



COMMUNITY
TRANSPORTATION
Planning Grant

BYRDSTOWN, TN

SR-111/SR-325 Corridor Study

partially funded with State and Planning Research dollars



TDOT
Department of
Transportation



U.S. Department of Transportation
Federal Highway Administration

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INTRODUCTION

The Town of Byrdstown and the Tennessee Department of Transportation (TDOT) initiated the SR-111/SR-325 Corridor Study in January 2021 after the Town made a successful application for Tennessee Community Transportation Planning Grant (CTPG) funds. This document identifies the vision and goals for the study and presents the findings of the study team in the form of a data inventory, overview of public involvement, existing conditions review, traffic operations and safety analyses, and recommendations for improvements and policy guidance.

Byrdstown is located in north- central Tennessee just south of the Tennessee/ Kentucky border. The impetus for the grant was that SR-111 operates as a major north/south thoroughfare with frequent commercial, residential, and retail businesses located along it. Stakeholders identified transportation mobility and safety concerns that include:

- lack of turning lanes
- frequent driveway access density
- typical travel speeds above posted speed limit
- lack of pedestrian mobility along SR-325

SR-111 provides connectivity to and from the Town of Byrdstown and serves as a primary north-south route in the region. SR-325 (W Main St) is an arterial east-west route that connects downtown Byrdstown to SR-111. Without easy access to an Interstate, the corridors provide key connectivity to commercial, residential and recreational areas and provide access for commercial traffic within the region. The routes also serve as vital links for commerce and economy in the community.

In certain areas, SR-111 is characterized by frequent strip commercial sites with multiple access driveways. SR-325 provides access to the town square and has an intermittent existing sidewalk on the northern side of SR-325.

The corridor study and resultant findings aimed to preserve and enhance the operational and safety performance of the corridor in and around Byrdstown. The greatest impact of the study on the state transportation system will be improvements to safety, efficiency of movement and driveway access management.

Tools that can assist communities in the development of safe and attractive transportation are access management plans and a suite of land use planning strategies targeted at improving traffic flow as land is developed. Access management plans impact safety by controlling the placement and access of driveways. By consolidating the length or number of driveways, it becomes safer for vehicles to enter a property and for cyclists and pedestrians to pass by a property by reducing conflict points with vehicles. Properly implemented, access management measures not only enhance safety, but can add to the attractiveness of roadway facilities.

1.1. Project Study Area

The project study area is an approximately two-mile section of SR-111 and 0.5 mile portion of SR-325 within Byrdstown, Pickett County. The study area begins at SR-111 from SR-325 (W Main Street) to SR-295 (N Main Street) and includes the 0.5 mile portion of SR-325 from N Main Street to Highland Avenue. The study area is show in Figure 1.1.

1.2. Grant Application Background

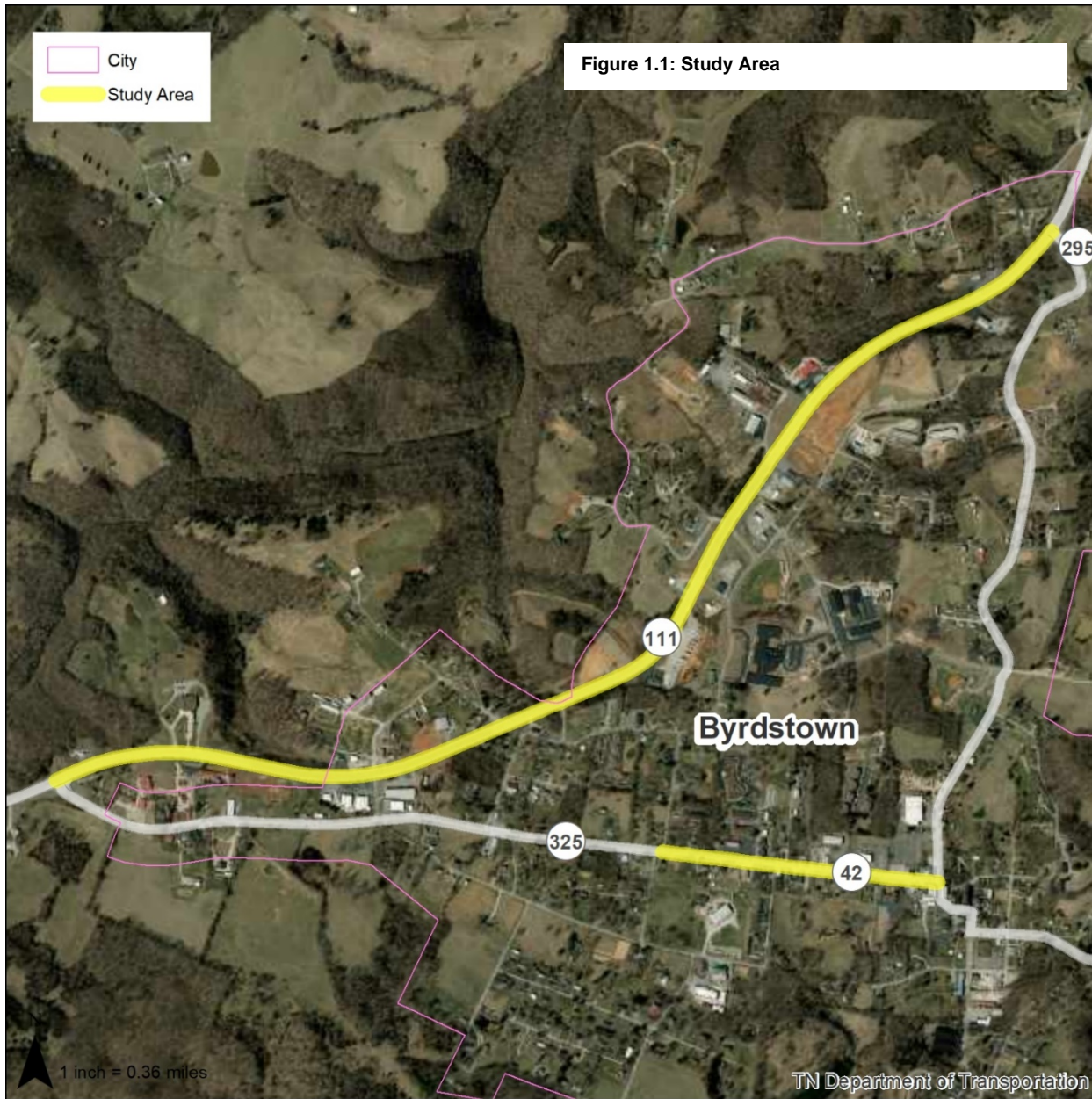
The purpose of the grant application was to seek funds for a study to identify strategies to improve transportation operations within the study area for vehicular traffic, and pedestrians. Specifically, the study would analyze the corridors to identify deficiencies and develop improvement strategies for:

- Safety improvements at intersections and identified high crash locations
- Operational improvements at critical areas
- Accommodation of all travel modes as appropriate
- Access management on developed properties
- General roadway improvements

The benefits to the community will take the form of visible, near-term improvements as well as longer- term improvements through the corridor planning and land-use plan components. Immediate benefits will come from operational modifications and minor construction projects for spot improvements. A proposed action plan will provide a systematic approach to implementation and further development of study recommendations.

The purpose of this corridor study is to address four distinct but related concepts: overall corridor plan, access management issues, spot intersection improvements, and safety-focused considerations.

- The spot intersection improvement considerations include both operational improvements, as well as, slightly more involved projects, which could require limited right-of-way acquisition and more extensive construction than the access management projects. The study will provide adequate information regarding these projects, including functional schematics and cost estimates where applicable, to allow them to be developed either as locally funded projects, through the TDOT Locally Managed Projects process, or through traditional TDOT project development channels.
- Safety considerations will play a direct role in the study's evaluation and suggestions. This includes intersection and segmental factors. Vehicle crash records and field observations will help inform the study's review and ultimate recommendations.
- Access management plan will be implemented both through adoption of access management policies for new development along the corridor, as well as, retrofit of existing access as a series of small projects or consolidated as an overall corridor improvement as funding is available or when opportunities present themselves through redevelopment of properties abutting the routes. Business owners along the route should be engaged in the process and provided information on the benefits of access management to the productivity of their businesses.
- The overall corridor plan will be used to guide implementation of the individual study elements to ensure that future improvements are done in a way that is logical for the planned future development of the corridor.



1.3. Vision

The vision of the Byrdstown SR-111/ SR-325 Corridor Study is to conduct a needs assessment of driveway access management and traffic management along SR-111, along with reviewing pedestrian mobility along W Main Street (SR-325)

1.4. Goals

Goal 1: Enhance the functionality of the routes for all users through geometric and operational improvements to address safety concerns capacity deficiencies, and increase multimodal connections and access management issues.

The SR-111 corridor lacks vehicle turning lanes and exhibits high density of driveway accesses. The plan will identify deficiencies and develop both near-term and long-term solutions to address those issues.

Goal 2: Support appropriate mobility along the project corridors and multimodal connections within the downtown area.

The plan will identify possible scenarios for modifications to the cross-section and design of the study corridors in support of community needs and priorities: safe and efficient movement of people and commerce, multimodal accessibility and reliable transportation network.

Goal 3: Ensure compatibility of future development with the transportation network through appropriate transportation planning.

The plan will develop access management guidance for the corridor to ensure that development occurs in a way that is integrated with the ability of the transportation network to support safer and more efficient transportation methods.

1.5. Study Team

Individuals representing TDOT and the Town of Byrdstown comprised the Study Team. Neel-Schaffer, Inc. assisted in the process. Representatives of the organizations include:

Sam Gibson, Mayor, Town of Byrdstown
Bill Robbins, Pickett County Chamber of Commerce
Dana Dowdy, Pickett County Sheriff
Gary Garrett, Pickett County Ambulance Service
Cary Garner, Pickett County Executive
Stephen Bilbrey, Business Owner on SR-111
Rachel Bergmann, TDOT
Andrea Noel, TDOT
Stacy Morrison, TDOT
Landon Castleberry, TDOT
Alan Wolfe, TDOT
Mark Dudney, UCDD Dale Hollow RPO
Greg Judy, Neel-Schaffer, Inc
Trey Todd, Neel-Schaffer, Inc
Maria Scheitz, Neel-Schaffer, Inc

CHAPTER 2: DATA COLLECTION AND INVENTORY

The data collection and inventory process included a review of roadway features, planned developments, traffic, crash history and existing plan documents.

2.1 Roadway Features

SR-111 is considered a Principal Arterial on the National Highway System. The standard cross-section is two lanes with left turn lanes at specific intersection. The right-of-way width varies considerably. The speed limit throughout the corridor is 50 MPH.

Table 2.1: SR-111 Roadway Features

Start Point	End Point	Functional Class	Right-of-Way (ft)	Access Control	Type of Terrain	Lane Use	Number of Lanes	Speed Limit
SR-325 West Main St.	SR-295 Parker Road	Principal Arterial	120	None	Rolling	Mixed Residential & Commercial	2	50

2.2 Traffic Counts

Traffic Counts and Video Data Collection were conducted on February 23, 2021 at the locations shown in Figure 2.4 and listed below.

Peak Hour Turning Movement Count Locations:

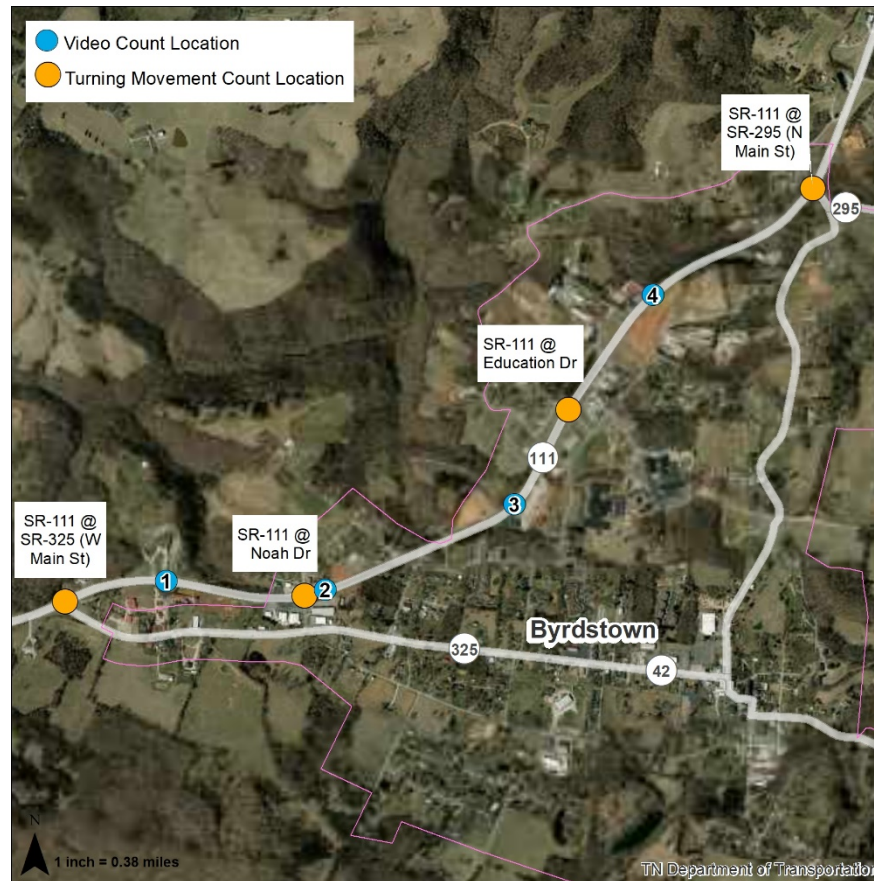
1. SR-111 @ SR-325 (W Main St)
2. SR-111 @ Noah Dr
3. SR-111 @ Education Dr
4. SR-111 @ SR-295 (N Main St)

Video Count Locations:

1. Near Medical Center
2. Business Driveways between Noah Dr and SR-111
3. Near Bob Cat Den and Dollar General
4. Near Country Farm and Home Center

The count data was collected using digital video cameras on site and processed manually in the office. Turning movement counts were conducted between the hours of 7-9 AM and 3-6:30 PM. Video counts were taken for a full 24-hours. These counts made it possible to conduct traffic capacity analysis on an intersection basis. Counts were taken for 5.5 hours on March 23, 2017 at the locations marked Peak Hour TMC and 24 hours at the locations marked 24 hour TMC. Results of the counts are included in Appendix B.

Figure 2.1: Traffic Count Locations



2.3 Crash History

Crash data was collected within the study area from 2016 to 2020. The crash data was taken from information maintained by TDOT for the corridor. Data was aggregated by intersection for use in the crash analysis discussed in section 3.2 of this document. The data was used to identify high hazard locations and crash patterns in the crash analysis.

2.4 Existing Transportation Studies and Reports

The following documents were referenced during the study process:

1. TDOT 2019 Speed Study
2. NCHRP Report 457
3. TDOT Guidance on Setting Speed Limits
4. Manual on Uniform Traffic Control Devices
5. TDOT's 25-Year Long Range Transportation Policy Plan

These documents were reviewed to ensure consistency and efficiency of the plan with all ongoing planning efforts.

CHAPTER 3: EXISTING CONDITIONS

3.1 Capacity Analysis/ Level of Service

Integration of the traffic movement counts and field inventory made it possible to conduct a capacity analysis on all the intersections within the corridor and along the corridor. The analysis assessed Level of Service (LOS), which incorporated average control delay for individual approaches at unsignalized intersections.

The concept of Level of Service is defined as a qualitative measure of traffic flow describing operational conditions within a traffic stream based on road conditions and the perceptions of motorists. A Level of Service (LOS) designation provides characterization of the quality of traffic flow in terms of factors such as speed, travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. The LOS analysis results in an assignment of a letter value to all approaches at an intersection or the intersection as a whole based on traffic control measures at the respective location (signalized, All-Way Stop, Two-Way Stop, etc.). Corridors were assigned letter values corresponding to level of service.

Unsignalized Intersections

The levels of service for unsignalized intersections are determined by application of procedures described in the *Highway Capacity Manual, 6th Edition*. The procedure accounts for lane configurations on both the minor and major approaches, and conflicting traffic stream volumes. First, the theoretical maximum or “potential capacity” of vehicles for each minor approach lane is calculated based on a gap acceptance procedure. The capacities are then compared to the demand at the respective minor approaches to determine the average control delay for each vehicle. Average control delay is used as the criterion for estimating level of service for minor street traffic. Table 3.1 summarizes the relationship between control delay and level of service for an unsignalized intersection.

Table 3.1: Level of Service Criteria

Level of Service Criteria Unsignalized Intersections ¹	
Level of Service	Average Control Delay (Seconds/Vehicle)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

¹Source: *Highway Capacity Manual*, Special Report 209, Transportation Research Board; Washington, DC; 2000. Page 17-2.

Intersection Levels of Service

After review of the LOS results, it was determined if a LOS grade of D or lower was assigned then further recommendations should be established to promote efficient traffic operations. Study assessment determined that a LOS designation of C would be the threshold of acceptable performance. Dense urban areas experience high traffic volumes and transportation facilities exhibiting LOS lower than D are accepted because improvements to infrastructure would not mitigate congestion due to volume. In rural areas such as this, a LOS C aligns with driver expectations and is an indication that improvements to infrastructure could improve service levels and alleviate congestion. The traffic

count data was used to determine the peak AM and PM travel times at each intersection. The AM peak travel time was determined to be 8:00 AM- 9:00 AM, and the PM peak lasted from 4:00 PM to 5:00 PM. Table 3.2 documents the existing LOS for each intersection in the study area. For unsignalized intersections, a LOS is assigned to each leg of the intersection, eastbound (EB), westbound (WB), northbound (NB) and southbound (SB).

From these evaluations, it was determined that all intersections operated at an acceptable LOS.

Table 3.2: Level of Service

Byrdstown CTPG - SR-111

Intersection		Existing (2021)	
		Peak Period	
		AM	PM
SR-111 @ SR-325 (W Main St)	NB	A	A
	SB	A	A
	WBL	C (16.4s)	C (15.5s)
	WBR	B (10.5s)	A (9.8s)
SR-111 @ Noah Dr	NB	A	A
	SB	A	A
	EB	B (11.2s)	B (11.6s)
	WB	B (10.7s)	B (10.7s)
SR-111 @ Education Dr	NB	A	A
	SB	A	A
	EB	B (13.2s)	B (10.9s)
	WB	C (15.4s)	B (14.2s)
SR-111 @ SR-295 (N Main St)	NB	A	A
	SB	A	A
	WBL	B (12.9s)	B (12.3s)
	WBR	A	A

3.2 Crash Analysis

Crash data between the years of 2016 to 2020, roadway typologies based on number of lanes and median type, and Annual Average Daily Traffic Volumes were compiled for the study area by intersection and utilized to determine a critical crash rate for each intersection.

The methodology of this analysis was detailed as follows:

1. Crash data was presented to the consultant group from TDOT for all intersections within the corridor
2. The manner of collision made it possible to identify possible trends of safety concerns.
3. The total number of crashes at study intersections and statewide crash rate averages made it possible to develop a critical crash rate for all intersections.
4. Crash rates at each intersection were compared to the Tennessee Statewide Average Crash Rate. Locations moderately above state average are highlighted in yellow while areas only slightly above average are highlighted in green on Table 3.3. These rates are illustrated in Figures 3.1. Crash rates were also taken for segments depending on the roadway geometry, which are shown on Table 3.4.
5. This comparison identified several intersections above the average crash rate, most notably:
 - SR-111 at Education Dr
 - SR-111 at Dollar General

SR-111 at Education Dr had a trend of experiencing angle crashes. This could indicate that drivers experience a sight distance issue. A high incident of crashes could be a potential indicator for upgrading the existing warning flasher, which is further discussed in section 3.4.

SR-111 at Dollar General had a trend of crashes that were mainly rear-end crashes. Federal Highway Administration (FHWA) has noted that “the potential for rear-end and sideswipe crashes on the departure lanes may increase as the vehicles turning onto the crossroad merge with the vehicles already on the road”(<https://safety.fhwa.dot.gov>).

Table 3.3: Intersection Crash Data Analysis 2016-2020

BYRDSTOWN CTPG - SR-111

SR-111 CRASH DATA SPOT ANALYSIS (2016-2020)

LOCATION	CRASH TYPE				MANNER OF COLLISION				VOLUME	STATISTICAL COMPUTATIONS			
	Total Number of Crashes	Property Damage	Injury	Fatal	Rear-End	Angle	HeadOn	Sideswipe		Avg Entering Traffic Volume (vpd)	Crash Rate	Critical Crash Rate	TN Statewide Avg Crash Rate
SR-111 @ SR-325 (W Main St)	3	1	2	0	1	2	0	0	9,656	0.170	0.104	0.099	23
SR-111 @ Noah Dr	3	3	0	0	0	1	0	2	8,791	0.187	0.105	0.099	3
SR-111 @ Education Dr	5	2	3	0	0	5	0	0	8,425	0.325	0.105	0.099	35
SR-111 @ SR-295 (N Main St)	1	0	1	0	0	1	0	0	6,568	0.083	0.105	0.099	11
SR-111 @ Dollar General	3	2	1	0	2	1	0	0	6,956	0.236	0.105	0.099	13

¹ EPDO Weighted Factors have come from HSM and AASHTO (2010). Fatal = 542, Injury = 11, PDO = 1

Table 3.4: Segment Crash Data Analysis 2016-2020

BYRDSTOWN - SR-111

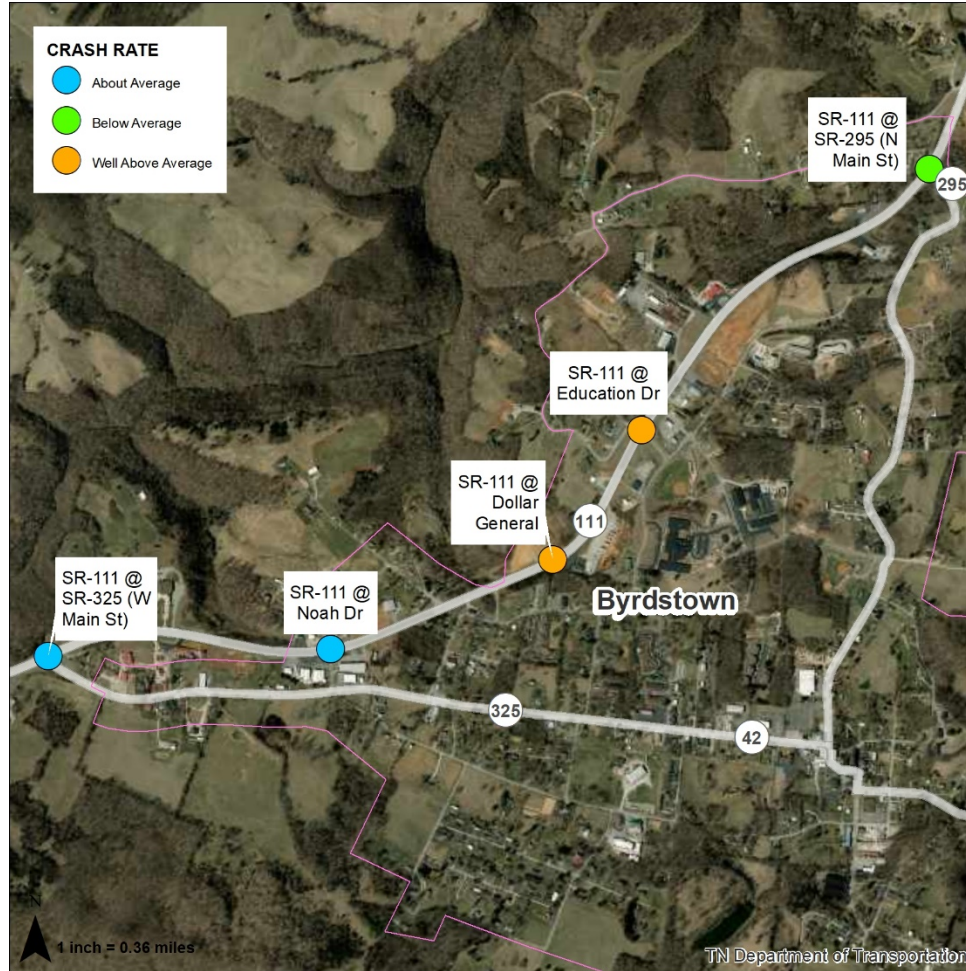
SR-111 CRASH DATA SEGMENT ANALYSIS (2016-2020)

LOCATION Segment	CRASH TYPE				MANNER OF COLLISION				VOLUME Avg Bi-dir. Traffic Volume (vpd)	STATISTICAL COMPUTATIONS			
	Total Number of Crashes	Property Damage	Injury	Fatal	Rear-End	Angle	HeadOn	Sideswipe		Crash Rate ²	Critical Crash Rate	TN Statewide Avg Crash Rate	Equiv PDO Rating ¹
SR-325 (W Main St) to West of Noah Dr	6	3	3	0	3	3	0	0	8,481	1.204	1.611	1.588	36
South of Noah Dr to South of Hillcrest Drive	4	4	0	0	0	2	0	2	7,566	0.762	1.914	1.888	4
South of Hillcrest Dr to Education Dr	9	4	5	0	2	7	0	0	6,416	1.490	1.614	1.588	59
Education Dr to SR-295 (N Main St)	5	2	3	0	3	1	0	1	6,182	0.631	1.614	1.588	35

¹ EPDO Weighted Factors have come from HSM and AASHTO (2010). Fatal = 542, Injury = 11, PDO = 1

² Segment Crash Rates are crashes per million vehicle miles

Figure 3.1: Intersection Crash Rates



3.3 Turn Lane Warrant Assessment

Three intersections within the study area were analyzed for meeting exclusive turn lane warrants. These intersections include:

- SR-111 at Noah Dr
- SR-111 at Education Dr
- SR-111 at Dollar General

Methodology

Traffic counts were taken for 5.5 hours of the day at the above mentioned intersections. In accordance with the NCHRP Report 457 Harmelink Method, volumes had to meet a minimum threshold depending on the speed limit of the main roadway to warrant for an exclusive left turn lane or right turn lane. Figures 3.2 and 3.3 show these thresholds for both conditions.

Figure 3.2: Harmelink Method – Left Turn Lane Warrant

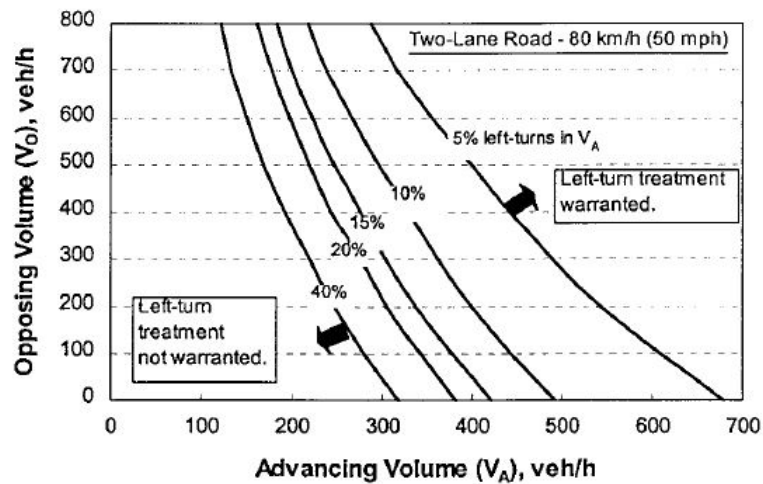
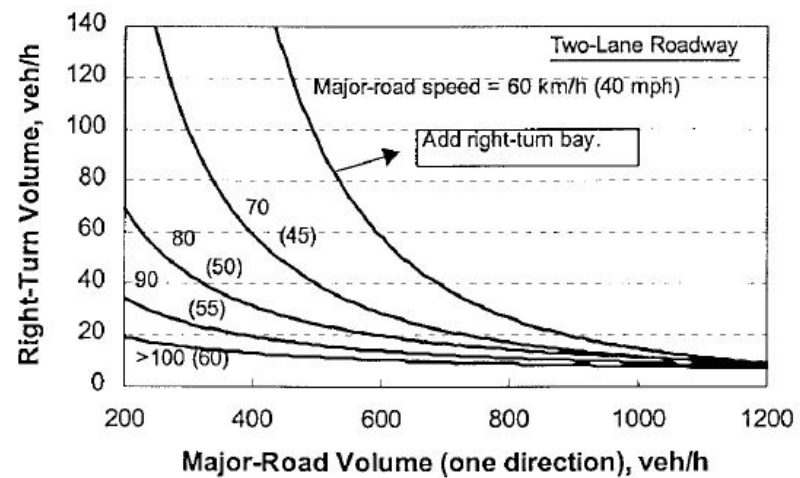


Figure 3.3: Harmelink Method – Right Turn Lane Warrant

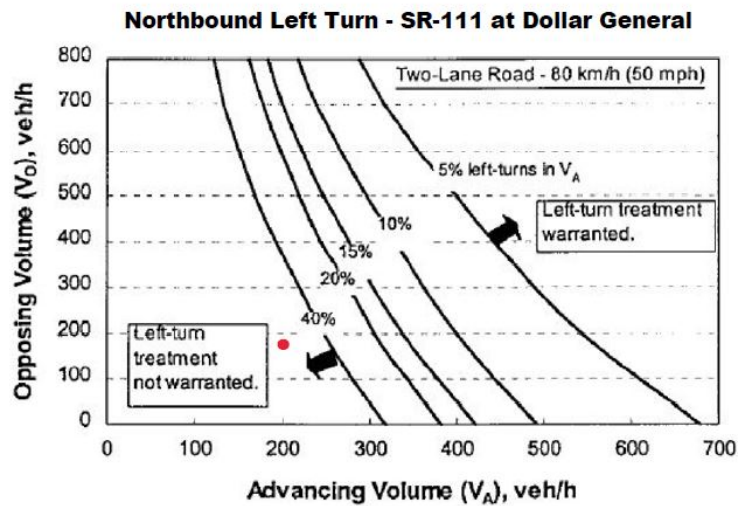


Findings

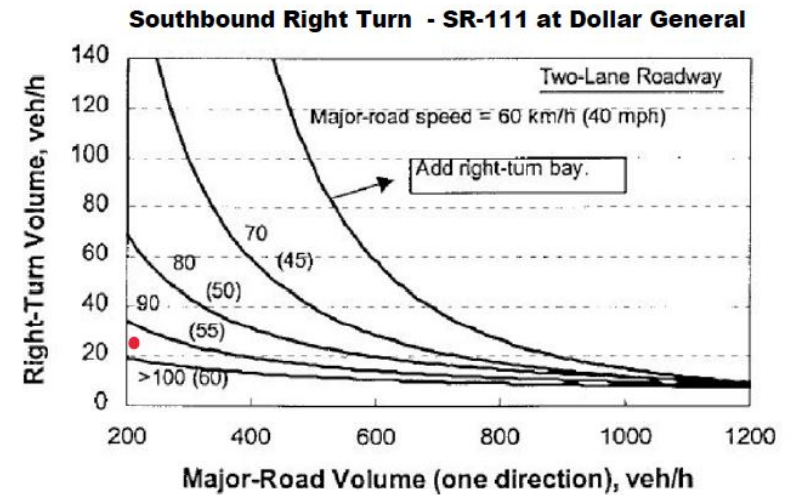
Of the three intersections, SR-111 at Education Dr met the right turn lane warrant. SR-111 at Dollar General fell just below the right turn lane threshold.

Although this method strictly accounts for volume, other factors should be accounted for when deciding if a turn lane should be proposed. Types of crashes such as rear-end collisions could be mitigated by the addition of a turn lane.

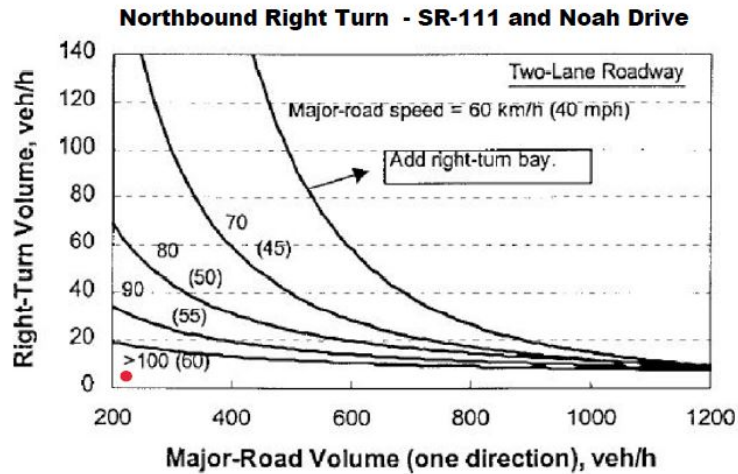
Figures 3.4 – SR-111 at Dollar General Left Turn Lane Warrant



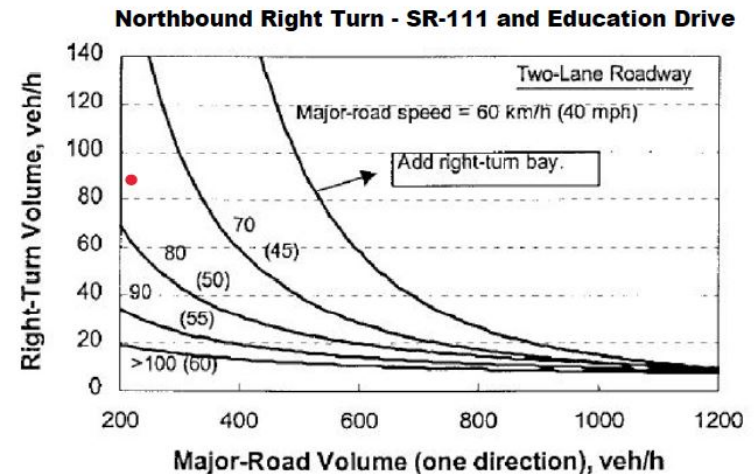
Figures 3.5 – SR-111 at Dollar General Right Turn Lane Warrant



Figures 3.6 – SR-111 at Noah Drive Right Turn Lane Warrant



Figures 3.7 – SR-111 at Education Drive Right Turn Lane Warrant



3.4 Multimodal Review

This review supports the stated guiding principles regarding multimodal transportation in TDOT's 25-Year Long Range Transportation Policy Plan. This plan supports the development of a robust and integrated multimodal system. Specifically the guiding principles are as follows:

- **Preserve and Manage the Existing System** – Effective public transportation systems, a robust TDM program, and the provision of non-motorized options reduce single occupancy vehicles and helps to preserve roadway capacity. The assets that provide these services are equally important and must be effectively managed and maintained.
- **Provide for the Efficient Movement of People and Freight** – The promotion of mobility options, reliable public transportation systems, and TDM programs has the potential to optimize the movement of people and goods by providing greater access to transportation services for all people and by building better connections among different modes of transportation, thereby increasing the total throughput of persons and goods on the state roadway system.
- **Build Partnerships for Sustainable and Livable Communities** – Broad public input and community involvement from public, private, and non-profit entities are required for the successful development and implementation of mobility options, TDM programs, and nonmotorized, which in turn help communities be more sustainable and livable.

- **Protect Natural, Cultural and Environmental Resources** – Reducing overall VMT (or the at which it is increasing) by reducing the reliance on single occupant vehicles reduces congestion and gas consumption, enhances air quality, and reduces the potential need for additional roadway widening and/or extensions.
- **Emphasize Financial Responsibility** – Effective public transportation services, TDM programs, and the provision of non-motorized accommodations represent low-cost measures that increase transportation system efficiency and reduce potential capital outlays.

Bicycle and pedestrian connections to the downtown area along SR-325 are a priority. The stakeholder group indicated that the priority for multimodal improvements is to move pedestrians and bicycles safely along SR-325. Specifically, the section of roadway between Highland Avenue to North Main Street was identified for review. There are existing sidewalks along SR-325 in the Study area and in the downtown area, but the sidewalks are in poor condition and are not ADA accessible. SR-325 is a two-lane roadway in the Study area. To the east of the study area SR-325 travels through the Downtown. As part of this study, existing sidewalks and pedestrian amenities were inventoried in the Study area adjacent to the Downtown. A formal evaluation of ADA compliance was not undertaken, however general compliance to ADA standards was noted.

Some populations, including those in poverty and the elderly, do not have access to or are unable to drive a vehicle and are more reliant on alternative modes of transportation. Plans must also be sensitive to the inclusion of minority populations. This section identifies vulnerable populations in the plan area including households with no vehicles, minority persons, persons over the age of 65 and persons in poverty in the last 12 months.¹

Areas with concentrations higher-than-state-average are identified. This section does not identify concentrations of dependent children. Schools and residential areas identified as part of this Plan process will have concentrations of dependent children.

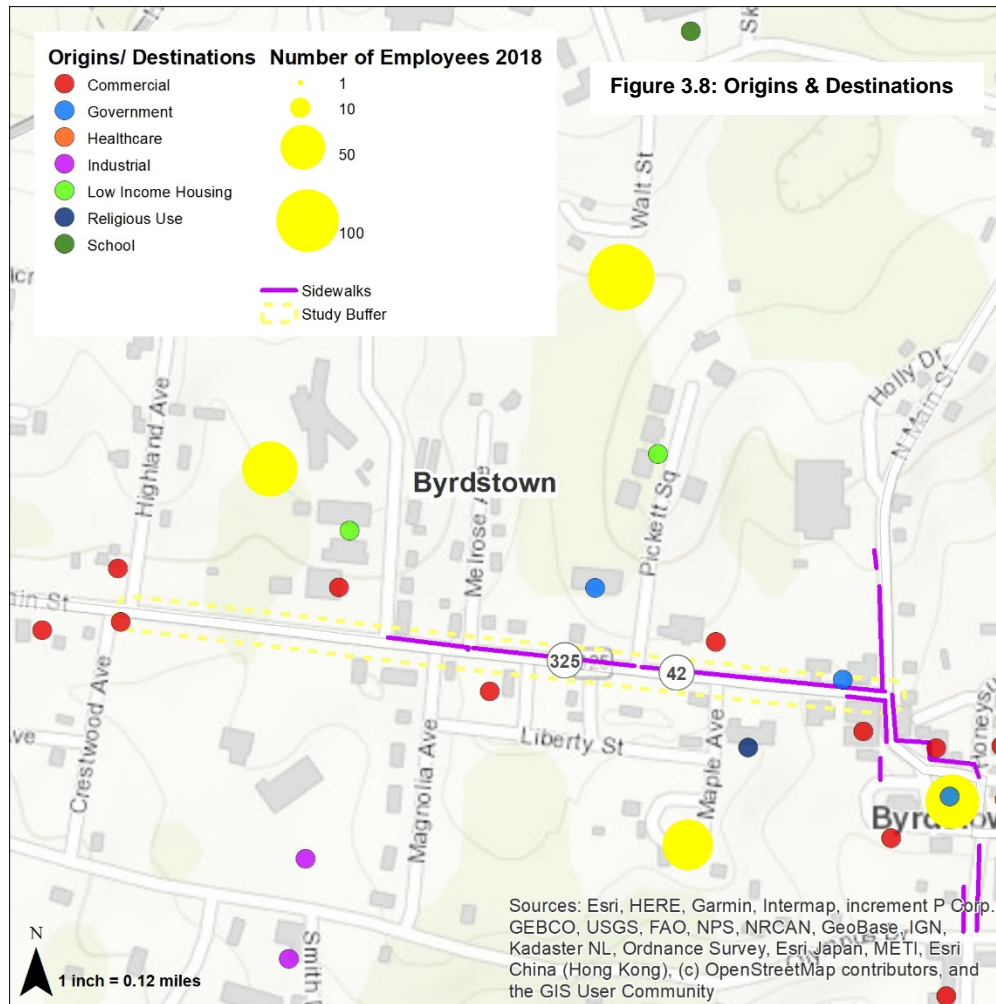
Origins and Destinations and Existing Network

Figure 3.8 identifies bicycle and pedestrian origins and destinations in the Study area including commercial, government, healthcare, industrial, low-income housing, religious institutions and schools. A concentration of public housing exists just north of SR-325 including elderly and

¹ 2019 ACS Data used to avoid influence of COVID-19 on data sets

disabled housing along Hillcrest Drive just north of the intersection with SR-325. There are three (3) school properties northeast of the identified study area. A concentration of commercial, government, industrial and religious institutions exists in the Downtown and adjacent to the Study area. Four large employment nodes with more than 50 employees are identified in the vicinity of the Study area.

The existing sidewalk network is also shown in Figure 3.8. Within the Town, a network of sidewalks exists in the Downtown and adjacent to the downtown. There are few sidewalks outside of this area in the Town. Few bicycle or pedestrian amenities including signs, lighting or crosswalks were identified in the study area or adjacent Downtown area. The existing sidewalk network is not ADA compliant. Excessive slopes, missing sidewalk ramps, cracking and spalling are just some of the issues identified.



Vulnerable Populations

Improvements to bicycle and pedestrian multimodal facilities in the Study area would support zero vehicle households and a slightly higher-than-state-average population of persons over the age of 65 and persons in poverty in the last 12 months.

Zero Vehicle Households

The Town has a lower-than-state-average percentage of households with no vehicles (Figure 3.9, Table 3.5). Seventy-four households or 5.5% of households in the Town had no vehicles while 5.6% of households with the County had no vehicles. Data at the block level for the Study area was not available, but it can be inferred that low-income households in the vicinity of the Study area adjacent to the Downtown would have lower vehicle ownership than the Town average.

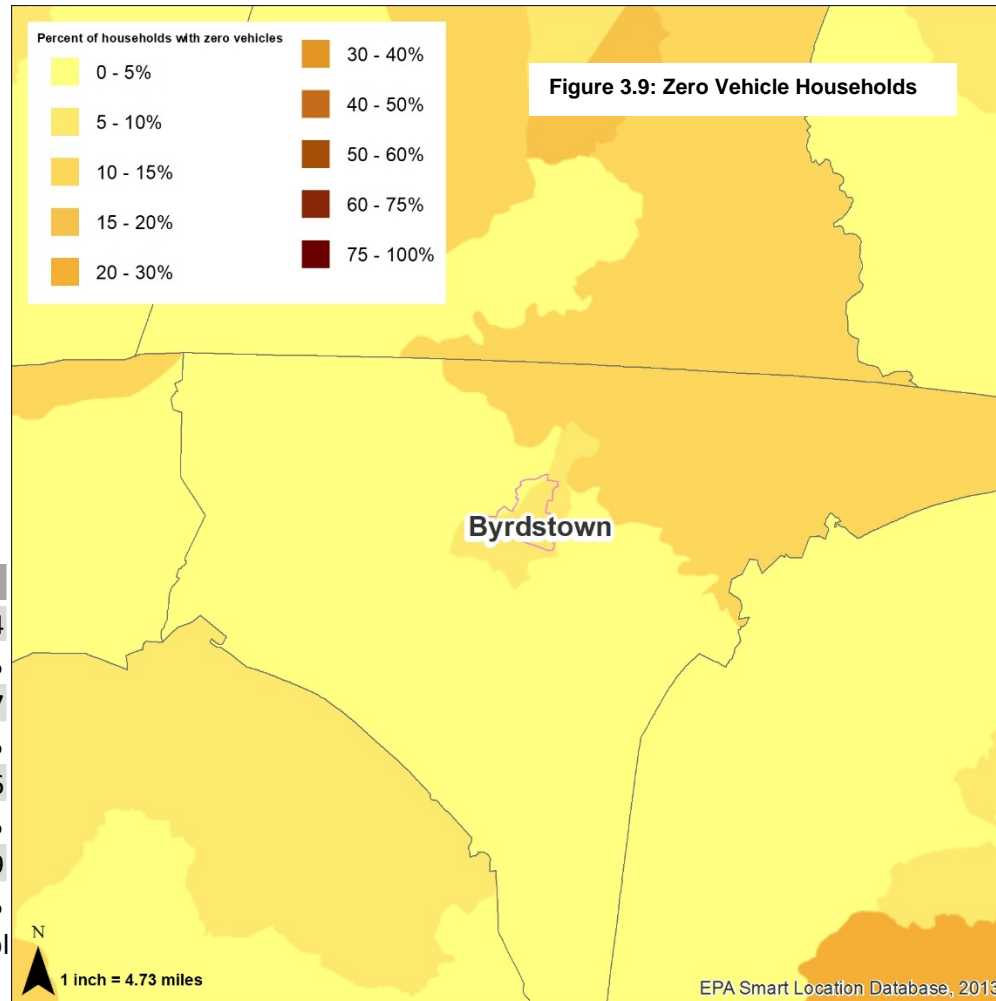


Table 3.5: Zero Vehicle Households

Geography	Zero-Car Households
City*	74
	5.5%
County	127
	5.6%
State	149,286
	5.7%
Nation	10,571,819
	8.6%

*Decennial Census data only available
ACS 2019

Minority Persons

For the purposes of this review, a minority person includes non-white and Hispanic persons. The Minority population of the Town, 1.7%, and County, 0.5%, are much lower than the state average of 26.7%. (Table 3.6). Figure 3.10 illustrates the percentage of white, non-Hispanic persons in census districts in the County. The Town is located in District 1. Improvements to infrastructure in the Study area would not serve an identified concentration of minority persons.

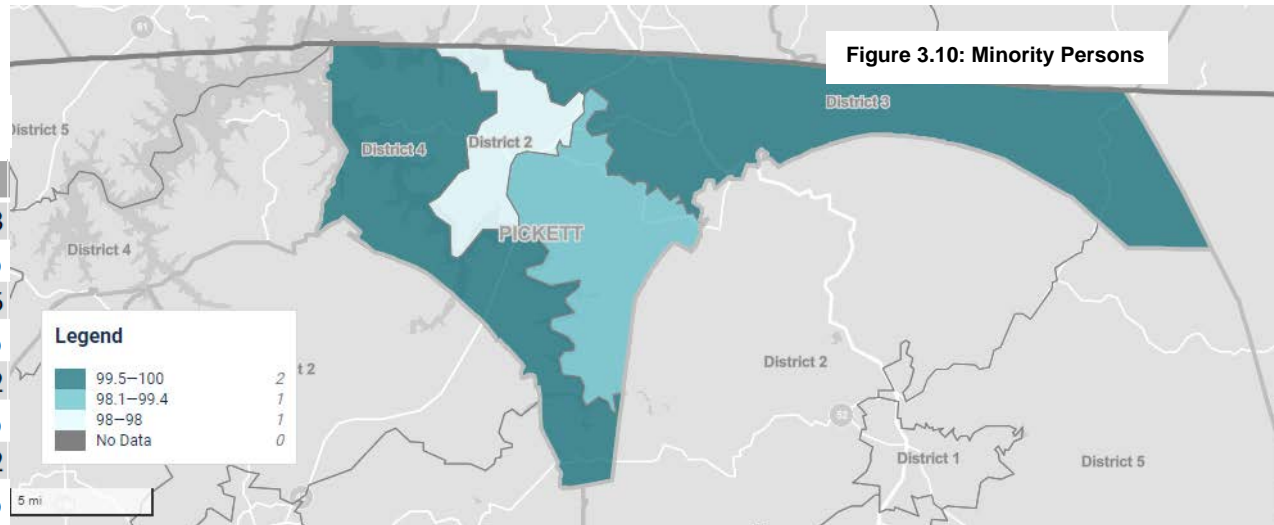


Figure 3.10: Minority Persons

Table 3.6: Minority Persons

Geography	Non-White
City*	53
	1.7%
County	25
	0.5%
State	1,822,462
	26.7%
Nation	131,450,122
	40.0%



Persons Over the Age of 65

The Town has a slightly higher-than-state-average concentration of persons over the age of 65. In the Town, 18.4% of the population is over the age of 65 while in the state 16.7% of the population is over age 65 (Table 3.7). Figure 3.11 illustrates the percentage of persons over age 65 in each census district in the county. The Town is located in District 1. In addition, public housing for the elderly and disabled is located just north of the Study area along Hillcrest Drive just north of the intersection with SR-325.

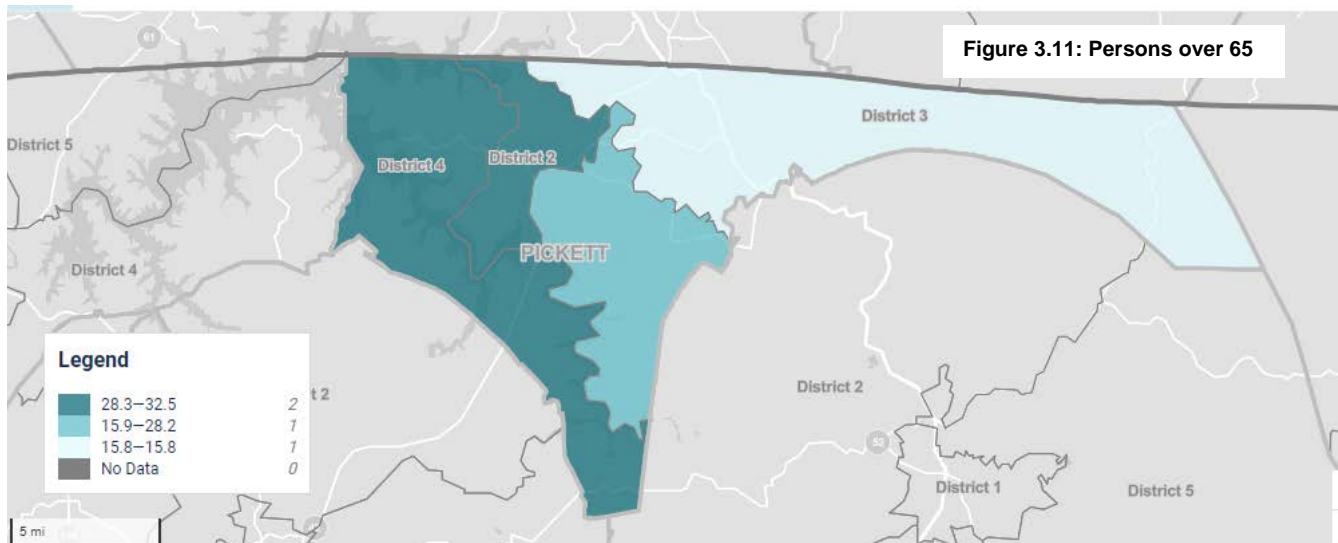


Table 3.7: Persons over 65

Geography	Over 65	Median Age
City*	580	40.7
	18.4%	
County	1366	50.1
	26.9%	
State	1,138,965	39.0
	16.7%	
Nation	54,074,028	38.5
	16.5%	

*Decennial Census data only available
ACS 2019

Persons in Poverty in the last 12 Months

There is a higher-than-state-average percentage of persons in poverty in the last 12 months in the Town (Figure 3.12, Table 3.8). The Town had 15.8% of persons in poverty in the last 12 months, while the state had 13.9%.

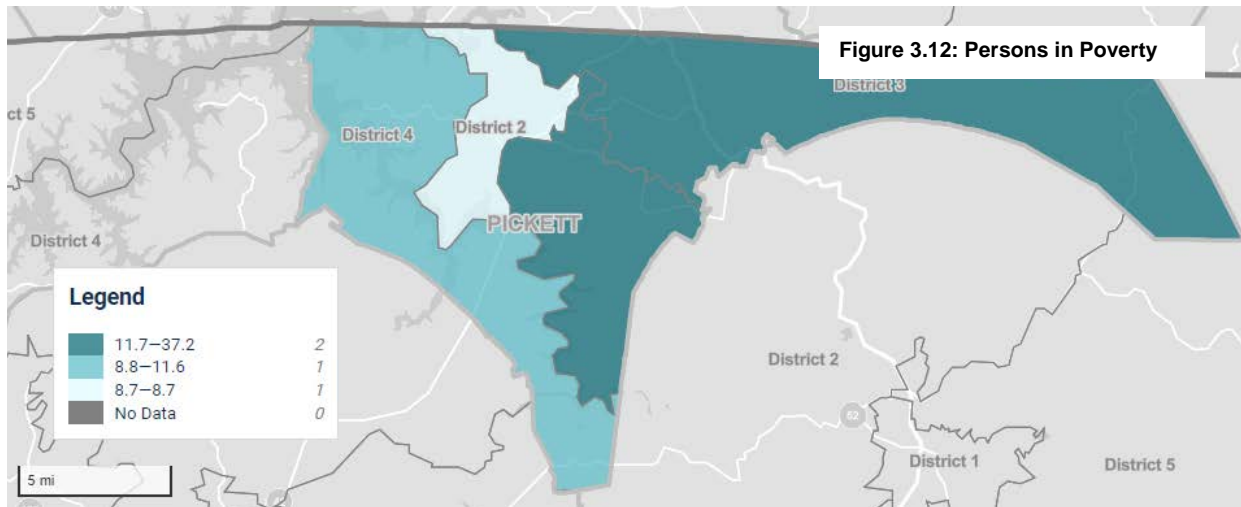


Table 3.8: Persons in Poverty

Geography	Poverty in Last 12 Months
City*	484 15.8%
County	1001 20.0%
State	922,176 13.9%
Nation	39,490,096 12.3%

*Decennial Census data only available
ACS 2019

Overview

Improvements to bicycle and pedestrian multimodal facilities in the Study area would support zero vehicle households and a slightly higher-than-state-average population of persons over the age of 65 and persons in poverty in the last 12 months. Improvements to bicycle and

pedestrian facilities would support access to job centers, commercial and industrial areas and schools. Improvements would fortify the existing sidewalk network.

3.5 Access Review

Access management is an operational tool used to manage roadway mobility and accessibility. Typically, access management defines how and to what extent roadway users gain ingress and egress between roadways and driveways, including formalized intersections. Generally, a higher degree of access management enhances mobility by preserving the operating efficiencies of the primary roadway. Examples of access management techniques include the following:

- > median treatment and openings
- > turn or movement restrictions
- > minimum intersection and driveway spacing
- > shared driveway access

Strategic use of access management benefits many aspects of the transportation system: safe and efficient operation of the road network, preservation of roadway functionality, and reduced frequency of crashes.

The TDOT 2015 Manual for Constructing Driveways on State Highways give specific guidelines for the construction of access points along State Highways. The Access Design portion within the Manual highlights specific control dimensions that must be followed to ensure the safety of the public. For example, driveway spacing must be held at a 40' minimum between adjacent driveways on a state route along with a corner clearance of 100 to 200 feet depending on the classification of intersecting roadway. These guidelines are highlighted within Section 5 of the Manual for Constructing Driveways on State Highways. Local governments may enact additional standards and the more restrictive standard will reply.

SR-111 from SR-325 to SR-295 contains short distances between adjacent access points and have multiple driveways to the same property. SR-111 west of Noah Drive currently exhibits the most traits associated with deficiencies in access management. Crashes can become more prevalent, especially rear-end crashes, due to the existing roadway geometrics and lack of access management. Implementation of access management will lessen current traffic issues and prevent future issues. Table 3.9 notates the high driveway density between SR-325 to Noah Drive.

Table 3.9: Access Point Data

DRIVEWAY ACCESS DATA - SR-111 (SR-325 TO NOAH DRIVE)			
ACCESS CLASS	LENGTH OF STUDY AREA	NUMBER OF ACCESS POINTS	AVERAGE SPACING PER ACCESS POINT
CLASS II	0.71 MILES (3,730 FEET)	15 ACCESS POINTS (DRIVEWAYS)	250 FEET PER ACCESS POINT

3.6 Speed Study Review

TDOT conducted a speed study along SR-111 in 2019 at 4 different locations in the northbound and southbound directions. The posted speed limit along SR-111 is 50 MPH. At all locations, the 85th percentile speed was above 50 MPH. Table 3.10 shows the results of the speed study.

The Town of Byrdstown has expressed an interest in speed limit reduction along SR-111. TDOT provides guidance on setting speed limits on state routes, which is available for local agencies and practitioners to reference. Typically, the speed limit is based on the 85th percentile speed, but other factors should be accounted for such as driveway spacing, crashes, and geometric conditions. The Town of Byrdstown should continue to monitor and enforce speed limits. Due to SR-111 being a state route, the Town of Byrdstown would need to provide documentation to TDOT in order for a formal reduction to be approved.

Table 3.10: TDOT Speed Study Data (2019)

SPEED DATA FOR SR-111			
SPEED LOCATION	TRAVEL DIRECTION	85TH PERCENTILE SPEED	POSTED SPEED LIMIT
SR-111 NORTH OF SR-325 (LUNCHBOX RESTAURANT)	NORTHBOUND	55 MPH	50 MPH
	SOUTHBOUND	52 MPH	
SR-111 NORTH OF NOAH DRIVE (FAMILY DOLLAR)	NORTHBOUND	52 MPH	50 MPH
	SOUTHBOUND	52 MPH	
SR-111 AT HILLCREST DRIVE (SOUTH OF DOLLAR GENERAL)	NORTHBOUND	52 MPH	50 MPH
	SOUTHBOUND	52 MPH	
SR-111 NORTH OF EDUCATION BLVD (FIRE STATION)	NORTHBOUND	52 MPH	50 MPH
	SOUTHBOUND	55 MPH	
SR-111 SOUTH OF SR-295 (KEITH'S MOTORSPORTS)	NORTHBOUND	55 MPH	50 MPH
	SOUTHBOUND	55 MPH	

NOTE: SPEED DATA WAS PROVIDED BY A TDOT 2019 SPEED STUDY.

CHAPTER 4: EVALUATION AND STUDY RECOMMENDATIONS

4.1 General Improvements

Final recommendations are listed in Table 4.1. Project sheets detailing each recommendation are included in Appendix A. The TDOT Project Planning Estimate Tool was utilized to give planning level cost estimates.

Below is a summary of the improvements by intersection:

Table 4.1: Recommended Improvements

Priority Number	Location	Description	Cost Estimate
1	SR-111 @ Noah Drive	Raised concrete island, realign parking, close a driveway, widen a driveway	\$255,000
2	SR-111 @ Education Blvd	Right Turn Lane, relocate street light, advanced warning signs, modernize flasher	\$380,000
3*	SR-325	Install sidewalks	\$200,000
4	SR-111 @ Dollar General	Left Turn and Right Turn Lane	\$395,000
5	SR-111 from SR-325 to Noah Drive	Two-way left turn lane within existing roadway footprint	\$1,680,000
6	SR-111 @ Country Farm and Home	Close two driveways, install a driveway	\$110,000

* NOTE: COST ESTIMATE DOES NOT INCLUDE DRAINAGE ELEMENTS

- SR-111 from SR-325 to Noah Drive
 - Recommendation of a two-way left-turn lane to be constructed within the existing roadway pavement limits and right-of-way. Segment crash data shows that the existing two-way left-turn lane section in Byrdstown provides the lowest amount of rear-end crashes within the Town, shown in Table 4.2.

Table 4.2: Segment Crash Analysis

BYRDSTOWN - SR-111

SR-111 CRASH DATA SEGMENT ANALYSIS (2016-2020)

LOCATION Segment	CRASH TYPE				MANNER OF COLLISION				VOLUME	STATISTICAL COMPUTATIONS			
	Total Number of Crashes	Property Damage	Injury	Fatal	Rear-End	Angle	HeadOn	Sideswipe	Avg Bi-dir. Traffic Volume (vpd)	Crash Rate ²	Critical Crash Rate	TN Statewide Avg Crash Rate	Equiv PDO Rating ¹
SR-325 (W Main St) to West of Noah Dr	6	3	3	0	3	3	0	0	8,481	1.204	1.611	1.588	36
South of Noah Dr to South of Hillcrest Drive	4	4	0	0	0	2	0	2	7,566	0.762	1.914	1.888	4
South of Hillcrest Dr to Education Dr	9	4	5	0	2	7	0	0	6,416	1.490	1.614	1.588	59

¹ EPDO Weighted Factors have come from HSM and AASHTO (2010). Fatal = 542, Injury = 11, PDO = 1

² Segment Crash Rates are crashes per million vehicle miles

- SR-111 at Noah Drive
 - Recommendation for a raised concrete island in the southwest corner, parking reconfiguration for the Subway in the northwest corner, and closing an existing driveway in the southeast corner. These measures will provide improvements for circulation, access management, and driveway separation.
- SR-111 at Dollar General
 - Recommendation for a proposed left turn lane and right turn lane into the Dollar General. A southbound left turn lane should also be considered into the Bobcat Den restaurant. Preliminary design should consider the feasibility of providing desired driver alignment between the two businesses.
- SR-111 at Education Drive
 - Recommendation for a proposed northbound right turn lane. The existing flasher is proposed to have L.E.D. signal heads. Advanced warning signage with flashers are proposed for both the northbound and southbound approaches due to sight distance and angle crash issues.
- SR-111 at Country Farm and Home
 - Recommendation of closing two driveway access points for the Pawn Shop and installing a driveway that is aligned with the Country Farm and Home business.

4.2 Funding

Funding of the corridor improvements will require a combination of federal, state and local funds. The table below shows some of the funding sources that may be available. It should be noted that federal and state funds require a matching ratio to be provided. Other than the options below and local funds, funding of the recommended improvements would fall to regular TDOT project funding sources for any projects on state routes. The Town may need to leverage private dollars in public-private partnerships as projects are constructed along the roadway. Some project improvements can be considered for inclusion in larger roadway maintenance projects to maximize the impact of limited funds.

Multimodal Access Grant	Sidewalks, curb & gutter, ADA-compliant items, utility relocations, landscaping, crosswalks, pedestrian lighting along state routes (\$1 million funding cap)	5% Match (State Funding Source)
Transportation Alternatives (TAP)	Sidewalks, curb & gutter, ADA-compliant items, utility relocations, landscaping, crosswalks, pedestrian lighting (No funding cap; only funds construction)	20% Match (Federal Funding Source)
Highway Safety Improvement Program (HSIP)	Provides funds to make improvements to high hazard locations on eligible roadways, including highway-rail grade crossings. Projects are selected based on crash rate and crash frequency. (No funding cap)	10% Match (Federal Funding Source)

*Note: The above funding programs are all TDOT programs and not other state divisions.

4.3 Action Plan

Project Implementation

Immediate needs in the study area should be addressed as soon as possible to achieve short term relief from noted traffic concerns. Capital funding management should also be organized with TDOT to alleviate costs of proposed design projects. Project development steps should consider consolidating recommended modifications into a single corridor improvement construction project to leverage project costs and to optimize the implementation schedule.

Programmatic Actions

Access Management is currently an issue along SR-111, specifically between SR-325 and Noah Drive. Drivers entering and exiting the roadway at multiple closely placed points increases crashes. TDOT has provided access management guidelines for use along state routes, and it is recommended that the Town incorporate access management guidelines into any future developments or redevelopments within this.

Capital Improvement Plan: Projects shown above should be included in future Capital Improvement Plans in order to build consensus around the project and organize match funding where necessary. Once the Town of Byrdstown wishes to prioritize recommendations and take given recommendations to the design stage, it is highly recommended that coordination with Rural Planning Organization (RPO) to launch a capital funding plan to provide ease to the Town's funds. Capital funding management should also be organized with TDOT to alleviate costs of proposed design projects.

Projects should be coordinated with regional planning and TDOT at every step of the process to ensure consistency and enhance funding opportunities.

CHAPTER 5: PUBLIC INVOLVEMENT

5.1 Steering Committee

A working Steering Committee selected by the Town of Lafayette was formed to assist the study effort. Steering Committee Members included:

Sam Gibson, Mayor, Town of Byrdstown
Bill Robbins, Pickett County Chamber of Commerce
Dana Dowdy, Pickett County Sheriff
Gary Garrett, Pickett County Ambulance Service
Cary Garner, Pickett County Executive
Stephen Bilbrey, Business Owner on SR-111
Rachael Bergmann, TDOT
Andrea Noel, TDOT
Stacy Morrison, TDOT
Landon Castleberry, TDOT
Alan Wolfe, TDOT
Mark Dudney, UCDD Dale Hollow RPO
Greg Judy, Neel-Schaffer, Inc
Trey Todd, Neel-Schaffer, Inc
Maria Scheitz, Neel-Schaffer, Inc

Three meetings were held to guide and provide input to the study team.

Meeting 1: Existing Conditions Session – April 27, 2021

Meeting 2: Recommendations Work Session - June 3, 2021

Meeting 3: Final Presentation Work Session – July 12, 2021

The first two meetings took place at the Pickett County Library at 79 Pickett Square Anx, Byrdstown, TN 38549. The final presentation took place at the Town Hall at 109 W Main St, Byrdstown, TN 38549.

5.2 Public Engagement

Three meetings were held to encourage public engagement.

I. Existing Conditions Meeting

A public workshop was held April 27, 2017 at 1:00 PM to present preliminary results of the existing conditions analysis and gather feedback from the community and stakeholders.

II. Recommendations Meeting

A presentation summarizing the study's methodology, analysis results and recommendations was made before the steering committee on June 3, 2021, 1:00 PM.

III. Board of Mayor and Aldermen Presentation

At the conclusion of the study, the project team provided a presentation to the Board of Mayor and Aldermen on July 12, 2021, 5:00 PM.

**APPENDIX A – PROPOSED
RECOMMENDATION DRAWINGS**

TYPE	YEAR	PROJECT NO.	SHEET NO.
FUNCT.	2021	18SPR1-F7-036	1



- NOTES:
1. SHOULDER WIDTHS TO BE REDUCED FROM 10 FEET TO 7 FEET.
 2. PROPOSED TWO-WAY LEFT TURN LANE FROM SR-325 TO NOAH DRIVE ON SR-111.
 3. PROPOSED TYPICAL SECTION IS 7 FOOT SHOULDERS, 12 FOOT THROUGH LANES, AND 12 FOOT TWO-WAY LEFT TURN LANE.
 4. PROPOSED ROADWORK TO BE DONE WITHIN EXISTING ROADWAY FOOTPRINT AND RIGHT-OF-WAY.

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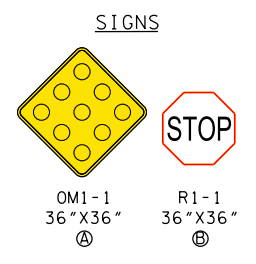
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

FUNCTIONAL LAYOUT
(SR-111)

SCALE: 1"=100'

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TYPE	YEAR	PROJECT NO.	SHEET NO.
FUNCT.	2021	18SPR1-F7-036	2



INSTALL 8" SSWL BOUNDARY AND 12" DIAGONAL TRANSVERSE CHANNELIZATION MARKINGS AT 10 FOOT SPACING

INSTALL OM1-1 SIGN AND RAISED CONCRETE ISLAND

REMOVE EXISTING DRIVEWAY

WIDEN EXISTING DRIVEWAY FOR A DEDICATED LEFT AND RIGHT TURN LANE

INSTALL R1-1 "STOP" SIGN

REMOVE NINE EXISTING PARKING STALLS. INSTALL NINE PARKING STALLS AT A 45 DEGREE ANGLE. INSTALL PARKING STOP CURB

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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

FUNCTIONAL LAYOUT
(NOAH DR)

SCALE: 1"=30'

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TYPE	YEAR	PROJECT NO.	SHEET NO.
FUNCT.	2021	18SPR1-F7-036	3



INSTALL PROPOSED RIGHT TURN BAY WITH 100 FEET OF STORAGE AND 75 FEET OF TAPER

INSTALL PROPOSED LEFT TURN BAY WITH 100 FEET OF STORAGE AND 75 FEET OF TAPER

INSTALL 300 FEET OF SHIFTING TAPER FOR THRU LANE

LIMIT OF PROPOSED ROADWAY WORK

INSTALL PAVEMENT MARKING ARROWS TO DELINEATE LANES

INSTALL PAVEMENT MARKING ARROWS TO DELINEATE LANES

LIMIT OF PROPOSED ROADWAY WORK

NOTES:
 1. PROPOSED RIGHT TURN AND LEFT TURN BAY TO BE 12 FEET IN WIDTH.
 2. PROPOSED TYPICAL SECTION IS 4 FOOT SHOULDERS, 12 FOOT RIGHT AND LEFT TURN BAY, AND 12 FOOT THROUGH LANES.

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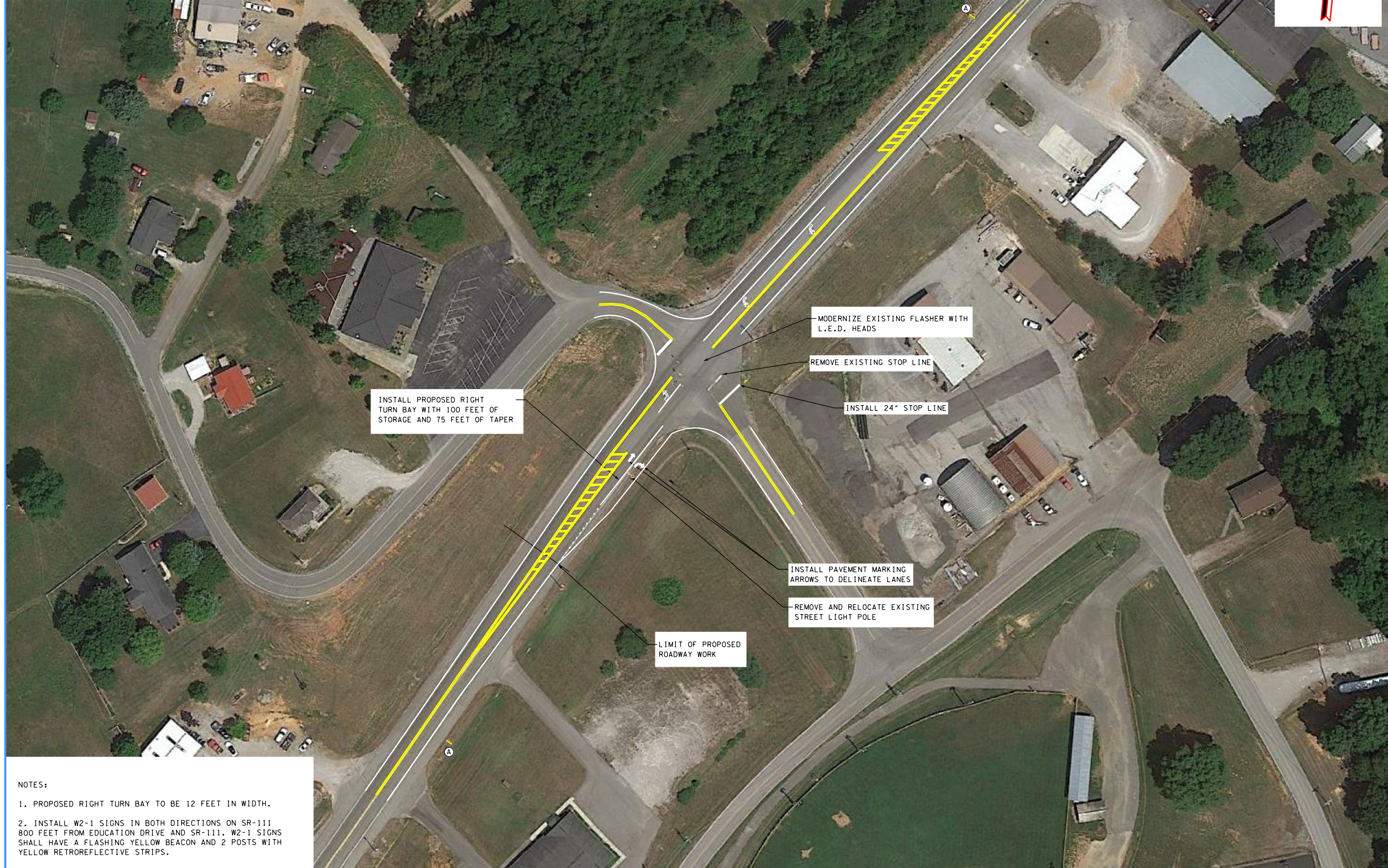
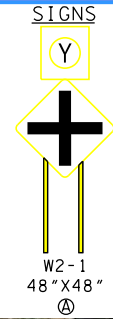
STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION

FUNCTIONAL LAYOUT
 (DOLLAR GENERAL)

SCALE: 1"=30'

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TYPE	YEAR	PROJECT NO.	SHEET NO.
FUNCT.	2021	18SPR1-F7-036	4



INSTALL PROPOSED RIGHT TURN BAY WITH 100 FEET OF STORAGE AND 75 FEET OF TAPER

MODERNIZE EXISTING FLASHER WITH L.E.D. HEADS

REMOVE EXISTING STOP LINE

INSTALL 24" STOP LINE

INSTALL PAVEMENT MARKING ARROWS TO DELINEATE LANES

REMOVE AND RELOCATE EXISTING STREET LIGHT POLE

LIMIT OF PROPOSED ROADWAY WORK

NOTES:

1. PROPOSED RIGHT TURN BAY TO BE 12 FEET IN WIDTH.
2. INSTALL W2-1 SIGNS IN BOTH DIRECTIONS ON SR-111 800 FEET FROM EDUCATION DRIVE AND SR-111. W2-1 SIGNS SHALL HAVE A FLASHING YELLOW BEACON AND 2 POSTS WITH YELLOW RETROREFLECTIVE STRIPS.

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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

FUNCTIONAL LAYOUT
(EDUCATION BLVD)

SCALE: 1"=50'

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TYPE	YEAR	PROJECT NO.	SHEET NO.
FUNCT.	2021	18SPR1-F7-036	5



REMOVE EXISTING DRIVEWAYS

CONSOLIDATE EXISTING DRIVEWAYS INTO ONE PROPOSED DRIVEWAY

EXISTING DRIVEWAY TO REMAIN

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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

FUNCTIONAL LAYOUT
(STORAGE AREA)

SCALE: 1"=30'

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APPENDIX B – TURNING MOVEMENT COUNTS

Intersection: SR 111 at Noah/Old Hillcrest

Date of Count: 2/23/21

Camera ID: SCU 73H

Start Time	SR 111				Noah Drive				SR 111				Old Hillcrest Drive			
	From North				From East				From South				From West			
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds
0700	0	2	0	0	0	0	1	0	0	5	0	0	0	0	0	0
0715	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0730	0	5	0	0	0	0	0	0	0	4	0	0	0	0	0	0
0745	0	2	0	0	0	0	0	0	0	7	0	0	0	0	0	0
0800	0	2	0	0	0	0	0	0	0	5	0	0	0	0	0	0
0815	0	7	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0830	0	5	0	0	0	0	0	0	0	8	0	0	0	0	0	0
0845	0	2	0	0	0	0	0	0	0	5	0	0	0	0	0	0
0900	0	2	0	0	0	0	0	0	0	5	0	0	0	0	0	0
1500	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
1515	0	4	0	0	0	0	1	0	0	4	0	0	0	0	0	0
1530	0	3	0	0	0	0	0	0	0	9	0	0	0	0	0	0
1545	0	2	0	0	0	0	0	0	0	4	0	0	0	0	0	0
1600	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0
1615	0	5	0	0	1	0	0	0	0	6	0	0	0	0	0	0
1630	0	5	0	0	0	0	0	0	0	10	0	0	0	0	0	0
1645	0	2	0	0	0	0	0	0	0	5	0	0	0	0	0	0
1700	0	5	0	0	0	0	0	0	0	4	0	0	0	0	0	0
1715	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0
1730	0	8	0	0	0	0	0	0	0	3	0	0	0	0	0	0
1745	0	3	0	0	0	0	0	0	0	4	0	0	0	0	0	0
1800	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0
1815	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0
1830	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0

Intersection: SR 111 at SR 295 (North Main)

Date of Count: 2/23/21

Camera ID: SCU 74X

Start Time	SR 111				SR 295 (North Main)				SR 111							
	From North				From East				From South				From West			
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds
0700	0	2	0	0	0	0	0	0	0	5	0	0	0	0	0	0
0715	0	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0730	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0
0745	0	1	0	0	0	0	0	0	0	5	0	0	0	0	0	0
0800	0	6	1	0	0	0	0	0	0	5	0	0	0	0	0	0
0815	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0
0830	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0
0845	0	4	0	0	0	0	0	0	0	5	0	0	0	0	0	0
1500	0	2	1	0	0	0	1	0	0	5	0	0	0	0	0	0
1515	0	3	0	0	0	0	0	0	0	4	0	0	0	0	0	0
1530	0	5	0	0	0	0	0	0	0	4	0	0	0	0	0	0
1545	0	2	0	0	0	0	0	0	0	3	0	0	0	0	0	0
1600	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0
1615	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
1630	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1645	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1715	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
1730	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
1745	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0

APPENDIX C – CRASH DATA

Query: Crash County = PICKETT
 CR_CRASH.County = PICKETT
 CR_CRASH.Route = SR111
 CR_CRASH.Log Mile >= 6.52 And CR_CRASH.Log Mile <= 8.44
 CR_CRASH.Date of Crash <= 12/31/2020 And CR_CRASH.Date of Crash >= 1/1/2016

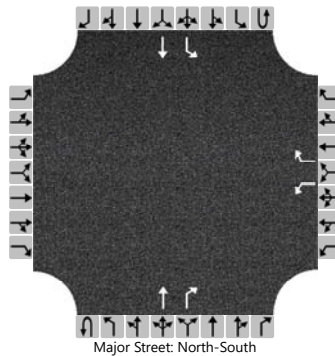
Segment	Spot	Relation to First Junction	Relation to First Roadway	Urban or Rural	County	Route	Sp Cse	Co Seq	Case Number	Location	Year Of Crash	Date of Crash	Time of Crash	Type of Crash	Total Killed	Total Inj	Total Incap Injuries	Total Other Injuries	Total Veh	First Harmful Event	Manner of First Collision	Weather Cond	Light Conditions	Locate Type
		BLM																						
1 W Main	6.524 NON_JUNCTION	On Roadway	--	PICKETT	SR111	O-NONE		1	101739684	Along Roadway	2017	8/21/2017		1206 Suspected Minor Injury	0	2	0	0	2	2 Vehicle in Transport	ANGLE	Clear	Daylight	Automatic
3 Dollar General	7.45 NON_JUNCTION	On Roadway	--	PICKETT	SR111	O-NONE		1	102263860	Along Roadway	2018	12/27/2018		1940 Prop Damage (over)	0	0	0	0	0	2 Vehicle in Transport	ANGLE	Rain	Dark-Lighted	Automatic
3	7.551 NON_JUNCTION	On Roadway	--	PICKETT	SR111	O-NONE		1	102217673	Along Roadway	2018	11/14/2018		1954 Suspected Minor Injury	0	1	0	0	1	2 Vehicle in Transport	ANGLE	Rain	Dark-Lighted	Automatic
4	7.811 NON_JUNCTION	On Roadway	--	PICKETT	SR111	O-NONE		1	101785396	Along Roadway	2017	10/7/2017		1003 Suspected Minor Injury	0	1	0	0	1	2 Vehicle in Transport	REAR-END	Cloudy	Daylight	Automatic
4	7.834 NON_JUNCTION	On Roadway	--	PICKETT	SR111	O-NONE		1	101755579	Along Roadway	2017	9/6/2017		1935 Suspected Minor Injury	0	1	0	0	1	2 Vehicle in Transport	REAR-END	Clear	Dark-Lighted	Automatic
1 W Main	6.52 NON_JUNCTION	Shoulder	--	PICKETT	SR111	O-NONE		1	102726800	At an Intersection	2020	6/11/2020		750 Prop Damage (under)	0	0	0	0	0	2 Vehicle in Transport	REAR-END	Clear	Daylight	Automatic
4	8.019 NON_JUNCTION	Shoulder	--	PICKETT	SR111	O-NONE		1	101866058	Along Roadway	2017	12/21/2017		209 Prop Damage (over)	0	0	0	0	0	2 Vehicle in Transport	SIDESWIPE, OPP DIR	Clear	Daylight	Automatic
1	6.711 NON_JUNCTION	--	--	PICKETT	SR111	O-NONE		1	101105521	At an Intersection	2016	2/13/2016		1313 Prop Damage (over)	0	0	0	0	0	3 Vehicle in Transport	REAR-END	Clear	Daylight	Automatic
1	6.842 NON_JUNCTION	--	--	PICKETT	SR111	O-NONE		1	101914392	Along Roadway	2018	2/12/2018		1640 Prop Damage (over)	0	0	0	0	0	2 Vehicle in Transport	ANGLE	Cloudy	Daylight	Automatic
2	6.987 NON_JUNCTION	--	--	PICKETT	SR111	O-NONE		1	102064890	Along Roadway	2018	7/5/2018		1455 Prop Damage (over)	0	0	0	0	0	2 Vehicle in Transport	ANGLE	Clear	Daylight	Automatic
2 Noah	7.028 NON_JUNCTION	--	--	PICKETT	SR111	O-NONE		1	102713952	Along Roadway	2020	5/26/2020		1635 Prop Damage (over)	0	0	0	0	0	2 Vehicle in Transport	SIDESWIPE, SAME DIR	Clear	Daylight	Automatic
2 Noah	7.032 NON_JUNCTION	--	--	PICKETT	SR111	O-NONE		1	101802025	At an Intersection	2017	10/5/2017		0 Prop Damage (over)	0	0	0	0	0	2 Vehicle in Transport	SIDESWIPE, OPP DIR	Clear	Daylight	Automatic
3 Dollar General	7.431 NON_JUNCTION	--	--	PICKETT	SR111	O-NONE		1	102022678	Along Roadway	2018	5/25/2018		2145 Prop Damage (over)	0	0	0	0	0	2 Vehicle in Transport	REAR-END	Clear	Dark-Lighted	Automatic
1 W Main	6.52 INTERSECTION	On Roadway	--	PICKETT	SR111	O-NONE		1	101347413	At an Intersection	2016	8/26/2016		1220 Suspected Serious Injury	0	1	1	0	0	2 Vehicle in Transport	ANGLE	Clear	Daylight	Automatic
2 Noah	7.032 INTERSECTION	On Roadway	--	PICKETT	SR111	O-NONE		1	101321863	At an Intersection	2016	8/5/2016		1620 Prop Damage (over)	0	0	0	0	0	2 Vehicle in Transport	ANGLE	Cloudy	Daylight	Automatic
3	7.342 INTERSECTION	On Roadway	--	PICKETT	SR111	O-NONE		1	102294457	At an Intersection	2019	2/1/2019		1644 Suspected Minor Injury	0	4	0	0	4	3 Vehicle in Transport	REAR-END	Clear	Daylight	Automatic
3 Education	7.738 INTERSECTION	On Roadway	--	PICKETT	SR111	O-NONE		1	101235413	At an Intersection	2016	5/30/2016		815 Prop Damage (over)	0	0	0	0	0	2 Vehicle in Transport	ANGLE	Clear	Daylight	Automatic
3 Education	7.738 INTERSECTION	On Roadway	--	PICKETT	SR111	O-NONE		1	101595320	At an Intersection	2017	3/24/2017		1040 Suspected Minor Injury	0	3	0	0	3	3 Vehicle in Transport	ANGLE	Clear	Daylight	Automatic
3 Education	7.738 INTERSECTION	On Roadway	--	PICKETT	SR111	O-NONE		1	101856085	At an Intersection	2017	12/12/2017		930 Prop Damage (over)	0	0	0	0	0	2 Vehicle in Transport	ANGLE	Cloudy	Daylight	Automatic
3 Education	7.738 INTERSECTION	On Roadway	--	PICKETT	SR111	O-NONE		1	102592141	At an Intersection	2019	12/6/2019		746 Suspected Minor Injury	0	4	0	0	4	2 Vehicle in Transport	ANGLE	Cloudy	Daylight	Automatic
3 Education	7.738 INTERSECTION	On Roadway	--	PICKETT	SR111	O-NONE		1	102599230	At an Intersection	2019	12/10/2019		815 Suspected Minor Injury	0	2	0	0	2	2 Vehicle in Transport	ANGLE	Rain	Daylight	Automatic
4 N Main	8.44 INTERSECTION	On Roadway	--	PICKETT	SR111	O-NONE		1	101921142	At an Intersection	2018	2/19/2018		815 Suspected Minor Injury	0	1	0	0	1	2 Vehicle in Transport	ANGLE	Clear	Daylight	Automatic
1	6.689 DRIVEWAY, ALLEY ACCESS, ETC.	On Roadway	--	PICKETT	SR111	O-NONE		1	101759989	Along Roadway	2017	9/11/2017		738 Suspected Serious Injury	0	1	1	0	0	2 Vehicle in Transport	REAR-END	Cloudy	Daylight	Automatic
3 Dollar General	7.437 DRIVEWAY, ALLEY ACCESS, ETC.	On Roadway	--	PICKETT	SR111	O-NONE		1	102516671	Along Roadway	2019	9/20/2019		1550 Suspected Minor Injury	0	2	0	0	2	2 Vehicle in Transport	REAR-END	Clear	Daylight	Automatic
4	7.883 DRIVEWAY, ALLEY ACCESS, ETC.	On Roadway	--	PICKETT	SR111	O-NONE		1	101949632	Along Roadway	2018	3/18/2018		1900 Prop Damage (over)	0	0	0	0	0	3 Vehicle in Transport	REAR-END	Cloudy	Daylight	Automatic

APPENDIX D – LEVEL OF SERVICE RESULTS

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Neel-Schaffer, Inc.			Intersection	SR-325 (W Main) at SR-111		
Agency/Co.	TDOT			Jurisdiction	Town of Byrdstown		
Date Performed	4/7/2021			East/West Street	SR-325 (W Main)		
Analysis Year	2021			North/South Street	SR-111		
Time Analyzed	8:00 - 9:00 AM			Peak Hour Factor	0.82		
Intersection Orientation	North-South			Analysis Time Period (hrs)	1.00		
Project Description	AM Existing LOS						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	1	0	1	1	0
Configuration						L		R			T	R		L	T	
Volume (veh/h)						55		4			262	76		2	239	
Percent Heavy Vehicles (%)						1		0						0		
Proportion Time Blocked																
Percent Grade (%)					3											
Right Turn Channelized					Yes				Yes							
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						7.01		6.50						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.51		3.30						2.20		

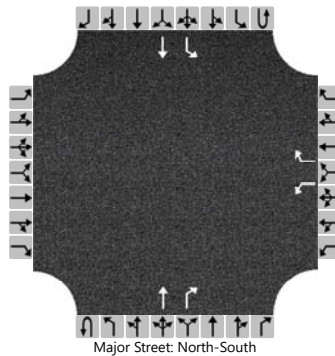
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)					67		5						2			
Capacity, c (veh/h)					411		707						1252			
v/c Ratio					0.16		0.01						0.00			
95% Queue Length, Q ₉₅ (veh)					0.6		0.0						0.0			
Control Delay (s/veh)					15.5		10.1						7.9			
Level of Service (LOS)					C		B						A			
Approach Delay (s/veh)					15.1								0.1			
Approach LOS					C											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Neel-Schaffer, Inc.			Intersection	SR-325 (W Main) at SR-111		
Agency/Co.	TDOT			Jurisdiction	Town of Byrdstown		
Date Performed	4/7/2021			East/West Street	SR-325 (W Main)		
Analysis Year	2021			North/South Street	SR-111		
Time Analyzed	4:00 - 5:00 PM			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	1.00		
Project Description	PM Existing LOS						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	1	0	1	1	0
Configuration						L		R			T	R		L	T	
Volume (veh/h)						68		7			219	65		8	288	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)					3											
Right Turn Channelized					Yes				Yes							
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1		
Critical Headway (sec)						7.00		6.50							4.10		
Base Follow-Up Headway (sec)						3.5		3.3							2.2		
Follow-Up Headway (sec)						3.50		3.30							2.20		

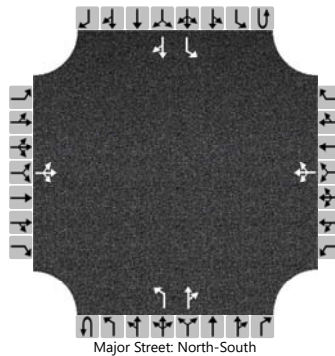
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						74		8							9		
Capacity, c (veh/h)						440		790							1341		
v/c Ratio						0.17		0.01							0.01		
95% Queue Length, Q ₉₅ (veh)						0.6		0.0							0.0		
Control Delay (s/veh)						14.8		9.6							7.7		
Level of Service (LOS)						B		A							A		
Approach Delay (s/veh)					14.3								0.2				
Approach LOS					B												

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Neel-Schaffer, Inc.			Intersection	SR-111 at Noah Drive		
Agency/Co.	TDOT			Jurisdiction	Town of Byrdstown		
Date Performed	4/7/2021			East/West Street	Noah Drive		
Analysis Year	2021			North/South Street	SR-111		
Time Analyzed	7:15-8:15 AM			Peak Hour Factor	0.82		
Intersection Orientation	North-South			Analysis Time Period (hrs)	1.00		
Project Description	AM Existing LOS						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		3	1	1		20	2	28		4	246	7		29	231	0
Percent Heavy Vehicles (%)		0	0	0		0	0	0		0				0		
Proportion Time Blocked																
Percent Grade (%)	-3				-3											
Right Turn Channelized																
Median Type Storage	Left Only								9							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		6.50	5.90	5.90		6.50	5.90	5.90		4.10				4.10		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.20		

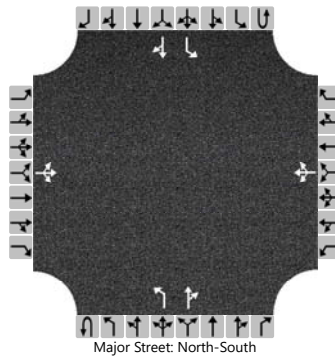
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			6				61				5				35	
Capacity, c (veh/h)			591				697				1292				1263	
v/c Ratio			0.01				0.09				0.00				0.03	
95% Queue Length, Q ₉₅ (veh)			0.0				0.3				0.0				0.1	
Control Delay (s/veh)			11.2				10.7				7.8				7.9	
Level of Service (LOS)			B				B				A				A	
Approach Delay (s/veh)	11.2				10.7				0.1				0.9			
Approach LOS	B				B											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Neel-Schaffer, Inc.			Intersection	SR-111 at Noah Drive		
Agency/Co.	TDOT			Jurisdiction	Town of Byrdstown		
Date Performed	4/7/2021			East/West Street	Noah Drive		
Analysis Year	2021			North/South Street	SR-111		
Time Analyzed	5:00 - 6:00 PM			Peak Hour Factor	0.96		
Intersection Orientation	North-South			Analysis Time Period (hrs)	1.00		
Project Description	PM Existing LOS						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0	
Configuration			LTR				LTR			L		TR		L		TR	
Volume (veh/h)		7	5	0		33	6	45		2	218	7		33	264	7	
Percent Heavy Vehicles (%)		0	0	0		0	0	0		0				0			
Proportion Time Blocked																	
Percent Grade (%)		-3				-3											
Right Turn Channelized																	
Median Type Storage		Left Only												9			

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		6.50	5.90	5.90		6.50	5.90	5.90		4.10				4.10		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.20		

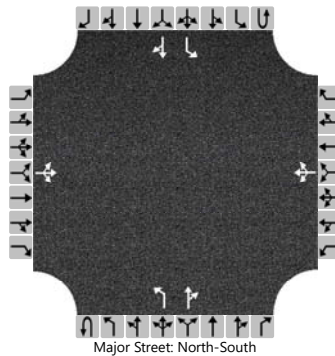
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			13				88			2				34			
Capacity, c (veh/h)			557				723			1292				1345			
v/c Ratio			0.02				0.12			0.00				0.03			
95% Queue Length, Q ₉₅ (veh)			0.1				0.4			0.0				0.1			
Control Delay (s/veh)			11.6				10.7			7.8				7.7			
Level of Service (LOS)			B				B			A				A			
Approach Delay (s/veh)		11.6				10.7				0.1				0.8			
Approach LOS		B				B				A				A			

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Neel-Schaffer, Inc.			Intersection	SR-111 at Education Dr		
Agency/Co.	TDOT			Jurisdiction	Town of Byrdstown		
Date Performed	4/8/2021			East/West Street	Education Drive		
Analysis Year	2021			North/South Street	SR-111		
Time Analyzed	8:00 - 9:00 AM			Peak Hour Factor	0.75		
Intersection Orientation	North-South			Analysis Time Period (hrs)	1.00		
Project Description	AM Existing LOS						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		2	11	9		46	2	16		13	100	90		43	177	5
Percent Heavy Vehicles (%)		0	0	0		0	0	0		0				0		
Proportion Time Blocked																
Percent Grade (%)	1				1											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.30	6.70	6.30		7.30	6.70	6.30		4.10				4.10		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.20		

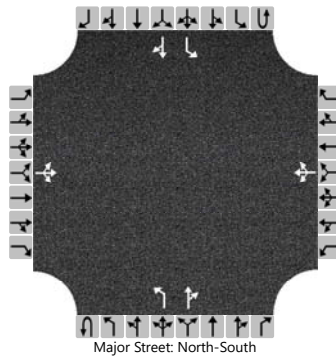
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			29				85				17				57	
Capacity, c (veh/h)			467				432				1336				1324	
v/c Ratio			0.06				0.20				0.01				0.04	
95% Queue Length, Q ₉₅ (veh)			0.2				0.7				0.0				0.1	
Control Delay (s/veh)			13.2				15.4				7.7				7.8	
Level of Service (LOS)			B				C				A				A	
Approach Delay (s/veh)	13.2				15.4				0.5				1.5			
Approach LOS	B				C											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Neel-Schaffer, Inc.			Intersection	SR-111 at Education Dr		
Agency/Co.	TDOT			Jurisdiction	Town of Byrdstown		
Date Performed	4/8/2021			East/West Street	Education Drive		
Analysis Year	2021			North/South Street	SR-111		
Time Analyzed	4:00 - 5:00 PM			Peak Hour Factor	0.83		
Intersection Orientation	North-South			Analysis Time Period (hrs)	1.00		
Project Description	PM Existing LOS						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		3	3	8		89	6	34		2	174	24		13	159	0
Percent Heavy Vehicles (%)		0	0	0		0	0	0		0				0		
Proportion Time Blocked																
Percent Grade (%)	1				1											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.30	6.70	6.30		7.30	6.70	6.30		4.10				4.10		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.20		

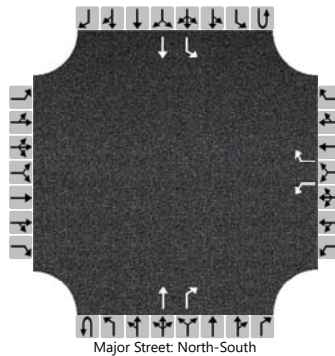
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			17				155				2				16	
Capacity, c (veh/h)			628				547				1394				1340	
v/c Ratio			0.03				0.28				0.00				0.01	
95% Queue Length, Q ₉₅ (veh)			0.1				1.2				0.0				0.0	
Control Delay (s/veh)			10.9				14.2				7.6				7.7	
Level of Service (LOS)			B				B				A				A	
Approach Delay (s/veh)	10.9				14.2				0.1				0.6			
Approach LOS	B				B				A				A			

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Neel-Schaffer, Inc.			Intersection	SR-111 at SR-295 (N Main)		
Agency/Co.	TDOT			Jurisdiction	Town of Byrdstown		
Date Performed	4/8/2021			East/West Street	SR-295 (N Main)		
Analysis Year	2021			North/South Street	SR-111		
Time Analyzed	7:00 - 8:00 AM			Peak Hour Factor	0.77		
Intersection Orientation	North-South			Analysis Time Period (hrs)	1.00		
Project Description	AM Existing LOS						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	1	0	1	1	0
Configuration						L		R			T	R		L	T	
Volume (veh/h)						27		16			101	14		51	189	
Percent Heavy Vehicles (%)						0		1						0		
Proportion Time Blocked																
Percent Grade (%)						1										
Right Turn Channelized						Yes					Yes					
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1	
Critical Headway (sec)						6.60		6.31							4.10	
Base Follow-Up Headway (sec)						3.5		3.3							2.2	
Follow-Up Headway (sec)						3.50		3.31							2.20	

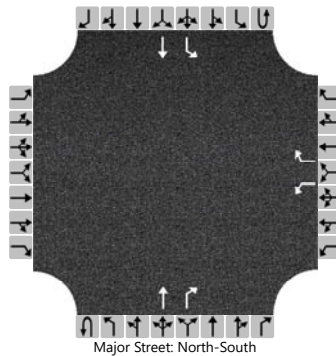
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)					35		21							66		
Capacity, c (veh/h)					490		918							1467		
v/c Ratio					0.07		0.02							0.05		
95% Queue Length, Q ₉₅ (veh)					0.2		0.1							0.1		
Control Delay (s/veh)					12.9		9.0							7.6		
Level of Service (LOS)					B		A							A		
Approach Delay (s/veh)					11.5								1.6			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Neel-Schaffer, Inc.			Intersection	SR-111 at SR-295 (N Main)		
Agency/Co.	TDOT			Jurisdiction	Town of Byrdstown		
Date Performed	4/8/2021			East/West Street	SR-295 (N Main)		
Analysis Year	2021			North/South Street	SR-111		
Time Analyzed	3:00 - 4:00 PM			Peak Hour Factor	0.82		
Intersection Orientation	North-South			Analysis Time Period (hrs)	1.00		
Project Description	PM Existing LOS						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	1	0	1	1	0
Configuration						L		R			T	R		L	T	
Volume (veh/h)						18		32			183	31		39	131	
Percent Heavy Vehicles (%)						1		0						0		
Proportion Time Blocked																
Percent Grade (%)						1										
Right Turn Channelized						Yes				Yes						
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1	
Critical Headway (sec)						6.61		6.30							4.10	
Base Follow-Up Headway (sec)						3.5		3.3							2.2	
Follow-Up Headway (sec)						3.51		3.30							2.20	

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						22		39							48	
Capacity, c (veh/h)						515		816							1358	
v/c Ratio						0.04		0.05							0.04	
95% Queue Length, Q ₉₅ (veh)						0.1		0.2							0.1	
Control Delay (s/veh)						12.3		9.6							7.7	
Level of Service (LOS)						B		A							A	
Approach Delay (s/veh)					10.6								1.8			
Approach LOS					B											

APPENDIX E – TDOT 2019 SPEED STUDY RESULTS

Location Information

County:	Pickett	Date:	2/27/2019
Route No:	SR 111 NB	Begin Time:	11:00 AM est
Log Mile:	6.59	End Time:	12:00 PM est
City:	Byrdstown	Survey Performed By:	MW/MB
Place Description:	Lunchbox Lot	Weather Conditions:	Clear Sunny
Posted Speed Limit:	50 MPH		

Total Number of Vehicles: 116

Average Speed (mph): 49.388

Median Speed (mph): 49

Mode Speed (mph): 49

Variance: 28.883

Standard Deviation: 5.374

Standard Error: 0.499

85th Percentile Speed: 55

Check Plot for a 10 mph Pace. If most of the data is within a 10 mph range, the traffic speed is fairly stable. If most of the data is not within a 10 mph range, a speed reduction may not be necessary at this location.

Location Information

County:	Pickett	Date:	2/27/2019
Route No:	SR 111 SB	Begin Time:	11:00 AM est
Log Mile:	6.59	End Time:	12:00 PM est
City:	Byrdstown	Survey Performed By:	MW/MB
Place Description:	Lunchbox Lot	Weather Conditions:	Clear Sunny
Posted Speed Limit:	50 MPH		

Total Number of Vehicles: 136

Average Speed (mph): 48.272

Median Speed (mph): 49

Mode Speed (mph): 49

Variance: 25.000

Standard Deviation: 5.000

Standard Error: 0.429

85th Percentile Speed: 52

Check Plot for a 10 mph Pace. If most of the data is within a 10 mph range, the traffic speed is fairly stable. If most of the data is not within a 10 mph range, a speed reduction may not be necessary at this location.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
RADAR SPEED SURVEY

Location Information

County:	Pickett	Date:	2/27/2019
Route No:	SR 111 NB	Begin Time:	12:05 PM
Log Mile:	7.12	End Time:	1:05 AM
City:	Byrdstown	Survey Performed By:	MW/MB
Place Description:	Drive Opposite Family Dollar	Weather Conditions:	Clear Sunny
Posted Speed Limit:	50 MPH		

Total Number of Vehicles: 98

Average Speed (mph): 48.143

Median Speed (mph): 49

Mode Speed (mph): 52

Variance: 32.103

Standard Deviation: 5.666

Standard Error: 0.572

85th Percentile Speed: 52

Check Plot for a 10 mph Pace. If most of the data is within a 10 mph range, the traffic speed is fairly stable. If most of the data is not within a 10 mph range, a speed reduction may not be necessary at this location.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
RADAR SPEED SURVEY

Location Information

County:	Pickett	Date:	2/27/2019
Route No:	SR 111 SB	Begin Time:	11:00 AM est
Log Mile:	7.12	End Time:	12:00 PM est
City:	Byrdstown	Survey Performed By:	MW/MB
Place Description:	Drive Opposite Family Dollar	Weather Conditions:	Clear Sunny
Posted Speed Limit:	50 MPH		

Total Number of Vehicles:	120
Average Speed (mph):	45.400
Median Speed (mph):	46
Mode Speed (mph):	46
Variance:	22.024
Standard Deviation:	4.693
Standard Error:	0.428
85th Percentile Speed:	52

Check Plot for a 10 mph Pace. If most of the data is within a 10 mph range, the traffic speed is fairly stable. If most of the data is not within a 10 mph range, a speed reduction may not be necessary at this location.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
RADAR SPEED SURVEY

Location Information

County:	Pickett	Date:	2/27/2019
Route No:	SR 111 NB	Begin Time:	1:10 AM
Log Mile:	7.34	End Time:	2:10 AM
City:	Byrdstown	Survey Performed By:	MW/MB
Place Description:	Drive Across From Hillcrest Dr	Weather Conditions:	Clear Sunny
Posted Speed Limit:	50 MPH		

Total Number of Vehicles:	91
Average Speed (mph):	47.187
Median Speed (mph):	49
Mode Speed (mph):	49
Variance:	25.776
Standard Deviation:	5.077
Standard Error:	0.532
85th Percentile Speed:	52

Check Plot for a 10 mph Pace. If most of the data is within a 10 mph range, the traffic speed is fairly stable. If most of the data is not within a 10 mph range, a speed reduction may not be necessary at this location.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
RADAR SPEED SURVEY

Location Information

County:	Pickett	Date:	2/27/2019
Route No:	SR 111 SB	Begin Time:	1:10 PM
Log Mile:	7.34	End Time:	2:10 PM
City:	Byrdstown	Survey Performed By:	MW/MB
Place Description:	Drive Across From Hillcrest Dr	Weather Conditions:	Clear Sunny
Posted Speed Limit:	50 MPH		

Total Number of Vehicles: 73

Average Speed (mph): 47.027

Median Speed (mph): 49

Mode Speed (mph): 49

Variance: 24.805

Standard Deviation: 4.980

Standard Error: 0.583

85th Percentile Speed: 52

Check Plot for a 10 mph Pace. If most of the data is within a 10 mph range, the traffic speed is fairly stable. If most of the data is not within a 10 mph range, a speed reduction may not be necessary at this location.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
RADAR SPEED SURVEY

Location Information

County:	Pickett	Date:	2/27/2019
Route No:	SR 111 NB	Begin Time:	2:30 PM
Log Mile:	7.85	End Time:	3:30 PM
City:	Byrdstown	Survey Performed By:	MW/MB
Place Description:	Fire Hall	Weather Conditions:	Clear Sunny
Posted Speed Limit:	50 MPH		

Total Number of Vehicles:	75
Average Speed (mph):	48.320
Median Speed (mph):	49
Mode Speed (mph):	49
Variance:	22.275
Standard Deviation:	4.720
Standard Error:	0.545
85th Percentile Speed:	52

Check Plot for a 10 mph Pace. If most of the data is within a 10 mph range, the traffic speed is fairly stable. If most of the data is not within a 10 mph range, a speed reduction may not be necessary at this location.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
RADAR SPEED SURVEY

Location Information

County:	Pickett	Date:	2/27/2019
Route No:	SR 111 SB	Begin Time:	2:30 PM
Log Mile:	7.85	End Time:	3:30 PM
City:	Byrdstown	Survey Performed By:	MW/MB
Place Description:	Fire Hall	Weather Conditions:	Clear Sunny
Posted Speed Limit:	50 MPH		

Total Number of Vehicles:	97
Average Speed (mph):	50.361
Median Speed (mph):	49
Mode Speed (mph):	49
Variance:	20.066
Standard Deviation:	4.480
Standard Error:	0.455
85th Percentile Speed:	55

Check Plot for a 10 mph Pace. If most of the data is within a 10 mph range, the traffic speed is fairly stable. If most of the data is not within a 10 mph range, a speed reduction may not be necessary at this location.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
RADAR SPEED SURVEY

Location Information

County:	Pickett	Date:	2/27/2019
Route No:	SR 111 NB	Begin Time:	3:35 PM
Log Mile:	8.27	End Time:	4:35 PM
City:	Byrdstown	Survey Performed By:	MW/MB
Place Description:	Fire Hall	Weather Conditions:	Clear Sunny
Posted Speed Limit:	50 MPH		

Total Number of Vehicles: 94

Average Speed (mph): 50.117

Median Speed (mph): 49

Mode Speed (mph): 52

Variance: 14.707

Standard Deviation: 3.835

Standard Error: 0.396

85th Percentile Speed: 55

Check Plot for a 10 mph Pace. If most of the data is within a 10 mph range, the traffic speed is fairly stable. If most of the data is not within a 10 mph range, a speed reduction may not be necessary at this location.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING DIVISION
RADAR SPEED SURVEY

Location Information

County:	Pickett	Date:	2/27/2019
Route No:	SR 111 SB	Begin Time:	3:35 PM
Log Mile:	8.27	End Time:	4:35 PM
City:	Byrdstown	Survey Performed By:	MW/MB
Place Description:	Fire Hall	Weather Conditions:	Clear Sunny
Posted Speed Limit:	50 MPH		

Total Number of Vehicles:	62
Average Speed (mph):	48.419
Median Speed (mph):	49
Mode Speed (mph):	46
Variance:	30.641
Standard Deviation:	5.535
Standard Error:	0.703
85th Percentile Speed:	55

Check Plot for a 10 mph Pace. If most of the data is within a 10 mph range, the traffic speed is fairly stable. If most of the data is not within a 10 mph range, a speed reduction may not be necessary at this location.

APPENDIX F – CONCEPTUAL COST ESTIMATES

COST ESTIMATE SUMMARY



Route:	SR-111
Description:	Two-Way Left-Turn Lane Installation from SR-325 to Noah Drive
Project Type of Work:	Widen
County:	Pickett
Length:	0.50 Miles
Date:	August 3, 2021
Estimate Type:	Concept

DESCRIPTION	LOCAL	STATE	FEDERAL	TOTAL
	0%	0%	0%	
Construction Items				
Removal Items	\$0	\$0	\$0	\$152,000
Asphalt Paving	\$0	\$0	\$0	\$307,000
Concrete Pavement	\$0	\$0	\$0	\$0
Drainage	\$0	\$0	\$0	\$70,200
Appurtenances	\$0	\$0	\$0	\$0
Structures	\$0	\$0	\$0	\$0
Fencing	\$0	\$0	\$0	\$0
Signalization & Lighting	\$0	\$0	\$0	\$0
Railroad Crossing	\$0	\$0	\$0	\$0
Earthwork	\$0	\$0	\$0	\$97,900
Clearing and Grubbing	\$0	\$0	\$0	\$0
Seeding & Sodding	\$0	\$0	\$0	\$11,400
Rip-Rap or Slope Protection	\$0	\$0	\$0	\$0
Guardrail	\$0	\$0	\$0	\$6,400
Signing	\$0	\$0	\$0	\$600
Pavement Markings	\$0	\$0	\$0	\$1,700
Maintenance of Traffic	\$0	\$0	\$0	\$29,900
Mobilization 5%	\$0	\$0	\$0	\$33,900
Other Items 10%	\$0	\$0	\$0	\$71,100
Const. Contingency 30%	\$0	\$0	\$0	\$605,000
Const. Eng. & Inspec. 10%	\$0	\$0	\$0	\$139,000
Construction Estimate	\$0	\$0	\$0	\$1,530,000
Interchanges & Unique Intersections				
Roundabouts	\$0	\$0	\$0	\$0
Interchanges	\$0	\$0	\$0	\$0
Right-of-Way & Utilities				
	LOCAL	STATE	FEDERAL	TOTAL
	0%	0%	0%	
Right-of-Way	\$0	\$0	\$0	\$0
Utilities	\$0	\$0	\$0	\$0
Preliminary & Construction Engineering and Inspection				
Prelim. Eng. 10%	\$0	\$0	\$0	\$153,000
Total Project Cost (2018)	\$0	\$0	\$0	\$ 1,680,000

COST ESTIMATE SUMMARY



Route:	SR-111
Description:	Noah Drive Access Management and Circulation Improvements
Project Type of Work:	Widen
County:	Pickett
Length:	0.02 Miles
Date:	August 3, 2021
Estimate Type:	Concept

DESCRIPTION	LOCAL	STATE	FEDERAL	TOTAL
	0%	0%	0%	
Construction Items				
Removal Items	\$0	\$0	\$0	\$20,700
Asphalt Paving	\$0	\$0	\$0	\$18,700
Concrete Pavement	\$0	\$0	\$0	\$34,200
Drainage	\$0	\$0	\$0	\$3,300
Appurtenances	\$0	\$0	\$0	\$0
Structures	\$0	\$0	\$0	\$0
Fencing	\$0	\$0	\$0	\$0
Signalization & Lighting	\$0	\$0	\$0	\$0
Railroad Crossing	\$0	\$0	\$0	\$0
Earthwork	\$0	\$0	\$0	\$16,000
Clearing and Grubbing	\$0	\$0	\$0	\$0
Seeding & Sodding	\$0	\$0	\$0	\$500
Rip-Rap or Slope Protection	\$0	\$0	\$0	\$0
Guardrail	\$0	\$0	\$0	\$3,900
Signing	\$0	\$0	\$0	\$700
Pavement Markings	\$0	\$0	\$0	\$400
Maintenance of Traffic	\$0	\$0	\$0	\$4,100
Mobilization 5%	\$0	\$0	\$0	\$5,130
Other Items 10%	\$0	\$0	\$0	\$10,800
Const. Contingency 30%	\$0	\$0	\$0	\$89,400
Const. Eng. & Inspec. 10%	\$0	\$0	\$0	\$20,800
Construction Estimate	\$0	\$0	\$0	\$229,000
Interchanges & Unique Intersections				
Roundabouts	\$0	\$0	\$0	\$0
Interchanges	\$0	\$0	\$0	\$0
Right-of-Way & Utilities				
	LOCAL	STATE	FEDERAL	TOTAL
	0%	0%	0%	
Right-of-Way	\$0	\$0	\$0	\$0
Utilities	\$0	\$0	\$0	\$0
Preliminary & Construction Engineering and Inspection				
Prelim. Eng. 10%	\$0	\$0	\$0	\$22,900
Total Project Cost (2018)	\$0	\$0	\$0	\$ 252,000

COST ESTIMATE SUMMARY



Route:	SR-111
Description:	Dollar General Lane Improvements
Project Type of Work:	Widen
County:	Pickett
Length:	0.10 Miles
Date:	August 3, 2021
Estimate Type:	Concept

DESCRIPTION	LOCAL	STATE	FEDERAL	TOTAL
	0%	0%	0%	
Construction Items				
Removal Items	\$0	\$0	\$0	\$32,800
Asphalt Paving	\$0	\$0	\$0	\$79,400
Concrete Pavement	\$0	\$0	\$0	\$0
Drainage	\$0	\$0	\$0	\$11,300
Appurtenances	\$0	\$0	\$0	\$0
Structures	\$0	\$0	\$0	\$0
Fencing	\$0	\$0	\$0	\$0
Signalization & Lighting	\$0	\$0	\$0	\$0
Railroad Crossing	\$0	\$0	\$0	\$0
Earthwork	\$0	\$0	\$0	\$21,700
Clearing and Grubbing	\$0	\$0	\$0	\$0
Seeding & Sodding	\$0	\$0	\$0	\$2,300
Rip-Rap or Slope Protection	\$0	\$0	\$0	\$0
Guardrail	\$0	\$0	\$0	\$4,300
Signing	\$0	\$0	\$0	\$200
Pavement Markings	\$0	\$0	\$0	\$400
Maintenance of Traffic	\$0	\$0	\$0	\$6,900
Mobilization 5%	\$0	\$0	\$0	\$7,970
Other Items 10%	\$0	\$0	\$0	\$16,700
Const. Contingency 30%	\$0	\$0	\$0	\$142,000
Const. Eng. & Inspec. 10%	\$0	\$0	\$0	\$32,600
Construction Estimate	\$0	\$0	\$0	\$359,000
Interchanges & Unique Intersections				
Roundabouts	\$0	\$0	\$0	\$0
Interchanges	\$0	\$0	\$0	\$0
Right-of-Way & Utilities				
	LOCAL	STATE	FEDERAL	TOTAL
	0%	0%	0%	
Right-of-Way	\$0	\$0	\$0	\$0
Utilities	\$0	\$0	\$0	\$0
Preliminary & Construction Engineering and Inspection				
Prelim. Eng. 10%	\$0	\$0	\$0	\$35,900
Total Project Cost (2018)	\$0	\$0	\$0	\$ 395,000

COST ESTIMATE SUMMARY



Route:	SR-111
Description:	Education Drive Lane Improvement
Project Type of Work:	Widen
County:	Pickett
Length:	0.07 Miles
Date:	August 3, 2021
Estimate Type:	Concept

DESCRIPTION	LOCAL	STATE	FEDERAL	TOTAL
	0%	0%	0%	
Construction Items				
Removal Items	\$0	\$0	\$0	\$12,200
Asphalt Paving	\$0	\$0	\$0	\$85,100
Concrete Pavement	\$0	\$0	\$0	\$0
Drainage	\$0	\$0	\$0	\$11,100
Appurtenances	\$0	\$0	\$0	\$0
Structures	\$0	\$0	\$0	\$0
Fencing	\$0	\$0	\$0	\$0
Signalization & Lighting	\$0	\$0	\$0	\$0
Railroad Crossing	\$0	\$0	\$0	\$0
Earthwork	\$0	\$0	\$0	\$31,800
Clearing and Grubbing	\$0	\$0	\$0	\$0
Seeding & Sodding	\$0	\$0	\$0	\$1,700
Rip-Rap or Slope Protection	\$0	\$0	\$0	\$0
Guardrail	\$0	\$0	\$0	\$4,200
Signing	\$0	\$0	\$0	\$2,000
Pavement Markings	\$0	\$0	\$0	\$1,400
Maintenance of Traffic	\$0	\$0	\$0	\$6,600
Mobilization 5%	\$0	\$0	\$0	\$7,810
Other Items 10%	\$0	\$0	\$0	\$16,400
Const. Contingency 30%	\$0	\$0	\$0	\$130,000
Const. Eng. & Inspec. 10%	\$0	\$0	\$0	\$31,000
Construction Estimate	\$0	\$0	\$0	\$341,000
Interchanges & Unique Intersections				
Roundabouts	\$0	\$0	\$0	\$0
Interchanges	\$0	\$0	\$0	\$0
Right-of-Way & Utilities				
	LOCAL	STATE	FEDERAL	TOTAL
	0%	0%	0%	
Right-of-Way	\$0	\$0	\$0	\$0
Utilities	\$0	\$0	\$0	\$2,500
Preliminary & Construction Engineering and Inspection				
Prelim. Eng. 10%	\$0	\$0	\$0	\$34,100
Total Project Cost (2018)	\$0	\$0	\$0	\$ 378,000

COST ESTIMATE SUMMARY



Route:	SR-111
Description:	Pawn Shop Driveway Consolidation
Project Type of Work:	Widen
County:	Pickett
Length:	0.01 Miles
Date:	August 3, 2021
Estimate Type:	Concept

DESCRIPTION	LOCAL	STATE	FEDERAL	TOTAL
	0%	0%	0%	
Construction Items				
Removal Items	\$0	\$0	\$0	\$1,400
Asphalt Paving	\$0	\$0	\$0	\$1,500
Concrete Pavement	\$0	\$0	\$0	\$24,300
Drainage	\$0	\$0	\$0	\$1,200
Appurtenances	\$0	\$0	\$0	\$0
Structures	\$0	\$0	\$0	\$0
Fencing	\$0	\$0	\$0	\$0
Signalization & Lighting	\$0	\$0	\$0	\$0
Railroad Crossing	\$0	\$0	\$0	\$0
Earthwork	\$0	\$0	\$0	\$14,000
Clearing and Grubbing	\$0	\$0	\$0	\$0
Seeding & Sodding	\$0	\$0	\$0	\$200
Rip-Rap or Slope Protection	\$0	\$0	\$0	\$0
Guardrail	\$0	\$0	\$0	\$3,800
Signing	\$0	\$0	\$0	\$0
Pavement Markings	\$0	\$0	\$0	\$0
Maintenance of Traffic	\$0	\$0	\$0	\$1,900
Mobilization 5%	\$0	\$0	\$0	\$2,420
Other Items 10%	\$0	\$0	\$0	\$5,070
Const. Contingency 30%	\$0	\$0	\$0	\$36,600
Const. Eng. & Inspec. 10%	\$0	\$0	\$0	\$9,240
Construction Estimate	\$0	\$0	\$0	\$102,000
Interchanges & Unique Intersections				
Roundabouts	\$0	\$0	\$0	\$0
Interchanges	\$0	\$0	\$0	\$0
Right-of-Way & Utilities				
	LOCAL	STATE	FEDERAL	TOTAL
	0%	0%	0%	
Right-of-Way	\$0	\$0	\$0	\$0
Utilities	\$0	\$0	\$0	\$0
Preliminary & Construction Engineering and Inspection				
Prelim. Eng. 10%	\$0	\$0	\$0	\$10,200
Total Project Cost (2018)	\$0	\$0	\$0	\$ 112,000

SR-325 Sidewalk Cost Summary			
Description	Estimate	Contingency	% Eng Cost
Environmental (NEPA):	\$ 8,000	0%	5%
Preliminary Engineering:	\$ 16,100	0%	10%
Right-of-Way:	\$ -	0%	
Utility Relocation:	\$ -	0%	
Interchanges & Roundabouts:	\$ -	0%	
Transit Services	\$ -	0%	
Construction:	\$ 160,800	0%	
Construction Engineering:	\$ 16,100	0%	10%
Total Estimated Project Cost:	\$ 201,000		

APPENDIX G – FORMAL RESOLUTION

21-05

RESOLUTION

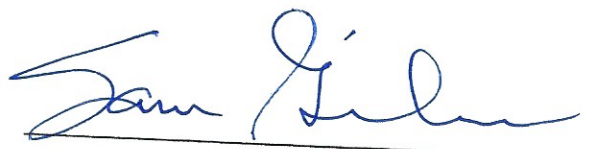
**A RESOLUTION TO APPROVE AND RECOMMEND
THE TOWN OF BYRDSTOWN SR 111 CORRIDOR STUDY
2021**

WHEREAS, the Town of Byrdstown Commission, Byrdstown City Staff, and stakeholders have met to discuss and provide input in the development of the plan

WHEREAS, The Tennessee Department of Transportation funded the plan through a Community Transportation Planning Grant

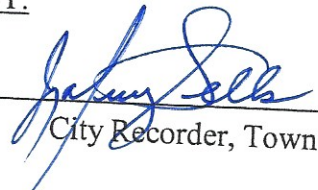
WHEREAS, The Town of Byrdstown will implement the components of THE BYRDSTOWN SR 111 CORRIDOR STUDY to the extent possible as resources are available

NOW, THEREFORE, BE IT RESOLVED by the Town of Byrdstown Commission that the "THE BYRDSTOWN SR 111 CORRIDOR STUDY" (attached) is approved and recommended to the Tennessee Department of Transportation.



Mayor, Town of Byrdstown

ATTEST:



City Recorder, Town of Byrdstown