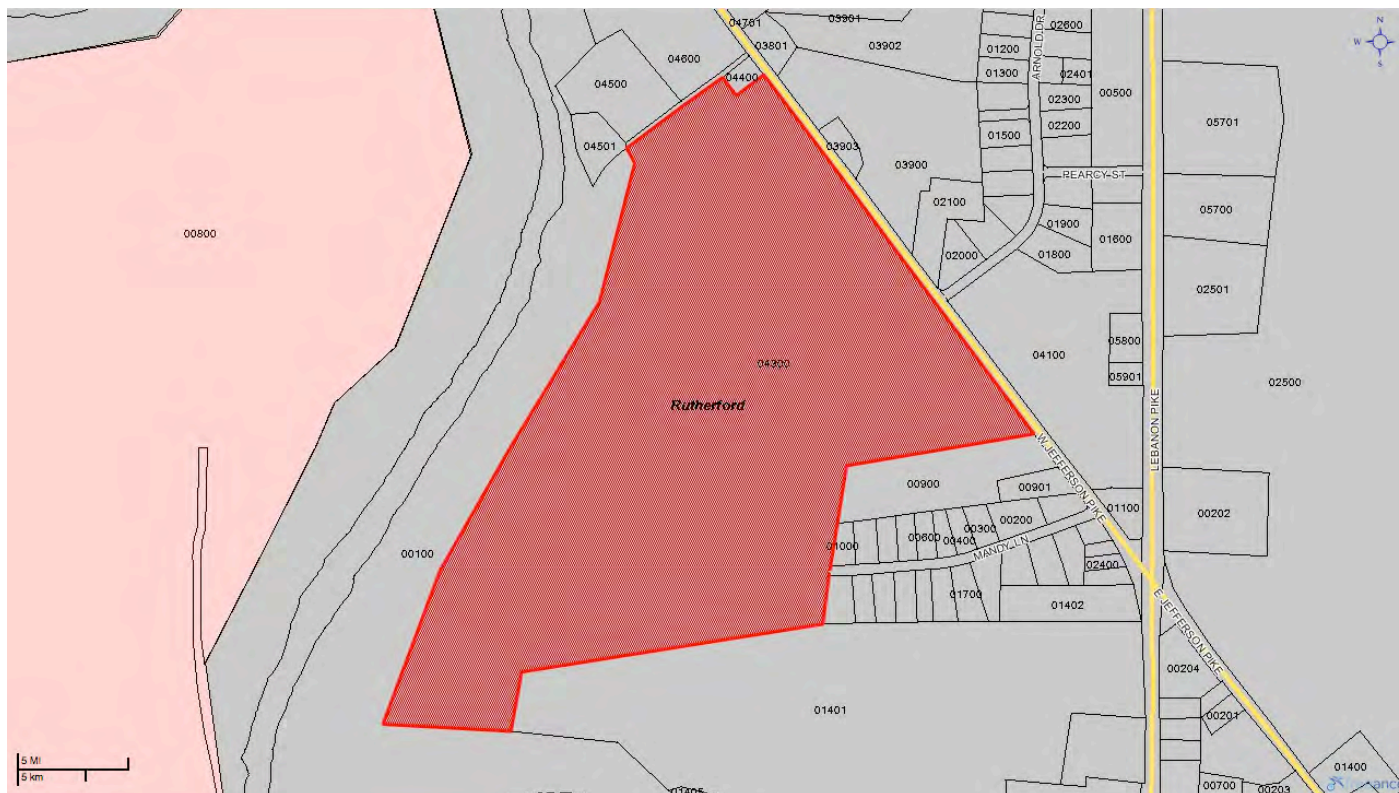


Figure 1. Tax Map.

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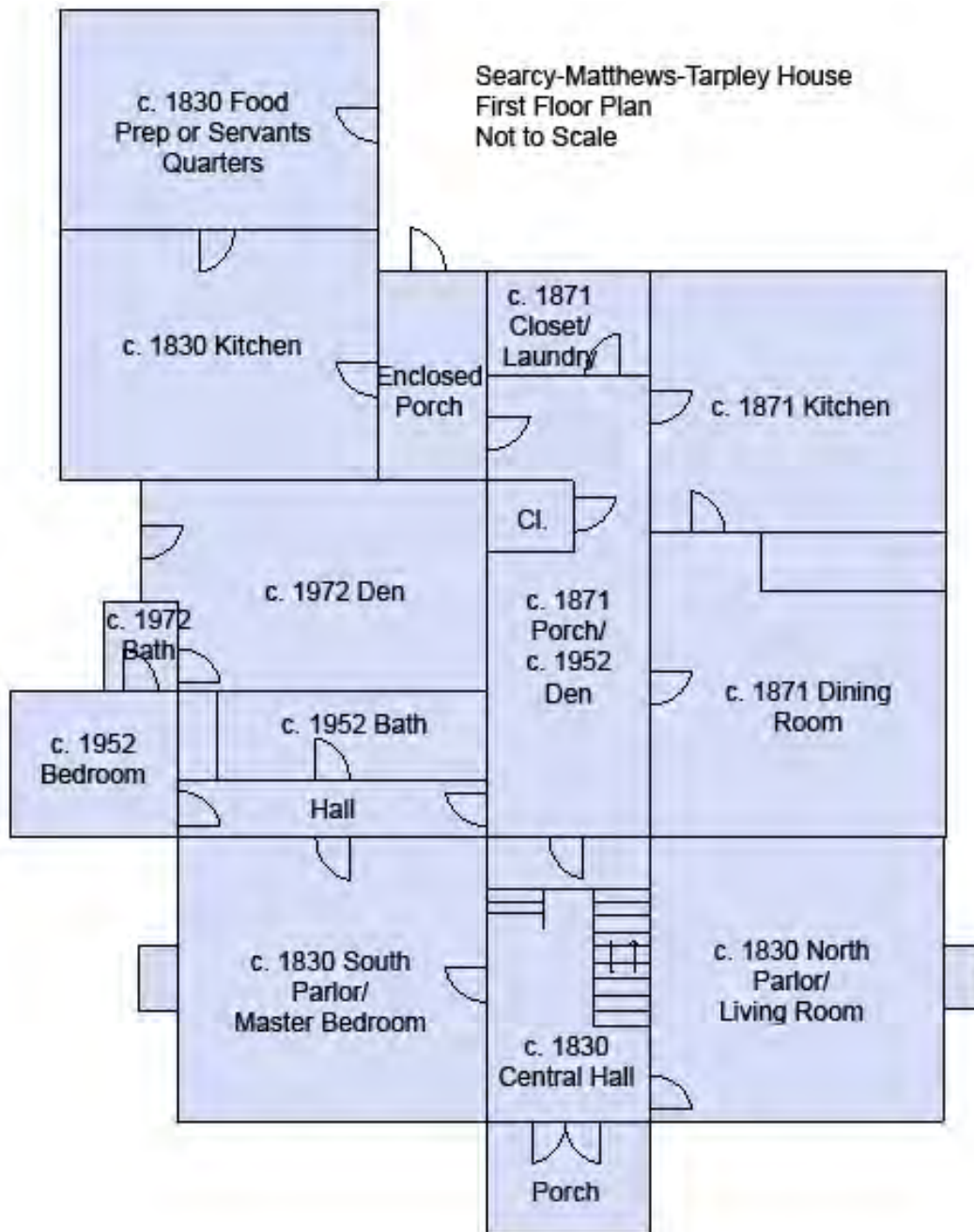


Figure 2. First Floor Plan.

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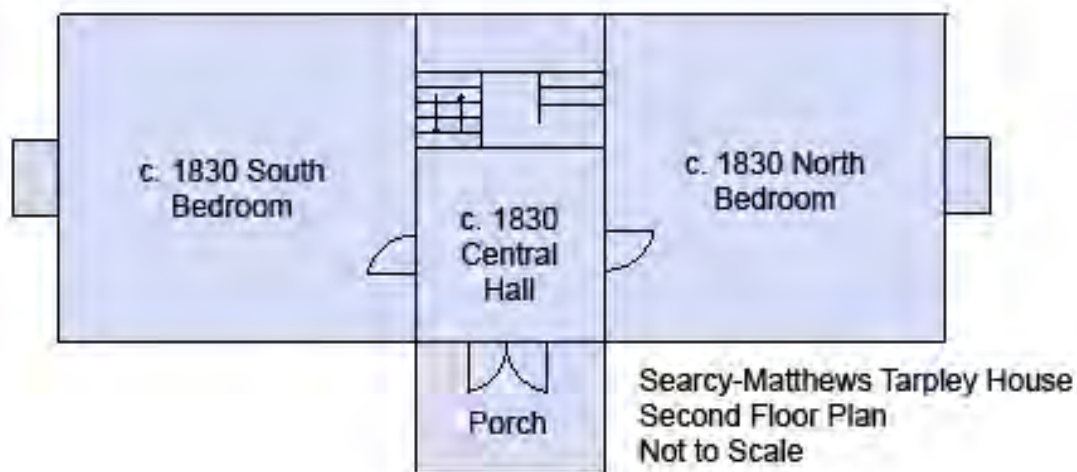


Figure 3. Second Floor Plan.

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Figure 4. Site Plan.

Mr. J. Paul Loether
Chief, National Register of Historic Places Program
1201 Eye Street, NW (2280)
Washington, DC 20005

Kevin P. Murphy
4508 Murphy Rd
Knoxville, TN 37918-9179
November 28, 2014

RE: Disputed Boundaries of Murphy Springs Farm National Register Nomination,
Reference # 14001034

Dear Mr. Loether,

I authored a nomination for Murphy Springs Farm in Tennessee (reference number 14001034) which is being reviewed by your office. The State Review Board voted unanimously to recommend the nomination, but the Tennessee State Historic Preservation Office staff decided to dispute the proposed boundaries of the nominated property.

I believe the primary reason for the dispute is based on an initial boundary assessment made in early 2013 between the Tennessee Department of Transportation (TDOT) and the Tennessee SHPO for a proposed road improvement project adjacent to Murphy Springs Farm. As one of the members of the State Review Board stated during the hearing when the staff brought up the impact of changed boundaries on the Section 106 review process, "with all due respect to the Section 106 process, if the road project were not something we need to consider and we just had this nomination in front of us with the boundaries as they are, we wouldn't be having this discussion as to whether or not these boundaries need to be changed."

The first time this issue was raised was only a week prior to the State Review Board Hearing, and I never received specific objections until I was provided a copy of the Continuation Sheet filed by the SHPO when the nomination was sent to your office. I provided two handouts at the State Review Board Meeting, and am now submitting additional materials that I believe support the boundaries and resolve the dispute. Importantly, there is precedent - the Tennessee State Review Board and your office have accepted and listed other farm nominations that are similar to Murphy Springs Farm (see folder #6).

1. Additional boundary justification narrative, based on guidance in the NPS Publication *Guidelines for Evaluating and Documenting Rural Historic Landscapes*. Most of this was provided to the State Review Board and SHPO staff at the meeting on Sept 17, 2014.
2. My comments on a marked-up continuation sheet filed by the Tennessee SHPO with the nomination, along with supporting documentation
3. Request to reclassify the nomination as a District instead of a Property due to my professional error in preparing the nomination form, and updated boundary maps
4. Items submitted to State Review Board and SHPO, but that were not included in nomination that was forwarded to the Keeper's office.
5. Evidence that the boundaries determined in 2013 were proposed by the Tennessee Department of Transportation, which received a cursory review from the Tennessee SHPO, with limited involvement of local historical groups and no involvement or notification of the property owners

6. Representative National Register listings of similar Tennessee farms, that set precedent for the boundaries and significant characteristics of the Murphy Springs nomination

These items are enclosed in numbered file folders, with index sheets listing the contents of each folder.

I hope that you and your staff will find that the nomination as submitted with these additional materials is technically sufficient to justify the nominated boundaries as originally submitted. I would be happy to answer any additional questions that you or any of your staff may have concerning this nomination, and to provide any additional documentation that I may have access to.

Very sincerely and respectfully,



Kevin P. Murphy

List of Enclosures:

Folder: 01 - Additional Boundary Justification Narrative

- 01 - Additional Narrative Supporting Boundary Justification for Murphy Springs Farm
- 02 - Letter from Knox County Extension Agent
- 03 - Letter from Knox Heritage
- 04 - letter from Steve Cotham Knox County Historian

Folder: 02 - Rebuttal to Continuation Sheet

- 01 - continuation sheet for murphy springs farm with author comments
- 02 - Historic Structures Report Distribution List - TDOT

Folder: 03 - Requests to Correct Errors

- 01 - Murphy Request Correction of Professional Errors
- 02 - Photo Key - Site Plan - Revised Nov 23 2014.png
- 03 - Overhead Map Page 32 Revised Nov 23 2014.png

Folder: 04 - Additional Info for SHPO and State Review Board

- 01 - Index of Items - Additional Info for SHPO and State Review Board
- 02 - SHPO Memo to SRB re Murphy Springs Farm Proposed National Register Boundary
- 03 - Tennessee State Review Board - Murphy Springs Farm PowerPoint
- 04 - Letter from Knox County Extension Agent
- 05 - Murphy Letter to Tennessee State Review Board
- 06 - Tennessee State Review Board Meeting Minute 9-17-14 DRAFT
- 07 - State Review Board Recording 2014-09-17 09_29_2014-09-17 09_29.m4a
- 08 - Partial Transcript by Kevin Murphy of the SHPO meeting

Folder: 05 - Chronicle of Proposed Boundary Determination

- 01 - Cover - Proposed Boundary Determination.pdf
- 10 - SHPO Murphy Farm Email Correspondence 2008-2009.pdf

- 11 - 2009-01-WashingtonMillertownTPR.pdf
- 12 - 2012-04-06 Letter from City of Knoxville re Washington Pike Surveys.pdf
- 13 - 2012-04-13 Email from Kevin Murphy to Jana re Farm Map.pdf
- 14 - 2012-04-15 Letter on Washington Pike Widening.pdf
- 15a - Email from Kevin to Jana re Information on Murphy Farm.pdf
- 15b - Murphy Springs Farm Tennessee Century Farm Application.pdf
- 16 - 2012-05-01 Email inviting Mayor Rogero to ABSHNA Meeting.pdf
- 17a - Email from Kevin to Jana with draft NR nomination.pdf
- 17b - 10-900 Draft Murphy Springs National Register Nomination 2012-May-8.pdf
- 18a - Email from Jana to Kevin for Additional Info.pdf
- 18b - murphy questions.pdf
- 20a - Email from Kevin to Jana.pdf
- 20b - TaxMap of Sites.bmp
- 23 - 2012-05-WashingtonPikeNeighborhoodMeeting.pdf
- 24 - 2012-06-02 Summary of meeting with Mayor Rogero.pdf
- 25 - Knox Wash Pike NAC Allen 8.17.12.pdf
- 26 -Email between Jana and Kevin 2012-Oct.pdf
- 30 - Historic Structures Survey for Washington Pike Oct 2012 Draft.pdf
- 31 - Historic Structures Survey - First Draft-TDOT edits.pdf
- 32 - 2012-Nov-27 Email from Jana Bean to Tammy Sellers.pdf
- 33 - Email from Joe Garrison to Jana Bean.pdf
- 34 - 2013-Jan-25 Email Jana Bean to Tammy Sellers re Washington Pike Revision.pdf
- 35 - 2013-Jan-29 Email from Tammy Sellers to Jana Bean.pdf
- 36 - 2013-01-WashingtonHistoricalStructuresSurvey.pdf
- 37 - Washington Pike Memo to SHPO, 2-5-13.pdf
- 40 - 2013-02-07 Email from Claudette Steger.pdf
- 41 - 2013-02-08 SHPO Ok onDraft.pdf
- 42 - 2013-Mar-04 Consultant Cover Letters.pdf
- 43 - 2013-Mar-12 SHPO OK with WashingtonHistoricalStructuresReport.pdf
- 44 - 2013-Apr-08 Email about initial notification.pdf
- 45 - 2013-Apr-09 Email Kaye Graybeal to Kevin Murphy.pdf
- 46 - Emails from Kaye Graybeal Fwd_ Washington Pike Roadway Improvement Project in Knoxville.pdf
- 50 - 2013-04-17 Letter to Mayor Roger re Washington Pike Widening.pdf
- 51 - 2013-05-14 City of Knoxville Washington Pk Response.pdf
- 52 - Email from NEKPA confirming non-receipt of report.pdf

Folder: 06 - Other National Register Listed Farms

Allen-Birdwell Farm
 Allendale Farm
 Oak Hill Farm
 Searcy-Matthews-Tarpley Farm