TRANSPORTATION PLANNING REPORT

State Route 347

FROM STATE ROUTE 93 TO INTERSTATE 26 (US 23)
SULLIVAN COUNTY
PIN:112965.00

PREPARED BY
PALMER ENGINEERING
For the
TENNESSEE DEPARTMENT OF TRANSPORTATION
PROJECT PLANNING DIVISION

Approved by:	Signature	DATE
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EXECUTIVE SUMMARY

This Transportation Planning Report (TPR) studied approximately 4.13 miles of State Route (SR) 347 from SR 93, Sullivan Gardens Parkway, at log mile (LM) 6.49 to Interstate 26 (U.S. 23) at LM 10.62. The Kingsport Metropolitan Planning Organization (MPO) requested this TPR because the section of SR 347 that follows Rock Springs Road from LM 9.52 to LM 10.62 between Cox Hollow Road and Interstate 26 is experiencing traffic growth due to development. The developing areas occupy the west quadrant of the interchange between Interstate 26 and Interstate 81 and include residential and commercial uses as well as a new school that opened in August 2009. A road safety audit in April 2007 identified safety concerns along all of Rock Springs Road. The City of Kingsport has started improving the portions of SR 347 under their jurisdiction.

Purpose and Need

The purpose of the proposed improvements is to provide improved access in this area to the existing transportation system. Utilizing various improvement options based on each corridor's needs, the overall goal is to update the roadway's design and correct existing deficiencies.

Due to differences in the volume of traffic and the character of the roadway through the study area, this TPR divided SR 347 into three (3) sections and studied options including the No-Build Option. The three (3) corridor sections studied were the Mill Creek Road Corridor, the Poplar Grove and Rock Springs Drive Corridor and the Rock Springs Road Corridor.

Options Studied

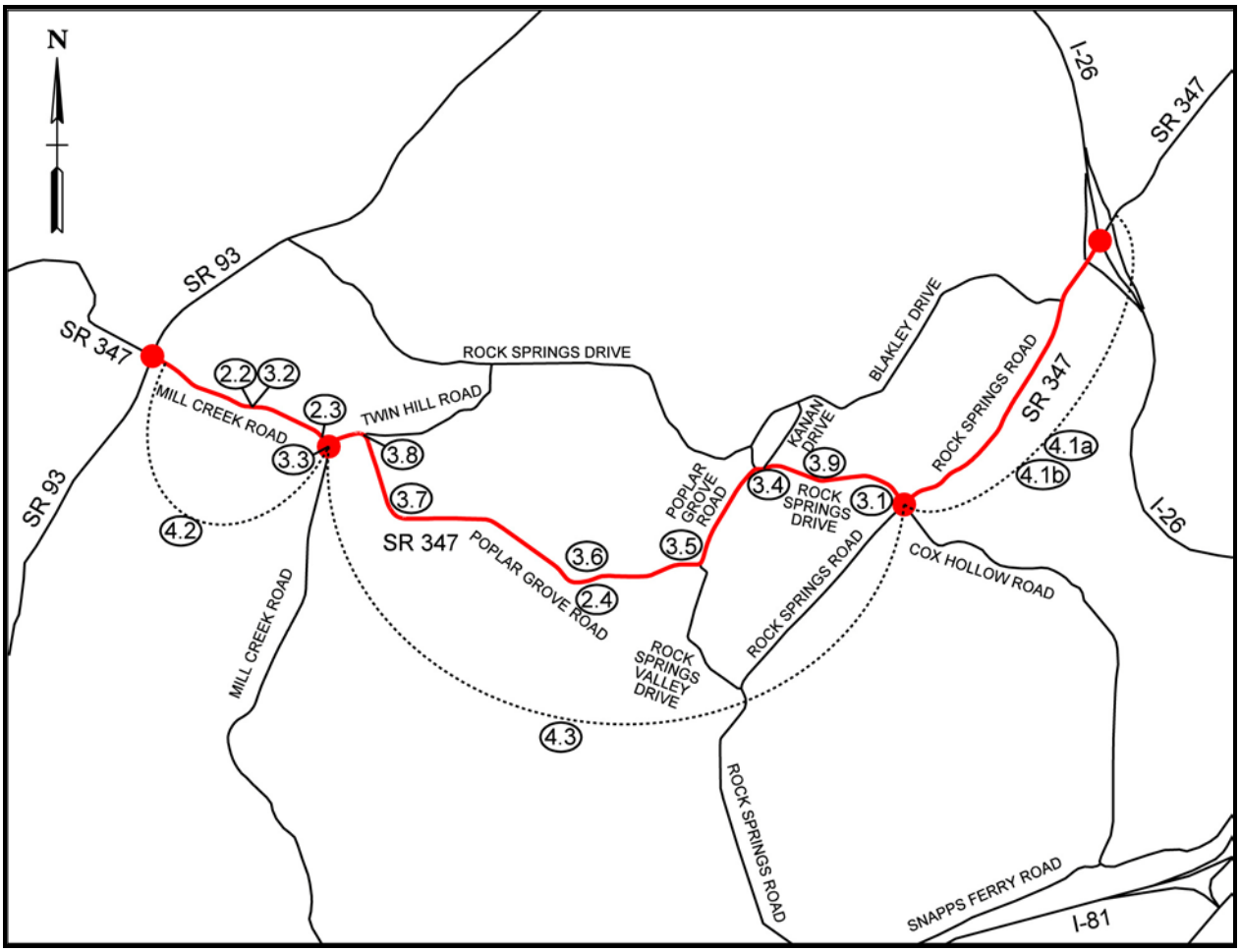
Option 1 No-Build	**Total Option 1**	**$ 0**
Option 2 Add Warning Signs or Guardrail Shielding to Areas with Safety Issues		
2.1 LM 6.48 to LM 10.73 Add Warning Signs to Areas with Safety Issues		$183,000
2.2 LM 6.72 to LM 6.93 Add guardrail to Mill Creek Bridge		$74,000
2.3 LM 7.03 to LM 7.14 Add guardrail on Mill Creek Rd at Poplar Grove Rd		$89,000
2.4 LM 8.17 to LM 8.33 Add guardrail to South Side of Poplar Grove Rd		$40,000
	Total Option 2	**$386,000**
Option 3 Spot Improvements		
3.1 LM 9.35 to LM 9.52 Rock Springs Dr Intersection with Rock Springs Rd		$630,000
3.2 LM 6.72 to LM 6.93 Replace Mill Creek Bridge		$541,000
3.3 LM 7.03 to LM 7.18 Mill Creek Rd Intersection with Poplar Grove Rd		$361,000
3.4 LM 8.97 to LM 9.06 Curves on Rock Springs Drive by Kanan Drive		$308,000
3.5 LM 8.59 to LM 8.68 Curve by Rock Springs Valley Drive		$824,000
3.6 LM 8.17 to LM 8.33 Realign Poplar Grove Road through Bell Hollow		$994,000
3.7 LM 7.51 to LM 7.61 Curve on Poplar Grove Road by Church		$265,000
3.8 LM 7.21 to LM 7.34 Curve on Poplar Grove Road by Twin Hill Road		$1,011,000
3.9 LM 9.19 to LM 9.23 Curve on Rock Springs Drive by the Riding Center		$129,000
	Total Option 3	**$5,063,000**

Option 4 Corridor Options

4.1a LM 9.52 to LM 10.73 Reconstruct Rock Springs Road 5-Lane	$15,542,000
4.2 LM 6.48 to LM 7.14 Reconstruct Mill Creek Rd	$1,913,000
4.3 LM 7.14 to LM 9.52 Reconstruct Poplar Grove Rd & Rock Springs Dr	$8,836,000
Total Option 4 Improvement with Rock Springs Road 5-Lane Section	**$26,291,000**

4.1b LM 9.52 to LM 10.73 Reconstruct Rock Springs Road 3-Lane	$12,588,000
4.2 LM 6.48 to LM 7.14 Reconstruct Mill Creek Rd	$1,913,000
4.3 LM 7.14 to LM 9.52 Reconstruct Poplar Grove Rd & Rock Springs Dr	$8,836,000
Total Option 4 Improvement with Rock Springs Road 3-Lane Section	**$23,337,000**

Project Location Map



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OTHER DOCUMENTS

Kingsport Corridor Study – Corridor Between I-81 Exit 56 and SR 93, January 2008

Rock Springs Safety Audit, April 2007

GIS Data of Property, Topography, and Aerial Photography

1.0 PROJECT HISTORY AND BACKGROUND INFORMATION

1.1 Project History

The area around Rock Springs Road from Interstate 26 to Interstate 81 and to the junction of the two interstates is within the urban growth boundary of Kingsport, Tennessee. The most recent annexations in this area occurred in September 2009. Because the developments that are planned following annexation will change the area from a rural region to a more densely populated urban area, the Kingsport Urban Area Metropolitan Planning Organization (Kingsport MPO) recognized a need to improve the road system to handle the expected growth in traffic.

Large tracts of land are being converted into residential land uses, increasing the amount of traffic. In addition, the new John Adams Elementary School located off Rock Springs Road just outside the study boundary opened in August 2009. The City of Kingsport is in the process of improving Rock Springs Road from the new school to the intersection with State Route 347 (SR 347) at Cox Hollow Road.

To begin the process for improvements to the portion of Rock Springs Road that is also part of SR 347, the Kingsport MPO requested that the Tennessee Department of Transportation (TDOT) prepare a Transportation Planning Report (TPR) for SR 347.

1.2 Project Study Area

The area of the TPR covers a distance of approximately 4.13 miles and extends from SR 93, Sullivan Gardens Parkway, at log mile (LM) 6.49 to Interstate 26 (U.S. 23) at LM 10.62 in Sullivan County. **Figure 1.2.1** presents a regional map; **Figure 1.2.2** presents an area map on the Kingsport City highway map.

1.3 Traffic

A summary of the traffic forecast for this study is shown on **Figure 1.3.1**. Section 1 is Mill Creek Road from LM 6.49 to LM 7.14 between Sullivan Gardens Parkway, SR 93, and Poplar Grove Road. Section 2 from LM 7.14 to LM 9.52 includes all of Poplar Grove Road and a portion of Rock Springs Drive. Section 3 is Rock Springs Road from LM 9.52 to LM 10.62 between Cox Hollow Road and Interstate 26. The annual average daily traffic (AADT) volumes are expressed in vehicles per day (VPD) and were forecast for the years 2014 and 2034. The forecasts are:

Table 1.3.1 Traffic Forecasts

Section	2014 AADT	2034 AADT	From LM	To LM	Road Name
1	1,600	1,700	6.49	7.14	Mill Creek Road
2	900	1,440	7.14	9.52	Poplar Grove Rd. and Rock Springs Dr.
3	11,300	13,700	9.52	10.62	Rock Springs Road

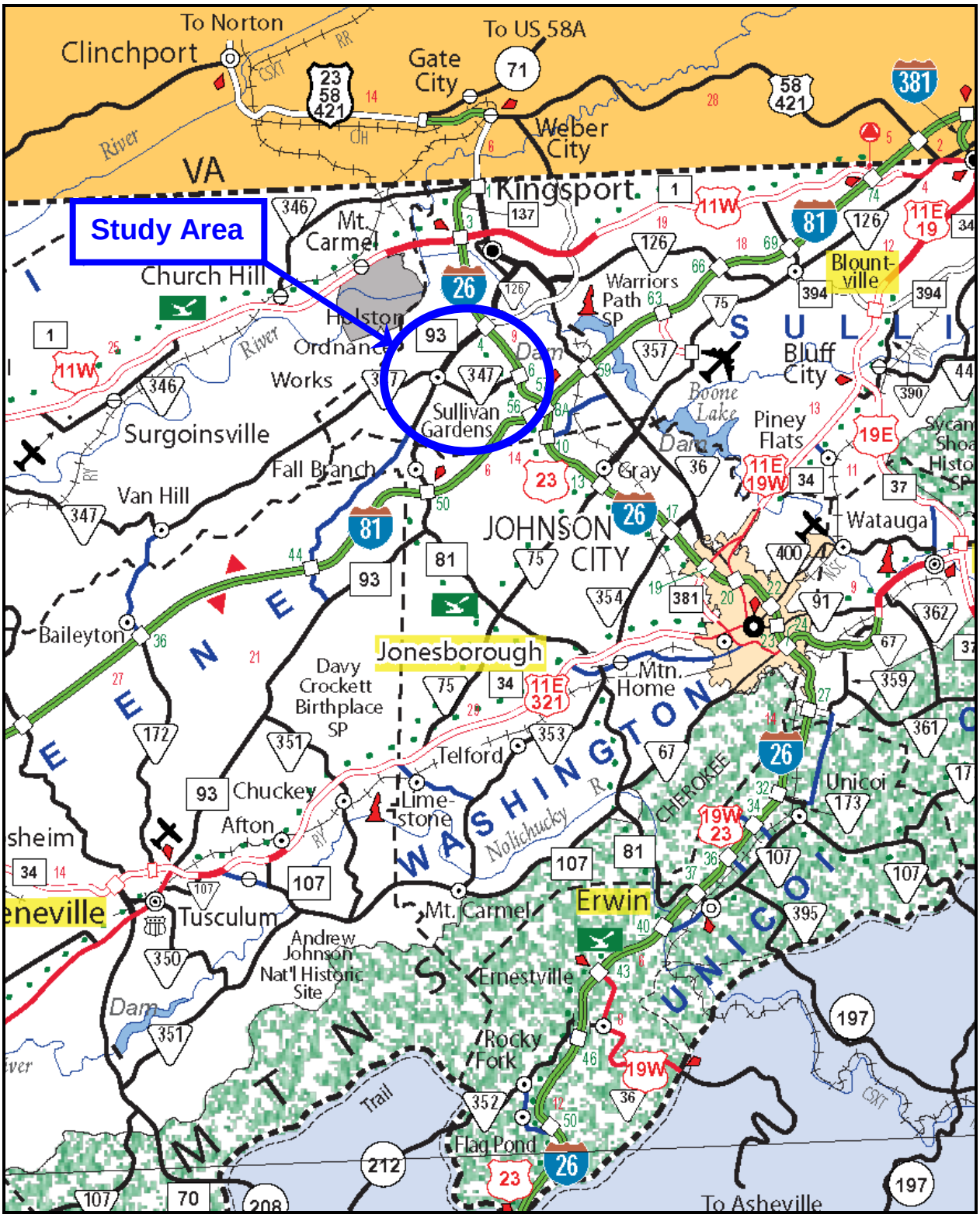

Figure 1.2.1 Regional Map

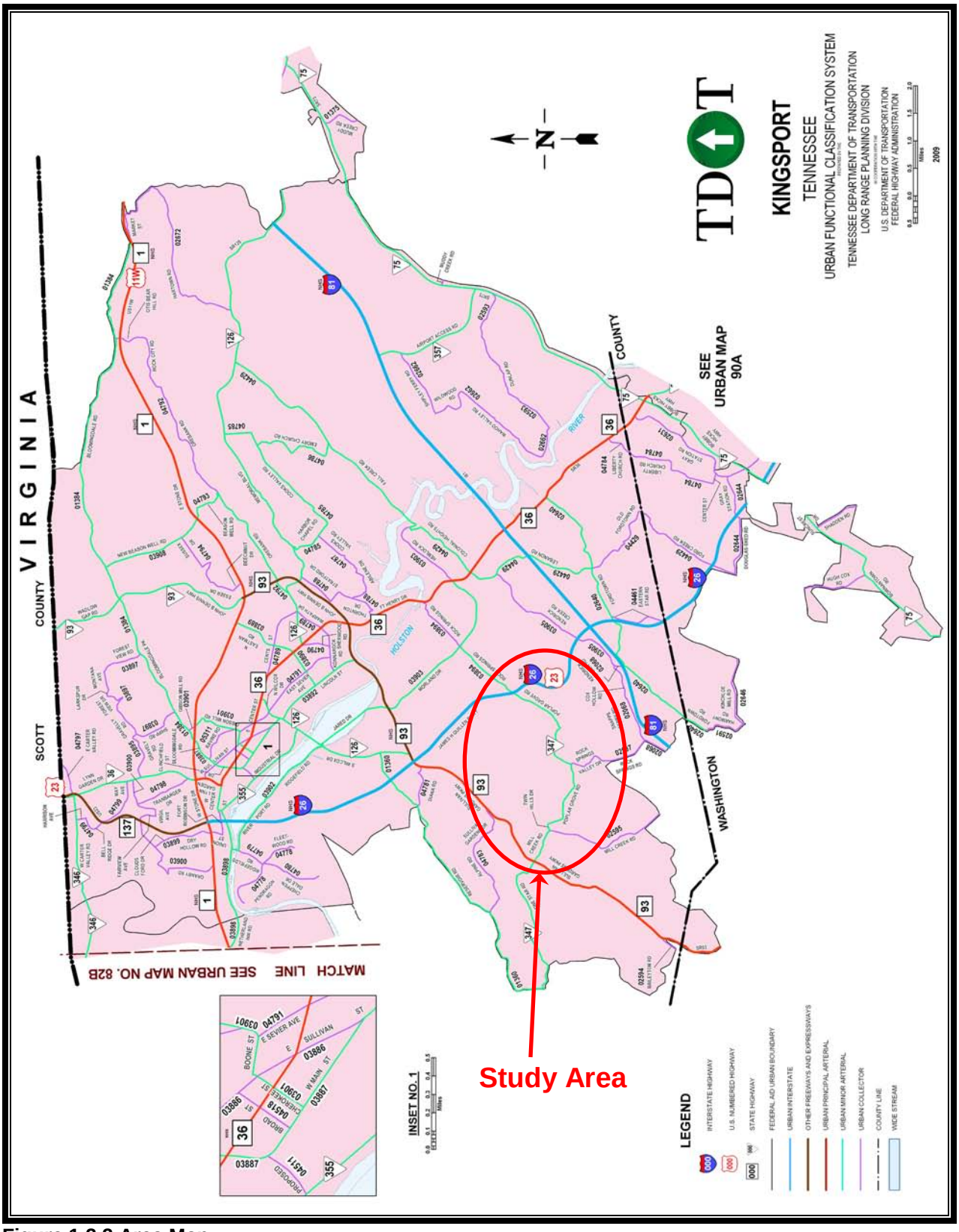

Figure 1.2.2 Area Map

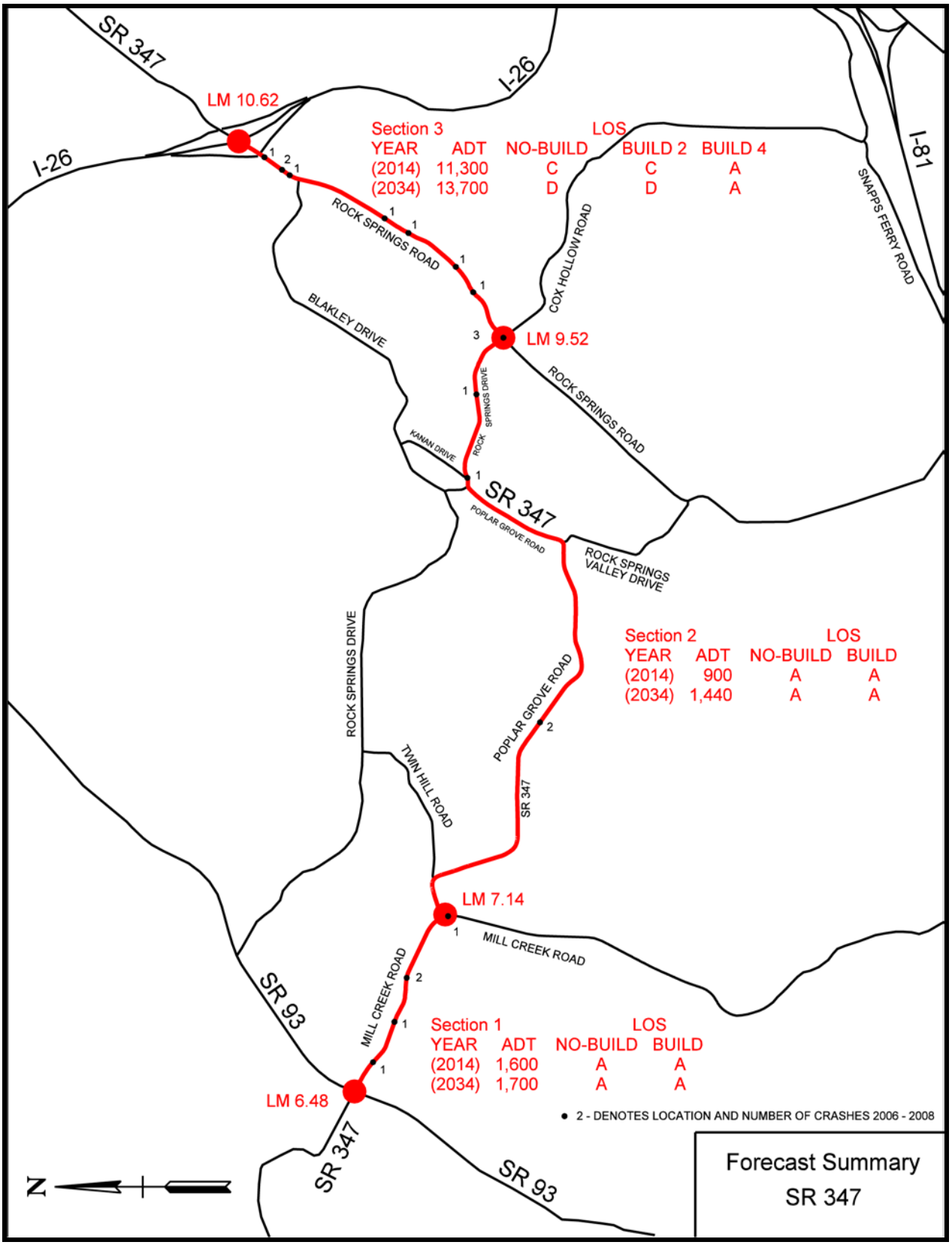

Figure 1.3.1 Forecast Summary

1.4 Existing Roadway Conditions

Existing SR 347 in the study area is a two-lane, two-way, non-access controlled road and is classified as an urban minor arterial. The posted speed limit is 35 miles per hour (mph).

The Mill Creek Road section of SR 347 from LM 6.49 to LM 7.14 has nineteen (19) feet of asphalt pavement with earth shoulders that vary from zero (0) to two (2) feet wide. The surrounding land use is a mixture of residential and commercial.

The Poplar Grove Road and Rock Springs Drive sections of SR 347 from LM 7.14 to LM 9.52 have twenty (20) feet of asphalt pavement with earth shoulders that vary from zero (0) to one (1) foot wide and ten (10) horizontal curves with radii that are substandard for 35 mph. Six (6) of the substandard curves are on the 1.85 mile Poplar Grove Road section, and four (4) are on the 0.53 mile Rock Springs Drive section. The grade in both sections also contains numerous vertical curves with substandard sight distance. The surrounding land use is residential.

The Rock Springs Road section of SR 347 from LM 9.52 to LM 10.29 at Westfield Drive has twenty (20) feet of asphalt pavement with earth shoulders that vary from zero (0) to one (1) foot wide. The surrounding land use is residential. A 2007 safety audit noted water flowing across the road south of Westfield Drive.

From Westfield Drive at LM 10.29 to Interstate 26 at LM 10.52 the land use is commercial. The asphalt pavement varies from twenty (20) to twenty four (24) feet wide with shoulders that vary from zero (0) to four (4) feet wide and change from earth to crushed stone.

1.5 Crash History

Records of vehicle crashes for the three-year period 2006 – 2008 were studied to look for any clusters of crashes. Twenty (20) crashes were reported in the three (3) years. The 0.65 mile Mill Creek Road Section had five (5) crashes. The 2.38 mile section including Poplar Grove Road and a portion of Rock Springs Drive had four (4) crashes. The 1.10 mile section of Rock Springs Road from Cox Hollow Road to Interstate 26 had eleven (11) crashes, and three (3) of them occurred at the intersection with Rock Springs Drive.

Of the eleven (11) crashes on Rock Springs Road, nine (9) involved two (2) vehicles and two (2) were single vehicle crashes. Eight (8) of the two-vehicle crashes occurred during either the morning rush, lunch rush, or evening rush. The two (2) single-vehicle crashes occurred at midnight and 3 am. The high proportion of two-vehicle crashes indicates that safety improvements should focus on features that improve the interaction between cars such as visibility, separation, access management, and capacity.

Of the nine (9) crashes on parts of SR 347 that were not on Rock Springs Road, only one (1) involved two (2) vehicles and was attributed to driver inattention at an intersection in mid-morning. The remaining eight (8) were single-vehicle crashes. On Mill Creek Road, most of the single-vehicle crashes occurred during the morning commutes with slick conditions. On Poplar Grove Road, the two (2) single-vehicle accidents occurred between 1 am and 4 am with lane departures in one of the straightest portions of the road. It is likely that driver fatigue or other impairment was the cause. The single-vehicle crash on Rock Springs Drive involved an animal

at 4:30 am The low traffic volumes combined with the high proportion of single-vehicle crashes on roads other than Rock Springs Road indicate that the geometry and shoulder features of these other roads would have more influence on safety than would features that increase capacity.

The three (3) crashes that occurred at the intersection of Rock Springs Drive with Rock Springs Road and Cox Hollow Road were two-car angle crashes. The intersection at Rock Springs Drive and Cox Hollow Road is stop controlled, while Rock Springs Road has the right of way. Rock Springs Drive is on a 17% upgrade when it intersects Rock Springs Road.

Figure 1.5.1 – Looking North on Rock Springs Road Toward Rock Springs Drive Intersection

In addition to the upgrade causing slow starts, the upgrade also puts Rock Springs Drive traffic at a lower level that causes poor sight distance as drivers try to see approaching traffic on Rock Springs Road.

Figure 1.5.2 – Looking North on Rock Springs Road Toward Ditch

The roadside along SR 347 has numerous obstructions ranging from utility poles and trees to entrance pipes without safety treatments. The combination of roadside obstructions and narrow or non-existent shoulders can cause drivers to shy away from the outside of their lane and

crowd the centerline. The two sideswipe crashes on Rock Springs Road occurred in the portion with twenty (20) feet of pavement and zero (0) to two (2) feet of shoulder.

Two (2) angle crashes occurred in front of a gas and convenience store left of LM 10.45. This area has some wide commercial entrances and many visual distractions.

Figure 1.5.3 – Looking Northeast on Rock Springs Road From Blakely Drive

A section of the shoulder near the Interstate 26 interchange that is used as an unofficial park-n-ride creates a hazard with parked vehicles adjacent to the traffic lanes.

Figure 1.5.4 – Vehicles Parking on Shoulder

1.6 Environmental Considerations

The Tennessee Department of Transportation performed the Early Environmental Screening (EES) process that consists of searching various databases for records of environmental features in the study corridor. The EES report follows on the next seven pages.

Tennessee Department of Transportation

EARLY ENVIRONMENTAL SCREENING PROCESS (EES)
PROJECT SCORING

Project Score Factors

	Total Impacts Evaluated	Total Impacts to Evaluate	EES Evaluation
Project Impact Areas:	15	15	Complete
Date of Evaluation:	August 26, 2009		
Evaluation done by:	Gena J. Gilliam		
	Transportation Planner 3		
County:	Sullivan		
Route:	State Route 347		
PIN:	112965.00		
Termini:	from State Route 93 to Interstate 26		

Impact Ranking of Features Evaluated:	Total by Rank
Features with No Impact	**12**
Cemetery Sites & Cemetery Properties	
National Register Sites	
Bat	
Terrestrial Species	
Aquatic Species	
TDEC Conservation Sites & TDEC Scenic Waterways	
Superfund Sites	
Caves	
Railroads	
Tennessee Natural Areas Program	
Wildlife Management Areas	
TWRA Lakes & Other Public Lands	
Features with Low Impact	**1**

Pyritic Rock

Features with Moderate Impact	**0**
Features with Substantial Impact	**1**

Large Wetland Impacts

Community Impacts Present:

Institutions:

Church

Populations:

No population present

Linguistically isolated populations

Populations below poverty - State average- 13%

EES Project Impact: **Complete**

Impacts Evaluated Within 1,000 Ft of Study Area

CEMETERY SITES & CEMETERY PROPERTIES

Impact

Project Impact (Environmental, Time, Cost, Design, and Maintenance)	☑ **None** - No impact on the project as there are no known cemetery sites within or abutting the project study area or corridor. It is anticipated that a 'normal' effort to complete this environmental review as part of NEPA.

INSTITUTIONS & SENSITIVE COMMUNITY POPULATIONS

Sensitive Populations Project Impact:	Present	Not Present
Institutions:		
Hospital	☐	☑
School	☐	☑
Church	☑	☐
Public Building	☐	☑
Populations:		
No population present	☑	☐
65 and older populations	☐	☑
Disability populations	☐	☑
Households without a vehicle	☐	☑
Minority populations 24%	☐	☑
Linguistically isolated populations	☑	☐

Populations below poverty - State average - 13%	☑	☐
Populations below poverty - State average - 27%	☐	☑

BAT

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	☑ **None** – No project impact is anticipated. There is no occurrence of Indiana or gray bats within 4 miles of the proposed project study area or corridor.

RAILROADS

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	☑ **None** – No impact on the project is anticipated. There are no railroads located within the project study area or corridor.

Impacts Evaluated Within 2,000 Ft of Study Area

NATIONAL REGISTER SITES

Impact

Project Impact (Environmental, Time, Cost, Design, and Maintenance)	☑ **None** – No project impact is anticipated as there are no National Register listed properties abutting or within the project study area or corridor.

SUPERFUND SITES

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	☑ **None** – No project impact is anticipated as there are no known contaminated land tracts abutting or within the project study area or corridor.

PYRITIC ROCK

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	☑ **Low** – Small project impact is anticipated. Pyritic rock (symbolized as yellow) has low probability to occur in the study area/corridor or the project does not involve excavation.

TWRA LAKES & OTHER PUBLIC LANDS

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	☑ **None** – No impact on the project is anticipated as there area no parks located within or abutting the project study area or corridor.

Impacts Evaluated Within 4,000 Ft of Study Area

TERRESTRIAL SPECIES

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	☑ **None** - No impact to the project is anticipated. There is no known occurrence of a rare, state, or federally-protected terrestrial species within the proposed transportation study area or corridor.

TDEC CONSERVATION SITES & TDEC SCENIC WATERWAYS

Impact

Project Impact (Environment, Time, Cost, Design, Maintenance)	☑ **None** – No project impact is expected as there are no scenic waterways or TDEC Conservation Sites within project study area or corridor.

LARGE WETLAND IMPACTS

Impact

Project Impact (Environment, Time, Cost, Design, Maintenance)	☑ **Substantial** – Regions 1, 2, and 3: A substantial impact to the project is probable as there is greater than 2 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.

TENNESSEE NATURAL AREAS PROGRAM

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	☑ **None** – No impact on the project is anticipated as the project study area or corridor does not include a Natural Area.

WILDLIFE MANAGEMENT AREAS

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	☑ **None** – No project impact is anticipated as a WMA does not abut nor is located within the project study area or corridor.

Impacts Evaluated Within 10,000 Ft of Study Area

AQUATIC SPECIES

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	☑ **None** - No impact to the project is anticipated. There is no known occurrence of a rare, state, or federally-protected aquatic species within the project study area or corridor.

CAVES

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	☑ **None** – No project impact is anticipated as there are no caves in the project study area or corridor.

EES Report

PIN 112965.00
1,000 Foot Corridor

Study Line ID:
Version Date: June 16, 2009
Created by: CHARLES GILLIHAN

Cemetery Sites & Cemetery Properties	
Cemeteries	None were found
Cemetery Property	None were found
Institutions & Sensitive Community Populations	
Institutions	None were found
Populations:	
No population present	None were found
65 & older populations	None were found
Disability populations	None were found
Households without a vehicle	None were found
Minority populuations 24%	None were found
Linguistically isolated populations	None were found
Populations below poverty-State average-13%	None were found
Populations below poverty-State average-27%	None were found
Bat	None were found
Railroads	None were found

EES Report

PIN 112965.00
2,000 Foot Corridor

Study Line ID:
Version Date: June 16, 2009
Created by: CHARLES GILLIHAN

National Register Sites	None were found
Superfund Sites	None were found
Pyritic Rock	None were found
TWRA Lakes & Other Public Lands	
TWRA Lakes	None were found
Other Public Lands	None were found

EES Report

PIN 112965.00
4,000 Foot Corridor

Study Line ID:
Version Date: June 16, 2009
Created by: CHARLES GILLIHAN

Terrestrial Species	None were found
TDEC Conservation Sites & TDEC Scenic Waterways	
TDEC Conservation Sites	None were found
TDEC Scenic Waterways	None were found
Large Wetland Impacts	None were found
Tennessee Natural Areas Program	None were found
Wildlife Management Areas	None were found

EES Report

PIN 112965.00
10,000 Foot Corridor

Option: 112965_8201V01
Version Date: June 17, 2009
Created by: CHARLES GILLIHAN

Aquatic Species	None were found
Caves	None were found

Some items were discovered during the field review that were not in the EES database searches.

Two (2) churches and three (3) cemeteries are located along SR 347. The Poplar Grove Primitive Baptist Church and cemetery are located left of LM 7.63 on Poplar Grove Road. The closest grave is fifty four (54) feet from the existing centerline and the building is eighty (80) feet from the existing centerline. The church parking lot adjoins the existing right of way. The graves and building are outside of the expected disturb limits of any road work. The parking lot would likely be affected by any widening of the shoulders or ditches on the north side of SR 347.

A cemetery is located right of LM 9.38 on Rock Springs Drive. The enclosing fence is sixteen (16) feet from the existing centerline and is the right of way line at this point. The closest grave is twenty nine (29) feet from the existing centerline. In order to avoid the cemetery, any changes to SR 347 at this location would need to shift the centerline away from the cemetery.

The Rock Springs Methodist Church and cemetery are located on Church View Drive left of LM 9.64 on Rock Springs Road. The closest grave and the closest building are each two hundred and sixty (260) feet from the existing centerline and are outside the disturb limits of any road work that was studied.

Figure 1.6.1 – Bachman/Steadman House

The EES database search did not find any properties listed on the National Register of Historic Places. In 1992, TDOT historians surveyed the area as part of another study and determined that two (2) properties along SR 347 warrant further research to determine if they are eligible for the National Register.

The first property was referred to as the Bachman/Steadman House (circa 1910) and is located right of Mill Creek Road at approximate LM 6.82. The house is approximately one hundred (100) feet from the existing centerline and outside the disturb limits of any road work that was studied.

The second property is the former Rock Springs School left of LM 9.73 that is now being used as the Rock Springs Community Center. The building is approximately two hundred forty (240) feet from the existing centerline and outside the disturb limits of the options that were studied.

Figure 1.6.2 – Former Rock Springs School Building

Because the former school building is now used as a community center, it may also be considered a community resource under Section 4f. A pavilion and picnic area across SR 347 from the community center is owned by Rock Springs Methodist Church. Due to the similar uses, the picnic area might be considered as part of the community resource. This would be determined during the preparation of the environmental document.

Any improvements to existing SR 347 in the area in front of the former Rock Springs School building (LM 9.7) requires choosing between various impacts. On the left is the old school / community center that is both potentially eligible and a community resource. On the right are a picnic area and a stream that approaches the shoulder with a steep side slope that is inside the area recommended as a roadside clear zone. Any widening, straightening, or clearing will affect the resources on either or both sides of the road.

The Rock Springs Road portion of SR 347 is paralleled on the southeast side by a stream that is a potential wetland. Of the approximately 4,800 linear feet (LF) of stream that parallel the road, 3,400 LF is open stream and 1,400 LF is enclosed in entrance pipes. The northwest side of this portion of SR 347 runs along the toe of a hill. Homes have been built along the side of the hill and the hill is steep enough that widening the road into the hillside will buy eighteen (18) homes either because they are within the construction limits or access cannot be provided.

Another potential wetland is the stream that flows through the box culvert at LM 7.1 under the Mill Creek Road portion of SR 347. Options to lengthen the culvert would impact the stream, but areas outside the culvert can be avoided.

1.7 Planned Local Projects

The City of Kingsport plans to improve Rock Springs Road from the intersection with SR 347 at Cox Hollow Road to the intersection with Snapps Ferry Road. The portion of Rock Springs Road in front of the new school has already been improved, and ROW acquisition for the next phase of the project began in the summer of 2009. The improved typical section for Rock Springs Road south of the SR 347 and Cox Hollow Road intersection is shown below.

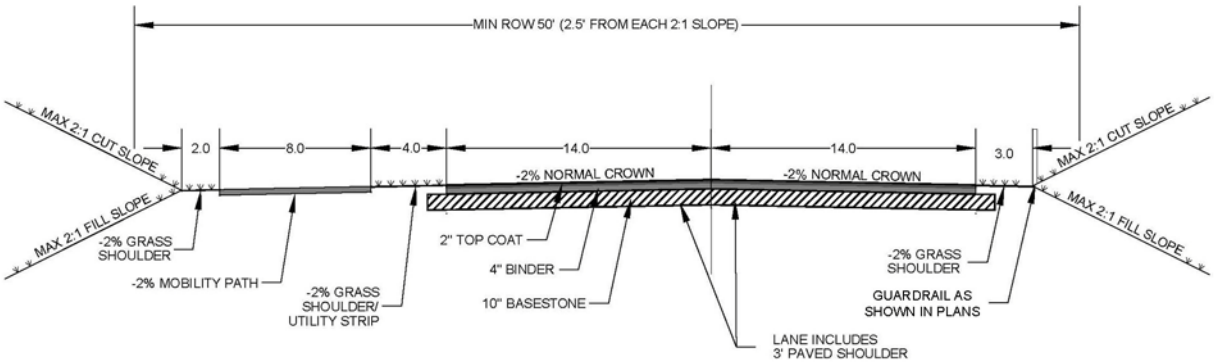

Figure 1.7.1 – Typical Section for City Improvements to Rock Springs Road

2.0 PURPOSE AND NEED

The purpose, of the proposed improvements, is to provide improved access in this area to the existing transportation system. Utilizing various improvement options based on each corridor's needs, the overall goal is to update the roadway's design and correct existing deficiencies. The four-mile segment of SR 347 being studied is an urban minor arterial that links a number of collector and residential streets to SR 93 and Interstate 26. The last mile of the SR 347 study segment follows Rock Springs Road, an arterial that links numerous collector and residential streets to Interstates 26 and 81 from adjacent suburban areas. Large undeveloped tracts currently exist that are being converted into residential land uses, increasing the amount of traffic. In addition, the new John Adams Elementary School, located off Rock Springs Road just outside the study boundary, opened in August 2009. This new school will alter the kind of trips being made and increase the usage of Rock Springs Road. The City of Kingsport has committed to providing over one million dollars ($1,000,000) toward improving Rock Springs Road from its intersection with SR 347 to the new school. The existing typical cross section of

SR 347 is inadequate, has no shoulder or clear zone, and includes both horizontal and vertical curves with substandard geometrics, contributing to poor visibility. The social demands of land use changes, a new school, and travel demands coupled with the current roadway deficiencies that exist along this stretch of SR 347 establish the need for infrastructure improvements.

3.0 OPTIONS STUDIED

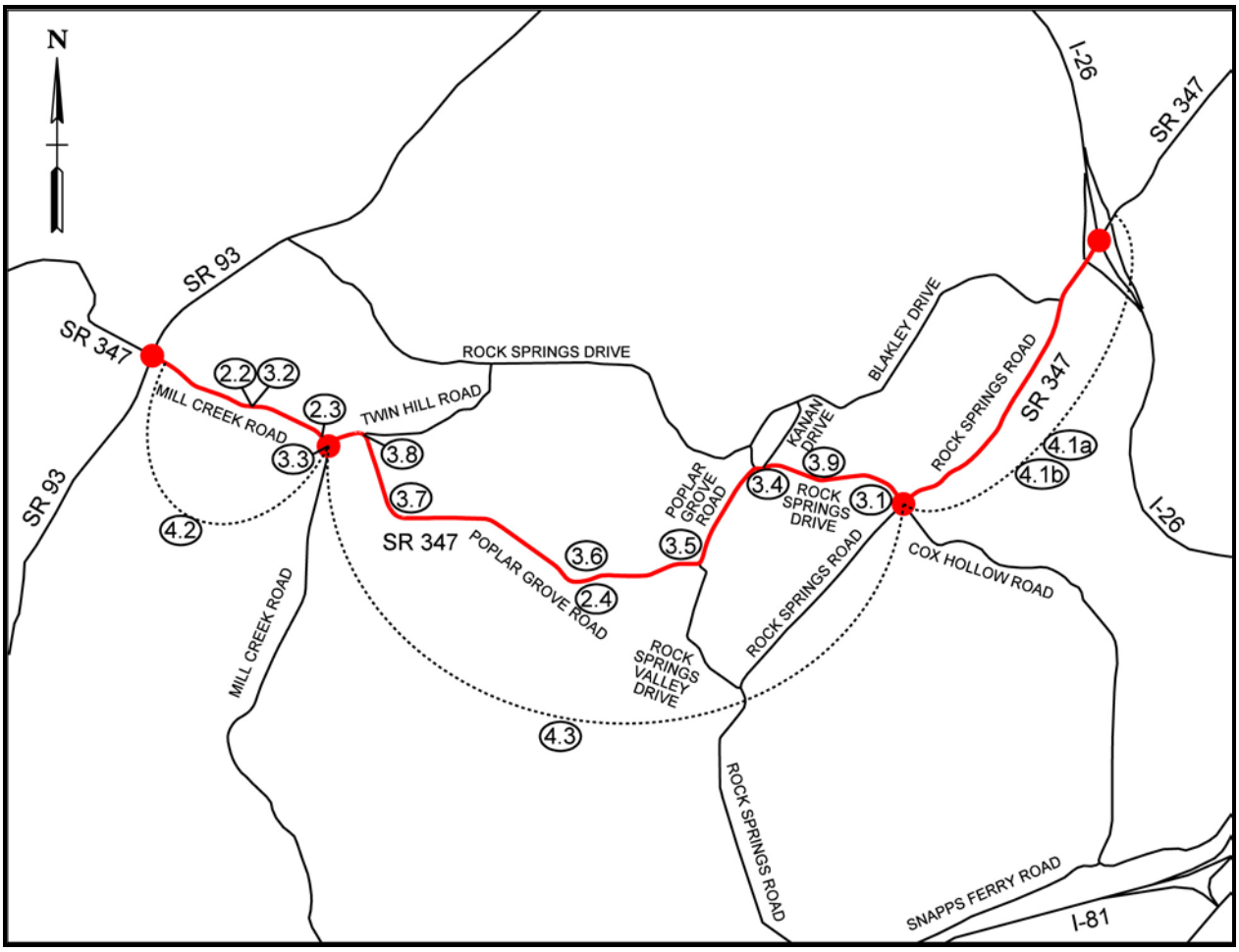

Figure 3.0.1 – Location Map for the Options Studied

3.1 Option 1 No-Build

The No-Build option would not change any of the existing conditions, and no work would be performed other than routine maintenance. No cost would be incurred with the No-Build option other than routine maintenance costs.

3.2 Option 2 Add Warning Signs or Guardrail Shielding to Areas with Safety Issues

3.2.1 LM 6.48 - LM 10.73 Add Warning Signs to Areas with Safety Issues

Some warning signs exist in the project area. This option adds additional signs, markers, and delineators and modifies others to be more noticeable. These measures make a difference during night or low light conditions and can help catch the attention of drivers who are impaired because of fatigue or other causes. Examples of making signs more noticeable are to increase

the size of signs, add identical signs on the left-hand side of the roadway, add retroreflective borders around signs, or add vertical retroreflective strips to the mounting poles. The estimated cost of this option is $183,000.

3.2.2 LM 6.72 - LM 6.93 Add Guardrail with End Treatments to Mill Creek Bridge

This option modifies the existing bridge at LM 6.85 where Mill Creek Road crosses Mill Creek. The modification adds guardrail along the existing concrete bridge rail with appropriate bridge end transitions and guardrail end treatments. Guardrail on the left (north) side of SR 347 begins at LM 6.72 and extends across the bridge, ending at the entrance left of LM 6.88. Guardrail on the right (south) side of SR 347 begins at LM 6.84 with a crash cushion due to entrances near the bridge end. The guardrail then extends across the bridge and ends at LM 6.93. The estimated cost of this option is $74,000.

Figure 3.2.2.1 - SR 347 Bridge Over Mill Creek

Figure 3.2.2.2–Gap Between Guardrail and Bridge

3.2.3 LM 7.03 – LM 7.14 Add Guardrail on Mill Creek Road at Intersection with Poplar Grove Road

This option adds guardrail and appropriate end treatments along both sides of Mill Creek Road from the approach of Old Mill Creek Road to the intersection with Poplar Grove Road.

Figure 3.2.3.1 – LM 7.12 Looking West on Mill Creek Road

The existing 2:1 side slopes are over six (6) feet high. A box culvert crosses under the middle of the curve. The addition of guardrail would help prevent vehicles from traversing the side slope.

Figure 3.2.3.2 – Existing Box Culvert 82-347-7.12 Under Mill Creek Road

Guardrail on the right (south) side of SR 347 begins at LM 7.03 and continues for 850 feet around the inside of the curve. Guardrail on the left (north) side of SR 347 begins at LM 7.09 and continues for 190 feet around the outside of the curve, ending at LM 7.12. ROW needs to be acquired in the north corner of the intersection to allow the slope to be flattened behind the guardrail end treatment. The estimated cost of this option is $89,000.

3.2.4 LM 8.17 to LM 8.33 Add Guardrail to South Side of Poplar Grove Road

This option would add guardrail to the south side of a curvy portion of Poplar Grove Road from LM 8.17 to LM 8.33 that is 850 feet long and parallels Old Bell Hollow Road. One of the existing curves has a substandard radius of 238.72 feet, and there is a steep drop on the south side of SR 347. The estimated cost of this option is $40,000.

Figure 3.2.4.1 – LM 8.17 Looking East on Poplar Grove Road at Bell Hollow Curve

3.3 Option 3 Spot Improvements

3.3.1 LM 9.35 – LM 9.52 Improve Rock Springs Drive Intersection with Rock Springs Road

This option improves the intersection of Rock Springs Drive and Cox Hollow Road with Rock Springs Road. To improve visibility, the corners of the intersection are to be cleared with radii of 50 feet. The grade of Rock Springs Drive approaching the intersection would be reduced from the current 17% upgrade to a 10% upgrade, flattening to a 4% upgrade for a small landing before reaching the shoulder of Rock Springs Road. Raising the grade improves the sight line for Rock Springs Drive traffic and also allows easier starts from the stop condition.

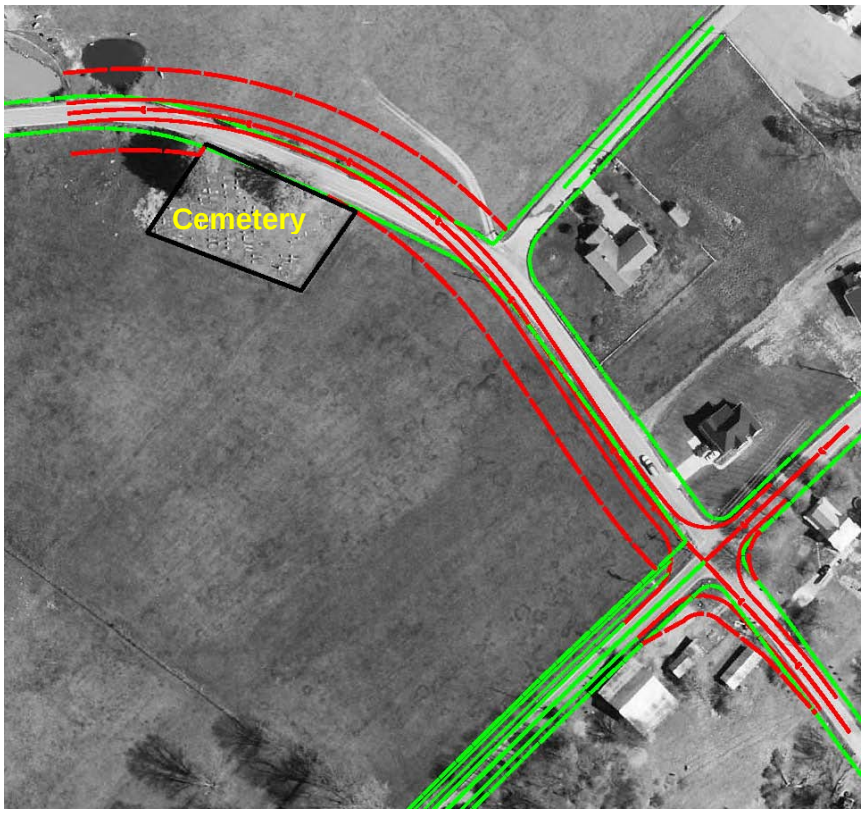

Figure 3.3.1.1 – Plan View of Rock Springs Drive Intersection with Rock Springs Road

Shifting the Rock Springs Drive approach to the southwest increases the length of the driveway to the house in the north quadrant so it can reach the higher elevation of the new roadway. The shift also allows reduction of the skew of the existing intersection. Extending the new line back removes the substandard curve where Church View Drive intersects SR 347 and shifts SR 347 away from a cemetery to allow for a clear zone. Most of the ROW would be acquired from one farm that is on both sides of SR 347 and Rock Springs Road. The estimated cost of this option is $630,000.

3.3.2 LM 6.72 - LM 6.93 Replace Mill Creek Bridge

This option replaces the bridge at LM 6.85 where Mill Creek Road crosses Mill Creek. The new bridge accommodates two (2) eleven (11) foot lanes with eight (8) foot shoulders for a total clear width of thirty eight (38) feet. Outside dimensions of the deck are forty two (42) feet wide and seventy (70) feet long. Shoulders are transitioned over a distance of eighty (80) feet. Guardrail on the left (north) side of SR 347 begins at LM 6.72 and ends at the entrance left of LM 6.88. Guardrail on the right (south) side of SR 347 begins at LM 6.84 with a crash cushion due to entrances near the bridge end. The guardrail ends at LM 6.93. Due to the width of the new bridge, some right-of-way is required on both sides of the road. The estimated cost of this option is $541,000.

3.3.3 LM 7.03 – LM 7.18 Improve Poplar Grove Road Intersection with Mill Creek Road

This option realigns approximately 230 feet of Poplar Grove Road and increases the pavement radius 50 feet where it intersects Mill Creek Road. The side slopes would be flattened along both sides of Mill Creek Road from the approach of Old Mill Creek Road to the intersection with Poplar Grove Road so guardrail is not necessary. Guardrail could obstruct sightlines in the intersection. The existing 10’ x 6’ box culvert would be extended so the openings would be outside the recommended clear zone. Fill is required between the existing Poplar Grove Road approach and the stream that flows through the existing box culvert. ROW needs to be acquired on both sides of SR 347. The estimated cost of this option is $361,000.

Figure 3.3.3.1 – Plan View of Improvements to Intersection of Mill Creek and Poplar Grove Roads

3.3.4 LM 8.97 to LM 9.06 Realign 3 Curves on Rock Springs Drive by Kanan Drive

This option realigns three substandard curves on Rock Springs Drive into one curve with a tangent section where the realigned Kanan Drive can intersect. The three existing curves have radii of 104.17 feet, 190.99 feet, and 229.18 feet. The proposed curve has a radius of 358.10 feet that corresponds to a design speed of 35 mph. This option realigns 475 feet of SR 347 and 90 feet of Kanan Drive. ROW needs to be acquired on both sides of SR 347. Because of the proximity of houses, a septic field may be impacted. The estimated cost of this option is $308,000.

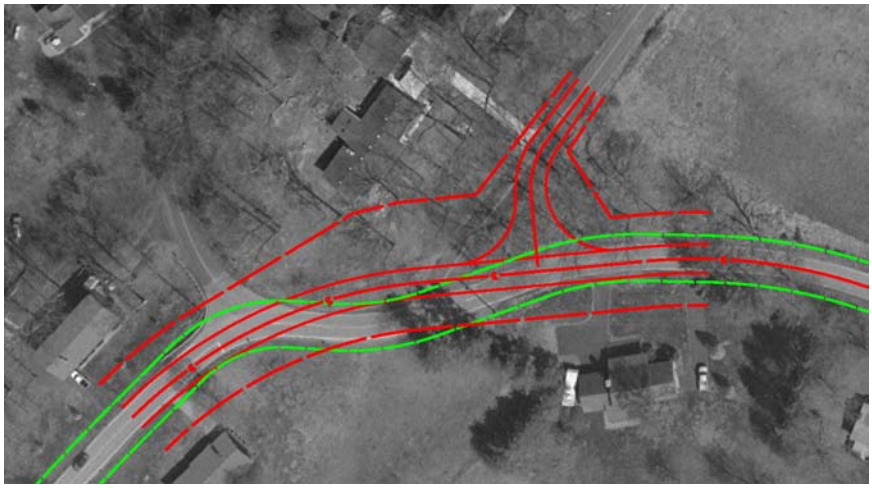

Figure 3.3.4.1 – Plan View of Kanan Curve Realignment on Rock Springs Drive

3.3.5 LM 8.59 to LM 8.68 Flatten Curve on Poplar Grove Road by Rock Springs Valley Drive

This option flattens the substandard curve at LM 8.63 where Rock Springs Valley Drive intersects on the right side of SR 347. The existing radius is 95.49 feet, and the proposed radius would be 358.10 feet, which corresponds to a design speed of 35 mph. This option realigns 450 feet of SR 347 and 106 feet of Rock Springs Valley Drive. Most of the ROW that needs to be acquired is on the northwest side of SR 347. At least three lots are affected. One acquisition includes a residence. The entire property would be acquired because the remainder of the lot is too small for a house and septic field. A second property might be a total acquisition depending on whether a septic field can be located on the portion remaining. The estimated cost of this option is $574,000 - $824,000.

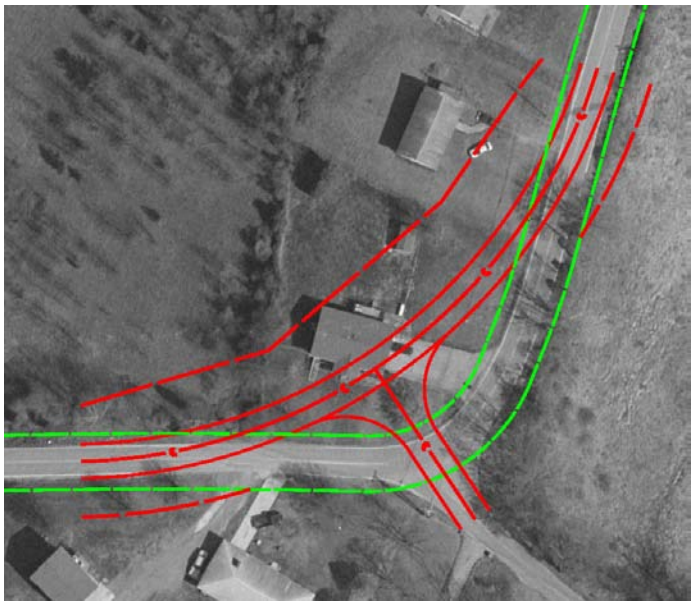

Figure 3.3.5.1 – Plan View of Curve Flattening by Rock Springs Valley Drive

3.3.6 LM 8.17 to LM 8.33 Realign Curves on Poplar Grove Road

This option realigns a curvy portion of Poplar Grove Road from LM 8.17 to LM 8.33 that is 890 feet long and parallels Old Bell Hollow Road. One of the existing curves has a substandard radius of 238.72 feet, and there is a steep drop on the south side of SR 347. The proposed alignment has two curves with radii of 358.10 feet and 409.26 feet that meet or exceed a design speed of 35 mph. This option shifts SR 347 to the north into a hillside cut so that the south edge of the recommended clear zone does not extend over the existing south shoulder. The shift prevents the need to construct a fill slope that is flatter than the existing hillside. Extending the toe of the existing hill would threaten a stream at the toe of the hill.

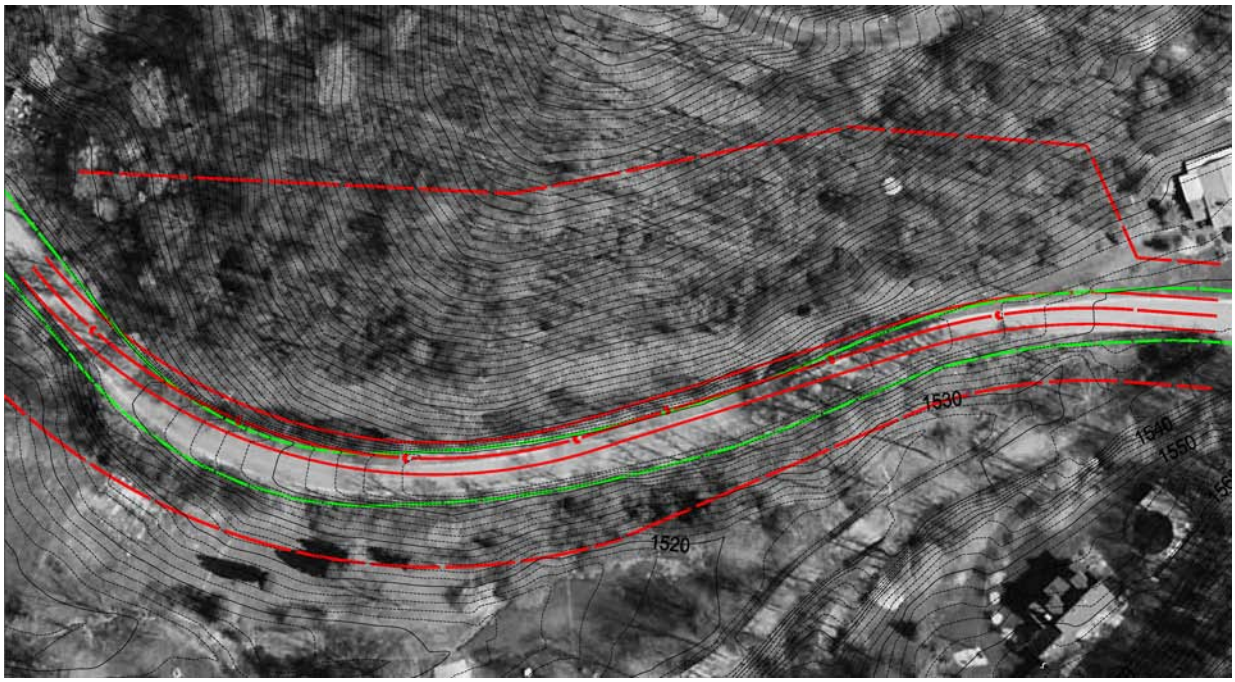

Figure 3.3.6.1 – Plan View of Bell Hollow Curve Realignment on Poplar Grove Road

Some ROW needs to be acquired on both sides of SR 347 with the majority being acquired on the north or uphill side. Overhead utility lines need to be relocated. The estimated cost of this option is $994,000.

3.3.7 LM 7.51 to LM 7.61 Flatten Curve on Poplar Grove Road by Church

This option flattens the substandard curve at LM 7.56 near the Poplar Grove Primitive Baptist Church. The existing curve has a varying radius that is 210 feet at its sharpest, and the proposed radius would be 409.26 feet, which exceeds the criteria for a design speed of 35 mph.

Figure 3.3.7.1 – Plan View of Curve Flattening near Poplar Grove Primitive Baptist Church

The proposed radius shifts 525 feet of the road to the inside of the curve so that the homes on the outside of the curve would be outside the suggested clear zone. Some ROW needs to be acquired on both sides of SR 347 with the majority being acquired on the inside of the curve due to the shift caused by the larger radius. A barn on the inside of the curve would be acquired. Overhead utility lines needs to be relocated. The estimated cost of this option is $265,000.

3.3.8 LM 7.21 to LM 7.34 Flatten Curve on Poplar Grove Road by Twin Hill Road

This option flattens the substandard curve at LM 7.28 where Twin Hill Road intersects on the left side of SR 347. The existing curve has a varying radius that is 130 feet at its sharpest, and the proposed radius is 358.10 feet, which corresponds to a design speed of 35 mph. This option realigns 575 feet of SR 347 and 100 feet of Twin Hill Road.

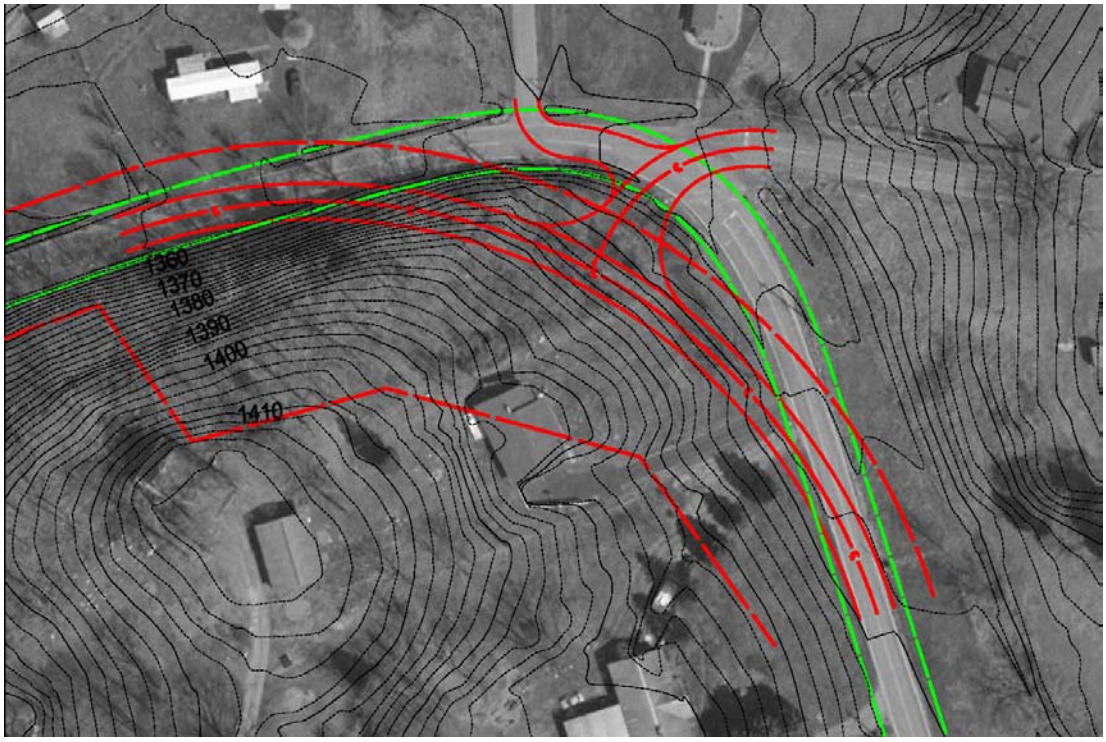

Figure 3.3.8.1 – Plan View of Curve on Poplar Grove Road at Twin Hill Road Intersection

Some ROW needs to be acquired on both sides of SR 347 with the majority being acquired on the inside of the curve due to the shift caused by the larger radius. One acquisition includes a residence; the entire property would be acquired because the remainder of the lot is too small for a house and septic field. Large areas of two other lots are affected, and the location of their septic fields is unknown. The large amount of ROW required on the inside of the curve is due to the back slope running to the top of the hill. The estimated cost of this option is $1,011,000.

3.3.9 LM 9.19 to LM 9.23 Flatten Curve on Rock Springs Drive by Riding Center

This option flattens the substandard curve at LM 9.21 near the Small Miracles Riding Center. The existing radius is 260.44 feet, and the proposed radius is 409.26 feet, which corresponds to a design speed of 35 mph. This option realigns 203 feet of SR 347. Some ROW needs to be acquired on both sides of SR 347. The estimated cost of this option is $129,000.

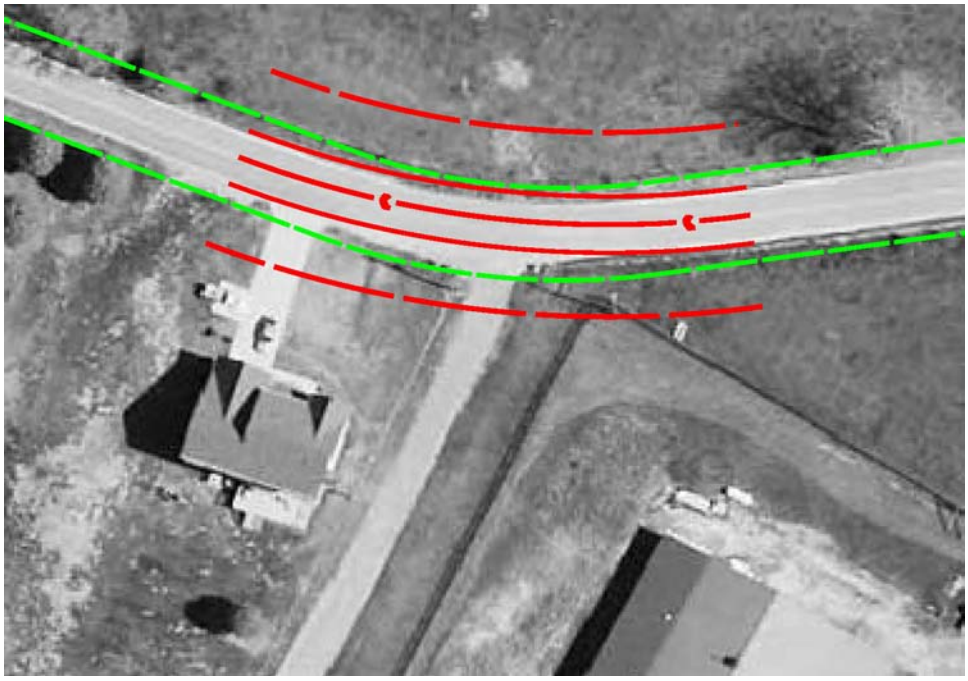

Figure 3.3.9.1 – Plan View of Curve Flattening by Small Miracles Riding Center

3.4 Option 4 Corridor Options

3.4.1a LM 9.52 – LM 10.73 Reconstruct Rock Springs Road to 5 Lanes with Curb and Gutter

This option reconstructs the portion of SR 347 on Rock Springs Road to four (4)-12' lanes with a continuous 14' wide left turn lane, 8' shoulders, and curb and gutter. Sidewalks are on both sides of the road, and the 8' shoulders double as bicycle lanes. These connect with the mobility path the City of Kingsport is building along the portions of Rock Springs Road that are not part of SR 347. The widening occurs on the northwest side of Rock Springs Road to minimize impacts to an existing stream that parallels the southeast side of the road. Most of the ROW needs to be acquired on the northwest side of SR 347 (Rock Springs Road). This option requires channel changing 212 LF of the 3,400 LF of open stream that parallels the southeast side of the road. Two retaining walls would be used to limit the impact to two homes on the northwest side of the road. Twenty homes and two businesses would still be acquired by this alternative. In 2034, the level of service is projected to be LOS A with this option compared to LOS D with the No-Build option. The estimated cost of this option is $15,542,000.

TENNESSEE DEPARTMENT OF TRANSPORTATION

DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE

ROUTE SR – 347 SECTION 3

REGION 1 COUNTY Sullivan County PROJECT NO. 112965.00

LOCATION: FROM: LM 9.52 at Intersection with Rock Springs Drive

TO: LM 10.52 at Intersection with I-26 Southbound Ramps

	Existing	**Option 4.1a**
FUNCTIONAL CLASSIFICATION	Urban Minor Arterial	Urban Minor Arterial
MINIMUM DESIGN SPEED	35 MPH	35 MPH
ACCESS CONTROL	None	None
MAXIMUM CURVE	14° (R=409.26')	14° (R=409.26')
MAXIMUM GRADE	8%	8%
SURFACE WIDTH	20' - 24'	62'
NUMBER OF LANES	2 @ 10' - 12'	12'+12'+14'+12'+12'
USEABLE SHOULDER WIDTH	2 @ 1' - 4'	2 @ 8'
MEDIAN WIDTH	None	None
MINIMUM RIGHT-OF-WAY	36'-70'	94'*
SIGNALIZATION	None	At Rock Springs Drive

REMARKS: * Slope easements will be obtained outside Right–of-Way

3.4.1b LM 9.52 – LM 10.73 Reconstruct Rock Springs Road to 3 Lanes with Curb and Gutter

This option reconstructs the portion of SR 347 on Rock Springs Road to two (2)-12' lanes with a continuous 14' wide left turn lane, 8' shoulders, and curb and gutter. Sidewalks are on both sides of the road, and the 8' shoulders double as bicycle lanes. These connect with the mobility path the City of Kingsport is building along the portions of Rock Springs Road that are not part of SR 347. The widening occurs on the northwest side of Rock Springs Road to minimize impacts to an existing stream that parallels the southeast side of the road. Most of the ROW needs to be acquired on the northwest side of SR 347 (Rock Springs Road). This option requires channel changing 212 LF of the 3,400 LF of open stream that parallels the southeast side of the road. Two retaining walls would be used to limit the impact to two homes on the northwest side of the road. Twenty homes and one business would still be acquired by this alternative. In 2034, the level of service is projected to be LOS D with either this option or the No-Build option. The center turn lane does not factor in to the LOS calculations; however, the center lane can be expected to offer some improvements in safety by reducing rear end collisions and providing a refuge area so that vehicles making left turns out of entrances can cross one direction of traffic at a time. The estimated cost of this option is $12,588,000.

TENNESSEE DEPARTMENT OF TRANSPORTATION

DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE

ROUTE SR – 347 SECTION 3

REGION 1 COUNTY Sullivan County PROJECT NO. 112965.00

LOCATION: FROM: LM 9.52 at Intersection with Rock Springs Drive

TO: LM 10.52 at Intersection with I-26 Southbound Ramps

	Existing	**Option 4.1b**
FUNCTIONAL CLASSIFICATION	Urban Minor Arterial	Urban Minor Arterial
MINIMUM DESIGN SPEED	35 MPH	35 MPH
ACCESS CONTROL	None	None
MAXIMUM CURVE	14° (R=409.26')	14° (R=409.26')
MAXIMUM GRADE	8%	8%
SURFACE WIDTH	20'-24'	38'
NUMBER OF LANES	2 @ 10' - 12'	12'+14'+12'
USEABLE SHOULDER WIDTH	2 @ 1' - 4'	2 @ 8'
MEDIAN WIDTH	None	None
MINIMUM RIGHT-OF-WAY	36'-70'	94'*
SIGNALIZATION	None	At Rock Springs Drive

REMARKS: * Slope easements will be obtained outside Right–of-Way

3.4.2 LM 6.48 – LM 7.14 Reconstruct Mill Creek Road (8-22-8)

This option reconstructs the portion of SR 347 on Mill Creek Road to two (2)-11' travel lanes with 8' shoulders, (6' stabilized). This option includes replacing the Mill Creek Bridge and extending the existing box culvert near the intersection with Poplar Grove Road. This option corrects the safety deficiencies due to the lack of shoulders and removes or shields roadside obstacles, thus providing a clear zone. ROW needs to be acquired on both sides of the road. In 2034, the level of service is projected to be LOS A with either this option or the No-Build option. The estimated cost of this option is $1,913,000.

TENNESSEE DEPARTMENT OF TRANSPORTATION

DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE

ROUTE SR – 347 SECTION 1

REGION 1 COUNTY Sullivan County PROJECT NO. 112965.00

LOCATION: FROM: LM 6.48 at SR-93 (Sullivan Gardens Parkway)

TO: LM 7.14 at Intersection with Poplar Grove Road

	Existing	**Option 4.2**
FUNCTIONAL CLASSIFICATION	Urban Minor Arterial	Urban Minor Arterial
MINIMUM DESIGN SPEED	35 MPH	35 MPH
ACCESS CONTROL	None	None
MAXIMUM CURVE	14° (R=409.26')	14° (R=409.26')
MAXIMUM GRADE	9%	9%
SURFACE WIDTH	19'	22'
NUMBER OF LANES	2 @ 9.5'	2 @ 11'
USEABLE SHOULDER WIDTH	2 @ 0 - 2'	2 @ 8'
MEDIAN WIDTH	None	None
MINIMUM RIGHT-OF-WAY	38'	54' – 100' *
SIGNALIZATION	At SR-93	At SR-93

REMARKS: * Right–of-Way limits will be determined by slope limits

3.4.3 LM 7.14 – LM 9.52 Reconstruct Poplar Grove Road and Rock Springs Drive (8-22-8)

This option reconstructs the portion of SR 347 on Poplar Grove Road and Rock Springs Drive to two (2)-11' travel lanes with 8' shoulders, (6' stabilized). This option also includes spot improvements that would flatten the radii of 10 curves so they meet 35 mph design standards. This option corrects the safety deficiencies due to the lack of shoulders and removes roadside obstacles, thus providing a clear zone. ROW would be acquired on both sides of the road. In 2034, the level of service is projected to be LOS A with either this option or the No-Build option. The estimated cost of this option is $8,836,000.

TENNESSEE DEPARTMENT OF TRANSPORTATION

DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE

ROUTE SR – 347 SECTION 2

REGION 1 COUNTY Sullivan County PROJECT NO. 112965.00

LOCATION: FROM: LM 7.14 at Intersection with Mill Creek Road

TO: LM 9.52 at Intersection with Rock Springs Road

	Existing	**Option 4.3**
FUNCTIONAL CLASSIFICATION	Urban Minor Arterial	Urban Minor Arterial
MINIMUM DESIGN SPEED	15 MPH	35 MPH
ACCESS CONTROL	None	None
MAXIMUM CURVE	60° (R=95.49')	16° (R=358.10')
MAXIMUM GRADE	14%	14%
SURFACE WIDTH	20'	22'
NUMBER OF LANES	2 @ 10'	2 @ 11'
USEABLE SHOULDER WIDTH	2 @ 0 - 1'	2 @ 8'
MEDIAN WIDTH	None	None
MINIMUM RIGHT-OF-WAY	36'	50' – 250' *
SIGNALIZATION	None	At Rock Springs Road

REMARKS: * Right–of-Way limits will be determined by slope limits

4.0 ASSESSMENT OF OPTIONS

TDOT has developed a set of seven guiding principles by which all transportation projects are to be evaluated. A discussion follows of how the options considered relate to these principles.

4.1 Preserve and Manage the Existing Transportation System

All the options considered make use of the existing transportation system. Some options realign portions of the existing roads, but none of the options relocate SR 347. Not relocating SR 347 avoids leaving behind orphaned frontage roads and prevents questions of responsibility for their maintenance. All options either maintain or enhance the safety and operation of the existing roads.

4.2 Move a Growing, Diverse, and Active Population

As the study area goes through a demographic change from a rural to an urban character, the characteristics of the driving population can be expected to change. Urban drivers may expect fewer safety hazards and, thus, not be on the lookout for such. They also may be more distracted from the operation of the vehicle. Urban populations also have more visitors that are not familiar with the local roads and possible hazards. The signing option attempts to alert drivers to possible hazards. The guardrail options attempt to mitigate the hazards. The realignment and reconstruction options seek to remove the hazards from the roadway environment. Some of the reconstruction options increase capacity that can reduce driver stress during high traffic times. All the reconstruction options add 8' shoulders that can be used by bicycles and some pedestrians and the Rock Springs Road options include sidewalks as well.

4.3 Support the State's Economy

The demand for trips along the Rock Springs Road section of SR 347 is increasing along with the development of the area. Options that increase the capacity or convenience of Rock Springs Road are expected to promote the general flow of people and goods that support the state's economy. Since the other portions of SR 347 are operating well below capacity, improvements would not be expected to have much effect on the state's economy.

4.4 Maximize Safety and Security

All the options considered, other than the No-Build, improve some aspect of safety. Poplar Grove Road and Rock Springs Drive currently have multiple deficiencies in horizontal alignment, vertical alignment, and clear roadsides. Of these three deficiencies, only the sharp horizontal curves force drivers to slow down. If the low number of crashes on these two roads is due to the speed calming effect of these sharp curves, then spot improving a curve may have the unintended consequence of allowing some drivers to be less careful. This is an issue for consideration if spot improvements advance to more detailed studies.

4.5 Build Partnerships for Livable Communities

TDOT promotes projects that are supported by the local community. The Kingsport MPO requested this TPR due to Kingsport's interest in improving the portion of SR 347 that follows Rock Springs Road. The City of Kingsport provided information for the preparation of this report and is eager to work with TDOT as needed to move Rock Springs Road improvements forward. Public comments to the city indicate two broad constituencies. People who use Rock Springs Road want to see it improved. People who live on Rock Springs Road want impacts to their property minimized. As this project advances to the environmental documentation phase, the key will be to search for options that can simultaneously improve the road while minimizing property impacts.

4.6 Promote Stewardship of the Environment

All of the options take stewardship of the environment into consideration. The No-Build, signing, and guardrail options should have no impacts to the natural environment. The straightening and reconstructing options have varying levels of effect that would be determined during the environmental documentation phase of the project. Because the Rock Springs Road portion of SR 347 is bounded on the Northwest by homes on a steep hillside and on the Southeast by a stream, the balancing of various impacts will probably require mitigation.

4.7 Emphasize Financial Responsibility

All the options considered, other than the No-Build, have a financial cost and provide some benefit to the citizens of Tennessee; however, they have varying levels of urgency and must be considered with all the other projects that could provide varying degrees of benefit to the public. Improvements made to the roads with the highest traffic volumes will probably provide more user benefits than improvements to less traveled roads.

5.0 SUMMARY

This TPR studied approximately 4.13 miles of SR 347 from State Route 93, Sullivan Gardens Parkway, at log mile (LM) 6.49 to Interstate 26 (U.S. 23) at LM 10.62 in Sullivan County. The Kingsport MPO requested this TPR because the section of SR 347 that follows Rock Springs Road from LM 9.52 to LM 10.62 between Cox Hollow Road and Interstate 26 is experiencing traffic growth due to development. The developing areas include residential and commercial uses as well as a new school that opened in August 2009. A road safety audit in April 2007 identified safety concerns along all of Rock Springs Road. The City of Kingsport has started improving the portions of SR 347 under their jurisdiction.

The stakeholders conducted a field review on November 5, 2009 and identified safety concerns and some options to address the concerns. Because of the large variations in traffic and other features on different portions of the road, this study divided SR 347 into three sections.

5.1 Mill Creek Road Corridor

The first section is Mill Creek Road and runs from LM 6.49 to LM 7.14 between Sullivan Gardens Parkway, SR 93, and Poplar Grove Road. This section of SR 347 operates well below capacity with a projected LOS A for the year 2034 with the No-Build or build options. The issue in this section is mainly a narrow roadway with little or no shoulders and an unsafe roadside. Improvements are needed to correct safety deficiencies within the corridor.

5.2 Poplar Grove Road and Rock Springs Drive Corridor

The middle section from LM 7.14 to LM 9.52 includes all of Poplar Grove Road and a portion of Rock Springs Drive. This section of SR 347 also operates well below capacity with a projected LOS A for the year 2034 with the No-Build or build options. In addition to a narrow roadway with little or no shoulders and an unsafe roadside, this section also has deficient geometry. Improvements are needed to correct safety deficiencies within the corridor.

5.3 Rock Springs Road Corridor

The last section is Rock Springs Road from LM 9.52 to LM 10.62 between Cox Hollow Road and Interstate 26. This section of SR 347 is experiencing a rapid rise in traffic with the development that is taking place in the area with a projected LOS D for the year 2034 with the No-Build option. With the three-lane option, the projected LOS is still D; but the roadside would be safer and stalled vehicles could be moved out of the driving lanes. The five-lane option is the only option that is considered to increase capacity with a projected LOS A for the year 2034. Both of the reconstruction options for Rock Springs Road utilize curb and gutter to minimize the ROW impacts while still allowing sidewalks on both sides. Sidewalks for pedestrians and novice bicyclists and paved shoulders for advanced bicyclists will connect to the system of mobility paths that Kingsport is developing. Improvements are needed to improve capacity and correct safety deficiencies within the corridor.

5.4 Options Studied		**Cost**
Option 1 No-Build	**Total Option 1**	**$0**

Option 2 Add Warning Signs or Guardrail Shielding to Areas with Safety Issues	
2.1 LM 6.48 to LM 10.73 Add Warning Signs to Areas with Safety Issues	$183,000
2.2 LM 6.72 to LM 6.93 Add guardrail to Mill Creek Bridge	$74,000
2.3 LM 7.03 to LM 7.14 Add guardrail on Mill Creek Rd at Poplar Grove Rd	$89,000
2.4 LM 8.17 to LM 8.33 Add guardrail to South Side of Poplar Grove Rd	$40,000
Total Option 2	**$386,000**
Option 3 Spot Improvements	
3.1 LM 9.35 to LM 9.52 Rock Springs Dr Intersection with Rock Springs Rd	$630,000
3.2 LM 6.72 to LM 6.93 Replace Mill Creek Bridge	$541,000
3.3 LM 7.03 to LM 7.18 Mill Creek Rd Intersection with Poplar Grove Rd	$361,000
3.4 LM 8.97 to LM 9.06 Curves on Rock Springs Drive by Kanan Drive	$308,000
3.5 LM 8.59 to LM 8.68 Curve by Rock Springs Valley Drive	$824,000
3.6 LM 8.17 to LM 8.33 Realign Poplar Grove Road through Bell Hollow	$994,000
3.7 LM 7.51 to LM 7.61 Curve on Poplar Grove Road by Church	$265,000
3.8 LM 7.21 to LM 7.34 Curve on Poplar Grove Road by Twin Hill Road	$1,011,000
3.9 LM 9.19 to LM 9.23 Curve on Rock Springs Drive by the Riding Center	$129,000
Total Option 3	**$5,063,000**
Option 4 Corridor Options	
4.1a LM 9.52 to LM 10.73 Reconstruct Rock Springs Road 5-Lane	$15,542,000
4.2 LM 6.48 to LM 7.14 Reconstruct Mill Creek Rd	$1,913,000
4.3 LM 7.14 to LM 9.52 Reconstruct Poplar Grove Rd & Rock Springs Dr	$8,836,000
Total Option 4 Improvement with Rock Springs Road 5-Lane Section	**$26,291,000**
4.1b LM 9.52 to LM 10.73 Reconstruct Rock Springs Road 3-Lane	$12,588,000
4.2 LM 6.48 to LM 7.14 Reconstruct Mill Creek Rd	$1,913,000
4.3 LM 7.14 to LM 9.52 Reconstruct Poplar Grove Rd & Rock Springs Dr	$8,836,000
Total Option 4 Improvement with Rock Springs Road 3-Lane Section	**$23,337,000**

5.5 Conclusion

When choosing and prioritizing the options listed in this TPR against all the other projects in the state, the following items should be considered.

The rapid pace of current development and the size of predicted future development in the area around Rock Springs Road caused the Kingsport MPO to initiate this TPR. High traffic volumes on a narrow road need a corridor solution. Thus, priority should be given to improving the Rock Springs Road corridor.

Mill Creek Road provides a good level of service and the only issues are roadside safety hazards. The Mill Creek Bridge and the steep side slopes near the intersection with Poplar Grove Road are made potentially more severe by the relatively straight stretches that precede them. These two (2) hazards can be mitigated with guardrail shielding. Adding shoulders will require reconstruction of the road.

The issues at Poplar Grove Road are largely due to the terrain, which means that improvements require large amounts of earthwork and are expensive. The low traffic counts and accident

rates seem to indicate that guardrail to mitigate the side slope is warranted. If development spreads to that area and traffic increases substantially, then reconstruction may be desirable.

Table 5.1 - Relationship of Options to the Project's Purpose and Need

Option			Log Mile	Improve Geometric Deficiencies	Improve Roadside Safety	Promote Safer Operations	Facilitate Better Access	Improve Facility for Alternative Modes of Transportation	Option Cost
1	**NO BUILD**			N	N	N	N	N	**$ 0**
2	**HAZARD WARNING/SHIELDING**								
	1	Add Warning Signs	6.48-10.73	N	N	Y	N	N	$ 183,000
	2	Add GR to Mill Creek Bridge	6.72-6.93	N	Y	Y	N	N	$ 74,000
	3	Add GR at Intersection	7.03-7.14	N	Y	Y	N	N	$ 89,000
	4	Add GR in Bell Hollow	8.17-8.33	N	Y	Y	N	N	$ 40,000
									$ 386,000
3	**SPOT IMPROVEMENTS**								
	1	Rock Springs Rd Intersection	9.35-9.52	Y	Y	Y	Y	N	$ 630,000
	2	Replace Mill Creek Bridge	6.72-6.93	Y	Y	Y	N	N	$ 541,000
	3	Poplar Grove Rd Intersection	7.03-7.18	Y	Y	Y	-	N	$ 361,000
	4	Curves by Kanan Drive	8.97-9.06	Y	Y	Y	-	N	$ 308,000
	5	Curve by Rock Springs Valley Dr	8.59-8.68	Y	Y	Y	N	N	$ 824,000
	6	Realign in Bell Hollow	8.17-8.33	Y	Y	Y	N	N	$ 994,000
	7	Curve by Church	7.51-7.61	Y	Y	Y	N	N	$ 265,000
	8	Curve by Twin Hill Road	7.21-7.34	Y	Y	Y	N	N	$ 1,011,000
	9	Curve by Riding Center	9.19-9.23	Y	Y	Y	N	N	$ 129,000
									$ 5,063,000
4	**CORRIDOR OPTIONS**								
	1a	5L-C&G Rock Springs Rd	9.52-10.73	Y	Y	Y	Y	Y	$ 15,542,000
	2	Reconstruct Mill Creek Road	6.48-7.14	-	Y	Y	-	Y	$ 1,913,000
	3	Reconstruct Poplar Grove Rd	7.14-9.52	Y	Y	Y	-	Y	$ 8,836,000
	Total Option 4 Improvement with Rock Springs Road 5-Lane Section								**$ 26,291,000**
	1b	3L-C&G Rock Springs Rd	9.52-10.73	Y	Y	Y	Y	Y	12,588,000
	2	Reconstruct Mill Creek Road	6.48-7.14	-	Y	Y	-	Y	$ 1,913,000
	3	Reconstruct Poplar Grove Rd	7.14-9.52	Y	Y	Y	-	Y	$ 8,836,000
	Total Option 4 Improvement with Rock Springs Road 3-Lane Section								**$ 23,337,000**

Heavy borders enclose alternative options for the same location.

"Y" = Yes
"N" = No
"-" = Marginal Benefit

APPENDIX A

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
PRELIM	2009	XXXX	1

SR 93
6.5
MILL CREEK ROAD
SR 347
7.0
ROCK SPRINGS DRIVE
TWIN HILL ROAD
SR 347
7.5
CEM
CH
POPLAR GROVE ROAD
MILL CREEK ROAD
BAXTER CEMETERY
THOMAS ACRES ROAD
N
0 500' 1000' 1500'

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

SR 347
KINGSPORT
TENNESSEE

3/30/2010
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TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
PRELIM	2009	XXXX	2

N

0 500' 1000' 1500'

9.0

8.5

8.0

SR 347

SR 347

POPLAR GROVE ROAD

BELL HOLLOW ROAD

ROCK SPRINGS VALLEY DRIVE

ROCK SPRINGS ROAD

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

SR 347
KINGSPORT
TENNESSEE

3/30/2010
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TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
PRELIM	2009	XXXX	3

BLAKLEY DRIVE
BLAKLEY DRIVE
SR 347
CEM
CH
CEM
COMMUNITY CENTER
9.5
10.0
10.5
ROCK SPRINGS ROAD
SR 347
WESTFIELD DRIVE
GASLINE
I-26
I-26
WATER TOWER
COX HOLLOW ROAD
0
500'
1000'
1500'
N

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

SR 347
KINGSPORT
TENNESSEE

3/30/2010
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Option 2.1

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Install enhanced signs for 10 curves, 10 intersections, and other areas with safety issues.**
County:	**Sullivan**
Length:	**22,464 feet = 4.255 miles**
Date:	**3/19/2010**

RIGHT OF WAY

Land	**0**	**Acres**	**x**	**$15,000**	**= $**	**0**
Incidentals	**0**	**Tracts**	**x**	**$10,000**	**= $**	**0**
Relocations	**0**	**Residences**	**x**	**$250,000**	**= $**	**0**
		Businesses	**x**	**$500,000**	**= $**	**0**
		Non-Profits	**x**		**= $**	**0**
	RIGHT OF WAY COST				**$**	**0**

UTILITY RELOCATION

Reimbursable	**$**	**0**
Non-reimbursable	**$**	**0**
UTILITY COST	**$**	**0**

TOTAL CONSTRUCTION COST	**$**	**183,000**
TOTAL PROJECT COST *	**$**	**183,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 2.1

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Install enhanced signs for 10 curves, 10 intersections, and other areas with safety issues.**
County:	**Sullivan**
Length:	**22,464 feet = 4.255 miles**
Date:	**3/18/2010**

CLEAR AND GRUBBING	**$**	**0**
EARTHWORK	**$**	**0**
PAVEMENT REMOVAL	**$**	**0**
DRAINAGE	**$**	**0**
STRUCTURES	**$**	**0**
RAILROAD CROSSING OR SEPARATION	**$**	**0**
PAVING	**$**	**0**
RETAINING WALLS	**$**	**0**
MAINTENANCE OF TRAFFIC	**$**	**6,000**
TOPSOIL	**$**	**0**
SEEDING	**$**	**0**
SODDING	**$**	**0**
SIGNING	**$**	**119,000**
LIGHTING	**$**	**0**
SIGNALIZATION	**$**	**0**
FENCE	**$**	**0**
GUARDRAIL	**$**	**0**
RIP RAP OR SLOPE PROTECTION	**$**	**0**
OTHER CONST. ITEMS (15%)	**$**	**19,000**
MOBILIZATION	**$**	**7,000**
CONSTRUCTION COST	**$**	**151,000**
10% ENG. & CONT.	**$**	**15,000**
TOTAL CONSTRUCTION COST	**$**	**166,000**
10% PRELIMINARY ENGINEERING	**$**	**17,000**
TOTAL COST *	**$**	**183,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 2.2

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Install guardrail across Mill Creek Bridge with appropriate safety end treatments**
County:	**Sullivan**
Length:	**1,100 feet = 0.208 miles**
Date:	**1/5/2010**

RIGHT OF WAY

Land	**0 Acres**	**x**	**$15,000**	**= $**	**0**
Incidentals	**0 Tracts**	**x**	**$10,000**	**= $**	**0**
Relocations	**0 Residences**	**x**	**$250,000**	**= $**	**0**
	Businesses	**x**	**$500,000**	**= $**	**0**
	Non-Profits	**x**		**= $**	**0**
RIGHT OF WAY COST				**$**	**0**

UTILITY RELOCATION

Reimbursable	**$**	**0**
Non-reimbursable	**$**	**0**
UTILITY COST	**$**	**0**

TOTAL CONSTRUCTION COST	**$**	**74,000**
TOTAL PROJECT COST *	**$**	**74,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 2.2

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Install guardrail across Mill Creek Bridge with appropriate safety end treatments**
County:	**Sullivan**
Length:	**1,100 feet = 0.208 miles**
Date:	**12/21/2009**

CLEAR AND GRUBBING	**$**	**1,000**
EARTHWORK	**$**	**2,000**
PAVEMENT REMOVAL	**$**	**0**
DRAINAGE	**$**	**0**
STRUCTURES	**$**	**0**
RAILROAD CROSSING OR SEPARATION	**$**	**0**
PAVING	**$**	**0**
RETAINING WALLS	**$**	**0**
MAINTENANCE OF TRAFFIC	**$**	**4,000**
TOPSOIL	**$**	**1,000**
SEEDING	**$**	**1,000**
SODDING	**$**	**0**
SIGNING	**$**	**0**
LIGHTING	**$**	**0**
SIGNALIZATION	**$**	**0**
FENCE	**$**	**0**
GUARDRAIL	**$**	**41,000**
RIP RAP OR SLOPE PROTECTION	**$**	**0**
OTHER CONST. ITEMS (15%)	**$**	**8,000**
MOBILIZATION	**$**	**3,000**
CONSTRUCTION COST	**$**	**61,000**
10% ENG. & CONT.	**$**	**6,000**
TOTAL CONSTRUCTION COST	**$**	**67,000**
10% PRELIMINARY ENGINEERING	**$**	**7,000**
TOTAL COST *	**$**	**74,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 2.3

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Install guardrail around curve where Poplar Grove Road intersects Mill Creek Road**
County:	**Sullivan**
Length:	**850 feet = 0.161 miles**
Date:	**1/5/2010**

RIGHT OF WAY

Land	**0.13**	**Acres**	**x**	**$15,000**	**= $**	**2,000**
Incidentals	**1**	**Tracts**	**x**	**$10,000**	**= $**	**10,000**
Relocations	**0**	**Residences**	**x**	**$250,000**	**= $**	**0**
		Businesses	**x**	**$500,000**	**= $**	**0**
		Non-Profits	**x**		**= $**	**0**
	RIGHT OF WAY COST				**$**	**12,000**

UTILITY RELOCATION

Reimbursable	**$**	**20,000**
Non-reimbursable	**$**	**0**
UTILITY COST	**$**	**20,000**
TOTAL CONSTRUCTION COST	**$**	**57,000**
TOTAL PROJECT COST *	**$**	**89,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 2.3

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Install guardrail around curve where Poplar Grove Road intersects Mill Creek Road**
County:	**Sullivan**
Length:	**850 feet = 0.161 miles**
Date:	**12/22/2009**

CLEAR AND GRUBBING	**$**	**1,000**
EARTHWORK	**$**	**7,000**
PAVEMENT REMOVAL	**$**	**0**
DRAINAGE	**$**	**0**
STRUCTURES	**$**	**0**
RAILROAD CROSSING OR SEPARATION	**$**	**0**
PAVING	**$**	**0**
RETAINING WALLS	**$**	**0**
MAINTENANCE OF TRAFFIC	**$**	**3,000**
TOPSOIL	**$**	**1,000**
SEEDING	**$**	**1,000**
SODDING	**$**	**0**
SIGNING	**$**	**0**
LIGHTING	**$**	**0**
SIGNALIZATION	**$**	**0**
FENCE	**$**	**0**
GUARDRAIL	**$**	**26,000**
RIP RAP OR SLOPE PROTECTION	**$**	**0**
OTHER CONST. ITEMS (15%)	**$**	**6,000**
MOBILIZATION	**$**	**2,000**
CONSTRUCTION COST	**$**	**47,000**
10% ENG. & CONT.	**$**	**5,000**
TOTAL CONSTRUCTION COST	**$**	**52,000**
10% PRELIMINARY ENGINEERING	**$**	**5,000**
TOTAL COST *	**$**	**57,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 2.4

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Install guardrail on south side of Poplar Grove Road through curves near Old Bell Hollow Road.**
County:	**Sullivan**
Length:	**850 feet = 0.161 miles**
Date:	**1/5/2010**

RIGHT OF WAY

Land	**0**	**Acres**	**x**	**$15,000**	**= $**	**0**
Incidentals	**0**	**Tracts**	**x**	**$10,000**	**= $**	**0**
Relocations	**0**	**Residences**	**x**	**$250,000**	**= $**	**0**
		Businesses	**x**	**$500,000**	**= $**	**0**
		Non-Profits	**x**		**= $**	**0**
	RIGHT OF WAY COST				**$**	**0**

UTILITY RELOCATION

Reimbursable	**$**	**0**
Non-reimbursable	**$**	**0**
UTILITY COST	**$**	**0**
TOTAL CONSTRUCTION COST	**$**	**40,000**
TOTAL PROJECT COST *	**$**	**40,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 2.4

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Install guardrail on south side of Poplar Grove Road through curves near Old Bell Hollow Road.**
County:	**Sullivan**
Length:	**850 feet = 0.161 miles**
Date:	**12/28/2009**

CLEAR AND GRUBBING	**$**	**1,000**
EARTHWORK	**$**	**0**
PAVEMENT REMOVAL	**$**	**0**
DRAINAGE	**$**	**0**
STRUCTURES	**$**	**0**
RAILROAD CROSSING OR SEPARATION	**$**	**0**
PAVING	**$**	**0**
RETAINING WALLS	**$**	**0**
MAINTENANCE OF TRAFFIC	**$**	**4,000**
TOPSOIL	**$**	**1,000**
SEEDING	**$**	**1,000**
SODDING	**$**	**0**
SIGNING	**$**	**0**
LIGHTING	**$**	**0**
SIGNALIZATION	**$**	**0**
FENCE	**$**	**0**
GUARDRAIL	**$**	**20,000**
RIP RAP OR SLOPE PROTECTION	**$**	**0**
OTHER CONST. ITEMS (15%)	**$**	**4,000**
MOBILIZATION	**$**	**2,000**
CONSTRUCTION COST	**$**	**33,000**
10% ENG. & CONT.	**$**	**3,000**
TOTAL CONSTRUCTION COST	**$**	**36,000**
10% PRELIMINARY ENGINEERING	**$**	**4,000**
TOTAL COST *	**$**	**40,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 3.1

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Improve intersection of Rock Springs Road with Cox Hollow Road and Rock Springs Drive.**
County:	**Sullivan**
Length:	**1037 feet = 0.196 miles**
Date:	**3/19/2010**

RIGHT OF WAY

Land	**1.07**	**Acres**	**x**	**$50,000**	**= $**	**54,000**
Incidentals	**4**	**Tracts**	**x**	**$10,000**	**= $**	**40,000**
Relocations	**0**	**Residences**	**x**	**$250,000**	**= $**	**0**
		Businesses	**x**	**$500,000**	**= $**	**0**
		Non-Profits	**x**		**= $**	**0**
	RIGHT OF WAY COST				**$**	**94,000**

UTILITY RELOCATION

Reimbursable	**$**	**100,000**
Non-reimbursable	**$**	**0**
UTILITY COST	**$**	**100,000**

TOTAL CONSTRUCTION COST	**$**	**436,000**
TOTAL PROJECT COST *	**$**	**630,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 3.1

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Improve intersection of Rock Springs Road with Cox Hollow Road and Rock Springs Drive.**
County:	**Sullivan**
Length:	**1037 feet = 0.196 miles**
Date:	**3/19/2010**

CLEAR AND GRUBBING		**$**	**3,000**
EARTHWORK		**$**	**63,000**
PAVEMENT REMOVAL		**$**	**13,000**
DRAINAGE		**$**	**15,000**
STRUCTURES		**$**	**0**
RAILROAD CROSSING OR SEPARATION		**$**	**0**
PAVING	(1.25"Sur+4.0"AspBase+4.0"AggBase)	**$**	**145,000**
RETAINING WALLS		**$**	**0**
MAINTENANCE OF TRAFFIC		**$**	**20,000**
TOPSOIL		**$**	**9,000**
SEEDING		**$**	**2,000**
SODDING		**$**	**0**
SIGNING		**$**	**5,000**
LIGHTING		**$**	**0**
SIGNALIZATION		**$**	**0**
FENCE		**$**	**23,000**
GUARDRAIL		**$**	**0**
RIP RAP OR SLOPE PROTECTION		**$**	**0**
OTHER CONST. ITEMS (15%)		**$**	**45,000**
MOBILIZATION		**$**	**17,000**
	CONSTRUCTION COST	**$**	**360,000**
	10% ENG. & CONT.	**$**	**36,000**
	TOTAL CONSTRUCTION COST	**$**	**396,000**
	10% PRELIMINARY ENGINEERING	**$**	**40,000**
	TOTAL COST *	**$**	**436,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 3.2

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Replace Mill Creek Bridge and add guardrail with appropriate safety end treatments**
County:	**Sullivan**
Length:	**1,100 feet = 0.208 miles**
Date:	**3/19/2010**

RIGHT OF WAY

Land	**0.12**	**Acres**	**x**	**$15,000**	**= $**	**2,000**
Incidentals	**4**	**Tracts**	**x**	**$10,000**	**= $**	**40,000**
Relocations	**0**	**Residences**	**x**	**$250,000**	**= $**	**0**
		Businesses	**x**	**$500,000**	**= $**	**0**
		Non-Profits	**x**		**= $**	**0**
	RIGHT OF WAY COST				**$**	**42,000**

UTILITY RELOCATION

Reimbursable	**$**	**25,000**
Non-reimbursable	**$**	**0**
UTILITY COST	**$**	**25,000**

TOTAL CONSTRUCTION COST	**$**	**474,000**
TOTAL PROJECT COST *	**$**	**541,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 3.2

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Replace Mill Creek Bridge and add guardrail with appropriate safety end treatments**
County:	**Sullivan**
Length:	**1,100 feet = 0.208 miles**
Date:	**3/19/2010**

CLEAR AND GRUBBING		**$**	**1,000**
EARTHWORK		**$**	**5,000**
PAVEMENT REMOVAL		**$**	**2,000**
DRAINAGE		**$**	**0**
STRUCTURES		**$**	**235,000**
RAILROAD CROSSING OR SEPARATION		**$**	**0**
PAVING	(1.25"Sur+4.0"AspBase+4.0"AggBase)	**$**	**15,000**
RETAINING WALLS		**$**	**0**
MAINTENANCE OF TRAFFIC		**$**	**26,000**
TOPSOIL		**$**	**1,000**
SEEDING		**$**	**1,000**
SODDING		**$**	**0**
SIGNING		**$**	**0**
LIGHTING		**$**	**0**
SIGNALIZATION		**$**	**0**
FENCE		**$**	**0**
GUARDRAIL		**$**	**38,000**
RIP RAP OR SLOPE PROTECTION		**$**	**0**
OTHER CONST. ITEMS (15%)		**$**	**49,000**
MOBILIZATION		**$**	**19,000**
	CONSTRUCTION COST	**$**	**392,000**
	10% ENG. & CONT.	**$**	**39,000**
	TOTAL CONSTRUCTION COST	**$**	**431,000**
	10% PRELIMINARY ENGINEERING	**$**	**43,000**
	TOTAL COST *	**$**	**474,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 3.3

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Improve intersection of Poplar Grove Road with Mill Creek Road. Flatten slopes and extend 10 x 6 box**
County:	**Sullivan**
Length:	**1080 feet = 0.205 miles**
Date:	**3/19/2010**

RIGHT OF WAY

Land	**1.05**	**Acres**	**x**	**$15,000**	**= $**	**16,000**
Incidentals	**4**	**Tracts**	**x**	**$10,000**	**= $**	**40,000**
Relocations	**0**	**Residences**	**x**	**$250,000**	**= $**	**0**
		Businesses	**x**	**$500,000**	**= $**	**0**
		Non-Profits	**x**		**= $**	**0**
	RIGHT OF WAY COST				**$**	**56,000**

UTILITY RELOCATION

Reimbursable	**$**	**103,000**
Non-reimbursable	**$**	**0**
UTILITY COST	**$**	**103,000**

TOTAL CONSTRUCTION COST	**$**	**202,000**
TOTAL PROJECT COST *	**$**	**361,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 3.3

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Improve intersection of Poplar Grove Road with Mill Creek Road. Flatten slopes and extend 10 x 6 box**
County:	**Sullivan**
Length:	**1080 feet = 0.205 miles**
Date:	**3/19/2010**

CLEAR AND GRUBBING		**$**	**1,000**
EARTHWORK		**$**	**31,000**
PAVEMENT REMOVAL		**$**	**0**
DRAINAGE		**$**	**59,000**
STRUCTURES		**$**	**0**
RAILROAD CROSSING OR SEPARATION		**$**	**0**
PAVING	(1.25"Sur+4.0"AspBase+4.0"AggBase)	**$**	**12,000**
RETAINING WALLS		**$**	**0**
MAINTENANCE OF TRAFFIC		**$**	**12,000**
TOPSOIL		**$**	**5,000**
SEEDING		**$**	**2,000**
SODDING		**$**	**0**
SIGNING		**$**	**3,000**
LIGHTING		**$**	**0**
SIGNALIZATION		**$**	**0**
FENCE		**$**	**13,000**
GUARDRAIL		**$**	**0**
RIP RAP OR SLOPE PROTECTION		**$**	**0**
OTHER CONST. ITEMS (15%)		**$**	**21,000**
MOBILIZATION		**$**	**8,000**
	CONSTRUCTION COST	**$**	**167,000**
	10% ENG. & CONT.	**$**	**17,000**
	TOTAL CONSTRUCTION COST	**$**	**184,000**
	10% PRELIMINARY ENGINEERING	**$**	**18,000**
	TOTAL COST *	**$**	**202,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 3.4

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Realign curvy section of Rock Springs Drive at intersection with Kanan Drive.**
County:	**Sullivan**
Length:	**475 feet = 0.090 miles**
Date:	**3/19/2010**

RIGHT OF WAY

Land	**0.43**	**Acres**	**x**	**$15,000**	**= $**	**6,000**
Incidentals	**6**	**Tracts**	**x**	**$10,000**	**= $**	**60,000**
Relocations	**0**	**Residences**	**x**	**$250,000**	**= $**	**0**
		Businesses	**x**	**$500,000**	**= $**	**0**
		Non-Profits	**x**		**= $**	**0**
	RIGHT OF WAY COST				**$**	**66,000**

UTILITY RELOCATION

Reimbursable	**$**	**45,000**
Non-reimbursable	**$**	**0**
UTILITY COST	**$**	**45,000**
TOTAL CONSTRUCTION COST	**$**	**197,000**
TOTAL PROJECT COST *	**$**	**308,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 3.4

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Realign curvy section of Rock Springs Drive at intersection with Kanan Drive.**
County:	**Sullivan**
Length:	**475 feet = 0.090 miles**
Date:	**3/19/2010**

CLEAR AND GRUBBING		**$**	**1,000**
EARTHWORK		**$**	**36,000**
PAVEMENT REMOVAL		**$**	**6,000**
DRAINAGE		**$**	**7,000**
STRUCTURES		**$**	**0**
RAILROAD CROSSING OR SEPARATION		**$**	**0**
PAVING	(1.25"Sur+4.0"AspBase+4.0"AggBase)	**$**	**56,000**
RETAINING WALLS		**$**	**0**
MAINTENANCE OF TRAFFIC		**$**	**15,000**
TOPSOIL		**$**	**3,000**
SEEDING		**$**	**1,000**
SODDING		**$**	**0**
SIGNING		**$**	**7,000**
LIGHTING		**$**	**0**
SIGNALIZATION		**$**	**0**
FENCE		**$**	**3,000**
GUARDRAIL		**$**	**0**
RIP RAP OR SLOPE PROTECTION		**$**	**0**
OTHER CONST. ITEMS (15%)		**$**	**20,000**
MOBILIZATION		**$**	**8,000**
	CONSTRUCTION COST	**$**	**163,000**
	10% ENG. & CONT.	**$**	**16,000**
	TOTAL CONSTRUCTION COST	**$**	**179,000**
	10% PRELIMINARY ENGINEERING	**$**	**18,000**
	TOTAL COST *	**$**	**197,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 3.5

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Flatten Curve on Poplar Grove Road at intersection with Rock Springs Valley Drive.**
County:	**Sullivan**
Length:	**450 feet = 0.085 miles**
Date:	**3/19/2010**

RIGHT OF WAY

Land	**0.63**	**Acres**	**x**	**$15,000**	**= $**	**9,000**
Incidentals	**6**	**Tracts**	**x**	**$10,000**	**= $**	**60,000**
Relocations	**2**	**Residences**	**x**	**$250,000**	**= $**	**500,000**
		Businesses	**x**	**$500,000**	**= $**	**0**
		Non-Profits	**x**		**= $**	**0**
	RIGHT OF WAY COST				**$**	**569,000**

UTILITY RELOCATION

Reimbursable	**$**	**43,000**
Non-reimbursable	**$**	**0**
UTILITY COST	**$**	**43,000**

TOTAL CONSTRUCTION COST	**$**	**212,000**
TOTAL PROJECT COST *	**$**	**824,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 3.5

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Flatten Curve on Poplar Grove Road at intersection with Rock Springs Valley Drive.**
County:	**Sullivan**
Length:	**450 feet = 0.085 miles**
Date:	**3/19/2010**

CLEAR AND GRUBBING		**$**	**1,000**
EARTHWORK		**$**	**59,000**
PAVEMENT REMOVAL		**$**	**5,000**
DRAINAGE		**$**	**8,000**
STRUCTURES		**$**	**0**
RAILROAD CROSSING OR SEPARATION		**$**	**0**
PAVING	(1.25"Sur+4.0"AspBase+4.0"AggBase)	**$**	**55,000**
RETAINING WALLS		**$**	**0**
MAINTENANCE OF TRAFFIC		**$**	**11,000**
TOPSOIL		**$**	**2,000**
SEEDING		**$**	**1,000**
SODDING		**$**	**0**
SIGNING		**$**	**3,000**
LIGHTING		**$**	**0**
SIGNALIZATION		**$**	**0**
FENCE		**$**	**0**
GUARDRAIL		**$**	**0**
RIP RAP OR SLOPE PROTECTION		**$**	**0**
OTHER CONST. ITEMS (15%)		**$**	**22,000**
MOBILIZATION		**$**	**8,000**
	CONSTRUCTION COST	**$**	**175,000**
	10% ENG. & CONT.	**$**	**18,000**
	TOTAL CONSTRUCTION COST	**$**	**193,000**
	10% PRELIMINARY ENGINEERING	**$**	**19,000**
	TOTAL COST *	**$**	**212,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 3.6

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Realign curvy section of Poplar Grove Road**
	near Old Bell Hollow Road.
County:	**Sullivan**
Length:	**890 feet = 0.169 miles**
Date:	**3/19/2010**

RIGHT OF WAY

Land	**3.35**	**Acres**	**x**	**$15,000**	**= $**	**50,000**
Incidentals	**8**	**Tracts**	**x**	**$10,000**	**= $**	**80,000**
Relocations	**0**	**Residences**	**x**	**$250,000**	**= $**	**0**
		Businesses	**x**	**$500,000**	**= $**	**0**
		Non-Profits	**x**		**= $**	**0**
	RIGHT OF WAY COST				**$**	**130,000**

UTILITY RELOCATION

Reimbursable	**$**	**85,000**
Non-reimbursable	**$**	**0**
UTILITY COST	**$**	**85,000**

TOTAL CONSTRUCTION COST	**$**	**779,000**
TOTAL PROJECT COST *	**$**	**994,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 3.6

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Realign curvy section of Poplar Grove Road**
	near Old Bell Hollow Road.
County:	**Sullivan**
Length:	**890 feet = 0.169 miles**
Date:	**3/19/2010**

CLEAR AND GRUBBING		**$**	**7,000**
EARTHWORK		**$**	**356,000**
PAVEMENT REMOVAL		**$**	**8,000**
DRAINAGE		**$**	**16,000**
STRUCTURES		**$**	**0**
RAILROAD CROSSING OR SEPARATION		**$**	**0**
PAVING	(1.25"Sur+4.0"AspBase+4.0"AggBase)	**$**	**89,000**
RETAINING WALLS		**$**	**0**
MAINTENANCE OF TRAFFIC		**$**	**20,000**
TOPSOIL		**$**	**11,000**
SEEDING		**$**	**3,000**
SODDING		**$**	**0**
SIGNING		**$**	**3,000**
LIGHTING		**$**	**0**
SIGNALIZATION		**$**	**0**
FENCE		**$**	**0**
GUARDRAIL		**$**	**20,000**
RIP RAP OR SLOPE PROTECTION		**$**	**0**
OTHER CONST. ITEMS (15%)		**$**	**80,000**
MOBILIZATION		**$**	**31,000**
	CONSTRUCTION COST	**$**	**644,000**
	10% ENG. & CONT.	**$**	**64,000**
	TOTAL CONSTRUCTION COST	**$**	**708,000**
	10% PRELIMINARY ENGINEERING	**$**	**71,000**
	TOTAL COST *	**$**	**779,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 3.7

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Flatten Curve on Poplar Grove Road near the Poplar Grove Primitive Baptist Church.**
County:	**Sullivan**
Length:	**525 feet = 0.099 miles**
Date:	**3/19/2010**

RIGHT OF WAY

Land	**0.25**	**Acres**	**x**	**$15,000**	**= $**	**4,000**
Incidentals	**5**	**Tracts**	**x**	**$10,000**	**= $**	**50,000**
Relocations	**0**	**Residences**	**x**	**$250,000**	**= $**	**0**
		Businesses	**x**	**$500,000**	**= $**	**0**
		Non-Profits	**x**		**= $**	**0**
	RIGHT OF WAY COST				**$**	**54,000**

UTILITY RELOCATION

Reimbursable	**$**	**50,000**
Non-reimbursable	**$**	**0**
UTILITY COST	**$**	**50,000**

TOTAL CONSTRUCTION COST	**$**	**161,000**
TOTAL PROJECT COST *	**$**	**265,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 3.7

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Flatten Curve on Poplar Grove Road near the Poplar Grove Primitive Baptist Church.**
County:	**Sullivan**
Length:	**525 feet = 0.099 miles**
Date:	**3/19/2010**

CLEAR AND GRUBBING		**$**	**1,000**
EARTHWORK		**$**	**23,000**
PAVEMENT REMOVAL		**$**	**6,000**
DRAINAGE		**$**	**8,000**
STRUCTURES		**$**	**0**
RAILROAD CROSSING OR SEPARATION		**$**	**0**
PAVING	(1.25"Sur+4.0"AspBase+4.0"AggBase)	**$**	**55,000**
RETAINING WALLS		**$**	**0**
MAINTENANCE OF TRAFFIC		**$**	**9,000**
TOPSOIL		**$**	**2,000**
SEEDING		**$**	**1,000**
SODDING		**$**	**0**
SIGNING		**$**	**0**
LIGHTING		**$**	**0**
SIGNALIZATION		**$**	**0**
FENCE		**$**	**5,000**
GUARDRAIL		**$**	**0**
RIP RAP OR SLOPE PROTECTION		**$**	**0**
OTHER CONST. ITEMS (15%)		**$**	**17,000**
MOBILIZATION		**$**	**6,000**
	CONSTRUCTION COST	**$**	**133,000**
	10% ENG. & CONT.	**$**	**13,000**
	TOTAL CONSTRUCTION COST	**$**	**146,000**
	10% PRELIMINARY ENGINEERING	**$**	**15,000**
	TOTAL COST *	**$**	**161,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 3.8

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Flatten Curve on Poplar Grove Road at intersection with Twin Hill Road.**
County:	**Sullivan**
Length:	**575 feet = 0.109 miles**
Date:	**3/19/2010**

RIGHT OF WAY

Land	**1.51**	**Acres**	**x**	**$15,000**	**= $**	**23,000**
Incidentals	**8**	**Tracts**	**x**	**$10,000**	**= $**	**80,000**
Relocations	**1**	**Residences**	**x**	**$250,000**	**= $**	**250,000**
		Businesses	**x**	**$500,000**	**= $**	**0**
		Non-Profits	**x**		**= $**	**0**
	RIGHT OF WAY COST				**$**	**353,000**

UTILITY RELOCATION

Reimbursable	**$**	**55,000**
Non-reimbursable	**$**	**0**
UTILITY COST	**$**	**55,000**

TOTAL CONSTRUCTION COST	**$**	**603,000**
TOTAL PROJECT COST *	**$**	**1,011,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 3.8

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Flatten Curve on Poplar Grove Road at intersection with Twin Hill Road.**
County:	**Sullivan**
Length:	**575 feet = 0.109 miles**
Date:	**3/19/2010**

CLEAR AND GRUBBING		**$**	**4,000**
EARTHWORK		**$**	**299,000**
PAVEMENT REMOVAL		**$**	**6,000**
DRAINAGE		**$**	**8,000**
STRUCTURES		**$**	**0**
RAILROAD CROSSING OR SEPARATION		**$**	**0**
PAVING	(1.25"Sur+4.0"AspBase+4.0"AggBase)	**$**	**67,000**
RETAINING WALLS		**$**	**0**
MAINTENANCE OF TRAFFIC		**$**	**15,000**
TOPSOIL		**$**	**8,000**
SEEDING		**$**	**2,000**
SODDING		**$**	**0**
SIGNING		**$**	**3,000**
LIGHTING		**$**	**0**
SIGNALIZATION		**$**	**0**
FENCE		**$**	**0**
GUARDRAIL		**$**	**0**
RIP RAP OR SLOPE PROTECTION		**$**	**0**
OTHER CONST. ITEMS (15%)		**$**	**62,000**
MOBILIZATION		**$**	**24,000**
	CONSTRUCTION COST	**$**	**498,000**
	10% ENG. & CONT.	**$**	**50,000**
	TOTAL CONSTRUCTION COST	**$**	**548,000**
	10% PRELIMINARY ENGINEERING	**$**	**55,000**
	TOTAL COST *	**$**	**603,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 3.9

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Flatten curve on Rock Springs Drive by Riding Center**
County:	**Sullivan**
Length:	**203 feet = 0.038 miles**
Date:	**3/19/2010**

RIGHT OF WAY

Land	**0.17**	**Acres**	**x**	**$15,000**	**= $**	**3,000**
Incidentals	**3**	**Tracts**	**x**	**$10,000**	**= $**	**30,000**
Relocations	**0**	**Residences**	**x**	**$250,000**	**= $**	**0**
		Businesses	**x**	**$500,000**	**= $**	**0**
		Non-Profits	**x**		**= $**	**0**
	RIGHT OF WAY COST				**$**	**33,000**

UTILITY RELOCATION

Reimbursable	**$**	**19,000**
Non-reimbursable	**$**	**0**
UTILITY COST	**$**	**19,000**
TOTAL CONSTRUCTION COST	**$**	**77,000**
TOTAL PROJECT COST *	**$**	**129,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 3.9

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Flatten curve on Rock Springs Drive by Riding Center**
County:	**Sullivan**
Length:	**203 feet = 0.038 miles**
Date:	**3/19/2010**

CLEAR AND GRUBBING		**$**	**1,000**
EARTHWORK		**$**	**13,000**
PAVEMENT REMOVAL		**$**	**2,000**
DRAINAGE		**$**	**8,000**
STRUCTURES		**$**	**0**
RAILROAD CROSSING OR SEPARATION		**$**	**0**
PAVING	(1.25"Sur+4.0"AspBase+4.0"AggBase)	**$**	**20,000**
RETAINING WALLS		**$**	**0**
MAINTENANCE OF TRAFFIC		**$**	**4,000**
TOPSOIL		**$**	**1,000**
SEEDING		**$**	**1,000**
SODDING		**$**	**0**
SIGNING		**$**	**0**
LIGHTING		**$**	**0**
SIGNALIZATION		**$**	**0**
FENCE		**$**	**3,000**
GUARDRAIL		**$**	**0**
RIP RAP OR SLOPE PROTECTION		**$**	**0**
OTHER CONST. ITEMS (15%)		**$**	**8,000**
MOBILIZATION		**$**	**3,000**
	CONSTRUCTION COST	**$**	**64,000**
	10% ENG. & CONT.	**$**	**6,000**
	TOTAL CONSTRUCTION COST	**$**	**70,000**
	10% PRELIMINARY ENGINEERING	**$**	**7,000**
	TOTAL COST *	**$**	**77,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 4.1a

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Reconstruct Rock Springs Road offset towards stream**
	with 5 lanes, 8' shoulders and curb & gutter
County:	**Sullivan**
Length:	**6,500 LF = 1.23 Miles**
Date:	**3/19/2010**

RIGHT OF WAY

Land	**11.62**	**Acres**	**x**	**$50,000**	**= $**	**581,000**
Incidentals	**43**	**Tracts**	**x**	**$10,000**	**= $**	**430,000**
Relocations	**20**	**Residences**	**x**	**$250,000**	**= $**	**5,000,000**
	2	**Businesses**	**x**	**$500,000**	**= $**	**1,000,000**
		Non-Profits	**x**		**= $**	**0**
	RIGHT OF WAY COST				**$**	**7,011,000**

UTILITY RELOCATION

Reimbursable	**$**	**1,230,000**
Non-reimbursable	**$**	**0**
UTILITY COST	**$**	**1,230,000**
TOTAL CONSTRUCTION COST	**$**	**7,301,000**
TOTAL PROJECT COST *	**$**	**15,542,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 4.1a

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Reconstruct Rock Springs Road offset towards hillside with 5 lanes, 8' shoulders and curb & gutter**
County:	**Sullivan**
Length:	**6,500 LF = 1.23 Miles**
Date:	**3/18/2010**

CLEAR AND GRUBBING		**$**	**21,000**
EARTHWORK		**$**	**1,980,000**
PAVEMENT REMOVAL		**$**	**59,000**
DRAINAGE		**$**	**381,000**
STRUCTURES		**$**	**0**
RAILROAD CROSSING OR SEPARATION		**$**	**0**
PAVING	(1.25"Sur+5.0"AspBase+8.0"AggBase)	**$**	**2,020,000**
RETAINING WALLS		**$**	**174,000**
MAINTENANCE OF TRAFFIC		**$**	**200,000**
TOPSOIL		**$**	**27,000**
SEEDING		**$**	**5,000**
SODDING		**$**	**3,000**
SIGNING	(6 intersections)	**$**	**24,000**
LIGHTING		**$**	**88,000**
SIGNALIZATION		**$**	**0**
FENCE		**$**	**5,000**
GUARDRAIL		**$**	**10,000**
RIP RAP OR SLOPE PROTECTION		**$**	**0**
OTHER CONST. ITEMS (15%)		**$**	**750,000**
MOBILIZATION		**$**	**287,000**
	CONSTRUCTION COST	**$**	**6,034,000**
	10% ENG. & CONT.	**$**	**603,000**
	TOTAL CONSTRUCTION COST	**$**	**6,637,000**
	10% PRELIMINARY ENGINEERING	**$**	**664,000**
	TOTAL COST *	**$**	**7,301,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 4.1b

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Reconstruct Rock Springs Road offset towards stream**
	with 3 lanes, 8' shoulders and curb & gutter
County:	**Sullivan**
Length:	**6,500 LF = 1.23 Miles**
Date:	**3/19/2010**

RIGHT OF WAY

Land	**7.45**	**Acres**	**x**	**$50,000**	**= $**	**373,000**
Incidentals	**39**	**Tracts**	**x**	**$10,000**	**= $**	**390,000**
Relocations	**20**	**Residences**	**x**	**$250,000**	**= $**	**5,000,000**
	1	**Businesses**	**x**	**$500,000**	**= $**	**500,000**
		Non-Profits	**x**		**= $**	**0**
	RIGHT OF WAY COST				**$**	**6,263,000**

UTILITY RELOCATION

Reimbursable	**$**	**1,230,000**
Non-reimbursable	**$**	**0**
UTILITY COST	**$**	**1,230,000**
TOTAL CONSTRUCTION COST	**$**	**5,095,000**
TOTAL PROJECT COST *	**$**	**12,588,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 4.1b

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Reconstruct Rock Springs Road offset towards hillside with 3 lanes, 8' shoulders and curb & gutter**
County:	**Sullivan**
Length:	**6,500 LF = 1.23 Miles**
Date:	**3/18/2010**

CLEAR AND GRUBBING		**$**	**13,000**
EARTHWORK		**$**	**990,000**
PAVEMENT REMOVAL		**$**	**59,000**
DRAINAGE		**$**	**355,000**
STRUCTURES		**$**	**0**
RAILROAD CROSSING OR SEPARATION		**$**	**0**
PAVING	(1.25"Sur+5.0"AspBase+8.0"AggBase)	**$**	**1,549,000**
RETAINING WALLS		**$**	**174,000**
MAINTENANCE OF TRAFFIC		**$**	**188,000**
TOPSOIL		**$**	**27,000**
SEEDING		**$**	**2,000**
SODDING		**$**	**3,000**
SIGNING	(6 intersections)	**$**	**24,000**
LIGHTING		**$**	**88,000**
SIGNALIZATION		**$**	**0**
FENCE		**$**	**5,000**
GUARDRAIL		**$**	**10,000**
RIP RAP OR SLOPE PROTECTION		**$**	**0**
OTHER CONST. ITEMS (15%)		**$**	**523,000**
MOBILIZATION		**$**	**201,000**
	CONSTRUCTION COST	**$**	**4,211,000**
	10% ENG. & CONT.	**$**	**421,000**
	TOTAL CONSTRUCTION COST	**$**	**4,632,000**
	10% PRELIMINARY ENGINEERING	**$**	**463,000**
	TOTAL COST *	**$**	**5,095,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 4.2

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Reconstruct Mill Creek Road from Horse Creek Bridge**
	to Poplar Grove Road with 2-11' lanes & 8' shoulders
County:	**Sullivan**
Length:	**3,100 LF = 0.587 Miles**
Date:	**3/25/2010**

RIGHT OF WAY

Land	**2.41**	**Acres**	**x**	**$15,000**	**= $**	**36,000**
Incidentals	**18**	**Tracts**	**x**	**$10,000**	**= $**	**180,000**
Relocations	**0**	**Residences**	**x**	**$250,000**	**= $**	**0**
		Businesses	**x**	**$500,000**	**= $**	**0**
		Non-Profits	**x**		**= $**	**0**
	RIGHT OF WAY COST				**$**	**216,000**

UTILITY RELOCATION

Reimbursable	**$**	**294,000**
Non-reimbursable	**$**	**0**
UTILITY COST	**$**	**294,000**

TOTAL CONSTRUCTION COST	**$**	**1,403,000**
TOTAL PROJECT COST *	**$**	**1,913,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 4.2

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Reconstruct Mill Creek Road from Horse Creek Bridge to Poplar Grove Road with 2-11' lanes & 8' shoulders**
County:	**Sullivan**
Length:	**3,100 LF = 0.587 Miles**
Date:	**3/18/2010**

CLEAR AND GRUBBING		**$**	**5,000**
EARTHWORK		**$**	**154,000**
PAVEMENT REMOVAL		**$**	**28,000**
DRAINAGE		**$**	**130,000**
STRUCTURES		**$**	**235,000**
RAILROAD CROSSING OR SEPARATION		**$**	**0**
PAVING	(1.25"Sur+4.0"AspBase+4.0"AggBase)	**$**	**311,000**
RETAINING WALLS		**$**	**0**
MAINTENANCE OF TRAFFIC		**$**	**67,000**
TOPSOIL		**$**	**6,000**
SEEDING		**$**	**2,000**
SODDING		**$**	**0**
SIGNING	(1 intersection)	**$**	**5,000**
LIGHTING		**$**	**0**
SIGNALIZATION		**$**	**0**
FENCE		**$**	**0**
GUARDRAIL		**$**	**17,000**
RIP RAP OR SLOPE PROTECTION		**$**	**0**
OTHER CONST. ITEMS (15%)		**$**	**144,000**
MOBILIZATION		**$**	**55,000**
	CONSTRUCTION COST	**$**	**1,159,000**
	10% ENG. & CONT.	**$**	**116,000**
	TOTAL CONSTRUCTION COST	**$**	**1,275,000**
	10% PRELIMINARY ENGINEERING	**$**	**128,000**
	TOTAL COST *	**$**	**1,403,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 4.3

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Reconstruct Poplar Grove Road & Rock Springs Drive**
	with 2-11' lanes & 8' shoulders
County:	**Sullivan**
Length:	**12,565 LF = 2.38 Miles**
Date:	**3/26/2010**

RIGHT OF WAY

Land	**14.36**	**Acres**	**x**	**$15,000**	**= $**	**215,000**
Incidentals	**108**	**Tracts**	**x**	**$10,000**	**= $**	**1,080,000**
Relocations	**3**	**Residences**	**x**	**$250,000**	**= $**	**750,000**
		Businesses	**x**	**$500,000**	**= $**	**0**
		Non-Profits	**x**		**= $**	**0**
	RIGHT OF WAY COST				**$**	**2,045,000**

UTILITY RELOCATION

Reimbursable	**$**	**1,190,000**
Non-reimbursable	**$**	**0**
UTILITY COST	**$**	**1,190,000**
TOTAL CONSTRUCTION COST	**$**	**5,601,000**
TOTAL PROJECT COST *	**$**	**8,836,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Option 4.3

Route:	**SR 347 From SR 93 to Interstate 26 in Kingsport, TN**
Description:	**Reconstruct Poplar Grove Road & Rock Springs Drive with 2-11' lanes & 8' shoulders**
County:	**Sullivan**
Length:	**12,565 LF = 2.38 Miles**
Date:	**3/18/2010**

CLEAR AND GRUBBING		**$**	**28,000**
EARTHWORK		**$**	**1,268,000**
PAVEMENT REMOVAL		**$**	**114,000**
DRAINAGE		**$**	**682,000**
STRUCTURES		**$**	**0**
RAILROAD CROSSING OR SEPARATION		**$**	**0**
PAVING	(1.25"Sur+4.0"AspBase+4.0"AggBase)	**$**	**1,261,000**
RETAINING WALLS		**$**	**0**
MAINTENANCE OF TRAFFIC		**$**	**250,000**
TOPSOIL		**$**	**71,000**
SEEDING		**$**	**18,000**
SODDING		**$**	**0**
SIGNING	(10 intersections)	**$**	**40,000**
LIGHTING		**$**	**0**
SIGNALIZATION		**$**	**0**
FENCE		**$**	**102,000**
GUARDRAIL		**$**	**0**
RIP RAP OR SLOPE PROTECTION		**$**	**0**
OTHER CONST. ITEMS (15%)		**$**	**575,000**
MOBILIZATION		**$**	**220,000**
	CONSTRUCTION COST	**$**	**4,629,000**
	10% ENG. & CONT.	**$**	**463,000**
	TOTAL CONSTRUCTION COST	**$**	**5,092,000**
	10% PRELIMINARY ENGINEERING	**$**	**509,000**
	TOTAL COST *	**$**	**5,601,000**

**** For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.***

Tennessee Department of Transportation
EARLY ENVIRONMENTAL SCREENING PROCESS (EES)
PROJECT SCORING

Project Score Factors

	Total Impacts Evaluated	Total Impacts to Evaluate	EES Evaluation
Project Impact Areas:	15	15	Complete
Date of Evaluation:	August 26, 2009		
Evaluation done by:	Gena J. Gilliam		
	Transportation Planner 3		
County:	Sullivan		
Route:	State Route 347		
PIN:	112965.00		
Termini:	from State Route 93 to Interstate 26		

Impact Ranking of Features Evaluated:	**Total by Rank**
Features with No Impact	**12**
Cemetery Sites & Cemetery Properties	
National Register Sites	
Bat	
Terrestrial Species	
Aquatic Species	
TDEC Conservation Sites & TDEC Scenic Waterways	
Superfund Sites	
Caves	
Railroads	
Tennessee Natural Areas Program	
Wildlife Management Areas	
TWRA Lakes & Other Public Lands	
Features with Low Impact	**1**

Pyritic Rock

Features with Moderate Impact	**0**

Features with Substantial Impact	**1**

Large Wetland Impacts

Community Impacts Present:

Institutions:

Church

Populations:

No population present

Linguistically isolated populations

Populations below poverty - State average- 13%

EES Project Impact:	**Complete**

Impacts Evaluated Within 1,000 Ft of Study Area

CEMETERY SITES & CEMETERY PROPERTIES

Impact

Project Impact (Environmental, Time, Cost, Design, and Maintenance)	☑ **None** - No impact on the project as there are no known cemetery sites within or abutting the project study area or corridor. It is anticipated that a 'normal' effort to complete this environmental review as part of NEPA.

INSTITUTIONS & SENSITIVE COMMUNITY POPULATIONS

Sensitive Populations Project Impact:	**Present**	**Not Present**
Institutions:		
Hospital	☐	☑
School	☐	☑
Church	☑	☐
Public Building	☐	☑
Populations:		
No population present	☑	☐
65 and older populations	☐	☑
Disability populations	☐	☑
Households without a vehicle	☐	☑
Minority populations 24%	☐	☑
Linguistically isolated populations	☑	☐

Populations below poverty - State average - 13%	☑	☐
Populations below poverty - State average - 27%	☐	☑

BAT

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	☑ **None** – No project impact is anticipated. There is no occurrence of Indiana or gray bats within 4 miles of the proposed project study area or corridor.

RAILROADS

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	☑ **None** – No impact on the project is anticipated. There are no railroads located within the project study area or corridor.

Impacts Evaluated Within 2,000 Ft of Study Area

NATIONAL REGISTER SITES

Impact

Project Impact (Environmental, Time, Cost, Design, and Maintenance)	☑ **None** – No project impact is anticipated as there are no National Register listed properties abutting or within the project study area or corridor.

SUPERFUND SITES

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	☑ **None** – No project impact is anticipated as there are no known contaminated land tracts abutting or within the project study area or corridor.

PYRITIC ROCK

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	☑ **Low** – Small project impact is anticipated. Pyritic rock (symbolized as yellow) has low probability to occur in the study area/corridor or the project does not involve excavation.

TWRA LAKES & OTHER PUBLIC LANDS

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	☑ **None** – No impact on the project is anticipated as there area no parks located within or abutting the project study area or corridor.

Impacts Evaluated Within 4,000 Ft of Study Area

TERRESTRIAL SPECIES

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	☑ **None** - No impact to the project is anticipated. There is no known occurrence of a rare, state, or federally-protected terrestrial species within the proposed transportation study area or corridor.

TDEC CONSERVATION SITES & TDEC SCENIC WATERWAYS

Impact

Project Impact (Environment, Time, Cost, Design, Maintenance)	☑ **None** – No project impact is expected as there are no scenic waterways or TDEC Conservation Sites within project study area or corridor.

LARGE WETLAND IMPACTS

Impact

Project Impact (Environment, Time, Cost, Design, Maintenance)	☑ **Substantial** – Regions 1, 2, and 3: A substantial impact to the project is probable as there is greater than 2 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.

TENNESSEE NATURAL AREAS PROGRAM

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	☑ **None** – No impact on the project is anticipated as the project study area or corridor does not include a Natural Area.

WILDLIFE MANAGEMENT AREAS

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	☑ **None** – No project impact is anticipated as a WMA does not abut nor is located within the project study area or corridor.

Impacts Evaluated Within 10,000 Ft of Study Area

AQUATIC SPECIES

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	☑ **None** - No impact to the project is anticipated. There is no known occurrence of a rare, state, or federally-protected aquatic species within the project study area or corridor.

CAVES

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	☑ **None** – No project impact is anticipated as there are no caves in the project study area or corridor.

EES Report

PIN 112965.00

1,000 Foot Corridor

Study Line ID:

Version Date: June 16, 2009

Created by: CHARLES GILLIHAN

Cemetery Sites & Cemetery Properties

Cemeteries	None were found
Cemetery Property	None were found

Institutions & Sensitive Community Populations

Institutions	None were found
Populations:	
No population present	None were found
65 & older populations	None were found
Disability populations	None were found
Households without a vehicle	None were found
Minority populuations 24%	None were found
Linguistically isolated populations	None were found
Populations below poverty-State average-13%	None were found
Populations below poverty-State average-27%	None were found

Bat

None were found

Railroads

None were found

EES Report

PIN 112965.00

2,000 Foot Corridor

Study Line ID:

Version Date: June 16, 2009

Created by: CHARLES GILLIHAN

National Register Sites	None were found
Superfund Sites	None were found
Pyritic Rock	None were found
TWRA Lakes & Other Public Lands	
TWRA Lakes	None were found
Other Public Lands	None were found

EES Report

PIN 112965.00

4,000 Foot Corridor

Study Line ID:

Version Date: June 16, 2009

Created by: CHARLES GILLIHAN

Terrestrial Species	None were found
TDEC Conservation Sites & TDEC Scenic Waterways	
TDEC Conservation Sites	None were found
TDEC Scenic Waterways	None were found
Large Wetland Impacts	None were found
Tennessee Natural Areas Program	None were found
Wildlife Management Areas	None were found

EES Report

PIN	112965.00	Option:	112965_8201V01
10,000 Foot Corridor		Version Date:	June 17, 2009
		Created by:	CHARLES GILLIHAN

Aquatic Species	None were found
Caves	None were found

APPENDIX B

TENNESSEE DEPARTMENT OF TRANSPORTATION
PROJECT PLANNING DIVISION

PROJECT NO.: _____ ROUTE: SR 347
COUNTY: SULLIVAN CITY: KINGSPORT
PROJECT PIN NUMBER: _____
PROJECT DESCRIPTION: From: SR 347 interchange on I-26
To : SR 347 intersection with SR 93
(1) SR 347
(2) SR 93

DIVISION REQUESTING:

		PAVEMENT DESIGN	☐
MAINTENANCE	☐	STRUCTURES	☐
PLANNING	☐	SURVEY & DESIGN	☐
PROG. DEVELOPMENT & ADM.	☐	TRAFFIC SIGNAL DESIGN	☐
PUBLIC TRANS. & AERO.	☐	OTHER _____	☐

YEAR PROJECT PROGRAMMED FOR CONSTRUCTION: _____
PROJECTED LETTING DATE: _____

TRAFFIC ASSIGNMENT:

	BASE YEAR		2034 DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
	AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
1	11,300	2014	13,700	1,330	10	2034	60-40	1	2		
2	11,300	2014	16,800	1,630	10	2034	65-35	2	3		

REQUESTED BY: NAME _____ DATE _____
DIVISION _____
ADDRESS _____
_____

REVIEWED BY: TONY ARMSTRONG _____ DATE _____
TRANSPORTATION MANAGER 1
SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: BILL HART _____ DATE _____
TRANSPORTATION MANAGER 2
SUITE 1000, JAMES K. POLK BUILDING

COMMENTS:

Traffic based on count stations 127,128, 190, 28, 29, Ramp 52, Ramp 53, Ramp 54, and Ramp 55, growth trends within the limits of the project, and provided model data.

DHV'S ARE NOT REQUIRED FOR SIDE ROADS LESS THAN 1000 AADT.

NOTE: FOR BRIDGE REPLACEMENT PROJECTS, ADLs ARE NOT REQUIRED FOR AADT's OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.
SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS. (REV. 9/20/07)

Traffic Forecast
SR 347
Sullivan County, Tennessee

Prepared for:

Tennessee Department of Transportation (TDOT)

Prepared by:

Palmer Engineering

September 2009

Introduction

The purpose of this document is to summarize the steps taken by Palmer Engineering to prepare the traffic forecast for the SR 347/I-26 and SR 347/SR 93 intersections in Sullivan County, Tennessee for the Tennessee Department of Transportation (TDOT). The study area begins at the SR 347 interchange on I-26 and extends along SR 347 for approximately 6 miles to SR 93. Figure 1 shows the study corridor.

This report includes the Average Daily Traffic (ADT) and Design Hourly Volumes (DHV) forecast for the base year 2014 and future year 2034.

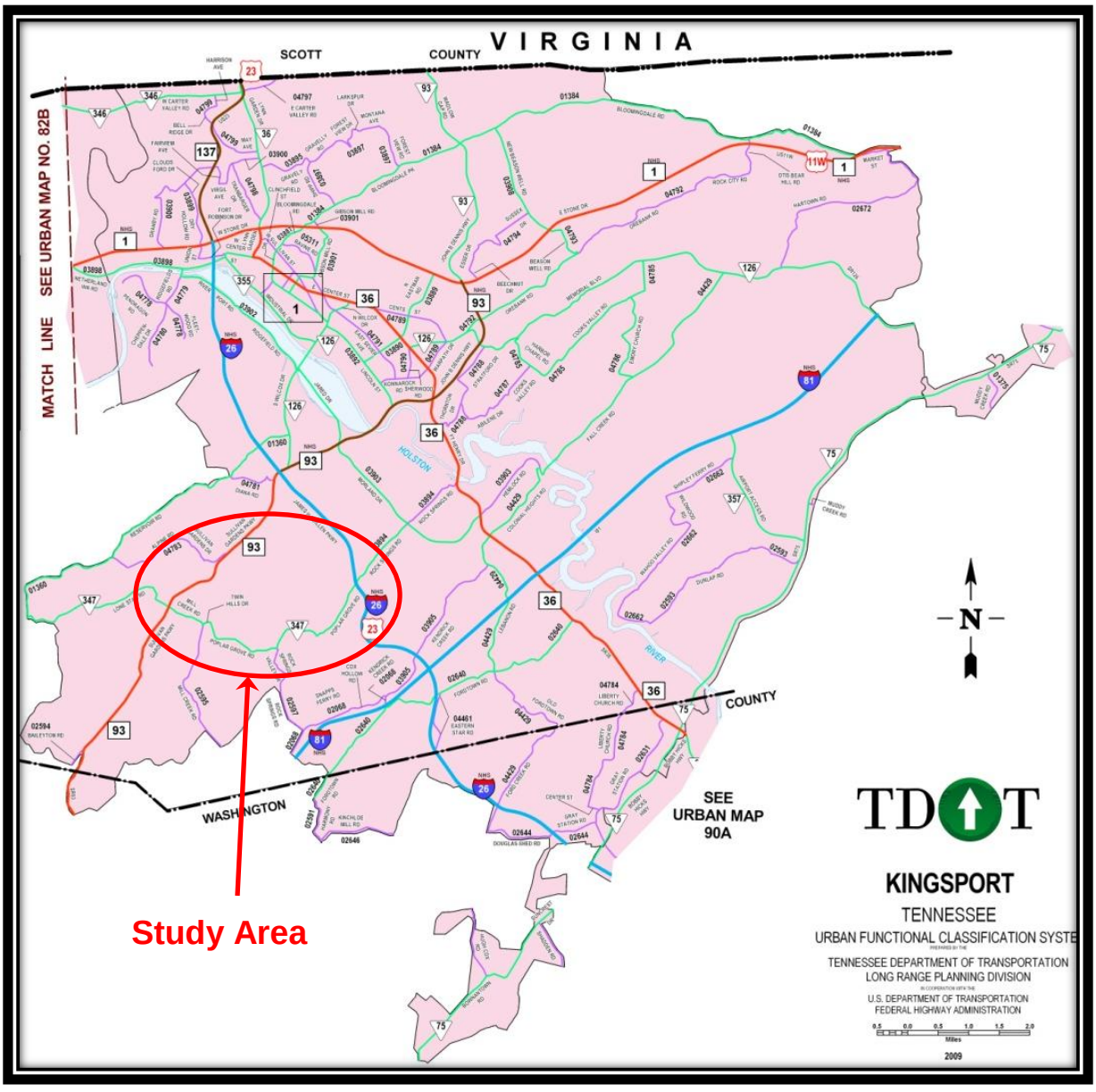


Figure 1: Vicinity Map

Intersection Turning Movement Volumes

Turning movement counts were performed by Palmer Engineering on Tuesday, July 14, 2009 between 6:00-9:00 AM, 11:00 AM – 1:00 PM, and 3:00-6:00 PM for the following intersections:

- SR 347 and NB I-26 Ramp
- SR 347 and SB I-26 Ramp
- SR 347 and SR 93

Methodology

The turning movement counts collected by Palmer Engineering were adjusted based on the Average Monthly Variation Factors provided by TDOT. The variation factor of 0.93 was used for counts collected on Tuesday's in July on Urban roadways. Volumes were then increased by 20% at the direction of TDOT to get from peak hour to design hour volumes.

Historical ADAM data for count stations 127, 128, Ramp 52, Ramp 53, Ramp 54, Ramp 55, 190, 28, and 29 were compared to 2009 field counts and determined to be consistent.

Raw volume data from the count stations for the same timeframe as the field count were used to determine an expansion factor of 1.85. The 8 hour field counts were then expanded to 24 hr counts based on this factor. The 2009 ADT volumes for the SR 347 and SR 93 intersection were forecasted to 2014 and 2034 using the provided model data growth rates (ranging from 0.41% to 2.68%). According to this model, SR 93 will see significant growth by 2034. The provided model data was compared to existing traffic for the SR 347 and I-26 interchange and volumes were found to be low in comparison along SR 347. The 2009 ADT volumes for the SR 347 and I-26 interchange were forecasted to 2014 and 2034 using historical growth rates (ranging from 1.3% to 2.0%).

ADT turning movements were proportioned based on the 8 hour field counts. The AM and PM Design Hour turning movements were based on their respective peak hour from the field counts.

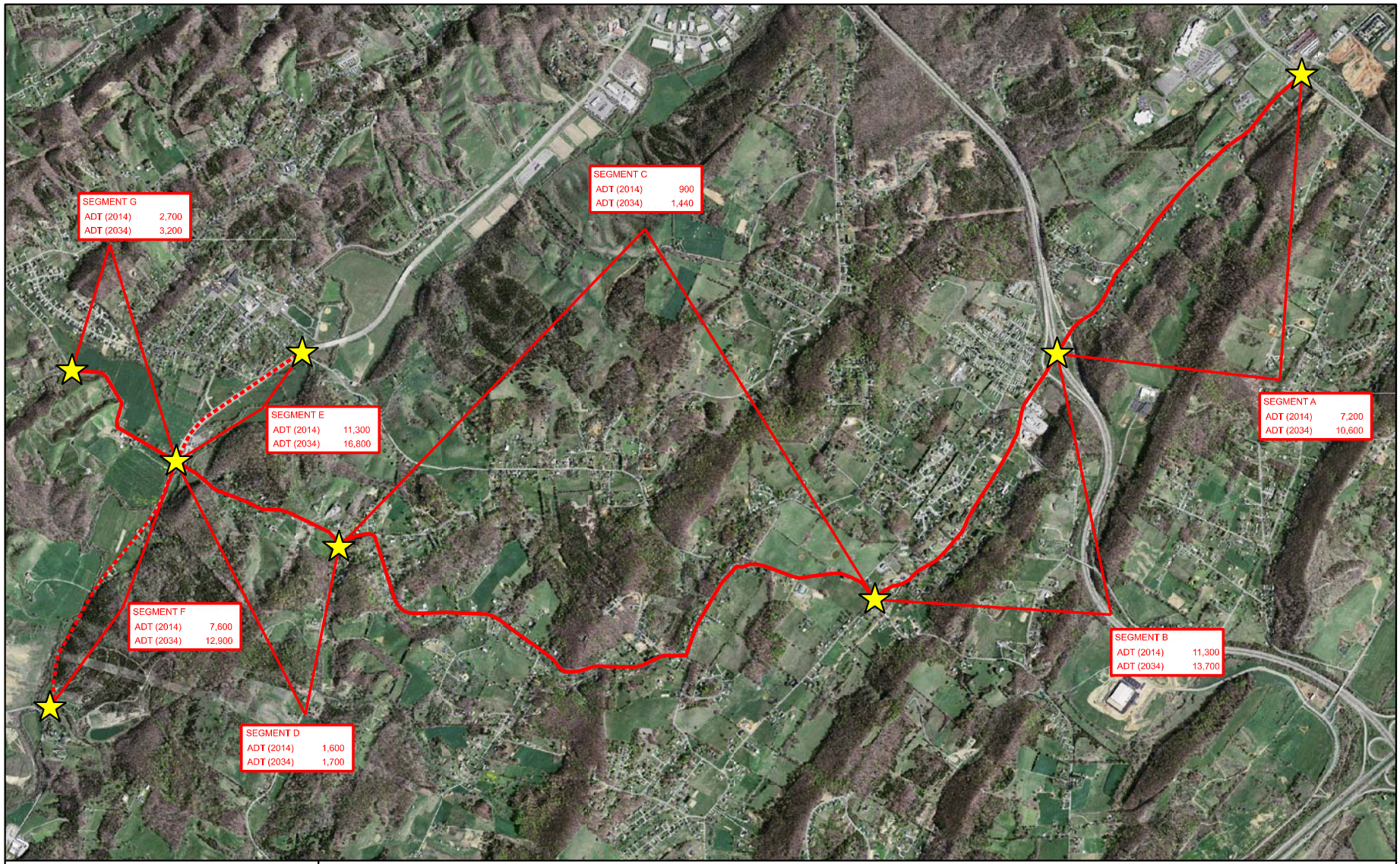
A tube count near the intersection of Bell Hollow Road and Poplar Grove Road resulted in an ADT of 615 vehicles. This confirmed the model volumes projected for this segment of SR 347. A segment breakdown of ADT along SR 347 can be found in the forecast summary diagram. ADT's varied throughout the study corridor due to other roadways and numerous access points for vehicles to enter and exit the system.

K Factors

K Factors were calculated based on the turning movement counts conducted by Palmer Engineering and historical trends. A K Factor between 6.20% and 8.10% was used for the AM peak hour. A K Factor between 8.50% and 10.90% was used for the PM peak hour.

Truck Percentages

Counts conducted by Palmer Engineering categorized traffic by Cars, Pick-Ups, & Panels; Other Single Units; and Combinations. The percent of Other Single Units by approach ranged from 0.4% to 4.7%. The percent of Combinations by approach ranged from 0.2% to 2.4%.



Sullivan County, TN

Study Area Intersection

SR 347

SR 93

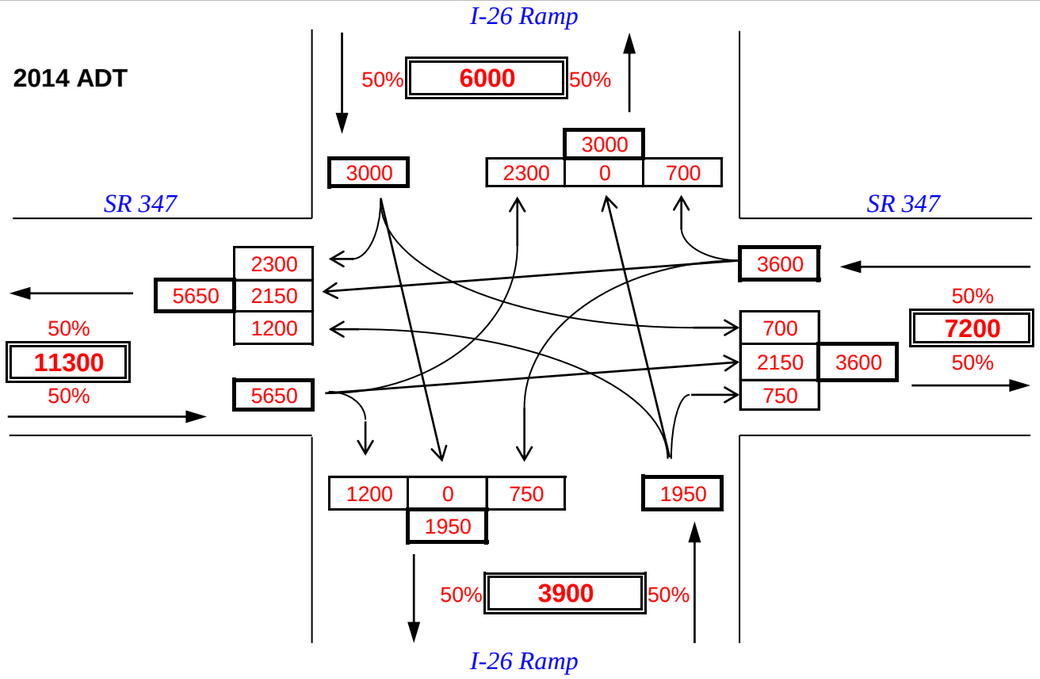
Forecast Summary

Turning Movement Counts

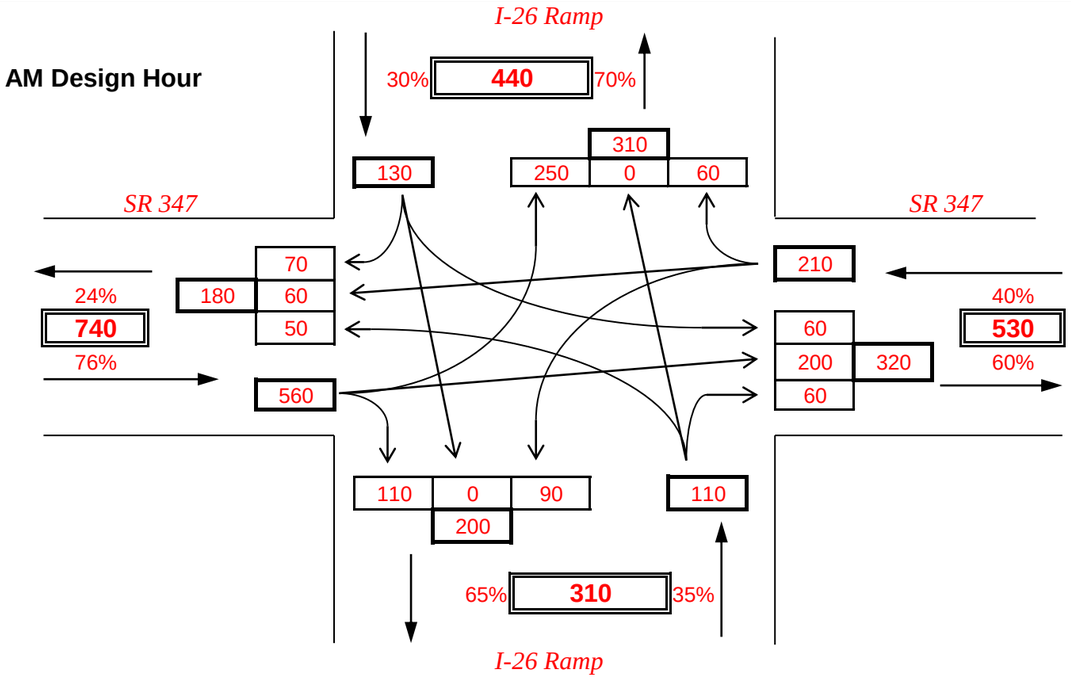
PROJECT: SR 347 from I-26 to SR 93
ITEM NUMBER:
ACCOUNT NUMBER:
REQUEST DATE:
ANALYST: PALMER ENGINEERING

SCENARIO: 2014 ADT and Design Hour Volumes
INTERSECTION: SR 347 and I-26 Ramps

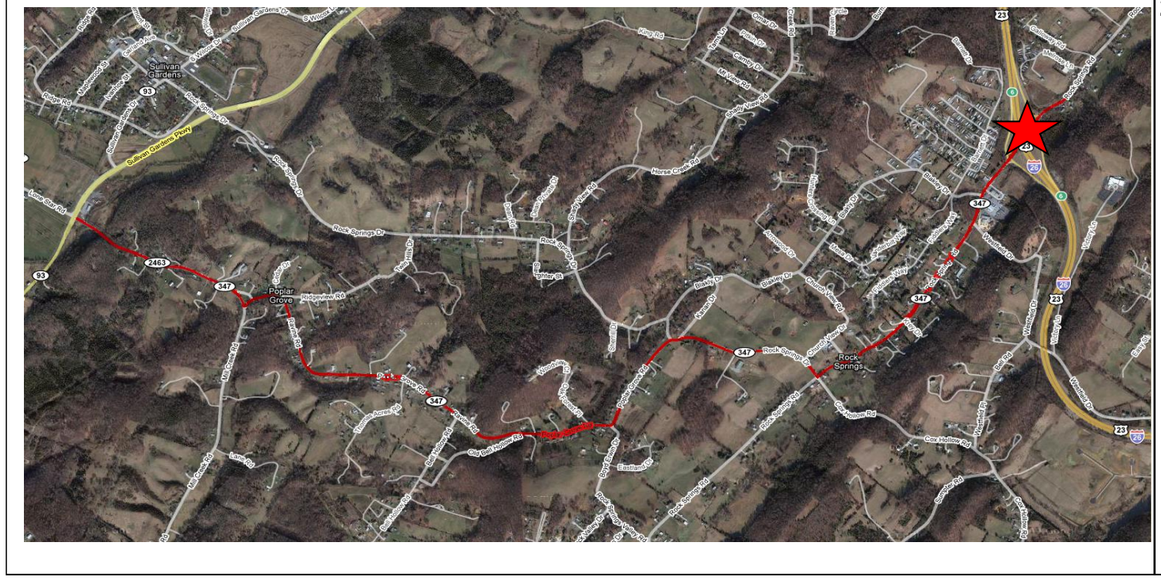
2014 ADT



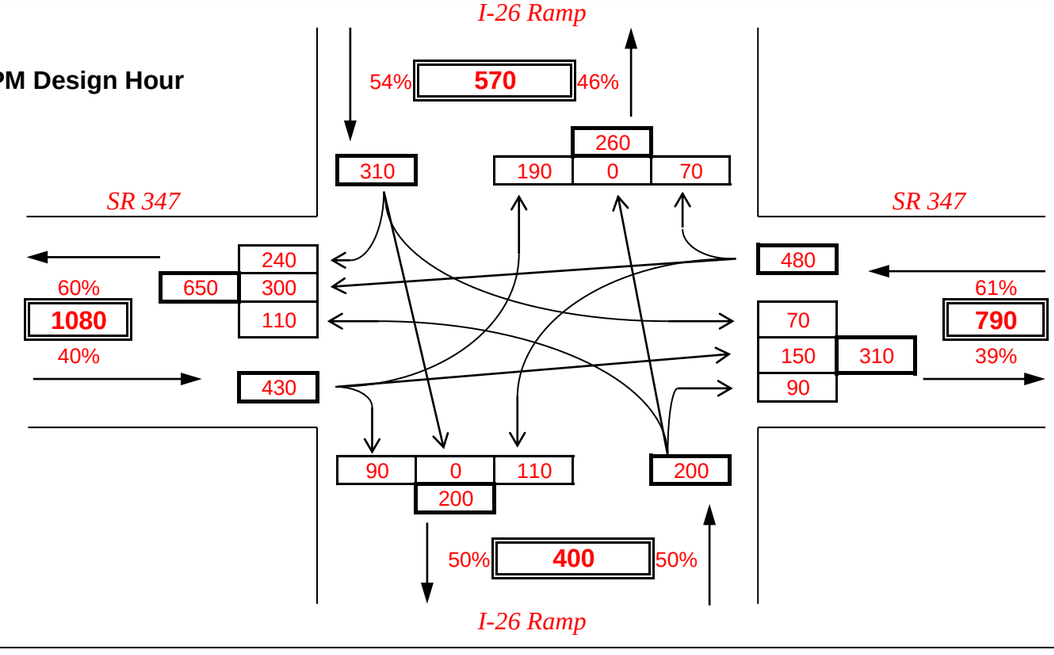
2014 AM Design Hour

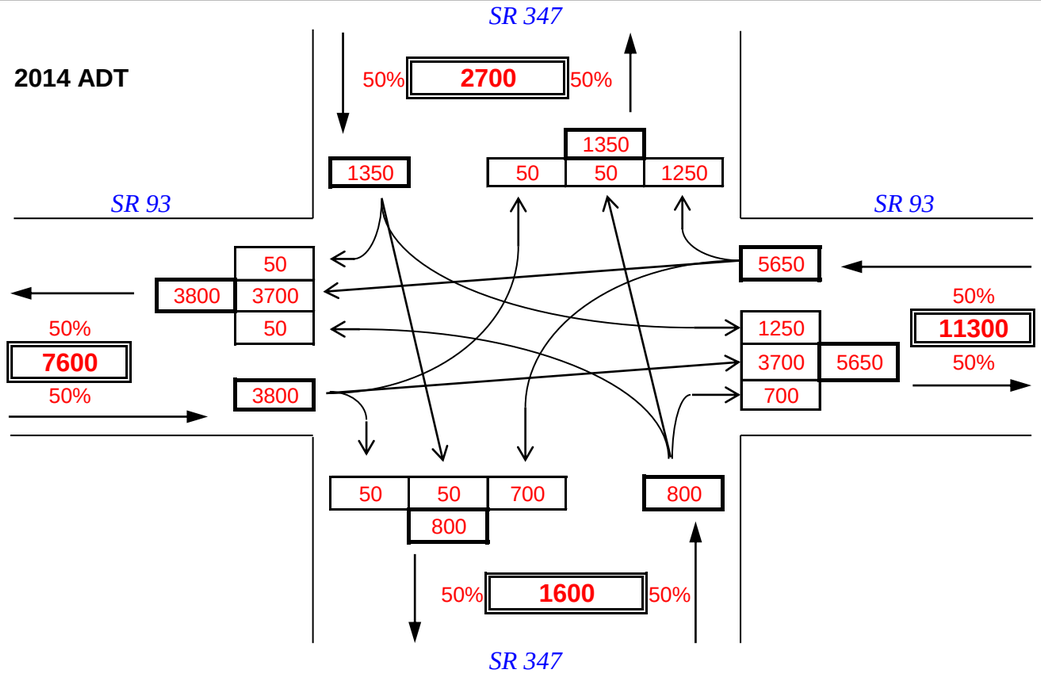


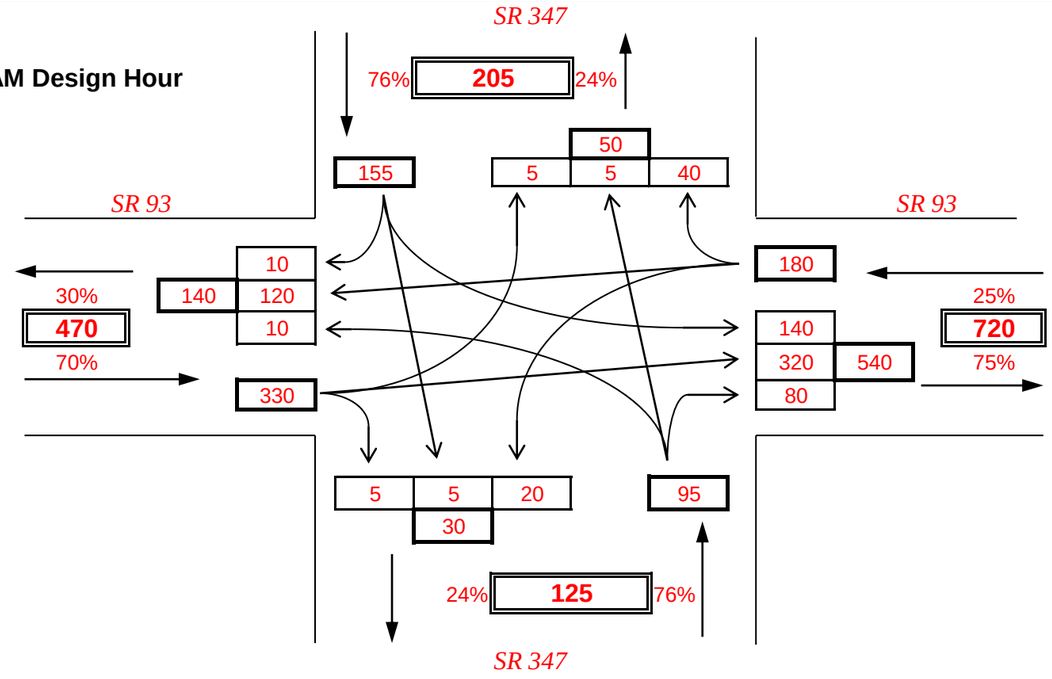
Location Map



2014 PM Design Hour







PROJECT: SR 347 from I-26 to SR 93
ITEM NUMBER:
ACCOUNT NUMBER:
REQUEST DATE:
ANALYST: PALMER ENGINEERING

SCENARIO: 2014 ADT and Design Hour Volumes
INTERSECTION: SR 347 and SR 93

2014 ADT

2014 AM Design Hour

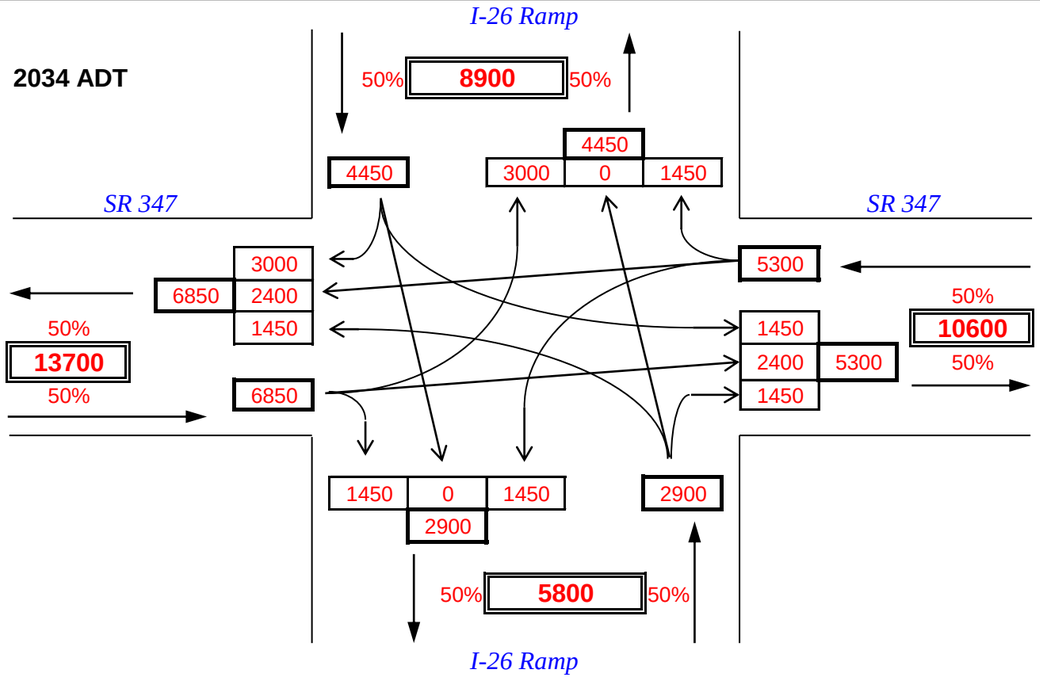
Location Map

2014 PM Design Hour

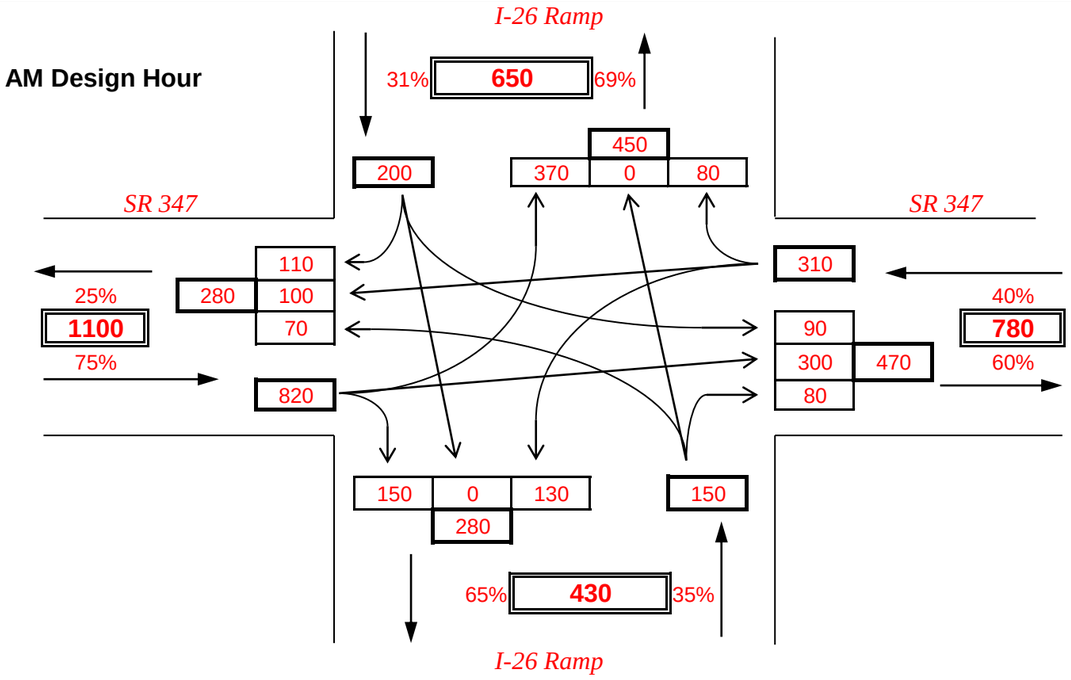
PROJECT: SR 347 from I-26 to SR 93
ITEM NUMBER:
ACCOUNT NUMBER:
REQUEST DATE:
ANALYST: PALMER ENGINEERING

SCENARIO: 2034 ADT and Design Hour Volumes
INTERSECTION: SR 347 and I-26 Ramps

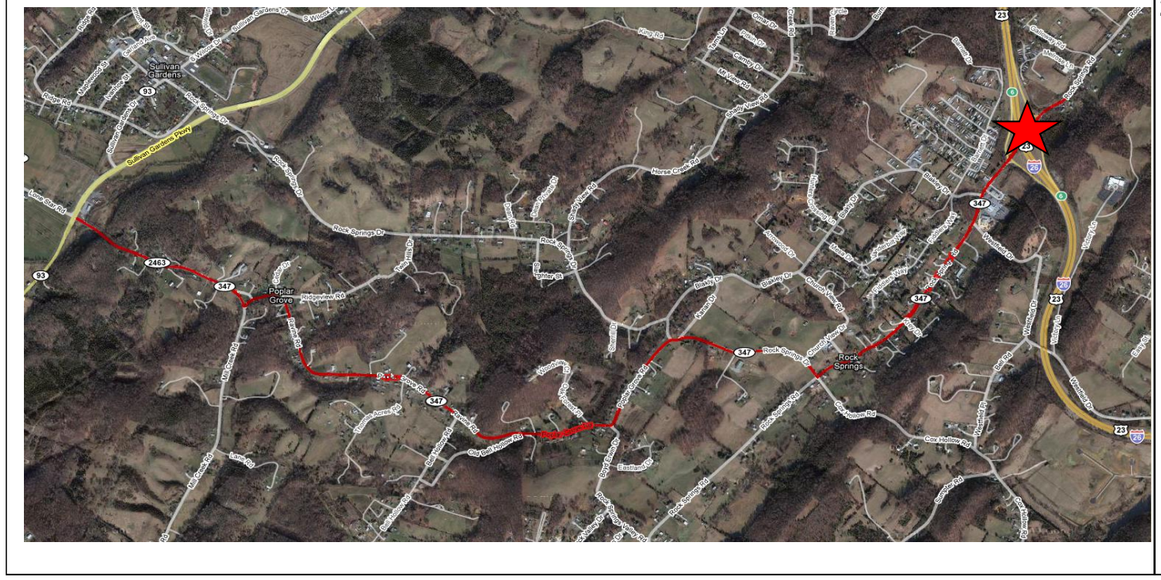
2034 ADT



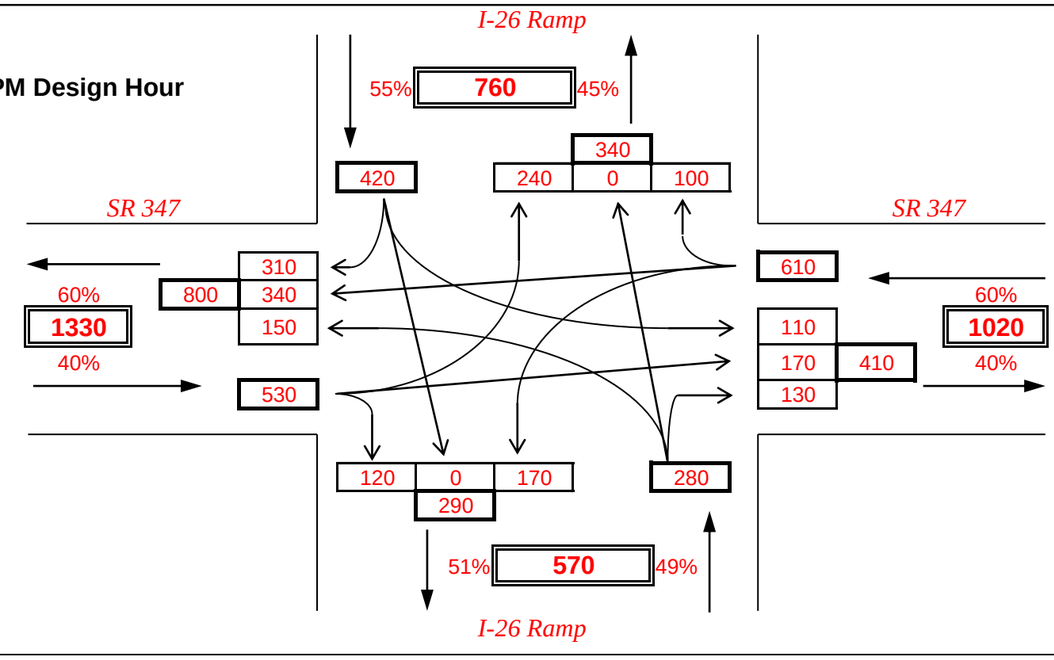
2034 AM Design Hour

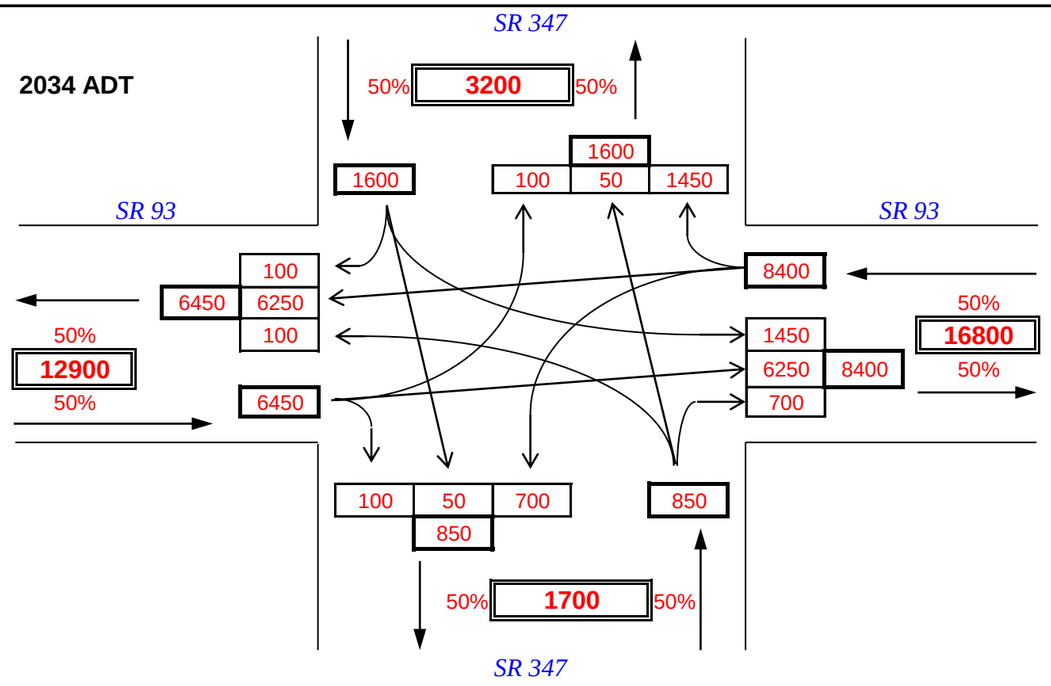


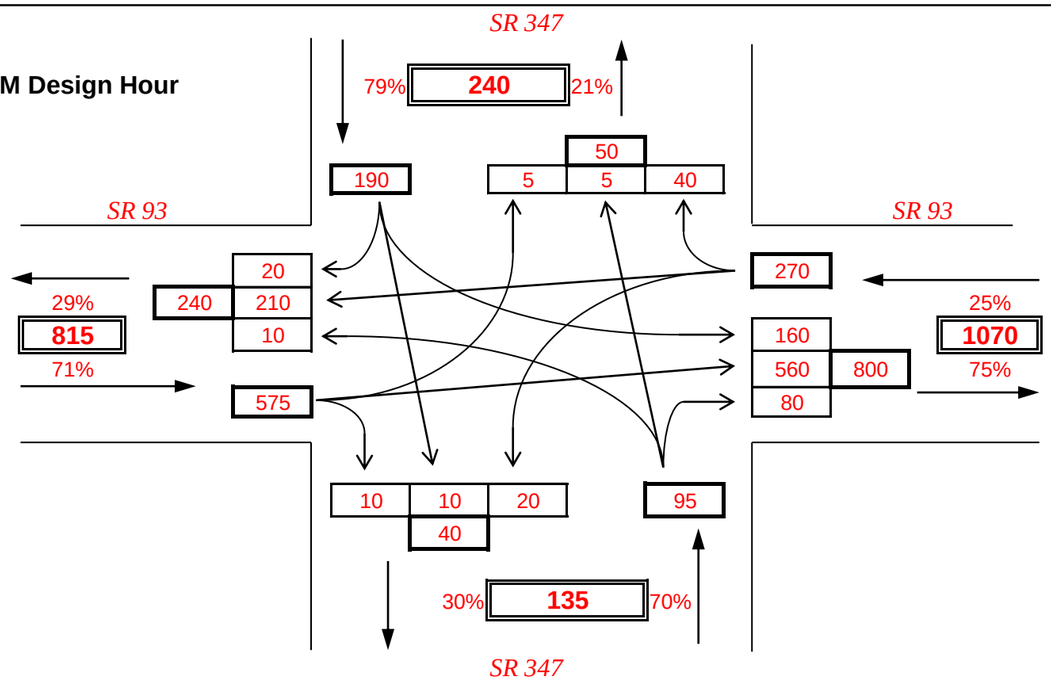
Location Map

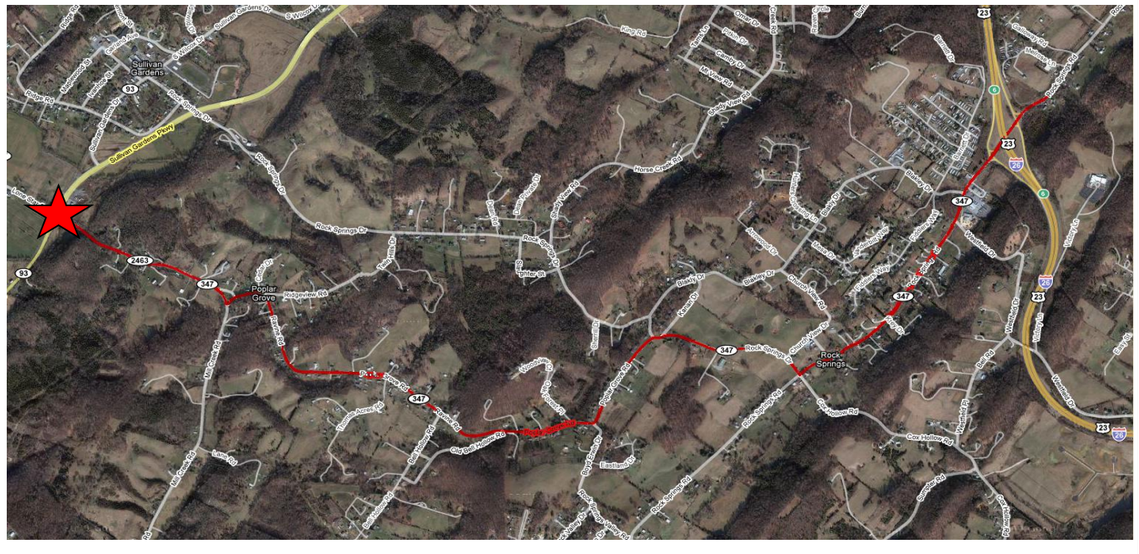


2034 PM Design Hour









PROJECT: SR 347 from I-26 to SR 93
ITEM NUMBER:
ACCOUNT NUMBER:
REQUEST DATE:
ANALYST: PALMER ENGINEERING

SCENARIO: 2034 ADT and Design Hour Volumes
INTERSECTION: SR 347 and SR 93

2034 ADT

2034 AM Design Hour

Location Map

2034 PM Design Hour

HCS+: Two-Lane Highways Release 5.21

Ashley Perry
Palmer Engineering
400 Shoppers Drive
P.O. Box 747
Winchester KY, 40392-0747
Phone: 859-744-1218 Fax: 859-744-1266
E-Mail: aperry@palmernet.com

Two-Way Two-Lane Highway Segment Analysis

Analyst	Palmer Engineering
Agency/Co.	Palmer Engineering
Date Performed	12/9/2009
Analysis Time Period	2014
Highway	SR 347
From/To	SR 93 to Mill Creek Road
Jurisdiction	Kingsport
Analysis Year	2014
Description	SR 347 Existing

Input Data

Highway class	Class 2				
Shoulder width	2.0	ft	Peak-hour factor, PHF	0.88	
Lane width	9.5	ft	% Trucks and buses	2	%
Segment length	0.7	mi	% Recreational vehicles	0	%
Terrain type	Rolling		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	27	/mi
Up/down		%			

Two-way hourly volume, V	160	veh/h	
Directional split	50 / 50	%	

Average Travel Speed

Grade adjustment factor, fG	0.71	
PCE for trucks, ET	2.5	
PCE for RVs, ER	1.1	
Heavy-vehicle adjustment factor,	0.971	
Two-way flow rate,(note-1) vp	264	pc/h
Highest directional split proportion (note-2)	132	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	45.0	mi/h
Adj. for lane and shoulder width, fLS	4.8	mi/h
Adj. for access points, fA	6.8	mi/h
Free-flow speed, FFS	33.5	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	31.4	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	0.77	
PCE for trucks, ET	1.8	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	0.984	
Two-way flow rate,(note-1) vp	240	pc/h
Highest directional split proportion (note-2)	120	
Base percent time-spent-following, BPTSF	19.0	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	19.0	%

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.08	
Peak 15-min vehicle-miles of travel, VMT15	32	veh-mi
Peak-hour vehicle-miles of travel, VMT60	112	veh-mi
Peak 15-min total travel time, TT15	1.0	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

HCS+: Two-Lane Highways Release 5.21

Ashley Perry
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Two-Way Two-Lane Highway Segment Analysis

Analyst	Palmer Engineering
Agency/Co.	Palmer Engineering
Date Performed	12/9/2009
Analysis Time Period	2014
Highway	SR 347
From/To	Mill Creek Road to Rock Spring
Jurisdiction	Kingsport
Analysis Year	2014
Description	SR 347 Existing

Input Data

Highway class	Class 2				
Shoulder width	1.0	ft	Peak-hour factor, PHF	0.88	
Lane width	10.0	ft	% Trucks and buses	2	%
Segment length	2.4	mi	% Recreational vehicles	0	%
Terrain type	Rolling		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	40	/mi
Up/down		%			

Two-way hourly volume, V	90		veh/h
Directional split	50	/ 50	%

Average Travel Speed

Grade adjustment factor, fG	0.71	
PCE for trucks, ET	2.5	
PCE for RVs, ER	1.1	
Heavy-vehicle adjustment factor,	0.971	
Two-way flow rate,(note-1) vp	148	pc/h
Highest directional split proportion (note-2)	74	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	45.0	mi/h
Adj. for lane and shoulder width, fLS	5.3	mi/h
Adj. for access points, fA	10.0	mi/h
Free-flow speed, FFS	29.7	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	28.6	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	0.77	
PCE for trucks, ET	1.8	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	0.984	
Two-way flow rate,(note-1) vp	135	pc/h
Highest directional split proportion (note-2)	68	
Base percent time-spent-following, BPTSF	11.2	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	11.2	%

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.05	
Peak 15-min vehicle-miles of travel, VMT15	61	veh-mi
Peak-hour vehicle-miles of travel, VMT60	216	veh-mi
Peak 15-min total travel time, TT15	2.1	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

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Two-Way Two-Lane Highway Segment Analysis

Analyst	Palmer Engineering
Agency/Co.	Palmer Engineering
Date Performed	12/9/2009
Analysis Time Period	2014
Highway	SR 347
From/To	Rock Spring to I-26
Jurisdiction	Kingsport
Analysis Year	2014
Description	SR 347 Existing

Input Data

Highway class	Class 2				
Shoulder width	1.0	ft	Peak-hour factor, PHF	0.88	
Lane width	10.0	ft	% Trucks and buses	2	%
Segment length	0.8	mi	% Recreational vehicles	0	%
Terrain type	Rolling		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	40	/mi
Up/down		%			

Two-way hourly volume, V	1130	veh/h	
Directional split	50 / 50	%	

Average Travel Speed

Grade adjustment factor, fG	0.99	
PCE for trucks, ET	1.5	
PCE for RVs, ER	1.1	
Heavy-vehicle adjustment factor,	0.990	
Two-way flow rate,(note-1) vp	1310	pc/h
Highest directional split proportion (note-2)	655	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	45.0	mi/h
Adj. for lane and shoulder width, fLS	5.3	mi/h
Adj. for access points, fA	10.0	mi/h
Free-flow speed, FFS	29.7	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	19.5	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1284	pc/h
Highest directional split proportion (note-2)	642	
Base percent time-spent-following, BPTSF	67.7	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	67.7	%

Level of Service and Other Performance Measures

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.41	
Peak 15-min vehicle-miles of travel, VMT15	257	veh-mi
Peak-hour vehicle-miles of travel, VMT60	904	veh-mi
Peak 15-min total travel time, TT15	13.2	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

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Two-Way Two-Lane Highway Segment Analysis

Analyst	Palmer Engineering
Agency/Co.	Palmer Engineering
Date Performed	12/9/2009
Analysis Time Period	2014
Highway	SR 347
From/To	Rock Spring to I-26
Jurisdiction	Kingsport
Analysis Year	2014
Description	SR 347 Existing

Input Data

Highway class	Class 2				
Shoulder width	2.0	ft	Peak-hour factor, PHF	0.88	
Lane width	10.0	ft	% Trucks and buses	2	%
Segment length	0.1	mi	% Recreational vehicles	0	%
Terrain type	Rolling		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	40	/mi
Up/down		%			

Two-way hourly volume, V	1130	veh/h	
Directional split	50 / 50	%	

Average Travel Speed

Grade adjustment factor, fG	0.99	
PCE for trucks, ET	1.5	
PCE for RVs, ER	1.1	
Heavy-vehicle adjustment factor,	0.990	
Two-way flow rate,(note-1) vp	1310	pc/h
Highest directional split proportion (note-2)	655	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	45.0	mi/h
Adj. for lane and shoulder width, fLS	3.7	mi/h
Adj. for access points, fA	10.0	mi/h
Free-flow speed, FFS	31.3	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	21.1	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1284	pc/h
Highest directional split proportion (note-2)	642	
Base percent time-spent-following, BPTSF	67.7	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	67.7	%

Level of Service and Other Performance Measures

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.41	
Peak 15-min vehicle-miles of travel, VMT15	32	veh-mi
Peak-hour vehicle-miles of travel, VMT60	113	veh-mi
Peak 15-min total travel time, TT15	1.5	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

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Two-Way Two-Lane Highway Segment Analysis

Analyst	Palmer Engineering
Agency/Co.	Palmer Engineering
Date Performed	12/9/2009
Analysis Time Period	2014
Highway	SR 347
From/To	Rock Spring to I-26
Jurisdiction	Kingsport
Analysis Year	2014
Description	SR 347 Existing

Input Data

Highway class Class 2

Shoulder width	4.0	ft	Peak-hour factor, PHF	0.88	
Lane width	12.0	ft	% Trucks and buses	2	%
Segment length	0.2	mi	% Recreational vehicles	0	%
Terrain type	Rolling		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	40	/mi
Up/down		%			

Two-way hourly volume, V	1130	veh/h	
Directional split	50 / 50	%	

Average Travel Speed

Grade adjustment factor, fG	0.99	
PCE for trucks, ET	1.5	
PCE for RVs, ER	1.1	
Heavy-vehicle adjustment factor,	0.990	
Two-way flow rate,(note-1) vp	1310	pc/h
Highest directional split proportion (note-2)	655	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	45.0	mi/h
Adj. for lane and shoulder width, fLS	1.3	mi/h
Adj. for access points, fA	10.0	mi/h
Free-flow speed, FFS	33.7	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	23.5	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1284	pc/h
Highest directional split proportion (note-2)	642	
Base percent time-spent-following, BPTSF	67.7	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	67.7	%

Level of Service and Other Performance Measures

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.41	
Peak 15-min vehicle-miles of travel, VMT15	64	veh-mi
Peak-hour vehicle-miles of travel, VMT60	226	veh-mi
Peak 15-min total travel time, TT15	2.7	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

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Two-Way Two-Lane Highway Segment Analysis

Analyst	Palmer Engineering
Agency/Co.	Palmer Engineering
Date Performed	12/9/2009
Analysis Time Period	2034
Highway	SR 347
From/To	SR 93 to Mill Creek Road
Jurisdiction	Kingsport
Analysis Year	2034
Description	SR 347 Existing

Input Data

Highway class Class 2

Shoulder width	2.0	ft	Peak-hour factor, PHF	0.88	
Lane width	9.5	ft	% Trucks and buses	2	%
Segment length	0.7	mi	% Recreational vehicles	0	%
Terrain type	Rolling		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	27	/mi
Up/down		%			

Two-way hourly volume, V	170	veh/h	
Directional split	50 / 50	%	

Average Travel Speed

Grade adjustment factor, fG	0.71	
PCE for trucks, ET	2.5	
PCE for RVs, ER	1.1	
Heavy-vehicle adjustment factor,	0.971	
Two-way flow rate,(note-1) vp	280	pc/h
Highest directional split proportion (note-2)	140	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	45.0	mi/h
Adj. for lane and shoulder width, fLS	4.8	mi/h
Adj. for access points, fA	6.8	mi/h
Free-flow speed, FFS	33.5	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	31.3	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	0.77	
PCE for trucks, ET	1.8	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	0.984	
Two-way flow rate,(note-1) vp	255	pc/h
Highest directional split proportion (note-2)	128	
Base percent time-spent-following, BPTSF	20.1	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	20.1	%

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.09	
Peak 15-min vehicle-miles of travel, VMT15	34	veh-mi
Peak-hour vehicle-miles of travel, VMT60	119	veh-mi
Peak 15-min total travel time, TT15	1.1	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

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Two-Way Two-Lane Highway Segment Analysis

Analyst	Palmer Engineering
Agency/Co.	Palmer Engineering
Date Performed	12/9/2009
Analysis Time Period	2034
Highway	SR 347
From/To	Mill Creek Road to Rock Spring
Jurisdiction	Kingsport
Analysis Year	2034
Description	SR 347 Existing

Input Data

Highway class	Class 2				
Shoulder width	1.0	ft	Peak-hour factor, PHF	0.88	
Lane width	10.0	ft	% Trucks and buses	2	%
Segment length	2.4	mi	% Recreational vehicles	0	%
Terrain type	Rolling		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	40	/mi
Up/down		%			

Two-way hourly volume, V	150	veh/h	
Directional split	50 / 50	%	

Average Travel Speed

Grade adjustment factor, fG	0.71	
PCE for trucks, ET	2.5	
PCE for RVs, ER	1.1	
Heavy-vehicle adjustment factor,	0.971	
Two-way flow rate,(note-1) vp	247	pc/h
Highest directional split proportion (note-2)	124	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	45.0	mi/h
Adj. for lane and shoulder width, fLS	5.3	mi/h
Adj. for access points, fA	10.0	mi/h
Free-flow speed, FFS	29.7	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	27.8	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	0.77	
PCE for trucks, ET	1.8	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	0.984	
Two-way flow rate,(note-1) vp	225	pc/h
Highest directional split proportion (note-2)	113	
Base percent time-spent-following, BPTSF	17.9	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	17.9	%

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.08	
Peak 15-min vehicle-miles of travel, VMT15	102	veh-mi
Peak-hour vehicle-miles of travel, VMT60	360	veh-mi
Peak 15-min total travel time, TT15	3.7	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

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Two-Way Two-Lane Highway Segment Analysis

Analyst	Palmer Engineering
Agency/Co.	Palmer Engineering
Date Performed	12/9/2009
Analysis Time Period	2034
Highway	SR 347
From/To	Rock Spring to I-26
Jurisdiction	Kingsport
Analysis Year	2034
Description	SR 347 Existing

Input Data

Highway class	Class 2				
Shoulder width	1.0	ft	Peak-hour factor, PHF	0.88	
Lane width	10.0	ft	% Trucks and buses	2	%
Segment length	0.8	mi	% Recreational vehicles	0	%
Terrain type	Rolling		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	40	/mi
Up/down		%			

Two-way hourly volume, V	1370	veh/h	
Directional split	50 / 50	%	

Average Travel Speed

Grade adjustment factor, fG	0.99	
PCE for trucks, ET	1.5	
PCE for RVs, ER	1.1	
Heavy-vehicle adjustment factor,	0.990	
Two-way flow rate,(note-1) vp	1588	pc/h
Highest directional split proportion (note-2)	794	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	45.0	mi/h
Adj. for lane and shoulder width, fLS	5.3	mi/h
Adj. for access points, fA	10.0	mi/h
Free-flow speed, FFS	29.7	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	17.4	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1557	pc/h
Highest directional split proportion (note-2)	779	
Base percent time-spent-following, BPTSF	74.6	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	74.6	%

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.50	
Peak 15-min vehicle-miles of travel, VMT15	311	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1096	veh-mi
Peak 15-min total travel time, TT15	17.9	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

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Two-Way Two-Lane Highway Segment Analysis

Analyst	Palmer Engineering
Agency/Co.	Palmer Engineering
Date Performed	12/9/2009
Analysis Time Period	2034
Highway	SR 347
From/To	Rock Spring to I-26
Jurisdiction	Kingsport
Analysis Year	2024
Description	SR 347 Existing

Input Data

Highway class	Class 2				
Shoulder width	2.0	ft	Peak-hour factor, PHF	0.88	
Lane width	10.0	ft	% Trucks and buses	2	%
Segment length	0.1	mi	% Recreational vehicles	0	%
Terrain type	Rolling		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	40	/mi
Up/down		%			

Two-way hourly volume, V	1370	veh/h	
Directional split	50 / 50	%	

Average Travel Speed

Grade adjustment factor, fG	0.99	
PCE for trucks, ET	1.5	
PCE for RVs, ER	1.1	
Heavy-vehicle adjustment factor,	0.990	
Two-way flow rate,(note-1) vp	1588	pc/h
Highest directional split proportion (note-2)	794	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	45.0	mi/h
Adj. for lane and shoulder width, fLS	3.7	mi/h
Adj. for access points, fA	10.0	mi/h
Free-flow speed, FFS	31.3	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	19.0	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1557	pc/h
Highest directional split proportion (note-2)	779	
Base percent time-spent-following, BPTSF	74.6	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	74.6	%

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.50	
Peak 15-min vehicle-miles of travel, VMT15	39	veh-mi
Peak-hour vehicle-miles of travel, VMT60	137	veh-mi
Peak 15-min total travel time, TT15	2.1	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

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Two-Way Two-Lane Highway Segment Analysis

Analyst	Palmer Engineering
Agency/Co.	Palmer Engineering
Date Performed	12/9/2009
Analysis Time Period	2034
Highway	SR 347
From/To	Rock Spring to I-26
Jurisdiction	Kingsport
Analysis Year	2034
Description	SR 347 Existing

Input Data

Highway class	Class 2				
Shoulder width	4.0	ft	Peak-hour factor, PHF	0.88	
Lane width	12.0	ft	% Trucks and buses	2	%
Segment length	0.2	mi	% Recreational vehicles	0	%
Terrain type	Rolling		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	40	/mi
Up/down		%			

Two-way hourly volume, V	1370	veh/h	
Directional split	50 / 50	%	

Average Travel Speed

Grade adjustment factor, fG	0.99	
PCE for trucks, ET	1.5	
PCE for RVs, ER	1.1	
Heavy-vehicle adjustment factor,	0.990	
Two-way flow rate,(note-1) vp	1588	pc/h
Highest directional split proportion (note-2)	794	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	45.0	mi/h
Adj. for lane and shoulder width, fLS	1.3	mi/h
Adj. for access points, fA	10.0	mi/h
Free-flow speed, FFS	33.7	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	21.4	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1557	pc/h
Highest directional split proportion (note-2)	779	
Base percent time-spent-following, BPTSF	74.6	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	74.6	%

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.50	
Peak 15-min vehicle-miles of travel, VMT15	78	veh-mi
Peak-hour vehicle-miles of travel, VMT60	274	veh-mi
Peak 15-min total travel time, TT15	3.6	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

HCS+: Two-Lane Highways Release 5.21

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Phone: 859-744-1218 Fax: 859-744-1266
E-Mail: aperry@palmernet.com

Two-Way Two-Lane Highway Segment Analysis

Analyst	Palmer Engineering
Agency/Co.	Palmer Engineering
Date Performed	12/9/2009
Analysis Time Period	2014
Highway	SR 347
From/To	Rock Spring to I-26
Jurisdiction	Kingsport
Analysis Year	2014
Description	SR 347 Proposed

Input Data

Highway class	Class 2				
Shoulder width	8.0	ft	Peak-hour factor, PHF	0.88	
Lane width	12.0	ft	% Trucks and buses	2	%
Segment length	1.1	mi	% Recreational vehicles	0	%
Terrain type	Rolling		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	40	/mi
Up/down		%			

Two-way hourly volume, V	1130	veh/h	
Directional split	50 / 50	%	

Average Travel Speed

Grade adjustment factor, fG	0.99	
PCE for trucks, ET	1.5	
PCE for RVs, ER	1.1	
Heavy-vehicle adjustment factor,	0.990	
Two-way flow rate,(note-1) vp	1310	pc/h
Highest directional split proportion (note-2)	655	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	45.0	mi/h
Adj. for lane and shoulder width, fLS	0.0	mi/h
Adj. for access points, fA	10.0	mi/h
Free-flow speed, FFS	35.0	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	24.8	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1284	pc/h
Highest directional split proportion (note-2)	642	
Base percent time-spent-following, BPTSF	67.7	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	67.7	%

Level of Service and Other Performance Measures

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.41	
Peak 15-min vehicle-miles of travel, VMT15	353	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1243	veh-mi
Peak 15-min total travel time, TT15	14.2	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

HCS+: Multilane Highways Release 5.21

Ashley Perry
Palmer Engineering
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Winchester KY, 40392-0747
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OPERATIONAL ANALYSIS

Analyst:	Palmer Engineering
Agency/Co:	Palmer Engineering
Date:	12/16/2009
Analysis Period:	2014
Highway:	SR 347
From/To:	Rock Spring to I-26
Jurisdiction:	Kingsport
Analysis Year:	2014
Project ID:	SR 347 Proposed

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	0.0	ft	0.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	26		26	
Median type	Undivided		Undivided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	6.5	mph	6.5	mph
Free-flow speed	46.9	mph	46.9	mph

VOLUME

Direction	1		2	
Volume, V	565	vph	565	vph
Peak-hour factor, PHF	0.88		0.88	
Peak 15-minute volume, v15	161		161	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	330	pcphpl	330	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	330	pcphpl	330	pcphpl
Free-flow speed, FFS	46.9	mph	46.9	mph
Avg. passenger-car travel speed, S	46.9	mph	46.9	mph
Level of service, LOS	A		A	
Density, D	7.0	pc/mi/ln	7.0	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

HCS+: Two-Lane Highways Release 5.21

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Two-Way Two-Lane Highway Segment Analysis

Analyst	Palmer Engineering
Agency/Co.	Palmer Engineering
Date Performed	12/9/2009
Analysis Time Period	2034
Highway	SR 347
From/To	Rock Spring to I-26
Jurisdiction	Kingsport
Analysis Year	2034
Description	SR 347 Proposed

Input Data

Highway class	Class 2				
Shoulder width	8.0	ft	Peak-hour factor, PHF	0.88	
Lane width	12.0	ft	% Trucks and buses	2	%
Segment length	1.1	mi	% Recreational vehicles	0	%
Terrain type	Rolling		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	40	/mi
Up/down		%			

Two-way hourly volume, V	1370	veh/h	
Directional split	50 / 50	%	

Average Travel Speed

Grade adjustment factor, fG	0.99	
PCE for trucks, ET	1.5	
PCE for RVs, ER	1.1	
Heavy-vehicle adjustment factor,	0.990	
Two-way flow rate,(note-1) vp	1588	pc/h
Highest directional split proportion (note-2)	794	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	45.0	mi/h
Adj. for lane and shoulder width, fLS	0.0	mi/h
Adj. for access points, fA	10.0	mi/h
Free-flow speed, FFS	35.0	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	22.7	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1557	pc/h
Highest directional split proportion (note-2)	779	
Base percent time-spent-following, BPTSF	74.6	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	74.6	%

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.50	
Peak 15-min vehicle-miles of travel, VMT15	428	veh-mi
Peak-hour vehicle-miles of travel, VMT60	1507	veh-mi
Peak 15-min total travel time, TT15	18.9	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

HCS+: Multilane Highways Release 5.21

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OPERATIONAL ANALYSIS

Analyst:	Palmer Engineering
Agency/Co:	Palmer Engineering
Date:	12/16/2009
Analysis Period:	2034
Highway:	SR 347
From/To:	Rock Spring to I-26
Jurisdiction:	Kingsport
Analysis Year:	2034
Project ID:	SR 347 Proposed

FREE-FLOW SPEED

Direction	1		2	
Lane width	12.0	ft	12.0	ft
Lateral clearance:				
Right edge	6.0	ft	6.0	ft
Left edge	0.0	ft	0.0	ft
Total lateral clearance	12.0	ft	12.0	ft
Access points per mile	26		26	
Median type	Undivided		Undivided	
Free-flow speed:	Base		Base	
FFS or BFFS	55.0	mph	55.0	mph
Lane width adjustment, FLW	0.0	mph	0.0	mph
Lateral clearance adjustment, FLC	0.0	mph	0.0	mph
Median type adjustment, FM	1.6	mph	1.6	mph
Access points adjustment, FA	6.5	mph	6.5	mph
Free-flow speed	46.9	mph	46.9	mph

VOLUME

Direction	1		2	
Volume, V	685	vph	685	vph
Peak-hour factor, PHF	0.88		0.88	
Peak 15-minute volume, v15	195		195	
Trucks and buses	2	%	2	%
Recreational vehicles	0	%	0	%
Terrain type	Rolling		Rolling	
Grade	0.00	%	0.00	%
Segment length	0.00	mi	0.00	mi
Number of lanes	2		2	
Driver population adjustment, fP	1.00		1.00	
Trucks and buses PCE, ET	2.5		2.5	
Recreational vehicles PCE, ER	2.0		2.0	
Heavy vehicle adjustment, fHV	0.971		0.971	
Flow rate, vp	400	pcphpl	400	pcphpl

RESULTS

Direction	1		2	
Flow rate, vp	400	pcphpl	400	pcphpl
Free-flow speed, FFS	46.9	mph	46.9	mph
Avg. passenger-car travel speed, S	46.9	mph	46.9	mph
Level of service, LOS	A		A	
Density, D	8.5	pc/mi/ln	8.5	pc/mi/ln

Overall results are not computed when free-flow speed is less than 45 mph.

SUMMARY OF STAKEHOLDERS MEETING
STATE ROUTE 347, FROM SR 93 TO I-26
KINGSPORT, SULLIVAN COUNTY

On Thursday, November 5, 2009, beginning at 9:00 AM, a stakeholders meeting was held to discuss potential improvements for State Route 347 from SR 93 to I-26 in Sullivan County. This meeting is a required component for the completion of a Transportation Planning Report for this route. The meeting convened in the Council Room of City Hall in Kingsport at 225 West Center Street. The following individuals were in attendance for this meeting:

Diane Somers	Citizen representing Representative Tony Shipley
Tim Elsea	City of Kingsport
Michael Thompson	City of Kingsport
Bill Albright	Kingsport Metropolitan Planning Organization
Chris Campbell	Kingsport Metropolitan Planning Organization
Gena Gilliam	TDOT Project Planning Division
Paul Lane	TDOT Project Planning Division
Bob Allen	TDOT Environmental Division
Terrance Hill	UT/TDOT Long Range Planning Division
Eric Fischer	Palmer Engineering
Terry York	Palmer Engineering

The meeting began with brief introductions and a discussion of the events that were planned for the day. This was followed by a discussion of the purposes and needs for any potential improvements to the section of SR 347 under review. There was mention of various factors that have changed within the study area that would have impacted the route. Several of these points were discussed and are listed below:

- New School – There has been a new elementary school constructed on Rock Springs Road, approximately 1.3 miles southwest of the intersection of SR 347 and Cox Hollow Road. This school is part of a planned community development that is underway. Approximately 30-40 homes have been completed with the build out potential to be 350+. The current traffic from this development and any future increases will have a direct impact on SR 347 traffic, especially the section of SR 347 from Cox Hollow Road to I-26.
- New Growth – The area between I-81 and I-26 has been a major growth area for Kingsport and Sullivan County. Industrial growth has begun in this area with the potential for expansion. In addition, residential growth has been noted in this area. The city of Kingsport has an annexation plan to encompass the entire "triangle" area from I-26 to I-81.
- Local Commitments – The city of Kingsport has already begun improving a section of Rock Springs Road (southwest of the SR 347 intersection) to accommodate the increased traffic demands.
- Safety Concerns – It was noted that several locations along the entire route where curves, shoulder and lane width, and sight distance are of concern.

The next discussion concerned the possibility of redesignating a portion of SR 347. The section of SR 347 which is under review begins at SR 93 following Mill Creek Road. The route switches to Poplar Grove Road until it connects with Rock Springs Drive. From this point, it follows Rock Springs Drive to the intersection with Rock Springs Road at Cox Hollow Road and continues to the end of the study area at I-26 (see attached map).

Representatives from Kingsport MPO indicated the city's need and desire to have the segment of SR 347 from I-26 to the intersection with Cox Hollow Road improved. This segment currently has higher traffic volumes and anticipates the most growth in the near future. Kingsport officials were interested in discussing the possibility of pursuing another route for SR 347, beginning at Cox Hollow Road and extending to the Tri-Cities Crossings Drive intersection with I-81. They felt this would provide them a collector route for the area that is experiencing the highest growth rate.

It was pointed out that if this is the desire of the city, they would need to request this through TDOT. At that time, this TPR study would be delayed until TDOT reviewed their request and made a decision on the possibility of swapping a portion of SR 347 for the proposed new route. It was noted that this scenario would delay any potential improvement by TDOT, to any portion of SR 347.

Prior to the field review portion of the meeting, there was a great deal of discussion about this issue. We discussed various alignments for the new segment, along with the positive and negative attributes of each. It was decided that we would drive these potential alignments while we were on the field review for the current SR 347.

The city provided transportation for the entire group to travel to the SR 347 site. Michael Thompson and Tim Elsea were unable to join us due to prior commitments. We began our review at the western end of the area at SR 93. During this review, we noted that structures had deficient railings and end treatments. In addition, there were several locations along the route where there were drop offs that did not have any guard rail. The entire route did not have any shoulders.

The location where Rock Spring Road, Poplar Grove Road and Mill Creek Road intersected (triangle area) had alignment issues. The consultant was instructed to review and propose an improvement for this location.

In addition, the following items were noted during the review:

- There is a potential historic home near the SR 93 end of the route
- Along Mill Creek Road section, there is a need to identify overhead utility lines (high voltage electrical)
- Signage at all of the "Y" intersections needs improvement
- A community park and center is located on both sides of the route in the Rock Springs Community

- The segment from Cox Hollow Road to I-26 is constrained on the southeast by a stream and on the northwest by a steep grade that has several driveways. Any cuts into this grade could have major impacts to access to the access to these homes. These factors will need to be considered.

After the review, the group met to recap the results and discuss any further action the city may desire to pursue concerning the route designations. It has already been noted that Kingsport is committed to improving the portion of Rock Springs Road that does not have a state route designation. In addition, the city desires the portion of Rock Springs Road from I-26 to Cox Hollow Road be reviewed and included for potential improvements in the future. Kingsport Officials decided not to pursue a redesignation at this time, so the TPR will continue with the current logical termini.

ACTION ITEMS

The entire route under review is approximately 4.1 miles in length. The alternatives under review will be indentified by Section 1 (from SR 93 to the intersection with Cox Hollow Road) and Section 2 (from Cox Hollow Road to I-26). Section 1 is approximately 3.0 miles in length and the focus will be on particular areas where safety deficiencies are determined. These will be safety improvement recommendations such as needed guard rail and improvement of structural deficiencies and approaches. Section 2 is approximately 1.1 miles in length and will look at options such as the addition of a third continuous lane, shoulder additions, curb and gutter and will consider bike and pedestrian traffic.

The Kingsport MPO are to provide the consultant with a copy of a 1992 (approximate date) study that was performed on the project area. In addition, they are to provide a copy of the existing Kingsport bike and pedestrian plan.

KINGSPORT METROPOLITAN PLANNING ORGANIZATION
TENNESSEE: KINGSPORT, SULLIVAN COUNTY, HAWKINS COUNTY, MOUNT CARMEL, CHURCH HILL
VIRGINIA: SCOTT COUNTY, WEBER CITY, GATE CITY

June 2, 2009

Jeanne Stevens
TDOT Long-Range Planning Director
Long-Range Planning Division
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, Tennessee 37243-0344

Re: TPR Request for SR 347 (Rock Springs Rd)

Dear Mrs. Stevens:

Please accept this letter as a formal request by the Kingsport MPO requesting a Transportation Planning Report (TPR) be conducted by the Tennessee Department of Transportation on a segment of roadway in Sullivan County and the City of Kingsport identified as State Route 347 or locally known as Rock Springs Road. This TPR is currently noted in the FY 09 Kingsport UPWP and is listed in the MPO's LRTP as project #MNA-27. The figure below illustrates the study area which begins at Interstate 26 and extends in a southwestern direction to the intersection of Cox Hollow Rd/Rock Springs Dr, where it then continues in a northwestern direction to the intersection of SR 93. The length of the corridor is 4.1 miles.

SR 347 (Rock Springs Road) is an important arterial that links numerous collector and residential streets to Interstates 26 and 81 from adjacent suburban areas. Large undeveloped tracts currently exist that are being converted into residential land uses increasing the amount of travel. In addition, a new Kingsport elementary school located off of Rock Springs Rd just outside the study boundary will open in August 2009. This new school will alter the kind of trips being made and increase the usage of the facility. The City of Kingsport has committed to providing over $1 million towards upgrading Rocks Springs Rd from its intersection of SR 347 to the new school. Currently, the conditions of SR 347 are substandard and need improvement to facilitate better access and to correct existing roadway deficiencies. The typical cross section of SR 347 is inadequate, has no shoulder or clear zone, and includes both horizontal and vertical curves contributing to poor visibility and substandard geometrics. The social demands of land use changes, a new school, and travel demands coupled with the current roadway deficiencies that exist along this stretch of SR 347 establish the need for infrastructure improvements.

A TPR of this roadway will help determine what current conditions exist and evaluate the feasibility of options for improvements. It will also facilitate the use of state or federal funds to implement these improvements.

225 West Center Street – Kingsport, Tennessee 37660-4237 – Phone (423) 229-9400 Fax (423) 224-2590
www.ci.kingsport.tn.us

The MPO and City of Kingsport will be glad to assist TDOT is whatever data collection or local efforts are necessary to complete the TPR. If you have questions or need additional information on this request, please feel free to call our offices at (423) 224-2670.

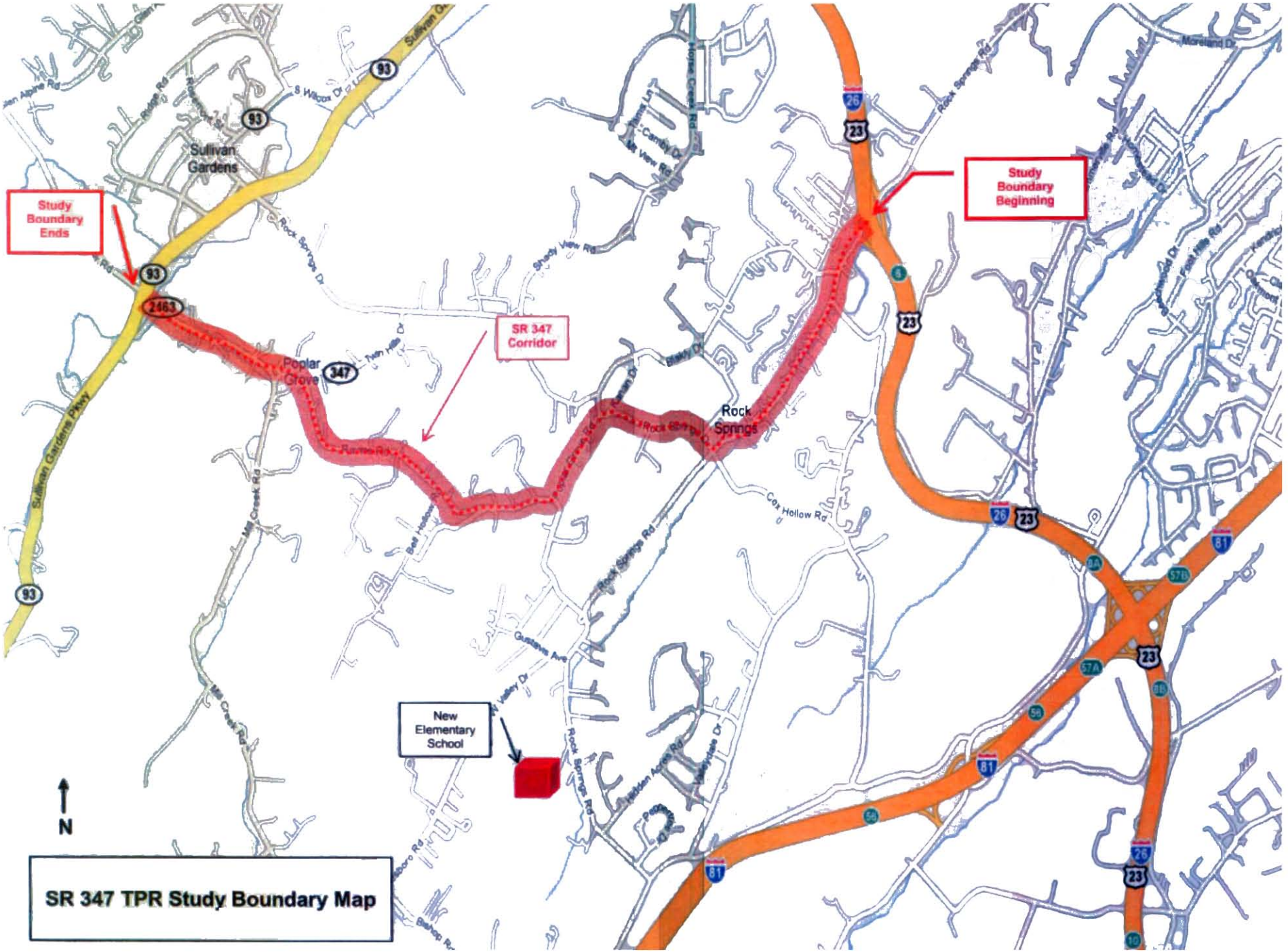
Sincerely,

Chris Campbell

Chris Campbell
Kingsport MPO Coordinator
201 West Market Street
Kingsport, TN 37660

Enclosure

Cc: Steve Allen
Angie Midgett


Study Boundary Ends
Study Boundary Beginning
SR 347 Corridor
New Elementary School
Sullivan Gardens
Poplar Grove
Rock Springs
N
SR 347 TPR Study Boundary Map

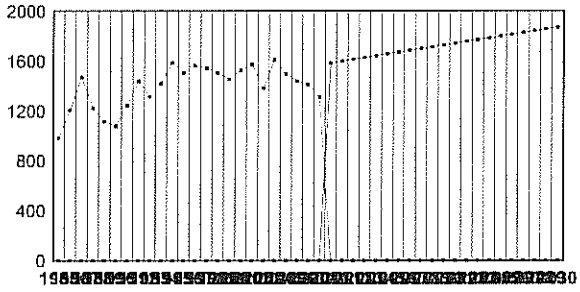
County: Sullivan **Station Number:** 000029

Route: SR-347 **Station Type:** Other Rural **Station Out:** NO

Location: SULLIVAN GARDENS

Month	Year	Average Weekday Traffic	Average Daily Traffic	Annual Average Daily	Axle Adjustment Factor	Remarks
06	1985	1,057	993	983	0.99	
09	1986	1,282	1,218	1,206	0.99	
07	1987	1,597		1,470	0.99	
10	1988	1,299		1,222	0.99	
05	1989	1,184		1,114	0.99	
09	1990	1,251		1,077	0.99	
08	1991	1,365	1,256	1,243	0.99	
07	1992	1,580	1,454	1,439	0.99	
07	1993	1,461	1,329	1,315	0.99	
05	1994	2,089	1,943	1,420	0.99	ACTUAL = 1923
10	1995	1,689	1,604	1,587	0.99	
11	1996	1,550	1,519	1,504	0.99	
07	1997	1,754	1,579	1,563	0.99	
07	1998	1,733	1,560	1,544	0.99	
08	1999	1,583	1,520	1,504	0.99	
08	2000	1,631	1,468	1,453	0.99	
06	2001	1,731	1,541	1,526	0.99	
08	2002	1,653	1,587	1,571	0.99	
07	2003	1,550	1,394	1,381	0.99	
10	2004	0	0	1,611	0.99	EST
08	2005	1,606	1,510	1,495	0.99	
08	2006	1,562	1,453	1,438	0.99	
07	2007	1,439	1,425	1,410	0.99	
07	2008	1,335	1,322	1,308	0.99	
01	2010	0	0	1,584	0.00	
01	2011	0	0	1,598	0.00	
01	2012	0	0	1,613	0.00	
01	2013	0	0	1,627	0.00	
01	2014	0	0	1,641	0.00	
01	2015	0	0	1,656	0.00	
01	2016	0	0	1,670	0.00	
01	2017	0	0	1,684	0.00	
01	2018	0	0	1,699	0.00	
01	2019	0	0	1,713	0.00	
01	2020	0	0	1,727	0.00	
01	2021	0	0	1,742	0.00	
01	2022	0	0	1,756	0.00	
01	2023	0	0	1,770	0.00	
01	2024	0	0	1,784	0.00	
01	2025	0	0	1,799	0.00	
01	2026	0	0	1,813	0.00	
01	2027	0	0	1,827	0.00	
01	2028	0	0	1,842	0.00	
01	2029	0	0	1,856	0.00	

01	2030	0	0	1,870	0.00



Forecast Line based on years 2010 - 2030 and is calculated based on years 1985 - 2008 Growth Factor: .92

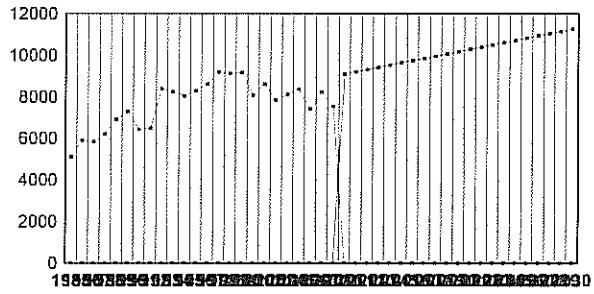
County: Sullivan **Station Number:** 000127

Route: SR-347 **Station Type:** Other Rural **Station Out:** NO

Location: S OF KINGSPORT

Month	Year	Average Weekday Traffic	Average Daily Traffic	Annual Average Daily	Axle Adjustment Factor	Remarks
05	1985	5,926	5,156	5,104	0.99	
09	1986	5,961	5,961	5,902	0.99	
07	1987	6,332		5,830	0.99	
09	1988	6,881		6,200	0.99	
05	1989	6,908		6,907	0.99	
09	1990	8,093		7,291	0.99	
07	1991	7,136	6,494	6,429	0.99	
07	1992	7,113	6,544	6,479	0.99	
07	1993	9,305	8,467	8,382	0.99	NEW TK TERMINAL
05	1994	9,144	8,321	8,238	0.99	
10	1995	8,814	8,108	8,026	0.99	
11	1996	8,535	8,364	8,281	0.99	
07	1997	9,652	8,687	8,600	0.99	
07	1998	9,464	9,275	9,182	0.99	
08	1999	9,592	9,208	9,116	0.99	
08	2000	8,994	8,095	9,158	0.99	ACTUAL = 8014
06	2001	9,158	8,151	8,069	0.99	DOWN 2 YRS
08	2002	8,962	8,693	8,606	0.99	
08	2003	8,245	7,915	7,836	0.99	
07	2004	8,815	8,197	8,115	0.99	
12	2005	0	0	8,358	0.99	EST
08	2006	7,958	7,481	7,406	0.99	
07	2007	8,389	8,305	8,222	0.99	
07	2008	7,687	7,610	7,534	0.99	
01	2010	0	0	9,094	0.00	
01	2011	0	0	9,202	0.00	
01	2012	0	0	9,310	0.00	
01	2013	0	0	9,418	0.00	
01	2014	0	0	9,526	0.00	
01	2015	0	0	9,634	0.00	
01	2016	0	0	9,742	0.00	
01	2017	0	0	9,849	0.00	
01	2018	0	0	9,957	0.00	
01	2019	0	0	10,065	0.00	
01	2020	0	0	10,173	0.00	
01	2021	0	0	10,281	0.00	
01	2022	0	0	10,389	0.00	
01	2023	0	0	10,497	0.00	
01	2024	0	0	10,605	0.00	
01	2025	0	0	10,713	0.00	
01	2026	0	0	10,821	0.00	
01	2027	0	0	10,929	0.00	
01	2028	0	0	11,037	0.00	
01	2029	0	0	11,145	0.00	

01	2030	0	0	11,253	0.00



Forecast Line based on years 2010 - 2030 and is calculated based on years 1985 - 2008 Growth Factor: 1.216

TENNESSEE DEPARTMENT OF TRANSPORTATION
PROJECT PLANNING DIVISION
SAFETY PLANNING SECTION

CRASH DATA REQUEST

Requested by: Name: Gena Gilliam Date: 6/16/09
Division: Project Planning
Address: TDOT HQ Telephone No.: 253-7692
Project No.: 99-108-7018-04
Location: Region: 1 County: Sullivan City: Kingsport
Route: SR 347
Location on Route: From SR 93 to I-26 in Kingsport

Beginning Log Mile: 6.49 Ending Log Mile: 10.52

MAP SHOWING LOCATION MUST BE ATTACHED

TYPE OF CRASH DATA REQUESTED

	CHECK Yes	CHECK No	TIME PERIOD OR YEARS REQUESTED (3 Years or Specify)			
Crash Listing:	☒	☐	2006	2007	2008	
Collision Diagram:	☐	☐				
Crash Rates:	☐	☐	2006	2007	2008	
High Hazard Rank:	☐	☐				
Update Previous Request:	☐	☐				
Special Request:	☐	☐	Describe Specifics:			

Request Analyzed By: _____ Date: 9/8/09

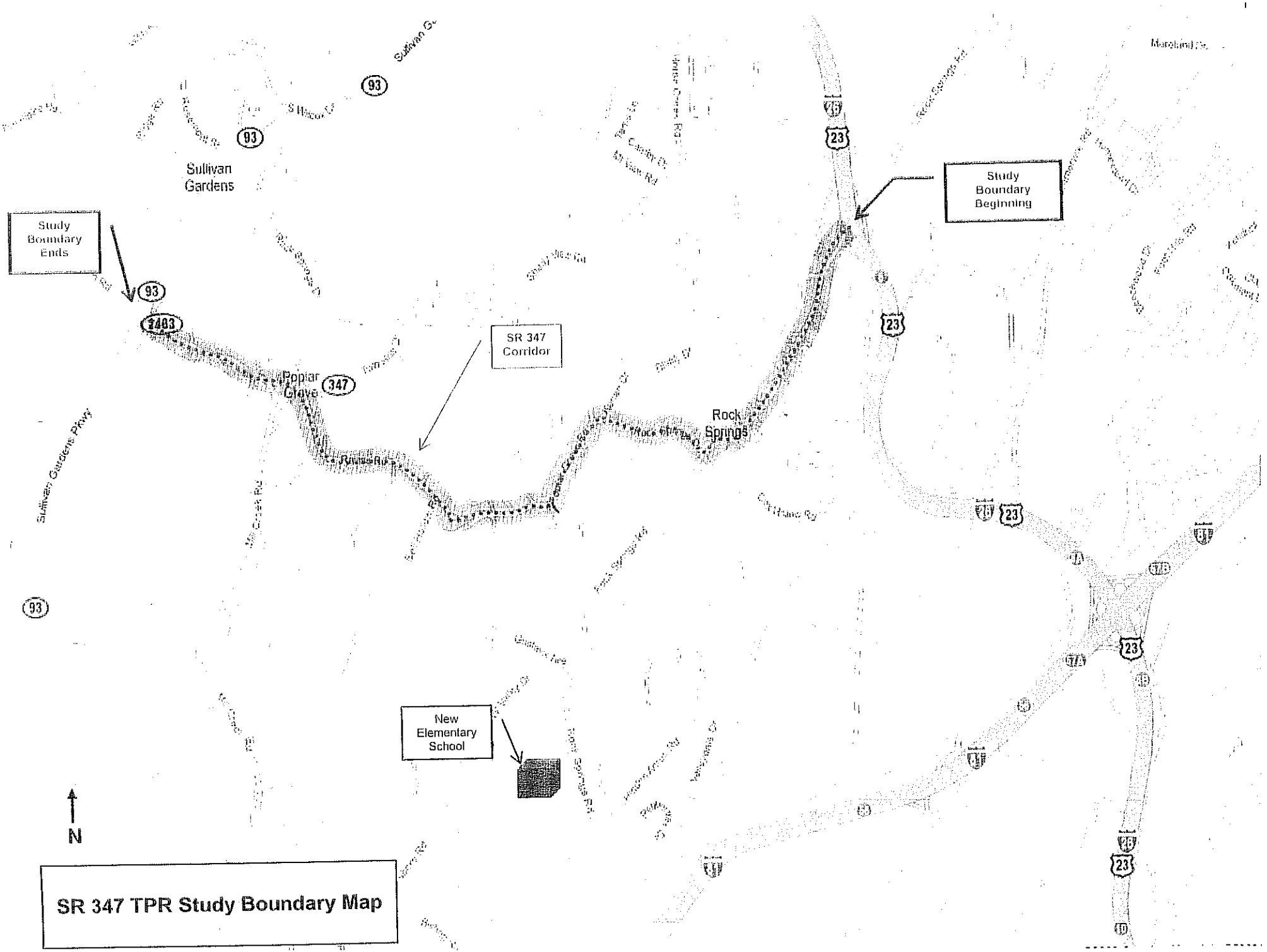
Reviewed By: _____ Date: 9/10/09
David Lollar, Transportation Specialist 2

_____ Date: 9/15/09
Harold Dilmore, Transportation Manager 1

_____ Date: 9/15/09
Bill Anderson, Transportation Manager 2

Comments:

(REV. 09/05/06)


Study Boundary Ends
Sullivan Gardens
93
7483
Poplar Grove
347
SR 347 Corridor
Rock Springs
Study Boundary Beginning
23
New Elementary School
N
SR 347 TPR Study Boundary Map

Crash Summary Report

Date: 09/15/2009

County: SULLIVAN | Route: SR347 | Spcl Cse: 0-NONE | Cnty Seq: 1

Begin LogMile: 6.49 | End LogMile: 10.52 | Begin Date: 01/01/2006 | 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:	8
Prop Damage Crashes:	12
Total Crashes:	20

Weather Conditions

No Adverse Conditions:	16	Sleet and Fog:	0
Rain:	3	Smog, Smoke:	0
Sleet and Hail:	1	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:	9
Heavy Trucks:	2
Bicycles:	0

Manner of Collision

Rear End:	1
Head On:	0
Rear-to-Rear:	0
Angle:	6
Sideswipe Same Dir:	0
Sideswipe Opp. Dir:	3
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:	14
At Intersection:	5
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:	1
Motor Vehicle in Transport:	10
Motor Vehicle in Transport in Other Rdway:	0
Parked Motor Vehicle:	0
Other Type Non-Motorist:	0
Fixed Object:	9
Other Object (not fixed):	0
Non Collision:	0

Lighting Conditions

Dawn:	0
Daylight:	12
Dusk:	0
Dark/Lighted:	0
Dark/Not Lighted:	8
Not Indicated:	0

ROUTE FEATURE DESCRIPTION LISTING

SULLIVAN County - SR347

COUNTY: SULLIVAN COUNTY NO. 82

ROUTE: SR347 SPECIAL CASE: None CTY SEQ: 1

LOG MILE	ITEM CODE	ROUTE FEATURE	DESC CODE
6.490	3	SR-93 SULLIVAN GARDENS PKWY. RT. & LT.	310
6.490	0	BEGIN MILL CREEK RD.	920
6.530	2	BRIDGE [82S24540001]: HORSE CREEK	261
6.850	2	BRIDGE [82S24540005]: MILL CREEK	221
7.070	5	B370 LT.	530
7.140	4	2595 MILL CREEK RD. RT.	420
7.140	0	90 DEG. LT. TURN	922
7.140	0	BEGIN TWIN HILLS DR.	920
7.170	5	B370 OLD MILL CREEK RD. LT.	530
7.260	5	B396 CEDAR DR. # 2 LT.	530
7.270	5	B384 TWIN HILL RD. LT.	530
7.270	0	BEGIN POPLAR GROVE RD.	920
7.870	5	C582 THOMAS ACRES RD. RT.	520
8.090	5	B371 BELL HOLLOW RD. RT.	520
8.340	5	B372 OLD BELL HOLLOW RD. RT.	520
8.630	4	2597 ROCK SPRINGS VALLEY DR. RT.	420
8.990	5	B387 ROCK SPRINGS RD. LT.	530
9.020	5	B388 KANAN DR. LT.	530
9.440	5	B389 CHURCH VIEW DR. LT.	530
9.520	5	B366 ROCK SPRINGS RD. FRONT & B355 COX HOLLOW RD. RT.	520
9.520	0	90 DEG. LT. TURN	922
9.630	5	B394 CHURCH VIEW EXT. LT.	530
10.290	5	B356 WESFIELD DR. RT.	520
10.390	5	B383 BLAKLEY DR. LT.	530
10.520	7	RAMP FROM I-26 US-HWY 23 LT.	706
10.540	7	RAMP TO I-26 US-HWY 23 RT.	702

ROUTE FEATURE DESCRIPTION LISTING

SULLIVAN County - SR347

COUNTY: SULLIVAN COUNTY NO. 82

ROUTE: SR347 SPECIAL CASE: None CTY SEQ: 1

LOG MILE	ITEM CODE	ROUTE FEATURE	DESC CODE
10.600	2	UNDERPASS [82I00260017]: I-26 US-HWY 23 SB. LNS.	252
10.620	3	I-26 US-HWY 23 RT. & LT. / CENTER OF UNDERPASS	360
10.620	4	3894 ROCK SPRINGS RD. FRONT / CENTER OF UNDERPASS	440

TRIMS ROAD SEGMENT REPORT

SULLIVAN County - SR347

COUNTY: SULLIVAN COUNTY NO: 82

ROUTE NBR	SPEC CASE	CTY SEQ	BEG LOG MILE	END LOG MILE	SP SY	SP SY2	SP SY3	US RTE	US RTE2	FUNCTIONAL CLASS	ADM SYS	URB AREA	INC AREA	GOV CON	ROAD NAME	HPMS SEC_ID
SR347	0	1	0.000	0.960	01					R / MAJ COL	STP STATE RURAL			STATE HWAY	BEECH CREEK RD	
SR347	0	1	0.960	3.740	01					R / MAJ COL	STP STATE RURAL			STATE HWAY	LONE STAR RD	
SR347	0	1	3.740	6.490	01					U / MIN ART	STP STATE URBAN	152		STATE HWAY	LONE STAR RD	
SR347	0	1	6.490	7.140	01					U / MIN ART	STP STATE URBAN	152		STATE HWAY	MILL CREEK RD	
SR347	0	1	7.140	7.270	01					U / MIN ART	STP STATE URBAN	152		STATE HWAY	TWIN HILLS DR	
SR347	0	1	7.270	10.620	01					U / MIN ART	STP STATE URBAN	152		STATE HWAY	POPLAR GROVE RD	

TRIMS TRAFFIC REPORT

SULLIVAN County - SR347

COUNTY: SULLIVAN

ROUTE	SC	CO	SQ	BEG LOG MILE	END LOG MILE	YR OF TRAFFIC	ANNUAL AVERAGE DAILY TRAFFIC	PEAK HOUR %	DESIGN HOUR VOLUME	DIRECT DIST %	% PASS CARS	% SINGLE UNIT TRUCKS	% MULTI UNIT TRUCKS	CYCLE COUNTS STATION NBR	CYCLE COUNTS STATION COUNTY	CLASS COUNTS STATION NBR	CLASS COUNTS STATION COUNTY	IS CLASS COUNT?
SR347	0	1		3.760	6.490	2008	2240	10	12	65	98	2	0	28	82	028C	82	YES
SR347	0	1		6.490	8.630	2008	1310	10	12	65	99	1	0	29	82	029C	82	YES
SR347	0	1		8.630	10.620	2008	7530	10	12	65	100	0	0	127	82	029C	82	NO

County	Route	Log Mile	Date of Crash	Time of Crash	Total Killed	Total Inj	Type of Crash	Location	Total Veh	Driver Actions	Most Harmful Event	Manner of First Collision	Vehicle Going	Weather Cond	Case Number
SULLIVAN	SR347	6.590	08/30/2006	935	0	1	Non-Incap Injury	Along Roadway	1	Other (Narrative)	Embankment	No Collision w/ Vehicle	SOUTH	Rain	8692933
SULLIVAN	SR347	6.890	01/23/2006	615	0	0	Prop Damage (over)	Along Roadway	1	Lane Departure	Bridge Rail	No Collision w/ Vehicle	WEST	Rain	9489302
SULLIVAN	SR347	7.140	04/01/2006	505	0	1	Non-Incap Injury	At an Intersection	1	Lane Departure	Culvert	No Collision w/ Vehicle	WEST	Rain	9053830
SULLIVAN	SR347	7.990	10/07/2006	115	0	1	Incap Injury	Along Roadway	1	Lane Departure	Tree	No Collision w/ Vehicle	EAST	No Adverse Cond.	8811695
SULLIVAN	SR347	9.020	03/04/2006	1035	0	0	Prop Damage (over)	At an Intersection	2	ntive (Eating, Reading, Talking	Vehicle in Transport	Sideswipe, Opposite Dir	WEST	No Adverse Cond.	8876125
SULLIVAN	SR347	9.300	07/07/2006	430	0	0	Prop Damage (over)	Along Roadway	1	No Contributing Actions	Other Animal	No Collision w/ Vehicle	WEST	No Adverse Cond.	9303280
SULLIVAN	SR347	10.450	04/29/2006	1810	0	0	Prop Damage (over)	Along Roadway	2	Failure to Yield Right of Way	Vehicle in Transport	Angle	NORTH	No Adverse Cond.	9122774

County	Route	Log Mile	Date of Crash	Time of Crash	Total Killed	Total Inj	Type of Crash	Location	Total Veh	Driver Actions	Most Harmful Event	Manner of First Collision	Vehicle Going	Weather Cond	Case Number
SULLIVAN	SR347	7.990	12/08/2007	345	0	0	Prop Damage (over)	Along Roadway	1	Lane Departure	Fence	No Collision w/ Vehicle	NORTH	No Adverse Cond.	9910124
SULLIVAN	SR347	9.520	07/07/2007	1336	0	0	Prop Damage (over)	At an Intersection	2	No Contributing Actions	Vehicle in Transport	Angle	EAST	No Adverse Cond.	9121484
SULLIVAN	SR347	9.520	09/12/2007	840	0	0	Prop Damage (over)	At an Intersection	2	Other (Narrative)	Vehicle in Transport	Angle	NORTH	No Adverse Cond.	9257015
SULLIVAN	SR347	9.990	01/03/2007	910	0	1	Non-Incap Injury	Along Roadway	2	Other (Narrative)	Vehicle in Transport	Angle	SOUTH	No Adverse Cond.	8693010
SULLIVAN	SR347	10.080	06/10/2007	1930	0	1	Non-Incap Injury	Along Roadway	2	No Contributing Actions	Vehicle in Transport	Sideswipe, Opposite Dir	SOUTH	No Adverse Cond.	9370356
SULLIVAN	SR347	10.420	09/01/2007	9999	0	1	Non-Incap Injury	Along Roadway	1	Lane Departure	Embankment	No Collision w/ Vehicle	WEST	No Adverse Cond.	9256768
SULLIVAN	SR347	10.520	02/09/2007	1825	0	0	Prop Damage (over)	Ramp	2	Following Improperly	Vehicle in Transport	Rear-End	EAST	No Adverse Cond.	9485048

County	Route	Log Mile	Date of Crash	Time of Crash	Total Killed	Total Inj	Type of Crash	Location	Total Veh	Driver Actions	Most Harmful Event	Manner of First Collision	Vehicle Going	Weather Cond	Case Number
SULLIVAN	SR347	6.740	08/08/2008	900	0	1	Non-Incap Injury	Along Roadway	1	Lane Departure	Utility Pole	No Collision w/ Vehicle	EAST	No Adverse Cond.	8992512
SULLIVAN	SR347	6.890	01/21/2008	1142	0	0	Prop Damage (over)	Along Roadway	1	No Contributing Actions	Other Fixed Object	No Collision w/ Vehicle	NORTH	Sleet, Hail	9910167
SULLIVAN	SR347	9.520	06/11/2008	1300	0	0	Prop Damage (over)	At an Intersection	2	Failure to Yield Right of Way	Vehicle in Transport	Angle	NORTH	No Adverse Cond.	10125462
SULLIVAN	SR347	9.700	05/18/2008	300	0	0	Prop Damage (over)	Along Roadway	1	Unknown Action	Ditch	No Collision w/ Vehicle	SOUTH	No Adverse Cond.	10030147
SULLIVAN	SR347	9.800	05/22/2008	750	0	0	Prop Damage (under)	Along Roadway	2	Other (Narrative)	Vehicle in Transport	Sideswipe, Opposite Dir	WEST	No Adverse Cond.	50229910
SULLIVAN	SR347	10.450	05/10/2008	1744	0	2	Non-Incap Injury	Along Roadway	2	Failure to Yield Right of Way	Vehicle in Transport	Angle	WEST	No Adverse Cond.	10125444

SULLIVAN County - SR347

County: SULLIVAN (82) ***Route No.*** SR347 ***Special Case*** 0-NONE ***County Sequence*** 1

Beg Log Mile	End Log Mile	ROW	Access Control	Operation	Illum-ination	School Spd Lmt	Spd Lmt	Truck Spd Lmt	Terrain	Land Use	Thru Lanes	Nbr Lanes	Feature Information			
													Seq. #	Type	Width	Composition
6.000	6.490	36	0-NONE	2-TWO WAY			35		2-ROLLING	0-RURAL	2	2	8	DRAINAGE		DITCH
		36									2	2	9	SHOULDER (OUTSIDE)	1.0	SOIL (DIRT)
		36									2	2	10	PAVEMENT	20.0	ASPHALT CONCRETE
		36									2	2	12	SHOULDER (OUTSIDE)	1.0	SOIL (DIRT)
		36									2	2	13	DRAINAGE		DITCH
6.490	7.140	38	0-NONE	2-TWO WAY			35		2-ROLLING	4-FRINGE (MIX RES. COMM.)	2	2	8	DRAINAGE		DITCH
		38									2	2	9	SHOULDER (OUTSIDE)	2.0	SOIL (DIRT)
		38									2	2	10	PAVEMENT	19.0	ASPHALT CONCRETE
		38									2	2	12	SHOULDER (OUTSIDE)	2.0	SOIL (DIRT)
		38									2	2	13	DRAINAGE		DITCH
7.140	7.510	36	0-NONE	2-TWO WAY			35		2-ROLLING	7-RESIDENTIAL	2	2	8	DRAINAGE		DITCH
		36									2	2	9	SHOULDER (OUTSIDE)	1.0	SOIL (DIRT)
		36									2	2	10	PAVEMENT	20.0	ASPHALT CONCRETE
		36									2	2	12	SHOULDER (OUTSIDE)	1.0	SOIL (DIRT)
		36									2	2	13	DRAINAGE		DITCH
7.510	9.650	36	0-NONE	2-TWO WAY			35		3-MOUNT.	7-RESIDENTIAL	2	2	8	DRAINAGE		DITCH
		36									2	2	9	SHOULDER (OUTSIDE)	1.0	SOIL (DIRT)
		36									2	2	10	PAVEMENT	20.0	ASPHALT CONCRETE
		36									2	2	12	SHOULDER (OUTSIDE)	1.0	SOIL (DIRT)
		36									2	2	13	DRAINAGE		DITCH

SULLIVAN County - SR347

County: SULLIVAN (82) ***Route No.*** SR347 ***Special Case*** 0-NONE ***County Sequence*** 1

Beg Log Mile	End Log Mile	ROW	Access Control	Operation	Illum-ination	School Spd Lmt	Spd Lmt	Truck Spd Lmt	Terrain	Land Use	Thru Lanes	Nbr Lanes	Feature Information			
													Seq. #	Type	Width	Composition
9.650	10.290	36	0-NONE	2-TWO WAY			35		2-ROLLING	7-RESIDENTIAL	2	2	8	DRAINAGE		DITCH
		36									2	2	9	SHOULDER (OUTSIDE)	1.0	SOIL (DIRT)
		36									2	2	10	PAVEMENT	20.0	ASPHALT CONCRETE
		36									2	2	12	SHOULDER (OUTSIDE)	1.0	SOIL (DIRT)
		36									2	2	13	DRAINAGE		DITCH
10.290	10.390	50	0-NONE	2-TWO WAY			35		2-ROLLING	2-COMMERCIAL	2	2	8	DRAINAGE		DITCH
		50									2	2	9	SHOULDER (OUTSIDE)	2.0	GRAVEL
		50									2	2	10	PAVEMENT	20.0	ASPHALT CONCRETE
		50									2	2	12	SHOULDER (OUTSIDE)	2.0	GRAVEL
		50									2	2	13	DRAINAGE		DITCH
10.390	10.620	70	0-NONE	2-TWO WAY			35		2-ROLLING	2-COMMERCIAL	2	2	8	DRAINAGE		DITCH
		70									2	2	9	SHOULDER (OUTSIDE)	4.0	GRAVEL
		70									2	2	10	PAVEMENT	24.0	ASPHALT CONCRETE
		70									2	2	12	SHOULDER (OUTSIDE)	4.0	GRAVEL
		70									2	2	13	DRAINAGE		DITCH

09/08/2009

GEOMETRIC REPORT

SULLIVAN County - SR347

County: SULLIVAN (82) Route No. SR347 Special Case 0-None County Sequence 1

Entrances			Begin Log Mile	End Log Mile	ROW	Access Control	Operation	Speed Limit	Terrain	Land Use	Thru Lanes	Nbr Lanes	Feature Information			
Com	Res	SR											Seq. #	Type	Width	Composition
			Mill Creek Road													
0	18	1	6.490	7.140	38	0-None	2-Two Way	35	2-Rolling	4-Fringe (Mix Res. Comm.)	2	2	8	Drainage		Ditch
					38						2	2	9	Shoulder (Outside)	2.0	Soil (Dirt)
					38						2	2	10	Pavement	19.0	Asphalt Concrete
					38						2	2	12	Shoulder (Outside)	2.0	Soil (Dirt)
					38						2	2	13	Drainage		Ditch
			Poplar Grove Road through Rock Springs Drive													
0	17	3	7.140	7.510	36	0-None	2-Two Way	35	2-Rollli,G	7 -Residential	2	2	8	Drainage		Ditch
					36						2	2	9	Shoulder (Outside)	1.0	Soil (Dirt)
					36						2	2	10	Pavement	20.0	Asphalt Concrete
					36						2	2	12	Shoulder (Outside)	1.0	Soil (Dirt)
					36						2	2	13	Drainage		Ditch
1	78	8	7.510	9.520	36	0-None	2-Two Way	35	3-Mount.	7-Residential	2	2	8	Drainage		Ditch
					36						2	2	9	Shoulder (Outside)	1.0	Soil (Dirt)
					36						2	2	10	Pavement	20.0	Asphalt Concrete
					36						2	2	12	Shoulder (Outside)	1.0	Soil (Dirt)
					36						2	2	13	Drainage		Ditch
			Rock Springs Road													
6	34	1	9.520	10.290	36	0-None	2-Two Way	35	2·Rolling	7-Residential	2	2	8	Drainage		Ditch
					36						2	2	9	Shoulder (Outside)	1.0	Soil (Dirt)
					36						2	2	10	Pavement	20.0	Asphalt Concrete
					36						2	2	12	Shoulder (Outside)	1.0	Soil (Dirt)
					36						2	2	13	Drainage		Ditch
3	1	2	10.290	10.390	50	0-None	2-Two Way	35	2·Rolling	2-Commercial	2	2	8	Drainage		Ditch
					50						2	2	9	Shoulder (Outside)	2.0	Gravel
					50						2	2	10	Pavement	20.0	Asphalt Concrete
					50						2	2	12	Shoulder (Outside)	2.0	Gravel
					50						2	2	13	Drainage		Ditch
5	1	4	10.390	10.620	70	0-None	2-Two Way	35	2·Rolling	2-Commercial	2	2	8	Drainage		Ditch
					70						2	2	9	Shoulder (Outside)	4.0	Gravel
					70						2	2	10	Pavement	24.0	Asphalt Concrete
					70						2	2	12	Shoulder (Outside)	4.0	Gravel
					70						2	2	13	Drainage		Ditch

Crash Data for SR 347 in Kingsport 2006 - 2008

Derived Station	County	Route	Log Mile	Date of Crash	Time of Crash	Total Killed	Total Injured	Type of Crash	Location	Total Vehicles	Driver Actions	Most Harmful Event	Manner of First Collision	Vehicle Going	Weather Cond
345+29.60	Sullivan	SR347	6.590	08/30/2006	9:35 AM	0	1	Non-Incap Injury	Along Roadway	1	Other (Narrative)	Embankment	No Collision w/ Vehicle	South	Rain
353+21.60	Sullivan	SR347	6.740	08/08/2008	9:00 AM	0	1	Non-Incap Injury	Along Roadway	1	Lane Departure	Utility Pole	No Collision w/ Vehicle	East	No Adverse Cond,
Mill Creek Bridge															
361+13.60	Sullivan	SR347	6.890	01/23/2006	6:15 AM	0	0	Prop Damage (over)	Along Roadway	1	Lane Departure	**Bridge Rail**	No Collision w/ Vehicle	West	Rain
361+13.60	Sullivan	SR347	6.890	01/21/2008	11:42 AM	0	0	Prop Damage (over)	Along Roadway	1	No Contributing Actions	Other Fixed Object	No Collision w/ Vehicle	North	Sleet, Hail
Mill Creek Road Intersection															
374+33.60	Sullivan	SR347	7.140	04/01/2006	5:05 AM	0	1	Non-Incap Injury	**At an Intersection**	1	Lane Departure	Culvert	No Collision w/ Vehicle	West	Rain
Between Thomas Acres & Bell Hollow Roads															
419+21.60	Sullivan	SR347	7.990	10/07/2006	1:15 AM	0	1	Incap Injury	Along Roadway	1	Lane Departure	Tree	No Collision w/ Vehicle	East	No Adverse Cond.
419+21.60	Sullivan	SR347	7.990	12/08/2007	3:45 AM	0	0	Prop Damage (over)	Along Roadway	1	Lane Departure	Fence	No Collision w/ Vehicle	North	No Adverse Cond.
Kanan Drive Intersection															
473+60.00	Sullivan	SR347	9.020	03/04/2006	10:35 AM	0	0	Prop Damage (over)	**At an Intersection**	**2**	Inattentive (Eating, Reading, Talking)	Vehicle in Transport	**Sideswipe, Opposite Dir**	West	No Adverse Cond.
488+38.40	Sullivan	SR347	9.300	07/07/2006	4:30 AM	0	0	Prop Damage (over)	Along Roadway	1	No Contributing Actions	Other Animal	No Collision w/ Vehicle	West	No Adverse Cond.
Cox Hollow Road Intersection															
500+00.00	Sullivan	SR347	9.520	07/07/2007	1:36 PM	0	0	Prop Damage (over)	**At an Intersection**	**2**	No Contributing Actions	Vehicle in Transport	**Angle**	East	No Adverse Cond.
500+00.00	Sullivan	SR347	9.520	09/12/2007	8:40 AM	0	0	Prop Damage (over)	**At an Intersection**	**2**	Other (Narrative)	Vehicle in Transport	**Angle**	North	No Adverse Cond.
500+00.00	Sullivan	SR347	9.520	06/11/2008	1:00 PM	0	0	Prop Damage (over)	**At an Intersection**	**2**	Failure to Yield Right of Way	Vehicle in Transport	**Angle**	North	No Adverse Cond.
509+50.40	Sullivan	5R347	9.700	05/18/2008	3:00 AM	0	0	Prop Damage (over)	Along Roadway	1	Unknown Action	Ditch	No Collision w/ Vehicle	South	No Adverse Cond.
514+78.40	Sullivan	8R347	9.800	05/22/2008	7:50 AM	0	0	Prop Damage (under)	Along Roadway	**2**	Other (Narrative)	Vehicle in Transport	**Sideswipe, Opposite Dir**	West	No Adverse Cond.
524+81.60	Sullivan	SR347	9.990	01/03/2007	9:10 AM	0	1	Non-Incap Injury	Along Roadway	**2**	Other (Narrative)	Vehicle in Transport	**Angle**	South	No Adverse Cond.
529+56.80	Sullivan	SR347	10.080	06/10/2007	7:30 PM	0	1	Non-Incap Injury	Along Roadway	**2**	No Contributing Actions	Vehicle in Transport	**Sideswipe, Opposite Dir**	South	No Adverse Cond.
547+52.00	Sullivan	SR347	10.420	09/01/2007	12:00 AM	0	1	Non-Incap Injury	Along Roadway	1	Lane Departure	Embankment	No Collision w/ Vehicle	West	No Adverse Cond.
In Front of Store															
549+10.40	Sullivan	SR347	10.450	04/29/2006	6:10 PM	0	0	Prop Damage (over)	Along Roadway	**2**	Failure to Yield Right of Way	Vehicle in Transport	**Angle**	North	No Adverse Cond.
549+10.40	Sullivan	SR347	10.450	05/10/2008	5:44 PM	0	2	Non-Incap Injury	Along Roadway	**2**	Failure to Yield Right of Way	Vehicle in Transport	**Angle**	West	No Adverse Cond.
552+80.00	Sullivan	SR347	10.520	02/09/2007	6:25 PM	0	0	Prop Damage (over)	**Ramp**	**2**	Following Improperly	Vehicle in Transport	**Rear-End**	East	No Adverse Cond.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
NASHVILLE, TENNESSEE 37243

MEMORANDUM

TO: Mr. Paul Morrison
Survey and Design Division

FROM: RB Raymond Brisson
Environmental Planning Office

DATE: April 6, 1992

SUBJECT: Architectural Survey for SR-347 from SR-93 to I-181, Sullivan County

Historians from my staff surveyed the general area of the above referenced project to determine if there are any properties either listed in or eligible for listing in the National Register of Historic Places that might be affected by the project.

The historians inventoried three properties in this general area. Two of these properties, H-1 Rock Springs School and H-3 Bachman/Steadman House warrant further research and may be eligible for the National Register. Mr. Jeffery Steadman, owner of H-3, was hostile about the project and refused the historians access to the property. It was the opinion of the historians that H-2 Frame House was probably not eligible for the National Register.

The location of these properties are on the attached map. Tax maps were not readily available. However, boundaries for the school (H-1) would probably be the entire parcel on which it sits. Boundaries for the house (H-3) would certainly run along the right-of-way of the existing road. These eligibility comments are based on preliminary field work and have not been confirmed by the State Historic Preservation Office (SHPO) who may disagree with our findings. As staff time permits, the historians will do additional research and consult with the SHPO to finalize eligibility decisions and set boundaries. As soon as these issues have been resolved, we will notify you.

As design progresses on this project, please keep these concerns in mind and try to avoid impacts to these resources. If this project is state funded, Public Law 699 requires that we seek the comments of the State Historic Preservation Officer about effects to historic resources.

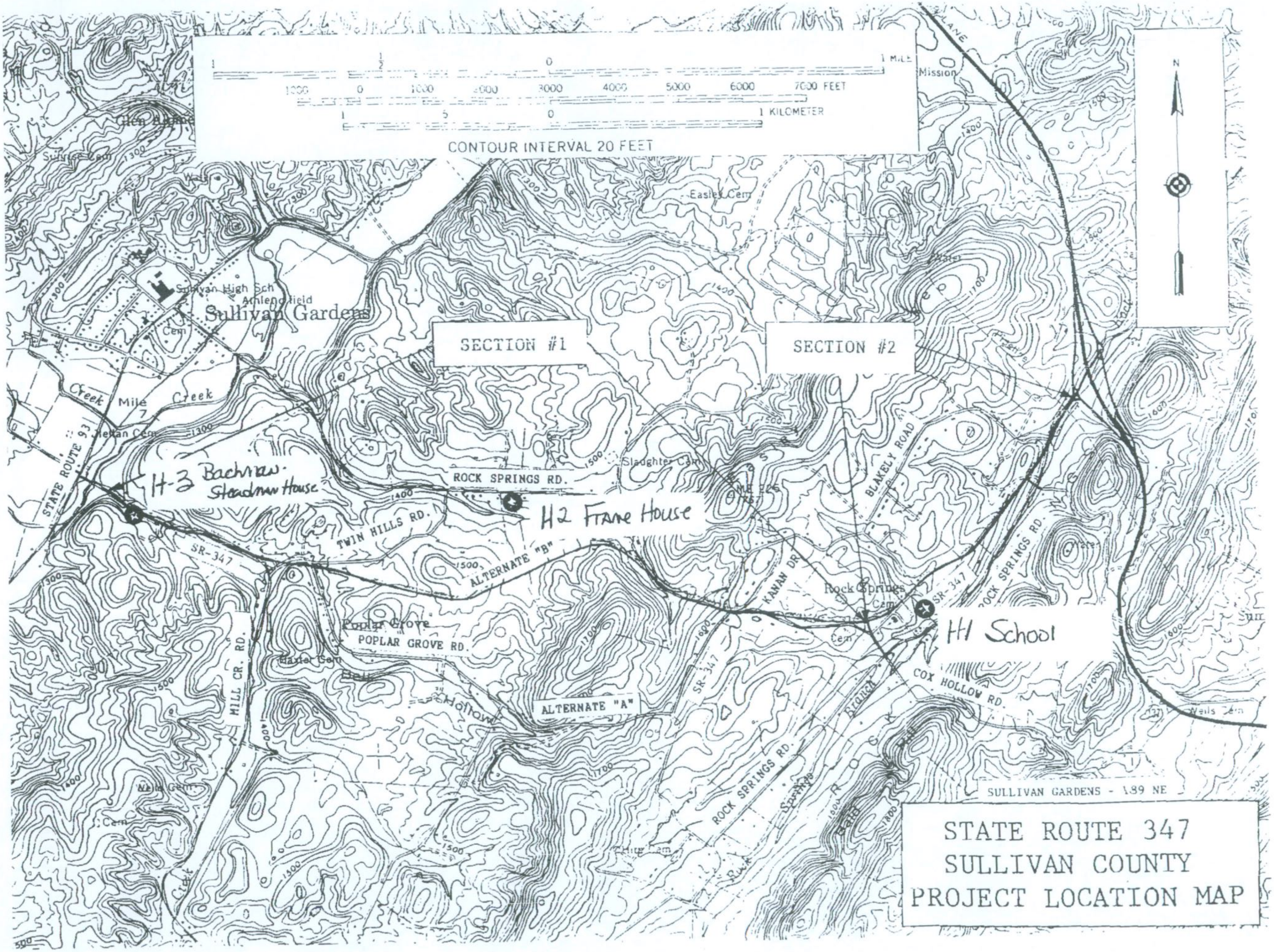
If the project is federally funded the Department is required to seek the State Historic Preservation's comments and in some cases the comments of the Advisory Council on Historic Preservation. Further, if the project takes land from a historic resource through fee simple acquisition or easements, the Department is required to develop an avoidance alternative and prove that there is no prudent and feasible alternative to that use.

If this project is designed by a consultant, please make him aware of these concerns.

RB:MC:ljg

Enclosure

cc: Mr. Clellon Loveall
Mr. William Wallace
Mr. Glenn Beckwith
Mr. Pat Alexander
Mr. Tom Love
Mr. Gerald Kline
Mr. Jim Bryson, FHWA
Ms. Martha Carver



CONTOUR INTERVAL 20 FEET
1 KILOMETER
7000 FEET
1 MILE
N
SECTION #1
SECTION #2
Sullivan Gardens
Sullivan High Sch
STATE ROUTE 93
H-3 Bachman-Steadman House
ROCK SPRINGS RD.
H2 Frame House
TWIN HILLS RD.
SR-347
ALTERNATE "B"
ALTERNATE "A"
POPLAR GROVE RD.
Poplar Grove
MILL CR. RD.
KANAN DR.
BLAKELY ROAD
ROCK SPRINGS RD.
Rock Springs
H1 School
COX HOLLOW RD.
Slaughter Cem
Easley Cem
Mission
SULLIVAN GARDENS - 189 NE

STATE ROUTE 347
SULLIVAN COUNTY
PROJECT LOCATION MAP