

TRANSPORTATION PLANNING REPORT

WATT ROAD CONNECTOR

FROM: OLD STAGE ROAD

**TO: EXISTING WATT ROAD TERMINUS
450 FT SOUTH OF KINGSTON PIKE (SR-1)**

OLD STAGE ROAD IMPROVEMENTS

FROM: 940 FT EAST OF TRIPLE CROWN BOULEVARD

TO: JOHNSON'S CORNER ROAD

TOWN OF FARRAGUT, KNOX COUNTY, TENNESSEE

**PREPARED BY
WILBUR SMITH ASSOCIATES**

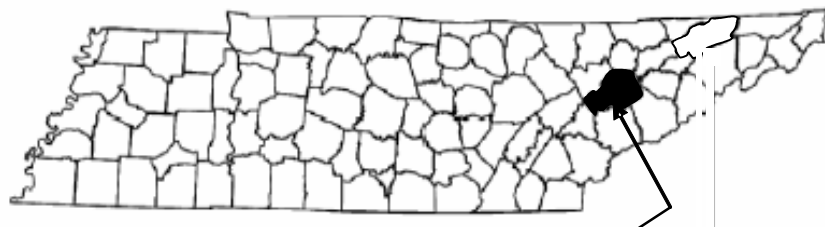
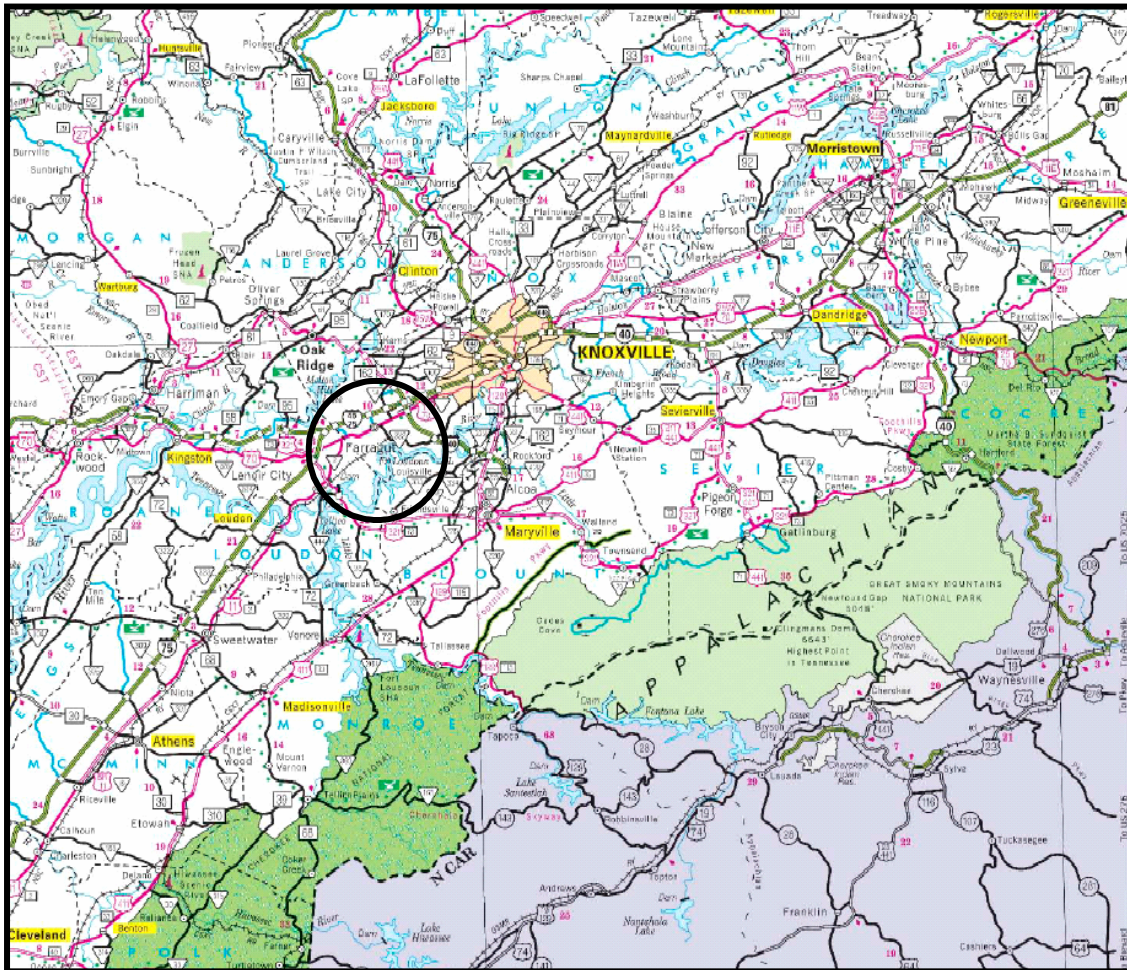
**FOR THE
TOWN OF FARRAGUT**

**IN COOPERATION WITH THE
TENNESSEE DEPARTMENT OF TRANSPORTATION
PROJECT PLANNING DIVISION**

Recommended by:	Signature	DATE
CHIEF OF ENVIRONMENT AND PLANNING		5/24/07
TRANSPORTATION DIRECTOR PROJECT PLANNING DIVISION		5-18-07
TRANSPORTATION MANAGER PROJECT PLANNING DIVISION		5/16/07

This document is covered by 23 USC §and its production pursuant to fulfilling public planning requirements does not waive the provisions of §409.

PROJECT VICINITY



KNOX COUNTY

FIGURE 1

AREA LOCATION MAP
OLD STAGE ROAD/ WATT ROAD CONNECTOR TPR
TOWN OF FARRAGUT, KNOX COUNTY, TENNESSEE

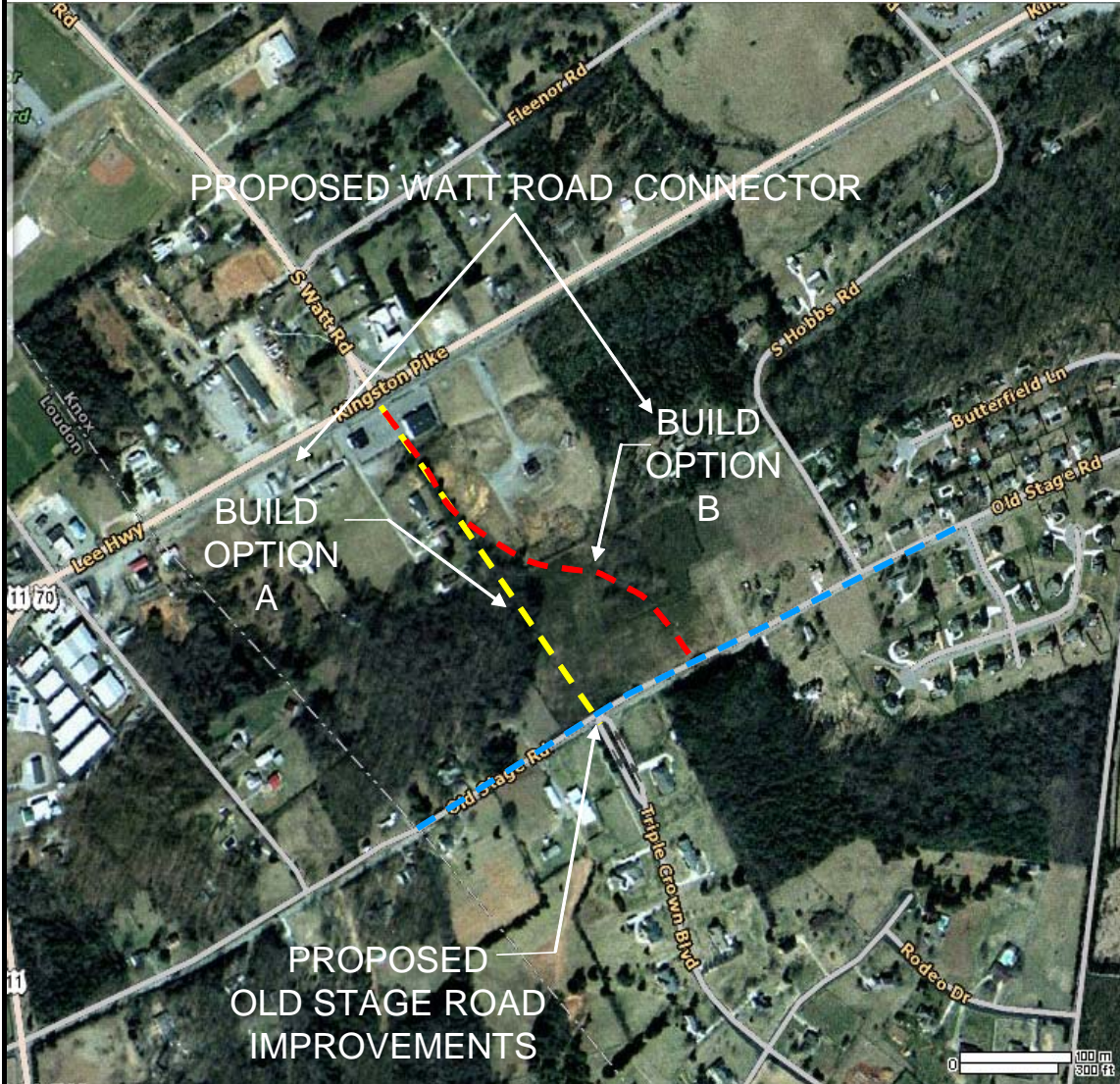
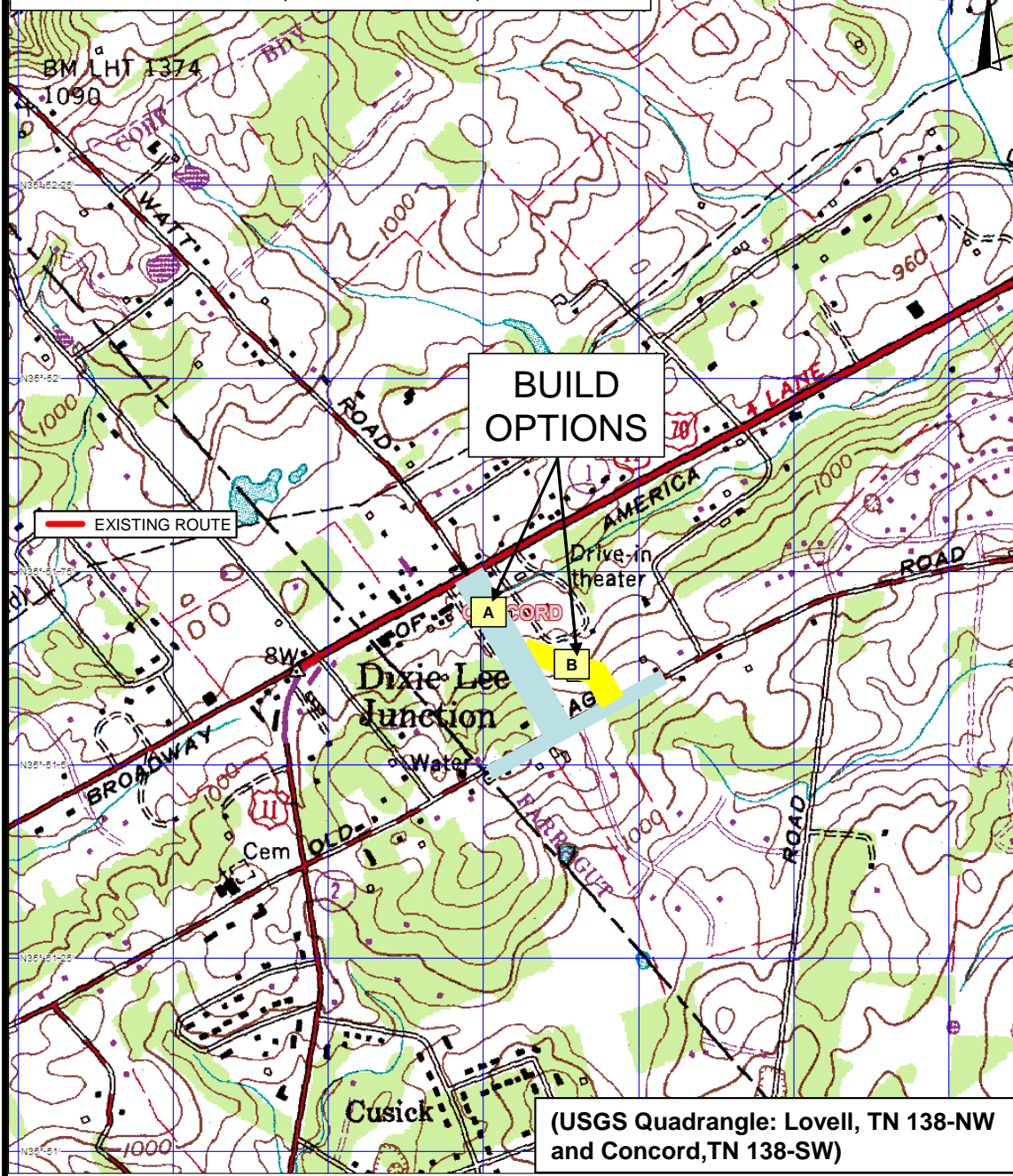


FIGURE 2

**PROJECT CORRIDOR TOPOGRAPHY
OLD STAGE RD/WATT ROAD CONNECTOR
TOWN OF FARRAGUT, KNOX COUNTY, TENNESSEE**



(USGS Quadrangle: Lovell, TN 138-NW and Concord, TN 138-SW)

3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 Source Data: USGS 350 ft Scale: 1:12,800 Detail: 14-0 Datum: WGS84

FIGURE 3

PURPOSE OF STUDY

The purpose of this Transportation Planning Report (TPR) is to examine existing roadway conditions, identify existing deficiencies and analyze projected data to define the purpose and need for the reconstruction of Old Stage Road and extension of Watt Road from its southern terminus 450 feet south of SR-1 (Kingston Pike) to Old Stage Road.

Figure 1 illustrates the regional setting. An Area Location Map is shown in Figure 2. A Project Location Map (USGS Map Concord, TN Quadrangle 138-SW and Lovell, TN Quadrangle 138-NW) depicting the study corridors of the two optional build improvements are shown in Figure 3.

In addition to documenting the geometric, safety and connectivity deficiencies, this TPR will also analyze the base year (2011) and design year (2031) "Level of Service" (LOS) for the study area. The LOS analysis and projected traffic volumes for the base and design years are included in this report and are depicted in the Project Data Table and on the traffic schematic.

EXISTING CONDITIONS

Presently, the roadway width on Old Stage Road is 16 foot travel lanes with minimal shoulders and a 50 foot right-of-way from the Knox-Loudon County boundary to Johnson's Corner Road. The roadway is deficient resulting in limited lane capacity which is a major impediment to safe and efficient traffic flow along this frequently traveled Farragut route. While there is little documented history of crash experience on Old Stage Road, it is not uncommon for vehicles to have to pull to the shoulder to avoid opposing traffic. Presently, most motorists wishing to travel from the study area to destinations east of Farragut (including the Knoxville CBD) typically use Kingston Pike and Campbell Station Road to its interchange with Interstate 40/75. This is a highly congested route with improvements currently under design that will be discussed later. While motorists have an available alternate route to Interstate 40/75 via Watt Road and its interchange, it is less convenient to use Watt Road as it requires some "back tracking" and a left turn onto Kingston Pike at Old Stage Road.

The base year (2011) annual average daily traffic (AADT) on Old Stage Road is 2,800 vehicles per day (vpd) with one percent trucks. On Watt Road, the base year AADT is 2,900 vehicles per day. The design year AADT on Watt Road with either Build Option is 4,300 vehicles per day.

There is no defined safety deficiencies in the study area based on reported crashes, although there is evidence of concern regarding the narrow pavement width on Old Stage Road as noted earlier. According to Knox County crash records, there was one reported crash on Old Stage Road between August 2003 and May 2005. Crashes on Kingston Pike have been more numerous as expected given the higher volume of traffic in this area. There were 73 traffic crashes on Kingston Pike between and including Watt Road and Old Stage Road from 2003 through 2005. Twenty of these crashes involved the Watt Road intersection, most of which were rear-end collisions (typical of signalized intersections). Five traffic crashes were at Hobbs Road, nine were at Everett Road, and seven occurred at Old Stage Road. Other reported traffic crashes were generally at isolated locations. There are no locations on Kingston Pike within the study environs that are included on TDOT's hazardous elimination safety program list.

PURPOSE AND NEED

A two-lane facility of adequate and consistent width is needed to safely accommodate current and anticipated traffic volumes. By extending Watt Road to Old Stage Road, motorists would have an improved connection from the southwest section of Knox County to Interstate 40/75. This connectivity represents the more predominate purpose and need for the proposed improvements.

COMMUNITY PROFILE

As depicted on the Project Vicinity Map (Figure 1), the Town of Farragut is a suburban residential community located in southwestern Knox County approximately fifteen miles west of downtown Knoxville, Tennessee. Farragut's regional setting places it close to several neighboring counties including Knox, Loudon, Blount, and Anderson making it a prime location for residential, commercial, and employment opportunities. Farragut's beautifully designed parks, greenways, golf courses and other recreational facilities are attributes that fulfill the Town's diverse recreational and leisure needs. Recently, the Town of Farragut received recognition as the "Most Business-Friendly City for 2006" by

the Tennessee Center for Policy Research, reflecting the Town's accomplishment in sustaining businesses, community environment and local amenities that continue to attract residents and development.

The Town of Farragut was incorporated on January 16, 1980 with a population of 6,279 residents. The 2000 U.S. Census population for the Town of Farragut was 17,720. In 2005, Farragut's population had increased to 19,054 residents indicating a 200 percent increase in total growth (eight percent annual growth) since its incorporation in 1980. The Town is governed by a Mayor and Board of Aldermen with regular meetings of all Town boards and committees held at the Farragut Town Hall, 11408 Municipal Center Drive. The Town is named after Admiral David Glasgow Farragut, the first admiral of the United States of America Navy, who was born in the Farragut area.

The corporate limits of Farragut encompass an area of approximately 10,361 acres or 16.2 square miles. Residential land occupies the largest portion of developed land in Farragut which accounts for the abundance of traditional subdivisions located adjacent to the Town's major arterial roads and collector streets. The availability of adequate transportation and utility infrastructure had an impact on the location and development of these subdivisions. Although most of the subdivisions are adjacent, most are not internally connected and must be accessed directly from the arterial and collector street network. This access pattern increases congestion on the major arterial streets.

The traffic circulation pattern within the Town of Farragut relies heavily on the Town's major arterials. These routes carry a considerable volume of traffic. Kingston Pike, (SR-1) is the only major arterial running east-west through the entire town. Kingston Pike roughly bisects the Town and carries a significant amount of through traffic from the surrounding area. Most of the Town's principal commercial areas are located along Kingston Pike, emphasizing its function as a major arterial within the Town. Parkside Drive is another east-west major arterial that runs parallel to Interstate 40/75 and provides a link between Campbell Station Road and Lovell Road which is located to the east and outside of Town limits. Concord Road, Campbell Station Road and Watt Road are major arterials running north-south in Farragut. Campbell Station Road and Watt Road feed traffic northward directly onto Interstate 40/75 providing a vital link between Kingston Pike and the Interstate. Concord Road links Kingston Pike with

Northshore Drive (SR-332), a main state road located on the southern edge of the Town. During the morning peak traffic period, most traffic moves north and east as residents commute to work in Knoxville and Oak Ridge. This traffic circulation pattern reverses in the afternoon as workers return home.

Over several years, the Town has been relatively aggressive in capital expenditures on roadway improvement projects. Numerous transportation planning studies have been conducted that address isolated intersection improvements, bikeway and pedestrian facilities, roadway widening projects and roadway extensions. These studies provide historical analyses of the Town's transportation system and insight into its traffic management and operation of its existing transportation facilities. A substantial number of localized transportation planning projects have been undertaken over the past several years in response to the Town's economic activity and general community development. The Town's largest single project was the Campbell Station Road Extension Project which was planned for more than 20 years and is now a reality. This 1.2 mile segment consists of five lanes that improved the traffic flow and connectivity to Northshore Drive, an important link in the transportation system for Farragut and west Knox County.

Other recent transportation and economic improvements include the Interstate 40/75 Lovell Road interchange improvements, Parkside Drive Extension and Turkey Creek Mixed-Used Development, all of which have influenced traffic patterns throughout Farragut and introduced a major regional commercial concentration area for meeting the needs of both the interstate travelers and local residents. The Turkey Creek mixed-used development is designed with regional retail department store chains, supermarkets, upscale dining, a multi-plex cinema, restaurants and hotels. A regional hospital, office complexes, and residential space are also being constructed. It is anticipated that roadway improvements will continue to be necessary as Farragut and the surrounding area continue to grow.

Many of the Town's minor arterials including Grigsby Chapel Road, McFee Road and Campbell Station Road, north of Interstate 40/75 link small population nodes and provide direct access to the new Turkey Creek development and other major traffic generators.

The Town has several additional roadway improvement projects currently underway or being planned. These projects include:

McFee Road- This project includes upgrading a two-mile segment of roadway linking the southwest quadrant of the Town and the southwest part of Knox County outside the Town to the Kingston Pike corridor. The project will run from Boyd Station Road to south of Old Stage Road with curbs and gutters, sidewalks and pedestrian trails. The Town completed the first phase of this project (approximately 25%) in 2004, and the remaining portion is currently under construction with completion anticipated in summer 2007.

Everett Road/ Kingston Pike- This project includes the addition of a center turn lane on Kingston Pike from 200 feet east of Way Station Trail to 500 feet east of Everett Road. The improvements include widening the three-span bridge over Little Turkey Creek with the addition of curbs and gutters and sidewalks.

Evans Road/ Virtue Road- The reconstruction of Evans Road from Virtue Road would provide a better 2-lane major collector roadway system with sidewalks linking traffic onto McFee Road, a minor arterial road. Roadways like McFee Road and Old Stage Road serve a considerable number of commuters from neighboring Lenoir City and Loudon County which utilize these roadways to access employment centers in Knoxville and Oak Ridge.

N. Campbell Station Road - Construction plans are underway for the roadway widening project on N. Campbell Station Road from Parkside Drive to Jamestowne Boulevard. The Advance Planning Report (APR) on this highly utilized north-south link from Kingston Pike to Interstate 40/75 was approved in February 2005. Improvements include widening from three to five lanes resulting in a continuous five-lane roadway from the interstate to Kingston Pike. This project is proposed to support the completion of the Campbell Station Road Extension Project.

With the Town's ongoing and proposed roadway projects, in addition to this recent proposal to improve Old Stage Road and extend the southern portion of Watt Road, strain on the Town's major transportation links is being reduced. This study further confirms the continuing need for a transportation network that would service anticipated

development growth and associated traffic demands. The Town of Farragut envisions that improvements to its transportation network will continue to include a variety of traffic management tools to alleviate and mitigate traffic congestion, facilitate safety, and include operational improvements necessary to service its community.

The Town of Farragut identified the Old Stage Road/ Watt Road connector as a system improvement to facilitate travel via the Watt Road interchange and to lessen traffic demand at the Campbell Station Road interchange and its environs.

This project is listed in the Town of Farragut's Capital Improvement Plan (2006) as well as in the Knoxville Regional Transportation Planning Organization (TPO) Long Range Transportation Plan as a requested Transportation Improvement Program (TIP) project for FY 2006-2008. The Town of Farragut, as sponsor, has provided initial funding for planning, environmental, and preliminary engineering processes.

LEVEL OF SERVICE

The efficiency (or sufficiency) of roads is described by their LOS. The criteria are defined as shown in the "Level of Service" section of this report and reflect the ability of roads and intersections to accommodate motor vehicle traffic and subsequent physical and psychological comfort levels of drivers. The LOS analysis incorporates several factors including traffic volumes, number and width of lanes, terrain, directional split, vehicle types and shoulder widths. The results of the LOS calculations, as explained later in this document, indicate intersection deficiencies in both the base and design years.

Traffic volumes within the study area are anticipated to grow quite rapidly with the continuing development of new subdivisions and businesses locating in the Farragut area, particularly near the southwestern section of the Town. Population growth between 1990 and 2000 in the area exceeded 50 percent, one of the highest sector growth rates in Knox County ("Knox County Demographic Trends", Metropolitan Planning Commission Technical Report Series, November 2001). There is substantial developable land located south of Old Stage Road, much of which will use McFee Road for access to Kingston Pike and Interstate 40/75. It is conceivable that such development will add 20,000 new vehicle trips per day to McFee Road upon buildout.

In order to evaluate traffic conditions, capacity and level of service 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 (LOS).

Level of service is a qualitative statement of an intersection’s ability to accommodate traffic volumes. There are six levels of service ranging from “A” to “F” with “F” representing the worst. Each level represents a range of operating conditions. Table 1 presents a summary of the delay criteria for the various levels of service under STOP control and signalized control. Within urban areas, LOS D generally is considered the minimum acceptable LOS.

Table 1: LOS Criteria

LOS	Average Control Delay (seconds/vehicle)	
	2-Way STOP	Traffic Signal
A	0 to 10	0 to 10
B	>10 to 15	>10 to 20
C	> 15 to 25	> 20 to 35
D	> 25 to 35	> 35 to 55
E	> 35 to 50	> 55 to 80
F	> 50	> 80

The LOS analysis completed for this study utilized the projected base year (2011) peak hour traffic volumes and design year (2031) peak hour traffic volumes with existing geometry (the No-Build Option) as well as with the two proposed optional improvements (A and B). Seven existing study intersections were identified including Kingston Pike at Watt Road, at Hobbs Road and at Old Stage Road, and Old Stage Road at McFee Road, at Dixon Road, at Hobbs Road and at Triple Crown Boulevard. Current and future traffic conditions are at LOS D or better with some exceptions. Table 2 is a summary of the LOS analyses of four study intersections.

Table 2: LOS Summary

Intersection, Movement, Year of LOS E with No-Build, Year of LOS E with Option A or B and mitigation	LOS AM/PM								
	No-Build			Option A or B			Option A or B and mitigation		
	2006	2011	2031	2011	2031	2011	2031		
Kingston Pike at Old Stage Road							Install signal ²		
NB LT ¹	2006	2026	C/E	C/F	F/F	C/F	F/F	C/C	C/E
NB RT ¹	2012	>2031	B/C	C/C	F/F	C/C	F/F	B/B	C/C
WB LT ¹	2012	2026	A/B	C/C	B/F	A/B	B/F	A/B	A/E
Kingston Pike at Hobbs Road							Install signal ²		
SB LT/TH ¹	2008	>2031	C/D	C/E	F/F	C/E	F/F	C/D	C/D
NB ¹	2024	>2031	C/C	C/C	D/E	C/C	C/E	C/D	C/C
Kingston Pike at Watt Road							Add SB LT lane ²		
SB LT/TH ¹	2021	2030	C/C	C/C	D/F	C/C	E/F	C/B	E/D
Overall	>2031	>2031	A/B	B/B	B/D	B/B	C/D	B/B	C/C
Old Stage Road at McFee Road							Install signal ²		
NB LT ¹	2012	>2031	B/C	C/C	F/F	B/C	F/F	C/C	C/C
NB RT ¹	2019	>2031	B/A	B/B	F/B	B/A	C/B	B/B	B/C
Notes:									
1. Abbreviations:NB = northbound, SB = southbound, LT = left turn, RT = right turn, TH = through.									
2. Proposed mitigation measure.									

The Appendix to this report contains a more detailed summary of traffic volumes and levels of service by peak hour at each planning horizon.

PROPOSED IMPROVEMENT

It is proposed to upgrade the existing two-lane roadway on Old Stage Road from its current 16 feet width just west of Johnson's Corner Road to an improved two-lane segment with two 12-foot lanes with sidewalks, curbs and gutters and 4-foot shoulders to the western limits of the Town (coincident with the Knox/ Loudon County Line). Additionally, Watt Road would be extended from its current southern terminus to Old Stage Road. The proposed project length is 0.56 miles. Right-of-way acquisition would also be required in order for the Town to readily make the necessary street improvements.

There are three separate optional improvements proposed for this project. This includes a No-Build option, which, as the name implies, would retain the existing facilities with no

new connector to Watt Road. The two Build options (Options A and Option B) were developed with careful consideration of the study area keeping in mind the Town's objective to provide an efficient transportation link from southwestern Knox County to Interstate 40/75. A brief description of the corridor alignments of these two Build Options follows:

As depicted on Figure 3, the Project Corridor Topography map, the two build options labeled Option A and Option B are represented as corridor options. Option A is proposed to improve roadway connectivity from the existing southern terminus of Watt Road to Old Stage Road. The proposed centerline would tie into the existing Watt Road centerline south of Kingston Pike (SR-1). A 300 foot corridor width extends from there on new location to Old Stage Road. The proposed Option A alignment of the Watt Road connector would begin at the present terminus and run approximately southeasterly on new alignment at a relatively steep grade across a ridge slope and a heavily mixed wooded area intersecting with Old Stage Road directly opposite Triple Crown Boulevard. The Option A project length is approximately 0.56 miles (2,950 feet).

Option B also has a 300 foot corridor width for the extension of Watt Road and 300 feet width along Old Stage Road. This option also begins at the existing southern terminus of Watt Road then taking a more indirect route. Option B offers a more serpentine route in order to lessen the steep grade connecting Watt Road to Old Stage Road. It would intersect Old Stage Road between Triple Crown Boulevard and S. Hobbs Road.

Old Stage Road improvements include widening beginning 500 feet west of Dixon Road to immediately west of Triple Crown Boulevard. Improvement include widening the existing 16-foot wide roadway to two, twelve foot lanes, installing curbs and gutters, and installing sidewalk on at least one side of the roadway. Improvements to Old Stage Road would be the same with both Build Options.

Table 3 below describes the pros and cons of both Build Options. As outlined in Table 3, Build Option A also improves Old Stage Road along its existing corridor. The 300 feet corridor would provide the needed area to encompass a feasible roadway placement which will meet the purpose and need of the project with the concurrence of the community. Option A requires no residential or business displacements, but will result

in right-of-way acquisition and utility relocations on both the Watt Road extension and in the residential areas adjacent to Old Stage Road. The possible alignment of Option A appears to minimize impacts on homes, businesses and environmental resources.

Table 3: Comparison of Build Options

PRO	NO- BUILD	BUILD OPTIONS	
		OPTION A	OPTION B
Meets purpose and need		X	X
Concurrence of the community		X	
No residential or business displacements	X	X	X
Direct route		X	
Minimize Impacts		X	
CON	NO- BUILD	BUILD OPTIONS	
		OPTION A	OPTION B
Right-of-Way Acquisition		X	X
Utility Relocation		X	X

Presently, Option B requires no displacements of residences or businesses but will also result in the right-of-way acquisition and utility relocations along the Watt Road extension and in the residential areas adjacent to Old Stage Road. However, the Town Planning Commission recently approved a concept plan for a condominium development on property which Option B bisects, so property acquisition may be required. Construction for the residential development is anticipated by summer 2007. It is probable that the alignment of Option B would cause displacement of several residential units. The necessary right-of-way to build the project will vary depending on the terrain, proposed land uses, and environmental considerations.

For the proposed Watt Road connector, both options incorporate two traffic lanes with a continuous two-way left turn lane and curbs and gutters. All lanes are proposed to be 12 feet wide. For the proposed Old Stage Road improvements, both options include two 12-foot traffic lanes with curbs and gutters. Option A and Option B also recommend sidewalks and four foot shoulders on both sides of the roadway on the connector road

and in the residential areas along Old Stage Road. The shoulders will not be striped as bike lanes until designated by the proper entity after construction. The Town of Farragut has long understood the need to develop alternate modes through the Town and is continually adding new sidewalks, greenways and bike lanes as an ongoing project 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.

RECOMMENDATION

Traffic in the southwest section of the Town has increased substantially over the past several years due to development; therefore this proposed project will serve as a vital component of the Town's overall transportation system. Both Build Options would increase sight distance and improve the inadequate 16' cross section and the deficient horizontal alignment on Old Stage Road by providing an improved two-lane roadway with a standard typical section. The proposed extension of Watt Road to Old Stage Road will provide an important new connection from the southwest section of Knox County to the Kingston Pike corridor and also provide a more convenient access to the Interstate 40/75/Watt Road interchange. Besides providing for improved local and regional accessibility, other primary beneficial effects of the Build Options include: (1) improved safety and operating conditions along the project corridor; (2) increased traffic capacity; (3) enhancement of future planned growth by local and/or regional land use planning agencies; and, (4) expansion of the local alternative mode system through the construction of adequate shoulders and sidewalks.

The levels of service with Option A or Option B are very similar to those of the No-Build condition. Traffic demand at the intersection of Kingston Pike and Watt Road will actually increase with either Build option resulting in accelerated decline to LOS E conditions. It is emphasized that the justification for this project is to create an additional travel path between the study area and Interstate 40/75 thereby enhancing connectivity of the transportation system in and beyond the study area and reducing demand in other congested areas. Based on the traffic schematics, it is expected that traffic demand east of the study area will decrease by 1,500 to 2,300 vehicles per day given the study

assumptions thereby improving the LOS of Kingston Pike intersections east of Watt Road.

In order to facilitate this reduction in demand in other corridors and achieve the desired goal of the proposed recommendation, three ancillary improvements are recommended with either Build Option:

- Install a traffic signal at the intersection of Kingston Pike with Old Stage Road. Two metrics indicate the need for signalization. First, traffic conditions are poor (LOS E) at present for the northbound left turn movement at this intersection and will decline with future traffic growth. Secondly, current traffic volumes fully satisfy the nationally accepted warrants for signalization. The result of signalization will be acceptable (LOS D or better) conditions for all approaches at the intersection although some individual movements will decline to LOS E by about 2026.
- Install a traffic signal at the intersection of Old Stage Road with McFee Road. Failing traffic conditions are projected under the current STOP control at this intersection for northbound drivers, particularly those making left turns onto Old Stage Road (to access the proposed connector). The associated delay may discourage drivers from utilizing the new connection. With signalization, it is expected that traffic conditions will be LOS C or better beyond the design year. Therefore, this improvement is recommended with either Option A or Option B.
- Provide a separate southbound left-turn lane on Watt Road at Kingston Pike. With the added traffic using the proposed connector, the decline of traffic conditions to LOS E will be accelerated. This proposed improvement will extend acceptable traffic operations to about 2030.

Table 2 indicates that poor traffic conditions are projected at the intersection of Kingston Pike with Hobbs Road by 2031. Mitigation by improving signalized control would provide acceptable operating conditions; however, the warrants for signalization of this location are not solidly satisfied. Furthermore, there may be other intersections in the study area along Kingston Pike at which the justification for signalization is more evident. It is recommended that the Town defer installation of this signal and monitor crash experience in the corridor to anticipate the need for signalization of Hobbs Road and other intersections. If other signals are installed between Old Stage Road and Watt Road, it may be necessary to consider the justification of this or other signals in order to

promote progression of traffic even though volume warrants may not be fully satisfied. These proposed improvements are not part of this study and funding has not been identified at this time.

As stated earlier, no displacement of businesses or residences are anticipated with either option, however both Build Options would have some primary adverse effects including: (1) the 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.

Residents of the Steeplechase subdivision (served by Triple Crown Boulevard) have expressed concerns regarding Option A in that the extension of Watt Road would terminate opposite their subdivision entrance. Some of the issues raised include increased cut-through traffic, trucks entering their neighborhood streets in error and increased exposure to criminal activity with more direct access to the interstate. With the construction of a condominium development planned to be underway by summer 2007, it is likely that the alignment of Option B would bisect the development resulting in several displacements of the residential development. It should be also noted that the Option B alignment will require more extensive cut and fill slopes due to the topography, thus intensifying the potential impact on the proposed condominium project.

The advantages of the No-Build Option include 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 operating conditions and safety concerns as a result of poor roadway geometrics and increased traffic volumes. Furthermore, the No-Build Option fails to address the long-term need for improved connectivity between the study area and Interstate 40/75.

If either Option A or Option B is selected, the proposed improvements on Old Stage Road would generally follow its existing alignment. The proposed extension of Watt Road to Old Stage Road is included in both Build Options, the difference being the alignment and the location of the connector terminus at Old Stage Road.

PREFERRED OPTION

The two viable improvement options were presented to the public at a Town Planning Commission Workshop on May 4, 2006 and at a follow up workshop on June 15, 2006. After careful discussion and assessment of all options, the Planning Commission by official action chose Build Option A as the preferred option. The functional layout of the preferred option is being submitted with this document.

PRELIMINARY ENVIRONMENTAL ANALYSES

A preliminary investigation into the proposed project's environmental impacts within the "Area of Potential Effects" (APE) is reflected on the attached "Preliminary Environmental Evaluation" checklist. The APE is the geographical area in which an activity of a project may directly or indirectly impact the environment. In addition, Figure 4 contains a "Project Area Enviro-Map" which was generated from the Environmental Protection Agency's (EPA) web-based mapping tool for viewing environmental information. Possible environmentally sensitive areas within the project limits are the commercial, business, and residential areas west of the current southern terminus of Watt Road and the various adjacent properties north and south of Old Stage Road.

In order to provide a more comprehensive analysis and evaluation of potential environmentally sensitive resources within the proposed project corridor, the Town of Farragut initiated a Phase 1 environmental assessment of the historical, cultural and ecological features within the project area. The technical reports were prepared to document the environmental screening activities and will be submitted separately to TDOT's Environmental Division as supplementary documents to this TPR. These supporting documents would be utilized further during a more detailed design phase process to comply with the National Environmental Policy Act (NEPA).

A Phase 1 archaeological survey was conducted in July 2006 to identify any prehistoric or historic archaeological and/or historical sites within the project APE. Reference was made of an unmarked cemetery (Young Cemetery) being located within the project area. The cemetery is reported to have been located within or very near the current right-of-way of Old Stage Road (being the same boundary as the APE) and within the Robin and

Ben Rolland property limits. Another Farragut resident places the graves more on the right-of-way (APE) line and continuing outside the right-of-way. The information pertaining to the Young Cemetery has been obtained from current and previous property owners who have admitted to removing headstones and performing extensive grade work and landscaping within the APE area. Therefore, the Phase 1 survey was unable to determine the location, eligibility and the number of human remains associated with the purported cemetery. Even though shovel testing failed to uncover any evidence of the cemetery, conflicting reports in the oral history leave the possibility that human burials could be disturbed during construction within the current APE. Although no human gravesites were discovered within the APE during this Phase 1 investigation, it is possible that the human burials may have been displaced and disturbed due to earlier construction. If the area between the new tree line and the southern boundary of the APE will be impacted, then additional archaeological investigation is recommended. If graves or human remains are found to be present within the APE the appropriate courses of action should be followed as prescribed in the Tennessee Code TCA 11-6-1107 (Tennessee Code Annotated § 11-6-107; Acts 1970, ch. 468, §T.C.A., §11-1507; Acts 1990ch. 852, §§8, 9) concerning the discovery and reporting of human remains.

TDOT and TN-SHPO maps indicate no National Register listed eligible or previously surveyed resources within the project corridor.

In October 2006, a cursory study identified potential ecological issues and hazardous materials in the APE area. There are two unnamed tributaries of Little Turkey Creek north and south of the project site. The northern tributary is 50 feet north of the northern most portion of the current terminus of Watt Road and the second tributary is outside and south of the project boundary. There are no surface waters located on the proposed project site. However, due to the close proximity of the tributaries, seeding and sodding along slopes during the construction period would provide appropriate erosion control measures and prevent soil runoff into the adjacent tributaries. Construction projects disturbing one or more acres of land require storm water control permits issued by the State of Tennessee pursuant to the National Pollutant Discharge Elimination System (NPDES). No discharges to water sources including public water supply wells or private residential water wells were observed within the APE or on adjacent properties. A

Notice of Intent (NOI) requirement is associated with this permit and fees may be assessed.

A review of federal and state records indicated that no hazardous waste material sites or underground storage tanks (USTs) are located within the APE. Although one hazardous waste generator and four UST facilities are located within a one-mile radius of the APE, these facilities are down gradient from the site and are unlikely to be impacted by the project. In the event of any accidents regarding hazardous material spills, the Tennessee Emergency Management Agency (TEMA) would have the responsibility and authority for coordination of all state and local agencies. In the event hazardous substances/waste are encountered within the proposed right-of-way, their disposition shall be subject to the applicable sections of the Federal Resource Conservation and Recovery Act (RCRA), as amended; and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended; and the Tennessee Hazardous Waste Management Act of 1983.

No sinkholes were identified within the APE.

There were no wetlands identified within the APE. No federal- or state- listed protected species or their habitats were identified within the APE.

According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP) map of the area depicted in Figure 5, the APE does not lie within the 100-year floodplain.

A preliminary geotechnical review of the APE did not reveal anything that would affect the construction of either of the two Build Options.

Preliminary Environmental Evaluation

If preliminary field reviews indicate the presence of any of the following facilities and/or Economic, Social, and Environmental categories (ESE), place an “X” in the blank opposite the item. Where more than one option is to be considered, place its letter designation in the blank. A more comprehensive analysis of the impacts will be completed at a later date to comply with the National Environmental Policy Act (NEPA).

- 1.) Hazardous Material Site or Underground Storage Tanks..... A,B
- 2.) Floodplains..... _____
- 3.) Historical, archaeological, cultural or natural landmarks, or cemeteries..... A,B
- 4.) Airport..... _____
- 5.) Residential establishment..... A,B
- 6.) Urban area, city, town, or community..... A,B
(Town of Farragut, Pop. 17,720 U.S. Census)
- 7.) Commercial area, shopping center..... A,B
- 8.) Institutional usages:
 - a. School or other educational institution..... _____
 - b. Hospital or other medical facility..... _____
 - c. Church or other religious institution..... _____
 - d. Public Building, e.g., fire station..... _____
 - e. Defense installation..... _____
- 9.) Agricultural land usage..... A,B
- 10.) Forested land..... A,B
- 11.) Industrial park, factory..... _____
- 12.) Recreational usages:
 - a. Park or recreational area, State Natural Area..... _____
 - b. Wildlife refuge or wildlife management area..... _____
- 13.) Waterway:
 - a. Lake..... _____
 - b. Pond..... _____
 - c. River..... _____
 - d. Stream..... _____
 - e. Spring..... _____
- 14.) Railroad Crossings..... _____
- 15.) Project coordinated with MPO/RPO and/or local officials..... A,B
- 16.) Other..... _____

REVIEW TEAM-FIELD INVESTIGATION

A preliminary field investigation within the environs of the proposed project was performed on Thursday, September 21, 2006. The items discussed during the course of the field investigation are summarized in the Appendix (TPR Field Review- Old Stage Road/ Watt Road Connector). Those representatives in attendance included:

Name	Agency
Darryl Smith	Town of Farragut
Ruth Hawk	Town of Farragut
Gary Palmer	Town of Farragut
Charlie Graves	TDOT Planning- Headquarters
Glenda Tyus	TDOT Planning-Headquarters
Paul Lane	TDOT Planning-Headquarters
Dironna F. Moore	TDOT Environmental- Headquarters
Christie Brown	TDOT Design- Region 1 Office
Maysoon Haddad	TDOT Design- Region 1 Office
Nathan Vatter	TDOT Traffic – Region 1 Office
Cindy Pionke	Knox County -Engineering and Public Works
Tara Halstead	ECATS
Mike Conger	Knoxville TPO
Dawn Michelle Foster	Wilbur Smith Associates
John Sexton	Wilbur Smith Associates

PROJECT AREA EPA ENVIRO-MAP

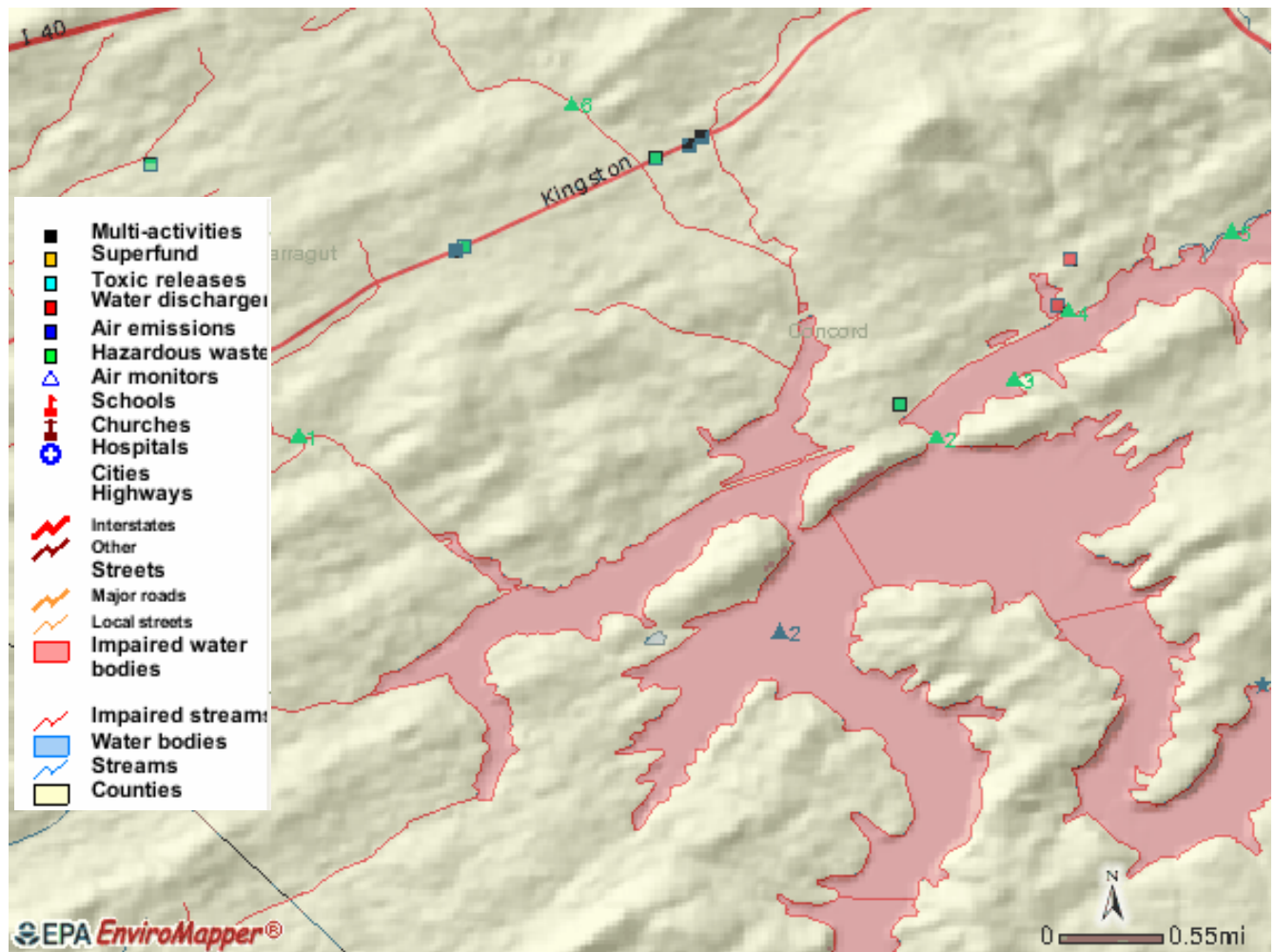


Figure 4. Environmental information in the vicinity of the proposed project corridor obtained using EnviroMapper, an EPA web-based tool.

PROJECT AREA
FEMA FLOOD MAPS

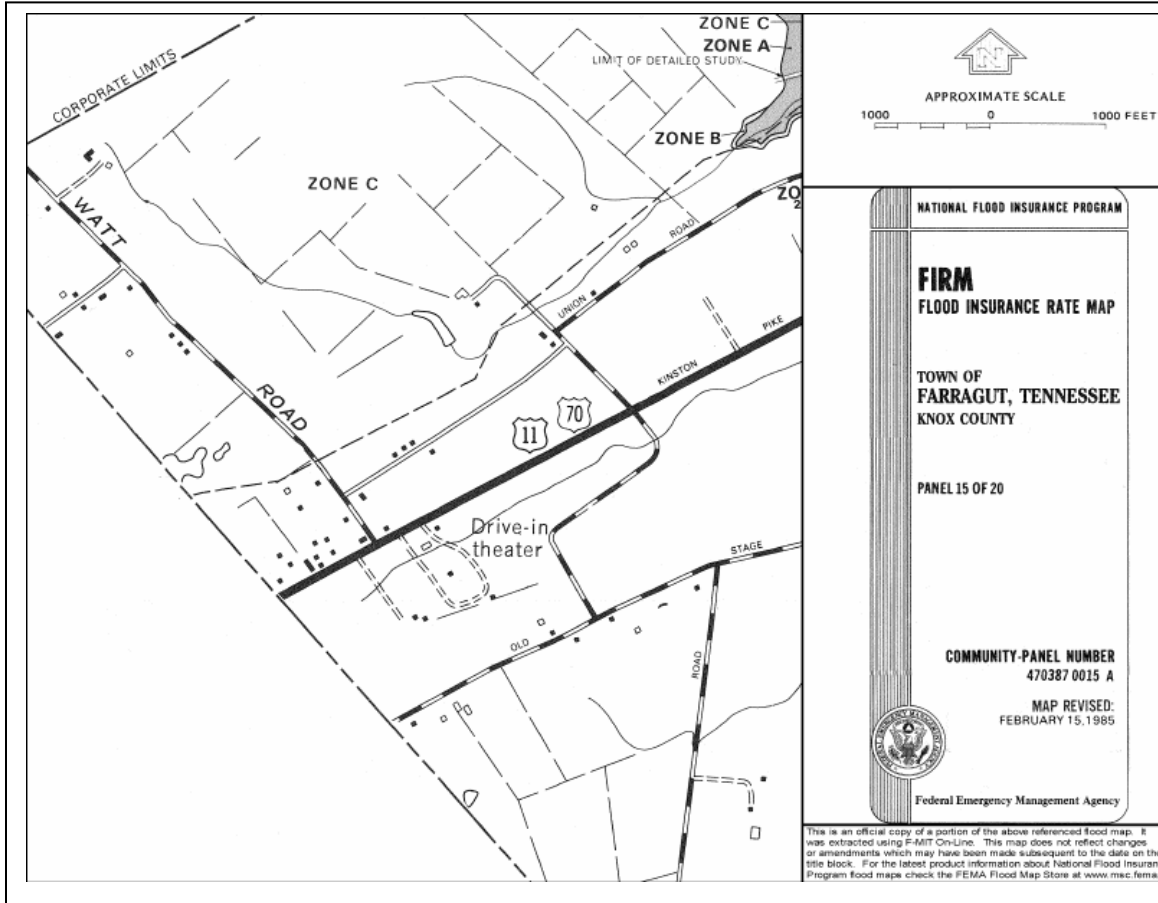


Figure 5: FEMA National Flood Insurance Rate Map (FIRM) in the proposed project area reveals the APE does not lie within the 100-year floodplain.

TRAFFIC SCHEMATICS



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
PROJECT PLANNING DIVISION
SUITE 1000, JAMES K. POLK BUILDING
NASHVILLE, TENNESSEE 37243-0344

December 4, 2006

Mr. John W. Sexton, PE
Wilbur Smith Associates, Inc.
1100 Marion Street, Suite 200
Knoxville, TN 37921

Subject: Traffic Figures for Watt Rd./ Old Stage Rd. Connector.
Knoxville , Knox County

Dear John:

We have reviewed the traffic schematics and figures you submitted on November 10, 2006 for the subject project. The figures have our approval for your use in the study.

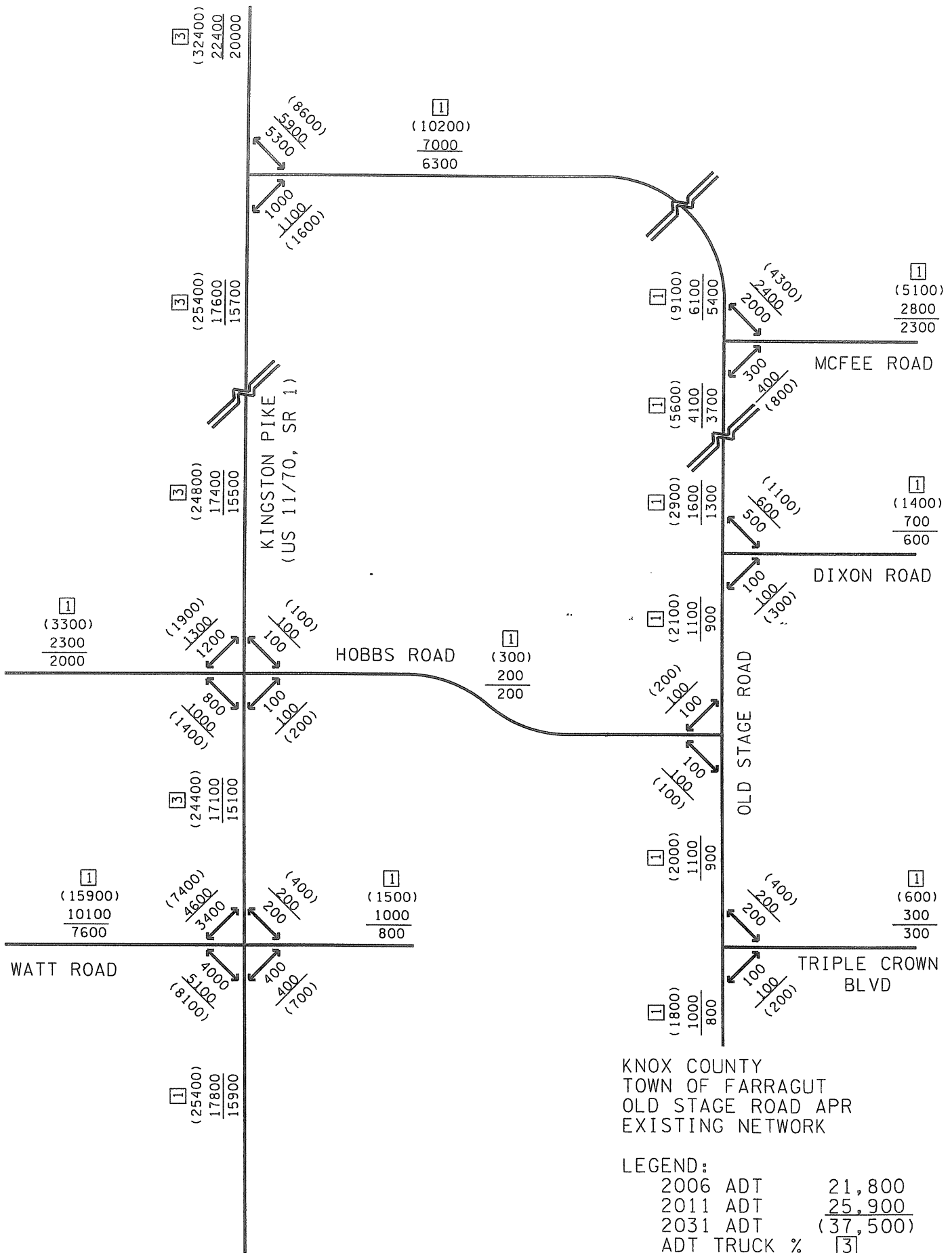
Further coordination should be directed to Mr. Bill Hart's office. If I can be of further assistance, please advise.

Sincerely,

A handwritten signature in cursive script that reads "Tony Armstrong".

Tony Armstrong
Transportation Manager 1

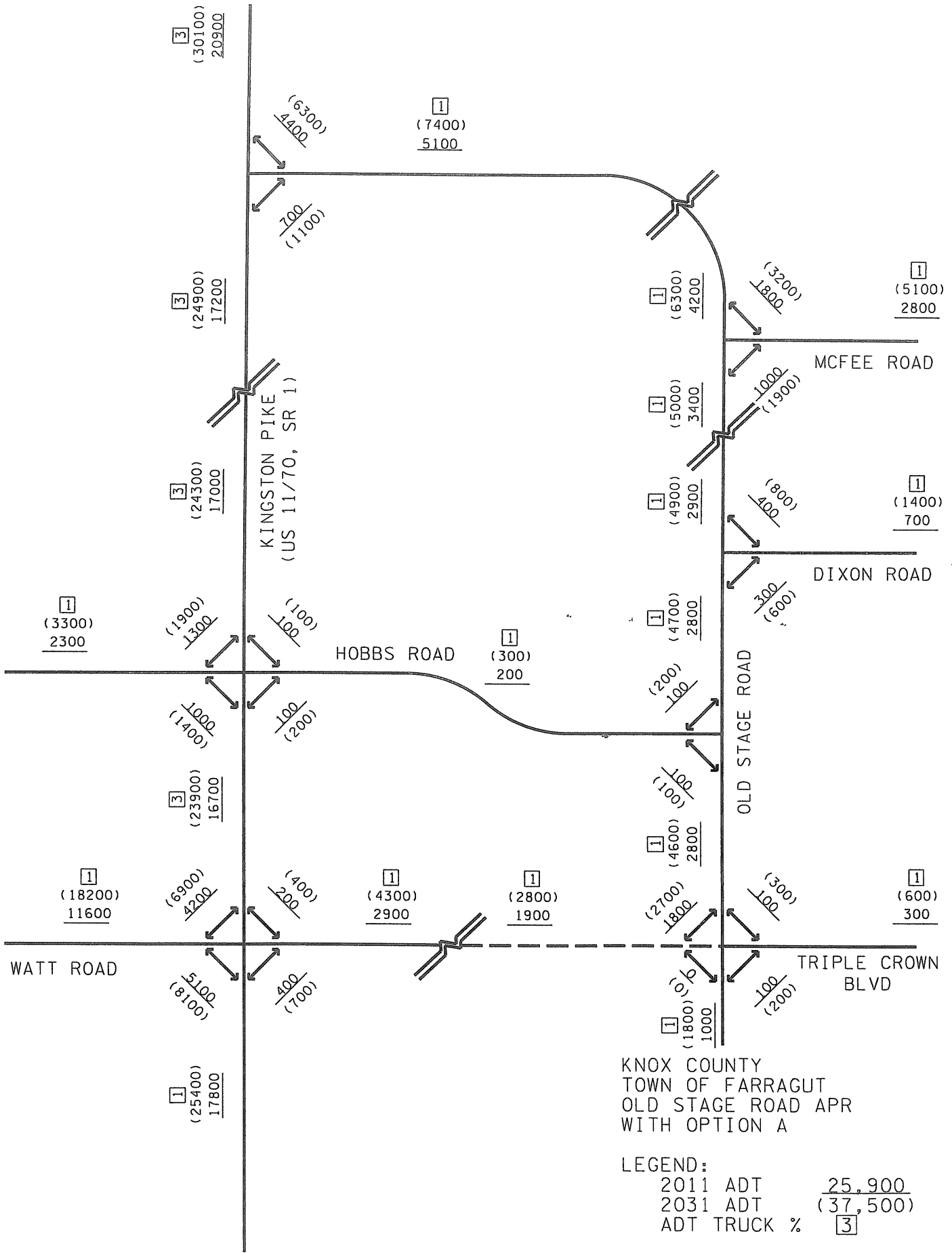
Cc: Bill Hart
file



KNOX COUNTY
TOWN OF FARRAGUT
OLD STAGE ROAD APR
EXISTING NETWORK

LEGEND:

2006 ADT	21,800
2011 ADT	25,900
2031 ADT	(37,500)
ADT TRUCK %	[3]



KNOX COUNTY
TOWN OF FARRAGUT
OLD STAGE ROAD APR
WITH OPTION A

LEGEND:
2011 ADT 25,900
2031 ADT (37,500)
ADT TRUCK % [3]

DATE: NOVEMBER 7, 2006
JWS

DATA TABLE
 Old Stage Rd/Watt Rd Connector
 Town of Farragut, Knox County, Tennessee

WATT ROAD EXTENSION-OPTION A

From: Old Stage Road
 To: Existing Watt Road terminus (450 feet south of Kingston Pike (SR-1))

<u>Item</u>	<u>Existing</u>	<u>Proposed</u>
Functional Class	Urban Collector	Urban Collector
System Class	STP	STP
Length - Miles		0.185
Cross Section Feet	36'/60'	48'/68'
Base ADT(2011)	1,000	2,900
Projected Future ADT(2031)	1,500	4,300
Percent Trucks	1	1
Estimated Right-of-Way Acquisition(Acres)	N/A	1.06
Estimated Right-of-Way Tracts Affected	N/A	2
Estimated Family Displacements	N/A	0
Estimated Business Displacements	N/A	0
Estimated Right-of-Way Cost	N/A	\$ 238,000
Estimated Utility Cost Reimbursable	N/A	\$ 40,000
Estimated Utility Cost Non-Reimbursable	N/A	\$ 40,000
Estimated Construction Cost	N/A	\$ 1,836,000
Estimated Preliminary Engineering Cost	N/A	\$ 184,000
Total Estimated Section Cost	N/A	\$ 2,338,000

DATA TABLE
 Old Stage Rd/Watt Rd Connector
 Town of Farragut, Knox County, Tennessee

WATT ROAD EXTENSION-OPTION B

From: 940' East of Triple Crown Boulevard
 To: Johnson's Corner Road

<u>Item</u>	<u>Existing</u>	<u>Proposed</u>
Functional Class		Urban Collector
System Class		STP
Length - Miles		0.189
Cross Section Feet	36'/60'	48'/68'
Base ADT(2011)	1,000	2,900
Projected Future ADT(2031)	1,500	4,300
Percent Trucks		1
Estimated Right-of-Way Acquisition(Acres)	N/A	1.10
Estimated Right-of-Way Tracts Affected	N/A	2
Estimated Family Displacements	N/A	0
Estimated Business Displacements	N/A	0
Estimated Right-of-Way Cost	N/A	\$ 260,000
Estimated Utility Cost Reimbursable	N/A	\$ 40,000
Estimated Utility Cost Non-Reimbursable	N/A	\$ 50,000
Estimated Construction Cost	N/A	\$ 1,275,000
Estimated Preliminary Engineering Cost	N/A	\$ 128,000
Total Estimated Section Cost	N/A	\$ 1,753,000

DATA TABLE
 Old Stage Rd/Watt Rd Connector TPR
 Town of Farragut, Knox County, Tennessee

OLD STAGE ROAD IMPROVEMENTS

From: 940' East of Triple Crown Boulevard
 To: Johnson's Corner Road

<u>Item</u>	<u>Existing</u>	<u>Proposed</u>
Functional Class	Urban Collector	Urban Collector
System Class	STP	STP
Length - Miles	0.56	0.465
Cross Section Feet	16'/50'	36'/60'
Base ADT(2011)	1,100	2,800
Projected Future ADT(2031)	2,000	4,600
Percent Trucks	1	1
Estimated Right-of-Way Acquisition (Acres)	N/A	1.1
Estimated Right-of-Way Tracts Affected	N/A	16
Estimated Family Displacements	N/A	0
Estimated Business Displacements	N/A	0
Estimated Right-of-Way Cost	N/A	\$ 259,000
Estimated Utility Cost Reimbursable	N/A	\$ 50,000
Estimated Utility Cost Non-Reimbursable	N/A	\$ 260,000
Estimated Construction Cost	N/A	\$ 1,080,000
Estimated Preliminary Engineering Cost	N/A	\$ 108,000
Total Estimated Section Cost	N/A	\$ 1,757,000

**TENNESSEE DEPARTMENT OF TRANSPORTATION
DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE**

ROUTE:	WATT ROAD CONNECTOR	OPTION	A
SECTION:		REGION:	1
COUNTY:	KNOX	PROJECT #:	N/A

LOCATION

From:	Old Stage Road
To:	Existing Watt Road terminus (450 feet south of Kingston Pike (SR-1))

PARAMETER	CRITERIA
2011 ADT	2,900
2031 ADT	4,300
PERCENT TRUCKS(DHV)	1
DHV(10% ADT 2031)	430
FUNCTIONAL CLASSIFICATION	Urban Major Collector
MINIMUM DESIGN SPEED	30 MPH
ACCESS CONTROL	N/A
MAXIMUM CURVE	300' (S.E.=0.04'/,)
MAXIMUM GRADE	12.0 %
MINIMUM STOPPING DISTANCE	200'
SURFACE WIDTH	24'
NUMBER OF LANES	2
USABLE SHOULDER WIDTH	**
MEDIAN WIDTH	12'(Median includes 2-way left turn lane)
MINIMUM RIGHT-OF-WAY	*68'
SIGNALIZATION	New Signalization improvements at Watt Road at Kingston Pike Intersection (SR-1)

REMARKS: *Easements will be required outside of Right-of-Way

** Bikes may utilize 4' shoulders

**TENNESSEE DEPARTMENT OF TRANSPORTATION
DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE**

ROUTE:	WATT ROAD CONNECTOR	OPTION	B
SECTION:		REGION:	1
COUNTY:	KNOX	PROJECT #:	N/A

LOCATION

From:	Old Stage Road
To:	Existing Watt Road terminus (450 feet south of Kingston Pike (SR-1))

PARAMETER	CRITERIA
2011 ADT	2,900
2031 ADT	4,300
PERCENT TRUCKS(DHV)	1
DHV(10% ADT 2031)	430
FUNCTIONAL CLASSIFICATION	Urban Major Collector
MINIMUM DESIGN SPEED	40 MPH
ACCESS CONTROL	N/A
MAXIMUM CURVE	300' (S.E.=0.04'/,)
MAXIMUM GRADE	12.0 %
MINIMUM STOPPING DISTANCE	305'
SURFACE WIDTH	24'
NUMBER OF LANES	2
USABLE SHOULDER WIDTH	**
MEDIAN WIDTH	12'(Median includes 2-way left turn lane)
MINIMUM RIGHT-OF-WAY	*68'
SIGNALIZATION	New Signalization improvements at Watt Road at Kingston Pike Intersection (SR-1)

REMARKS: *Easements will be required outside of Right-of-Way

** Bikes may utilize 4' shoulders

**TENNESSEE DEPARTMENT OF TRANSPORTATION
DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE**

ROUTE:	OLD STAGE ROAD IMPROVEMENTS	OPTION	
SECTION:		REGION:	1
COUNTY:	KNOX	PROJECT #:	N/A

LOCATION

From:	940 feet east of Triple Crown Boulevard
To:	Johnson's Corner Road

PARAMETER	CRITERIA
2011 ADT	2,800
2031 ADT	4,600
PERCENT TRUCKS(DHV)	1
DHV(10% ADT 2031)	460
FUNCTIONAL CLASSIFICATION	Urban Major Collector
MINIMUM DESIGN SPEED	40 MPH
ACCESS CONTROL	N/A
MAXIMUM CURVE	300' (S.E.=0.04'/,)
MAXIMUM GRADE	12.0 %
MINIMUM STOPPING DISTANCE	305'
SURFACE WIDTH	24'
NUMBER OF LANES	2
USABLE SHOULDER WIDTH	**
MEDIAN WIDTH	
MINIMUM RIGHT-OF-WAY	*60'
SIGNALIZATION	

REMARKS: *Easements will be required outside of Right-of-Way

** Bikes may utilize 4' shoulder

**COST DATA SHEET
 OLD STAGE RD/WATT RD
 WATT ROAD EXTENSION-OPTION A**

From: Old Stage Road To: Existing Watt Road terminus (450 feet south of Kingston Pike (SR-1))
 Length: 0.56 miles

Right-of-Way

Land, (1.06 acres)-----	\$	134,000
Improvements-----	\$	0
Damages-----	\$	89,000
Incidentals tracts-----	\$	15,000
Relocation Payments (0 residences) -----	\$	0
(0 business & farm)		
(0 non-profits)		

Total Right-of-Way Cost ----- \$ 238,000

Utility Relocation

Reimbursable -----	\$	40,000
Non-reimbursable -----	\$	40,000

Total Adjustment Cost ----- \$ 80,000

Construction

Clear and Grubbing-----	\$	8,000
Earthwork -----	\$	320,000
Pavement Removal-----	\$	0
Drainage (Includes Erosion Control) -----	\$	111,000
Structures -----	\$	N/A
Railroad Crossing or Separation -----	\$	N/A
Paving -----	\$	206,000
Retaining Walls -----	\$	0
Maintenance of Traffic -----	\$	10,000
Topsoil -----	\$	3,000
Seeding-----	\$	2,000
Sodding-----	\$	3,000
Signing -----	\$	2,000
Lighting -----	\$	N/A
Signalization-----	\$	100,000
Fence -----	\$	0
Guardrail -----	\$	2,000
Rip Rap or Slope Protection-----	\$	1,000
Other Construction Items(8.5%)-----	\$	65,000
Mobilization -----	\$	42,000
Construction Cost -----	\$	874,000
10% Eng. And Cont. -----	\$	87,000

Total Construction Cost ----- \$ 1,836,000

Preliminary Engineering (10%)----- \$ 184,000

Total Cost ----- \$ 2,338,000

**COST DATA SHEET
 OLD STAGE RD/WATT RD
 WATT ROAD EXTENSION-OPTION B**

From: Old Stage Road To: Existing Watt Road terminus (450 feet south of Kingston Pike (SR-1))
 Length: 0.56 miles

Right-of-Way

Land (1.1 acres)-----	\$	140,000
Improvements-----	\$	0
Damages-----	\$	100,000
Incidentals tracts -----	\$	20,000
Relocation Payments (0 residences) -----	\$	0
(0 business & farm)		
(0 non-profits)		

Total Right-of-Way Cost ----- \$ 260,000

Utility Relocation

Reimbursable -----	\$	40,000
Non-reimbursable -----	\$	50,000

Total Adjustment Cost ----- \$ 90,000

Construction

Clear and Grubbing-----	\$	8,000
Earthwork -----	\$	564,000
Pavement Removal-----	\$	0
Drainage (Includes Erosion Control) -----	\$	113,000
Structures -----	\$	N/A
Railroad Crossing or Separation -----	\$	N/A
Paving -----	\$	210,000
Retaining Walls -----	\$	0
Maintenance of Traffic -----	\$	10,000
Topsoil -----	\$	3,000
Seeding-----	\$	2,000
Sodding-----	\$	3,000
Signing -----	\$	2,000
Lighting -----	\$	N/A
Signalization-----	\$	100,000
Fence -----	\$	0
Guardrail -----	\$	2,000
Rip Rap or Slope Protection-----	\$	1,000
Other Construction Items(8.5%)-----	\$	86,000
Mobilization-----	\$	55,000
Construction Cost -----	\$	1,159,000
10% Eng. And Cont. -----	\$	116,000

Total Construction Cost ----- \$ 1,275,000

Preliminary Engineering (10%)----- \$ 128,000

Total Cost ----- \$ 1,753,000

**COST DATA SHEET
OLD STAGE RD IMPROVEMENTS**

From: 940 feet East of Triple Crown Boulevard To: Johnson's Corner Road
Length: 0.56 miles

Right-of-Way

Land (0.34 acres)-----	\$	43,000
Improvements-----	\$	0
Damages-----	\$	81,000
Incidentals (16 tracts)-----	\$	135,000
Relocation Payments (0 residences)-----	\$	0
(0 business & farm)		
(0 non-profits)		

Total Right-of-Way Cost ----- \$ 259,000

Utility Relocation

Reimbursable-----	\$	50,000
Non-reimbursable-----	\$	260,000

Total Adjustment Cost ----- \$ 310,000

Construction

Clear and Grubbing-----	\$	9,000
Earthwork-----	\$	166,000
Pavement Removal-----	\$	0
Drainage (Includes Erosion Control)-----	\$	269,000
Structures-----	\$	N/A
Railroad Crossing or Separation-----	\$	N/A
Paving-----	\$	371,000
Retaining Walls-----	\$	0
Maintenance of Traffic-----	\$	23,000
Topsoil-----	\$	7,000
Seeding-----	\$	5,000
Sodding-----	\$	7,000
Signing-----	\$	2,000
Lighting-----	\$	0
Signalization-----	\$	0
Fence-----	\$	0
Guardrail-----	\$	0
Rip Rap or Slope Protection-----	\$	1,000
Other Construction Items(8.5%)-----	\$	75,000
Mobilization-----	\$	47,000
Construction Cost-----	\$	982,000
10% Eng. And Cont.-----	\$	98,000

Total Construction Cost ----- \$ 1,080,000

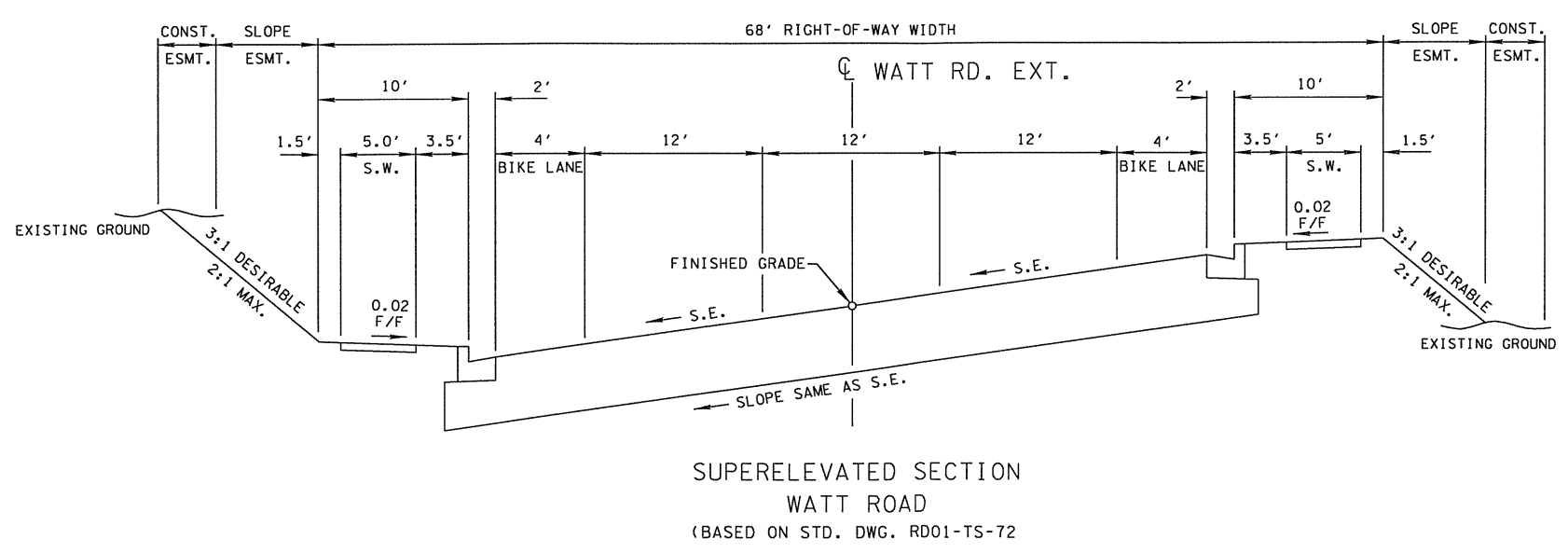
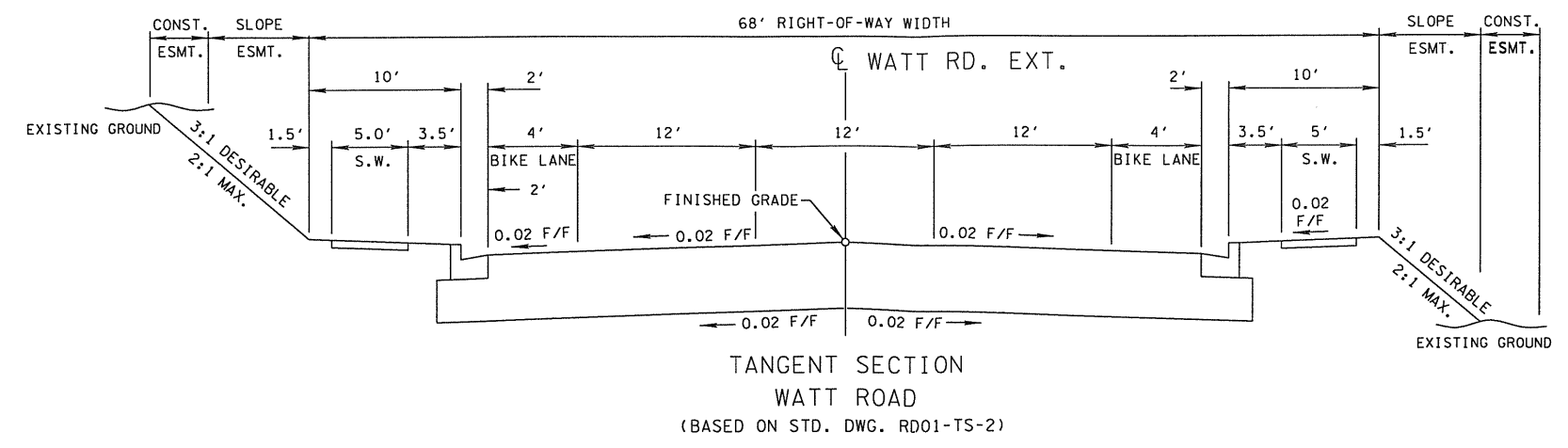
Preliminary Engineering (10%)----- \$ 108,000

Total Cost----- \$ 1,757,000

TENNESSEE D. O. T.
 DESIGN DIVISION
 FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
FUNCT.	2006	OLD STAGE ROAD	2

KNOX COUNTY



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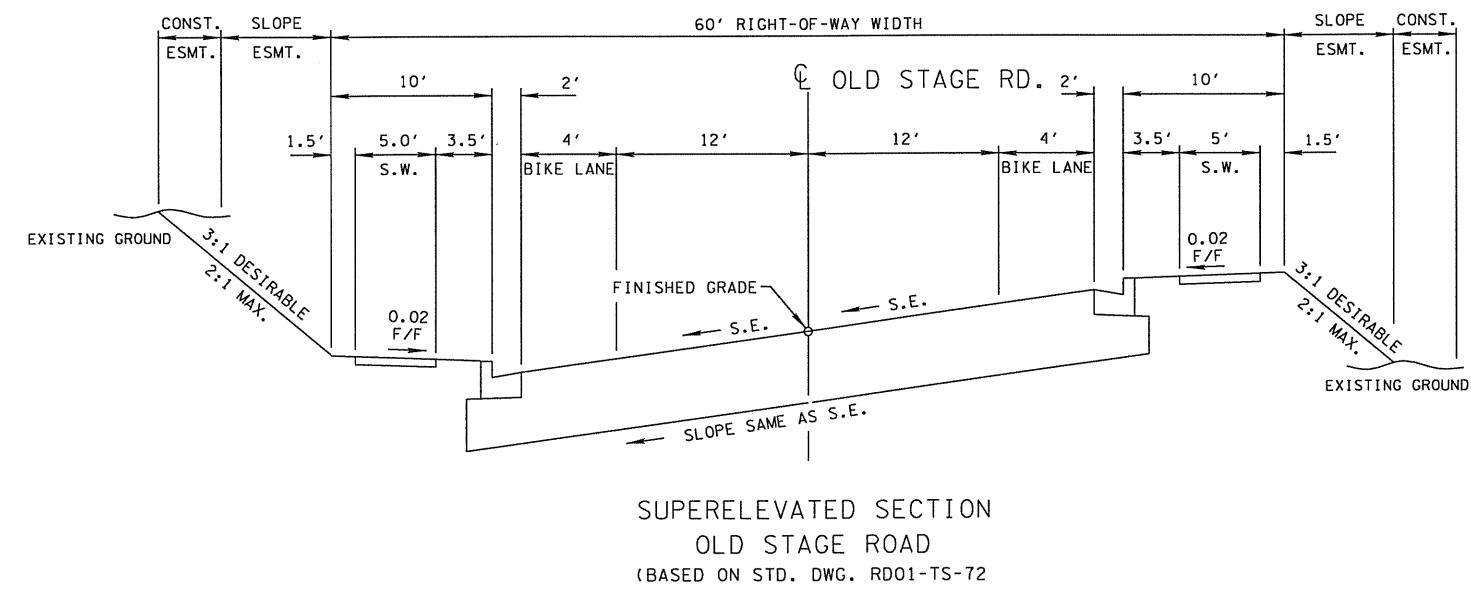
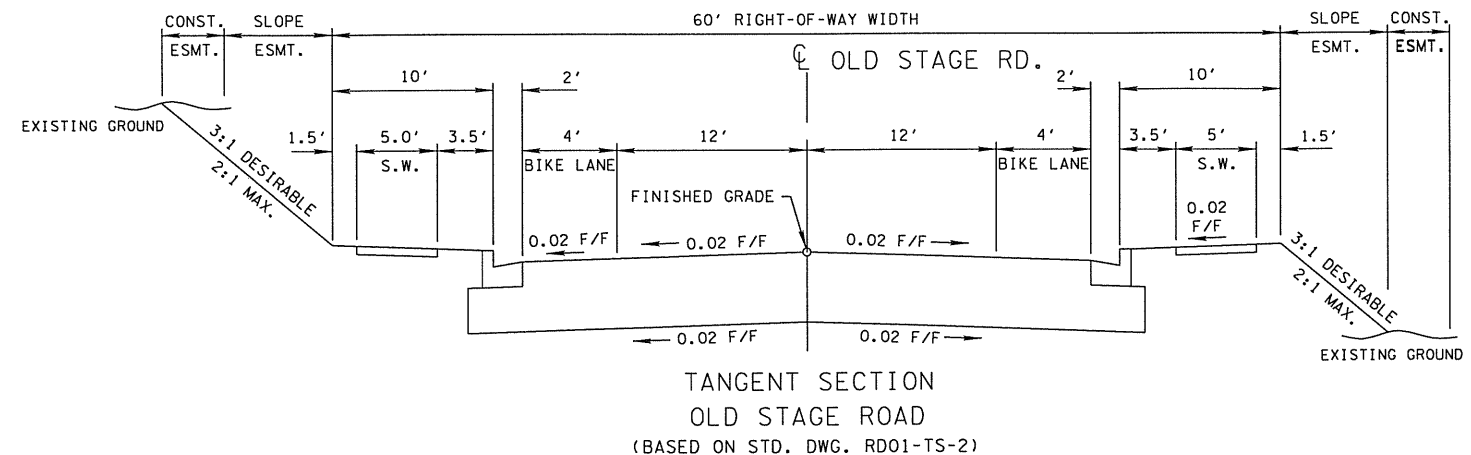
STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION

WATT ROAD
**TYPICAL
 SECTIONS**

SCALE: N.T.S.

TYPE	YEAR	PROJECT NO.	SHEET NO.
FUNCT.	2006	OLD STAGE ROAD	2A

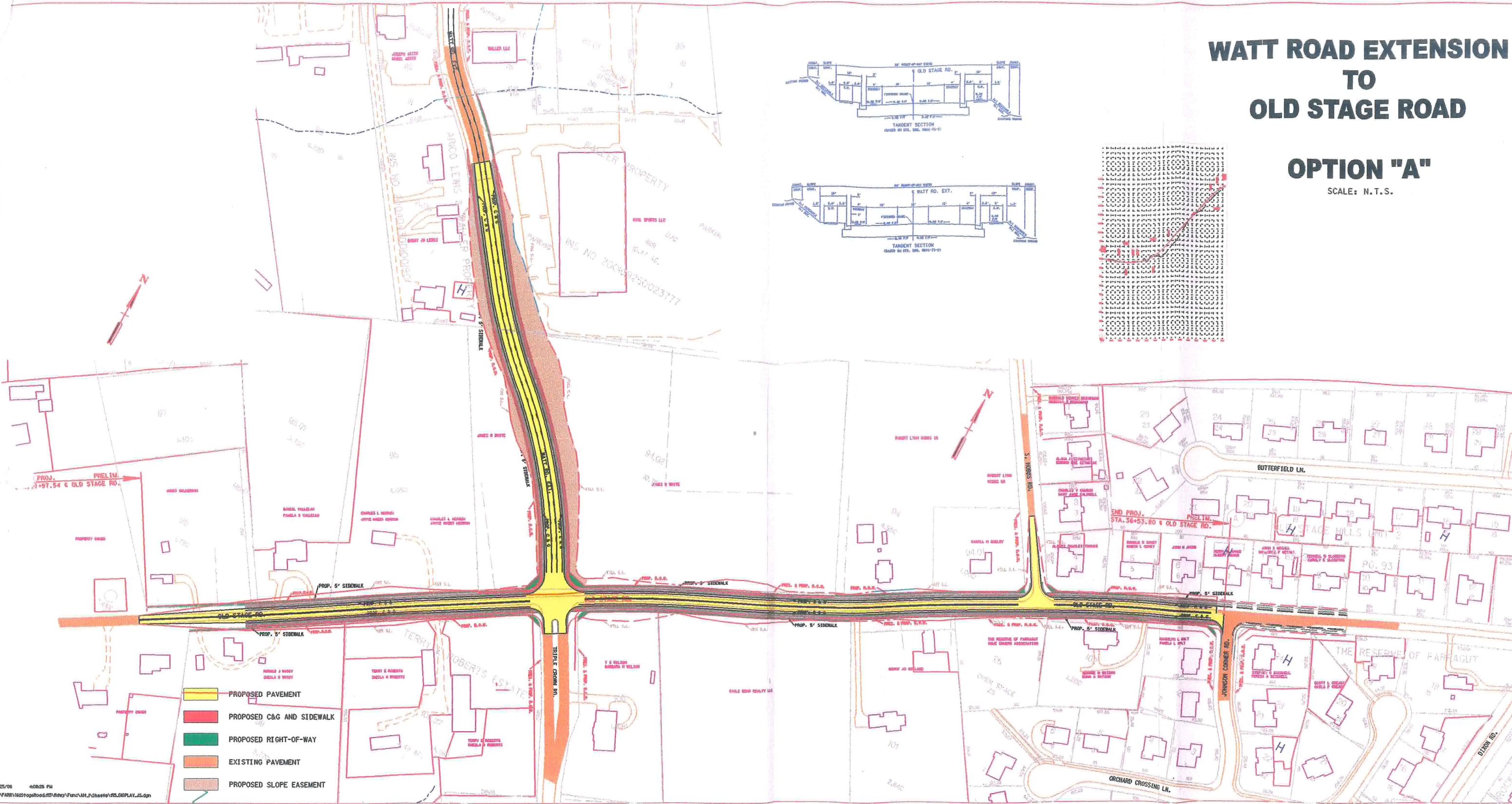
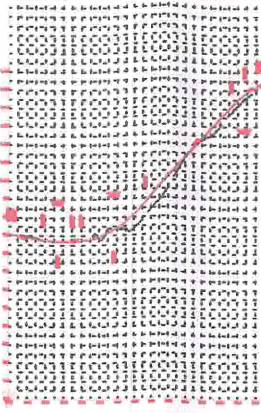
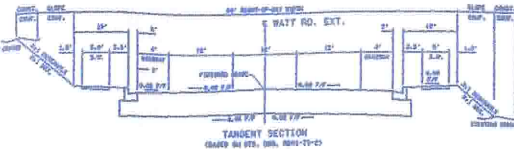
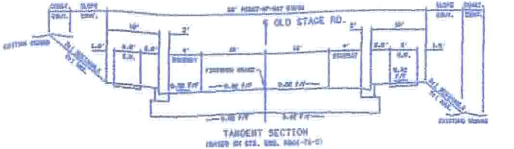
KNOX COUNTY



WATT ROAD EXTENSION TO OLD STAGE ROAD

OPTION "A"

SCALE: N.T.S.

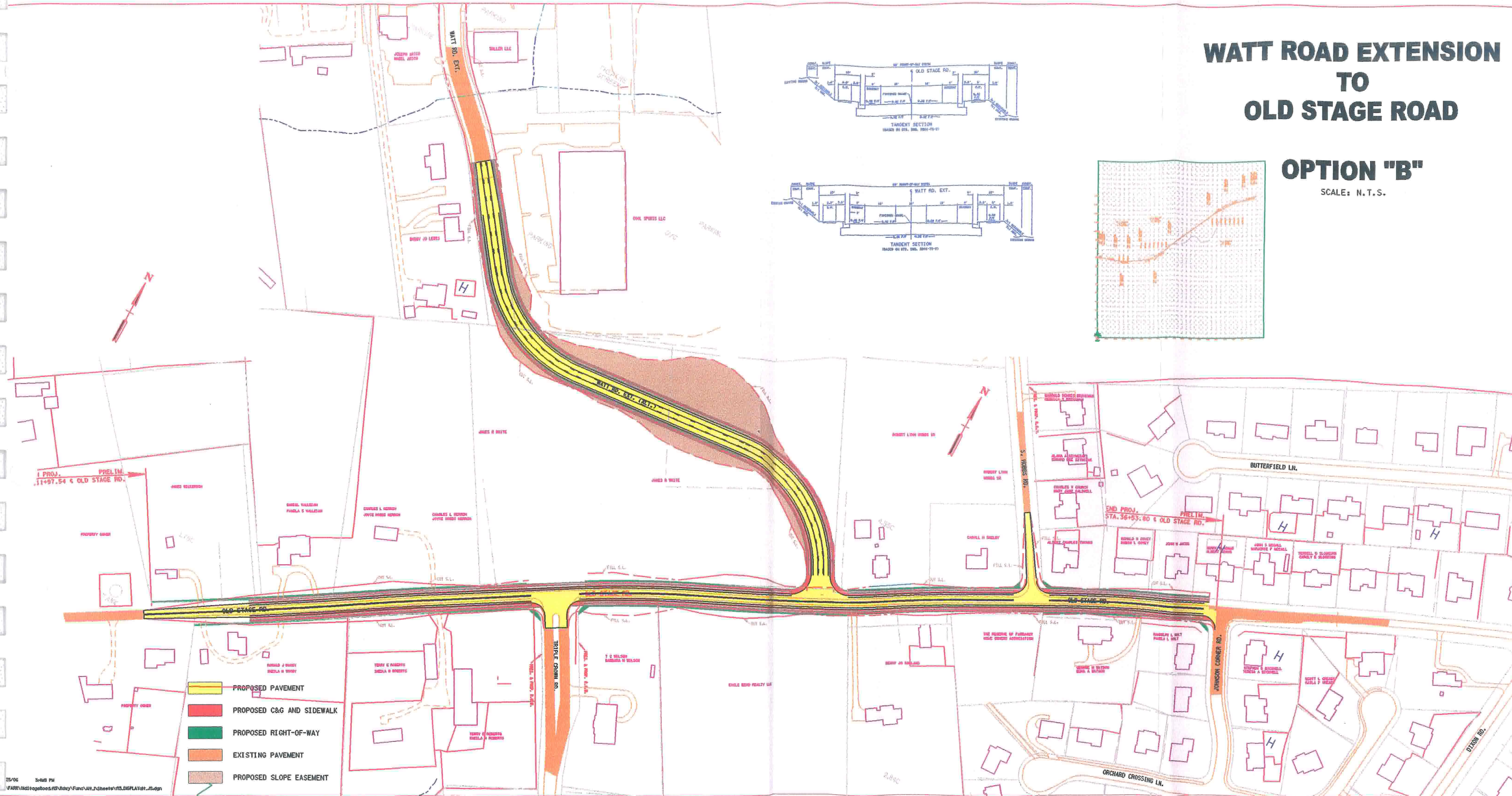
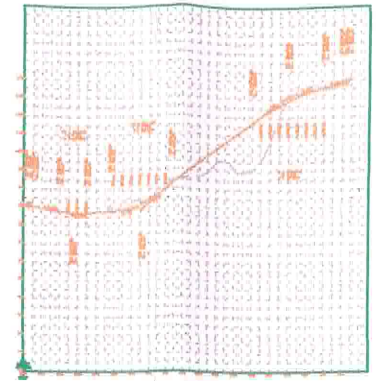
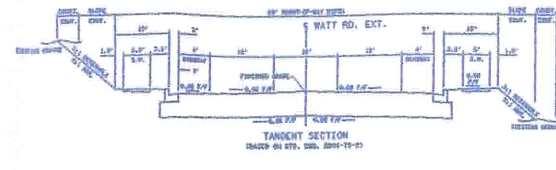
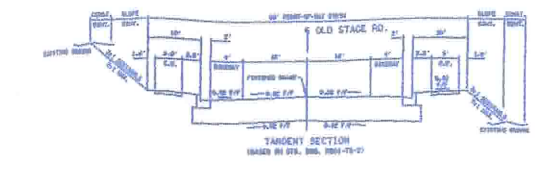


- PROPOSED PAVEMENT
- PROPOSED C&G AND SIDEWALK
- PROPOSED RIGHT-OF-WAY
- EXISTING PAVEMENT
- PROPOSED SLOPE EASEMENT

WATT ROAD EXTENSION TO OLD STAGE ROAD

OPTION "B"

SCALE: N.T.S.



- PROPOSED PAVEMENT
- PROPOSED C&G AND SIDEWALK
- PROPOSED RIGHT-OF-WAY
- EXISTING PAVEMENT
- PROPOSED SLOPE EASEMENT