

CITY OF SNEEDVILLE



SR 33 / Main Street Complete Streets Plan

September 2019



U.S. Department of Transportation Federal Highway Administration





Table of Contents

CHAPTER 1 - INTRODUCTION	3
Study Background and Need	3
Study Purpose	4
Planning Process	4
CHAPTER 2 - EXISTING CONDITIONS	5
Sneedville	5
Overview	5
Demographics	6
Employment and Commuting Characteristics	7
Study Corridor	9
Overview	9
Functional Classification	11
Traffic Volumes	11
Crash History	13
Land Use	16
Non-Motorized Network	18
CHAPTER 3 - RECOMMENDATIONS	20
Recommended Near-Term Improvements	21
Bulb-Outs	21
Crosswalks	23
Recommended Long-Term Improvements	24
Recommended Improvement Cost Estimates	31
CHAPTER 4 - CONCLUSION	36
APPENDIX A - PUBLIC ENGAGEMENT	37

List of Tables

Table 1 Crash Types and Severity (Past 10 Years)	13
Table 2 Land Use Acreage for Parcels with Corridor Frontage	16
Table 3 Recommended Improvement Cost Estimates	31

List of Figures

Figure 1 Planning Process Schedule
Figure 2 Location of Sneedville, Tennessee5
Figure 3 Sneedville Demographics6
Figure 4 Job and Worker Locations within Sneedville8
Figure 5 Study Corridor and Key Destinations9
Figure 6 Example Cross-Sections Along the Existing Corridor10
Figure 7 Roadway Functional Classification and General Characteristics
Figure 8 Roadway Functional Classification and Traffic Volumes12
Figure 9 Crash Type (Past 10 Years)14
Figure 10 Crash Severity (Past 10 Years)15
Figure 11 Land Use
Figure 12 Travel Times by Alternate Modes of Travel18
Figure 13 Sidewalk Network
Figure 14 Bulb-Out Design Guidance22
Figure 15 Typical TDOT Crosswalk Designs23
Figure 16 Alternate Crosswalk Striping Design Guidance23
Figure 17 Walnut Avenue / Newman Street Intersection24
Figure 18 Long-Term Improvement Figure Key24
Figure 19 Long-Term Vision for SR 33 / Main Street Cross-Section in Downtown Sneedville
Figure 20 Section A Recommended Long-Term Improvements
Figure 21 Section B Recommended Long-Term Improvements27
Figure 22 Section C Recommended Long-Term Improvements
Figure 23 Section D Recommended Long-Term Improvements
Figure 24 Section E Recommended Long-Term Improvements

CHAPTER 1 - INTRODUCTION

Transportation plays a critical role in a community's livability and economic vitality. A seamless transportation network, whether driving, walking, or biking, provides residents access to jobs, health care, educational opportunities, entertainment, goods, and other resources. Safe and convenient opportunities to walk and bike to community destinations provides further value to the community as it relates to affordability, public health (physical activity), senior resident independence, and civic engagement, to name a few.

Study Background and Need

Sneedville Tennessee's Main Street corridor is also a state route facility, State Route (SR) 33. Shaped by the nearby steep ridges, SR 33 / Main Street acts as the backbone to the community's roadway network. Within the past 10 years, the City of Sneedville received a grant to complete a sidewalk connection that connects the majority of the town's population with the Hancock County Middle/High School, which is located approximately 1.5 miles east of the town center. With this key connection completed, Sneedville's focus turned to the western portion of SR 33 / Main Street where the majority of the town's population is located. While a sidewalk network exists, it is aging, contains gaps, and in some locations, is not compliant with the American Disabilities Act of 1990 and the Public Rights-of-Ways Accessibility Guidelines (ADA/PROWAG) guidance. Marked crosswalks across SR 33 / Main Street are limited. Furthermore, worn on-street parking striping and unmarked, haphazard off-street parking creates conflict points for pedestrians and cyclists as they navigate around parked vehicles, sometimes in the travel lane, along the corridor.



Above, open frontage for private businesses create safety concerns for pedestrians and cyclists along this stretch of SR 33 / Main Street where there is no sidewalk connection and vehicular movements are not clearly defined.

The photo to the right illustrates an example of existing curb ramps along SR 33 / Main Street (at the intersection with Court Street) which are not ADA/PROWAG-compliant.



With a goal of improving multimodal accessibility and safety, as well as vehicular operations along the community's Main Street corridor, the City pursued a Community Transportation Planning Grant (CTPG) through the Tennessee Department of Transportation (TDOT) in order to develop a complete streets plan. The CTPG assists rural communities across the state in planning efforts that support a safer and more efficient transportation system, particularly where critical local and state infrastructure overlap (i.e., state routes). As described on TDOT's website, the core goals of the program mirror those expressed by the community. These include:

- "[T]ransportation cohesiveness between multimodal transportation systems and local land use objectives that achieve the statewide transportation goals"
- "[I]mprovements to the transportation system that support improvements in traffic flow, safety, and overall efficiency of the transportation system"
- Promotion of economic growth by achieving community visions relating to transportation and land use needs





Study Purpose

The purpose of the SR 33 / Main Street Complete Streets Plan is to document existing conditions within the community, specifically as it relates to the transportation network, understand the movements and needs of various users along the study corridor, and identify implementable, cost-effective improvements for achieving a more complete street. The ultimate long-term vision for the corridor will be achieved through a combination of routine TDOT resurfacing projects, municipal efforts (using grant funding), development/redevelopment opportunities, and/or through targeted economic development efforts. Planning-level cost estimates for recommended improvements as well as basic design guidance are also provided within this document.

Planning Process

As illustrated in Figure 1, the plan development process began with an initial kick-off meeting with the project team in December 2018 where scope tasks were refined, and a project schedule was established. The project team included representatives from the Town of Sneedville, the First Tennessee Rural Planning Organization (RPO), TDOT, the Tennessee Department of Health's Office of Primary Prevention, and TDOT's consultant team, KCI Technologies, Inc. The project team communicated at key milestones throughout the plan's development to gather critical information on the community's needs as well as ensure tasks were completed as outlined and on schedule. Results from the community online survey may be found in Appendix A.

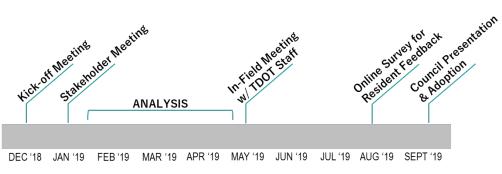


Figure 1 Planning Process Schedule

CHAPTER 2 - EXISTING CONDITIONS

This section highlights important existing conditions along the corridor and within the greater community that are relevant to the transportation planning process. This includes information regarding community demographics, land use patterns, and the transportation network. Information gleaned from these analyses will help inform the plan's recommendations.

Sneedville

Overview



Sneedville is located within TDOT Region 1 in northeastern Tennessee, as shown in Figure 2. It is the county seat of Hancock County, one of the state's smallest counties in terms of population. The county is one of Tennessee's 15 counties that is categorized as 'economically distressed' by the Appalachian Regional Commission (ARC), meaning it is among the top 10% of most distressed counties in the U.S. A transportation system that is safe, convenient, and attractive is, therefore, especially critical for Sneedville. Being able to access jobs and resources safely and efficiently, especially by foot or by bike, is paramount for residents.

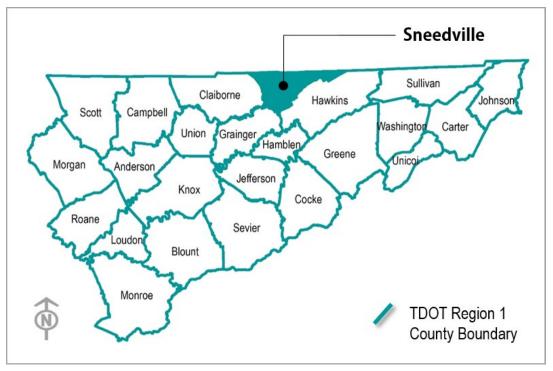


Figure 2 Location of Sneedville, Tennessee

Demographics

Demographic information, i.e., characteristics about the community's population, is important when planning transportation facilities. This helps to create a general understanding of the varying types of needs from the spectrum of transportation users in a community. Information contained within this section is sourced from the U.S. Census Bureau's American Community Survey (ACS) 2017 Five-Year Estimates which is highlighted in Figure 3. These numbers are estimates based on 2010 Census numbers.

In 2017, Sneedville had an estimated population of 1,347, which was roughly 20% of Hancock County's overall estimated population that year. The number is slightly down as compared to the actual count from the 2010 Census which identified Sneedville's population at 1,387. The median age of Sneedville's residents was 35.5, which was slightly younger than the statewide average, but considerably younger than that of the greater county (44.6). Approximately 26% of residents were younger than 18 years old, while 16% of residents were 65 years and older. That equates to almost 570 residents whom may not own or drive a vehicle and/or may chose not to drive.

Sneedville residents had an estimated median household income of \$21,264, almost half that of the statewide average. This equates to approximately 46% of residents, or 620 individuals, living below the poverty line in 2017. Being able to walk or bike around the community for these residents is especially critical. A safe and seamless transportation system in Sneedville not only allows these residents to access key goods and services, but it also provides safe walking and biking opportunities for those vulnerable road users, children, adolescents, and seniors.

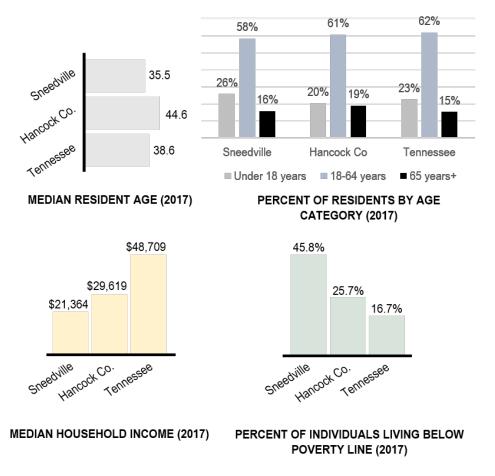


Figure 3 Sneedville Demographics

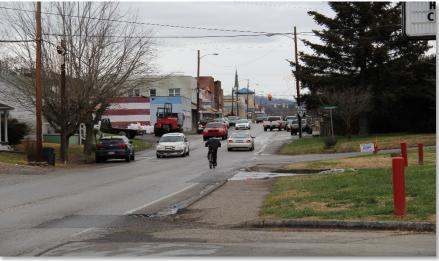
Employment and Commuting Characteristics

OnTheMap is a web-based mapping application that displays where workers live and where they are employed. The application is offered through the U.S. Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) Program's 2015 Origin-Destination Employment Statistics (LODES). The application allows users to understand where employed Sneedville residents work within the community, as well as where employees that work within Sneedville live. General travel patterns between home and work destinations are illustrated in the application.

Figure 4 details OnTheMap output for the community of Sneedville. In 2015, there were 743 filled jobs located within the municipal limits, while 397 employed workers lived in Sneedville during that time. 84 individuals both lived and worked in Sneedville. The top three job types by industry sector in the community in 2015 included Educational Services, Health Care and Social Assistance, and Retail Trade. A little over half (54.4%) of these workers traveled less than 10 miles to get to their place of employment with a majority traveling from the northeast direction. For Sneedville residents that are employed, the majority work in the Manufacturing industry sector with the greatest amount of residents traveling generally to the southwest from their home to their place of employment. Approximately 80% of Sneedville residents commute outside of the municipal limits for their job. Retail Trade and Health Care and Social Assistance round out the top three industry sectors in which employed Sneedville residents work.



All types of modes and vehicle types use the SR 33 / Main Street corridor, including delivery and tanker trucks, farm equipment, motorcyclists, demandresponse transit vehicles, school buses, and bicycles.



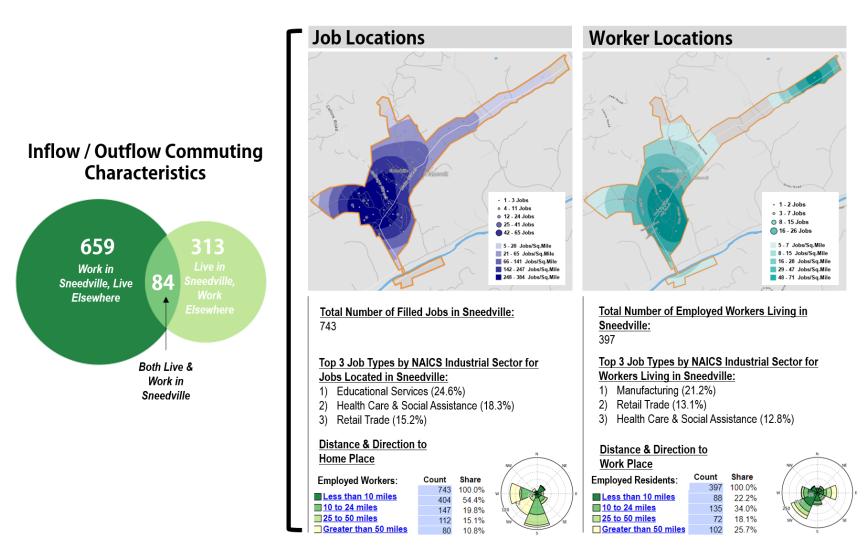


Figure 4 Job and Worker Locations within Sneedville

Study Corridor Overview

As previously described, this Plan focuses upon the western portion of SR 33 / Main Street (highlighted in Figure 5) given the critical role this corridor plays for a majority of movements within and through Sneedville. Study termini include Satterfield Street to the northeast and Cemetery Street to the southwest. The community's development pattern and transportation network is molded by the ridge-valley topography, which characterizes the region. Given the size of the community and proximity of destinations, this results in an environment conducive for walking and biking. Key destinations are identified to establish a general understanding of the direction and demand of travel movements within the community.

SR 33 / Main Street is a two-lane facility for the length of the study section. Figure 6 illustrates the two predominant cross-sections along the corridor. Lane width varies between 10 and 11 feet. The presence of a shoulder also varies ranging from a one to two-foot paved shoulder to striped on-street parallel parking in the downtown core. In some instances within the downtown, the paved shoulder tapers into open business frontage. The posted speed limit along the study corridor is 30 mph.

The remainder of this section highlights existing conditions and performance of the transportation network within the area of the study corridor, including roadway functional classification, traffic volumes, crash history, land use, as well as the existing and proposed non-motorized network (sidewalks). This information establishes the foundation upon which the recommendations of this plan are identified.

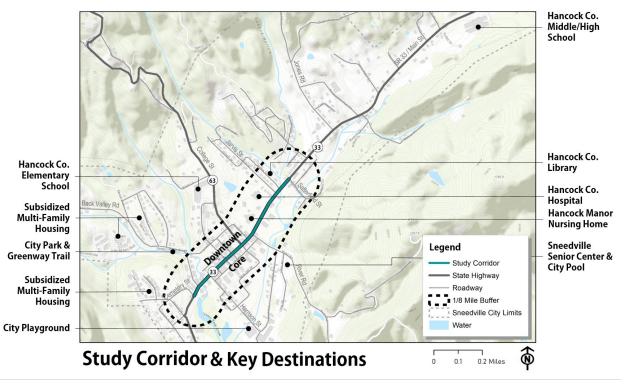


Figure 5 Study Corridor and Key Destinations

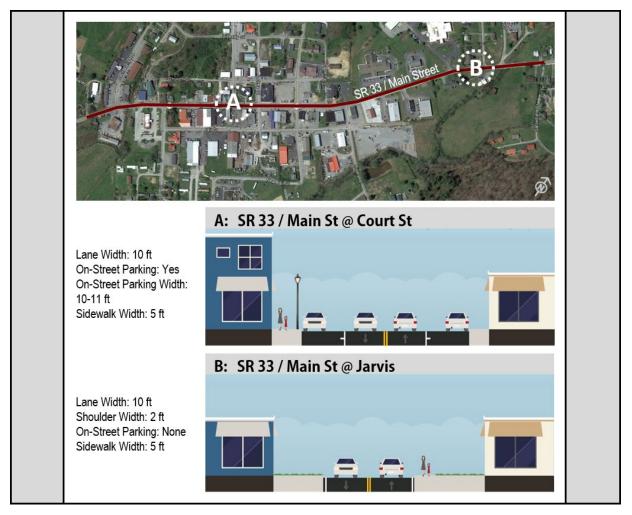


Figure 6 Example Cross-Sections Along the Existing Corridor



This portion of SR 33 / Main Street (near the Post Office) illustrates an example of where the paved shoulder tapers into private business parking areas.

Functional Classification

Functional classification describes the role a roadway plays within the greater hierarchical transportation system – whether providing for more long-distance trips, shorter distance trips, or a combination of both. Classification informs roadway design and determines eligibility for Federal-Aid funding. This hierarchy of classifications is similar in concept to waterbodies within a watershed in that arterials carry the highest traffic volumes, collectors carry a moderate amount, and local streets carry the least amount of traffic. Figure 7 further describes the general levels within the roadway functional classification system.



Figure 7 Roadway Functional Classification and General Characteristics

Figure 8 illustrates the functional classification of the roadway network within the area of the study corridor. This information assists in understanding traffic patterns that, in turn, assists in the identification of recommended safety and operational improvements. SR 33 / Main Street is classified as a Minor Arterial and provides east-west connectivity across the county to communities including Kyles Ford and Xenophone and ultimately, Dixie Highway to the southwest in Claiborne County. SR 63 / College Street is classified as a Major Collector and provides north-south connectivity within the county. SR 63 / College Street directly connects to the study corridor near the Post Office. The remainder of the roadways within the study area are classified as local streets. In the downtown area, local streets parallel to the study corridor provide excellent lower volume alternatives for pedestrians and cyclists traveling east-west in the area.

Traffic Volumes

Annual average daily traffic (AADT) for both state routes is also noted in Figure 8. TDOT collects a yearly traffic volume sample at thousands of count stations across the state for monitoring purposes. SR 63 / College Street and the study corridor north of SR 63 / College Street both have relatively similar volumes, approximately 1,200 vehicles per day on average. The heaviest volumes are found along SR 33 / Main Street south of College Street (which includes the downtown core), with approximately 4,800 vehicles per day reflecting the number of destinations that are accessible off of SR 33 / Main Street. While not functionally classified, Campbell Drive/Back Valley Road provides important connectivity to and from Sneedville. Three of the five multifamily complexes in Sneedville are also located off of this roadway.

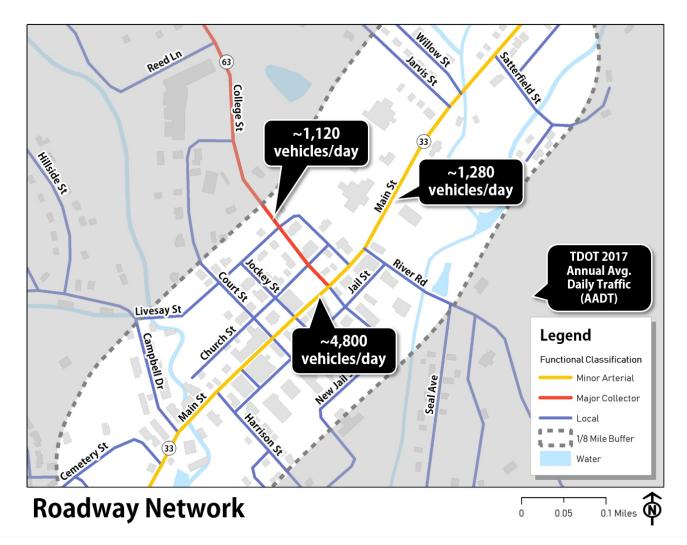


Figure 8 Roadway Functional Classification and Traffic Volumes

Crash History

Ten-years of crash data, pulled from TDOT's Enhanced Tennessee Roadway Information Management System (eTRIMS), was evaluated for the study corridor. The timeframe analyzed includes February 2009 through February 2019. eTRIMS pulls crashes directly from the Tennessee Department of Safety and Homeland Security's Tennessee's Integrated Traffic Analysis Network (TITAN), which consolidates all crash reports submitted by law enforcement agencies from across the state.

Within the 1/8 mile buffer area, there were 84 crashes reported to the police over the past 10 years. Figure 9 illustrates these crashes by type while Table 1 describes the number and percentage of each crash type. Rear end and angle collisions make up the greatest percentage of crash types. Furthermore, Figure 10 illustrates the locations of the fatal as well as serious and minor injury crashes along the corridor. The fatal crash involved a single vehicle leaving the roadway and hitting a tree, while the two suspected serious injury crashes were an angle and rear end crash. The majority of the suspected minor injury crashes were due to rear end collisions.

For this segment of the highway (~0.86 miles), the crash rate is 5.58. According to TDOT's *Statewide Average Crash Rates for Sections and Spots* summary document from the Highway Safety Improvement Program (HSIP) 2014-2016 Study, the average crash rate for a rural state route facility that has two or three lanes is 1.647. Sneedville's higher crash rate is likely attributed to the urban environment, i.e., there are a greater number of driveways and intersections along the roadway facility thus increasing the number of conflict points along the corridor. There were no reported crashes involving pedestrians or cyclists within the 1/8 mile buffer area within the past 10 years.

		% of
Crash Type	Number	Total
Angle	27	32.1%
Head On	3	3.6%
No Collision with Vehicle	6	7.1%
Other/Unknown	8	9.5%
Rear End	32	38.1%
Rear to Rear	1	1.2%
Rear to Side	5	6.0%
Sideswipe	2	2.4%
Tota	l 84	100%
		% of
Crash Severity	Number	Total
Fatal	1	1.2%
Suspected Serious Injury	2	2.4%
Suspected Minor Injury	10	11.9%
Property Damage (High)	63	75.0%
Property Damage (Low)	8	9.5%
Tota	l 84	100%

Table 1 Crash Types and Severity (Past 10 Years)

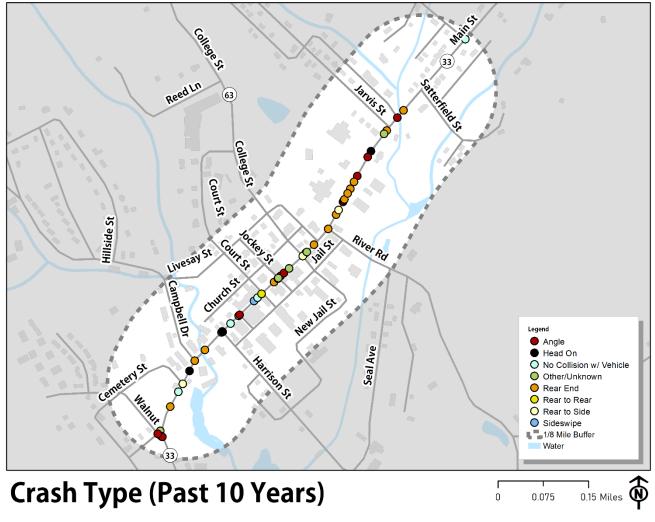


Figure 9 Crash Type (Past 10 Years)

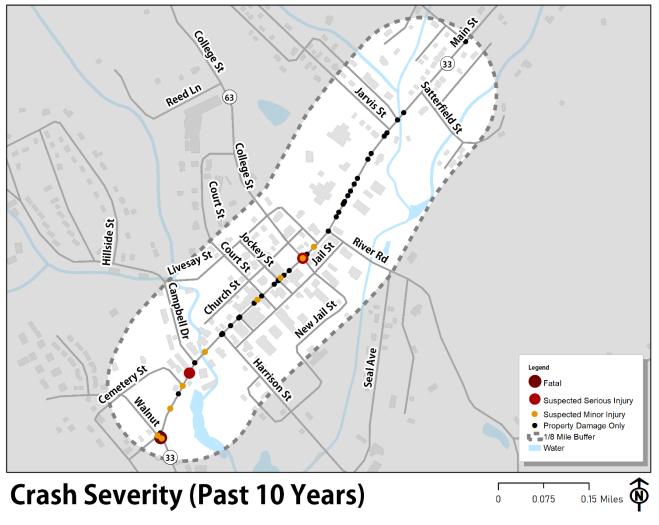


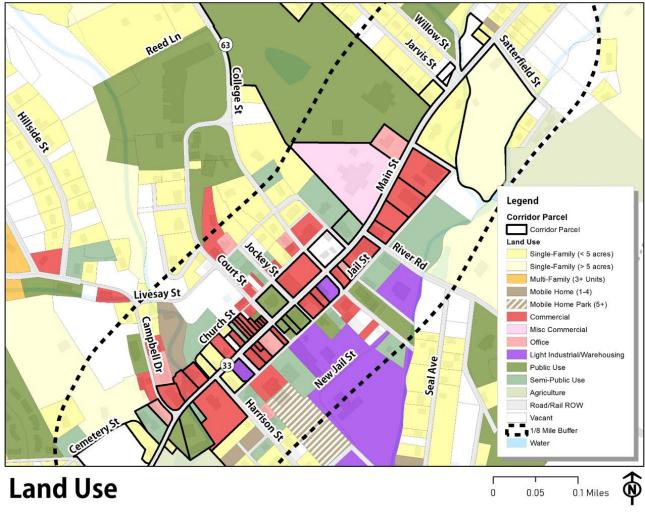
Figure 10 Crash Severity (Past 10 Years)

Land Use

Land use data illustrated in Figure 11 is sourced from the Tennessee Comptroller of the Treasury. The map illustrates the mix and distribution of uses within Sneedville. Parcels that touch the study corridor are highlighted using a thick black border. Table 2 describes the acreage of these parcels, which are broken down by land use. It is important to note that while 'Agriculture' is shown as the largest use by acreage, only a small section of the parcel falls along the southwest portion of the study corridor. 'Public Use' parcels include the Hancock County Courthouse, Hospital, Highway Department, and other County-owned parcels. The land use patterns along the corridor, and within the greater community, provide for a walkable community, meaning there is a moderate mix of uses versus clustered uses.

General Land Use Type of Corridor Parcels	Acreage	% of Total
Agriculture	39.0	41.6%
Public Use (i.e., County-Owned)	23.7	25.3%
Commercial	8.9	9.5%
Single-Family Residential (> 5 Acres)	6.2	6.6%
Miscellaneous Commercial	4.8	5.1%
Single-Family Residential (< 5 Acres)	4.2	4.5%
Vacant	3.6	3.8%
Office	1.4	1.5%
Semi-Public Use	1.3	1.4%
Light Industrial / Warehousing	0.6	0.6%
Total Parcel Acreage	93.7	100%

Table 2 Land Use Acreage for Parcels with Corridor Frontage





Non-Motorized Network

Sneedville's small geographic footprint, low traffic volumes, proximity of uses, and the structure of the roadway network (blocks versus curvilinear) provide for a conducive environment for walking and biking. The website Walk Score helps users to identify walkable communities and neighborhoods using an algorithm that considers proximity to amenities, population densities, and roadway metrics, such as block lengths and intersection densities. Using the website's Travel Time Analysis tool, Figure 12 illustrates the distance one can travel from the Courthouse within 20 minutes, whether walking or biking at an average pace. All destinations within Sneedville fall within a 20-minute bike ride from the Courthouse; however, while most of the community's major destinations are reachable by a 20-minute walk or less, this is not true for the Middle/High School and residences located to the east of the community's core along SR 33 / Main Street (given the linear nature of the corridor and municipal limits in this area). Walking at an average pace from the Courthouse to the school campus, takes roughly 30 minutes.



Figure 12 Travel Times by Alternate Modes of Travel

While there are no dedicated bicycle facilities, Sneedville has an extensive sidewalk network for a community of its size, as illustrated in Figure 13. The mileage of existing sidewalks is approximately 2.7 miles. The paved trail in the community park located along Campbell Drive / Back Valley Road is 0.2 miles. Grant opportunities have helped construct key sidewalk connections along SR 33 / Main Street, College Street, and Court Street providing linkages between the school campuses and the town's core. Evident in the map, gaps exist within the downtown acting as a barrier for pedestrians. In addition, critical community destinations located northwest of downtown, including three of Sneedville's four multifamily housing units and the community's paved walking trail, lack a safe connection along Campbell Drive/Back Valley Road to the core, as well as along Livesay Street to Hancock County Elementary School. While the sidewalk network to Sneedville's other two multifamily housing complexes is incomplete (to the west of SR 33 / Main Street along Cemetery Street), Cemetery Street and Walnut Avenue are considered safe for walking given the lack of any through connections (i.e., low traffic volume roadways).

Proposed sidewalks illustrated in Figure 13 were identified in Sneedville's 2018 TDOT Multimodal Grant. These recommendations were developed through a joint effort between City staff, a local engineering firm, and other regional and state agency representatives. Several recommended segments were removed (and thus are not illustrated) following a detailed evaluation of the corridor's existing conditions. A little over 0.7 miles of sidewalk are proposed for construction.

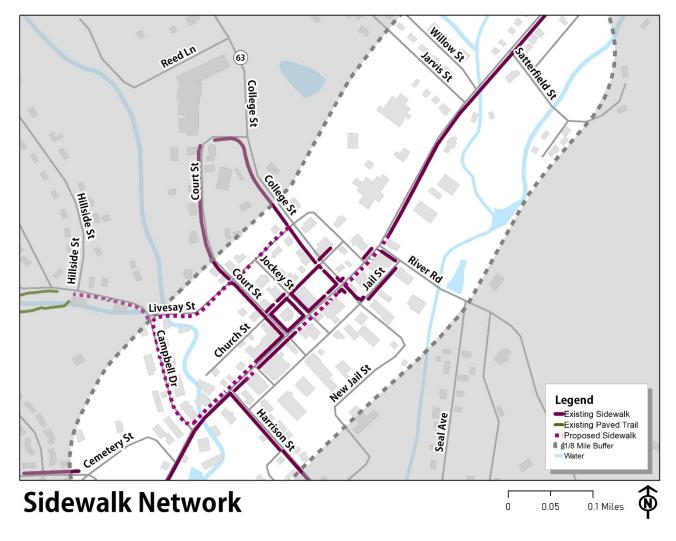


Figure 13 Sidewalk Network

CHAPTER 3 - RECOMMENDATIONS

Chapter 3 includes recommended near-term and long-term conceptual improvements for the SR 33 / Main Street corridor. Improvements are the result of a culmination of efforts, including data collection, field visits, discussions with community leaders and TDOT staff, a previous TDOT multimodal grant application, and the results of the analyses in Chapter 2. Projects focus on providing safe pedestrian and bicycle accommodations, including proposed construction of new sidewalk, rehabilitation of existing sidewalk segments, striping crosswalks, addressing non-ADA/PROWAG-compliant curb ramps, and the addition of bulb-outs at key intersections to encourage safe crossings across SR 33 / Main Street. Descriptions of specific design elements, such as bulb-outs and crosswalks, are further described in the near-term recommendation section.

Recommendations are considered to be the long-term vision for the study corridor and are intended to be implemented over time through both the upcoming TDOT routine resurfacing of SR 33 / Main Street (tentatively scheduled for spring 2020) or by securing grant monies. Having a plan such as this one with desired improvements identified will better position the City to successfully secure grants. Grants relating to transportation, health, and tourism are the most likely candidates for potentially funding these projects. In addition, the plan gives the City bargaining power when a parcel is developed or redeveloped in terms of requiring improvements to be made by the developer.

Chapter 3 is broken down by near-term recommendations (those intended for TDOT's consideration during the resurfacing project), long-term recommendations, and, finally, planning-level cost estimates. General design guidance for specific improvements is also provided in the near-term recommendation section. It should be noted that the Rite Aid was rebranded to a Walgreens prior to completion of the study.



Recommended Near-Term Improvements

As previously mentioned, a routine resurfacing of SR 33 / Main Street is slated to occur in spring 2020. These types of projects typically occur every 10-12 years. During such projects, TDOT paves and restripes the roadway, while making an effort (within reason) to upgrade non-ADA/PROWAG-compliant curb ramps. Additionally, TDOT may construct concrete median islands, intersection bulb-outs, and/or small sections of new sidewalk within the State's right-of-way as a part of these projects. An initial assessment by TDOT engineers for the near-term resurfacing of SR 33 / Main St identified challenging drainage issues along the corridor, given the lack, or limited amount, of drainage infrastructure; therefore, most of the non-ADA/PROWAG-compliant curb ramps within the study section will not be addressed in the upcoming resurfacing project. As a result, curb ramps will need to be brought up to ADA/PROWAG compliance through municipal efforts, such as securing TDOT's Multimodal Access Grant and other grants to address the need for stormwater infrastructure. This section consists of design elements, particularly bulb-outs and crosswalks, TDOT should consider implementing during the upcoming resurfacing project.

Bulb-Outs

Bulb-outs are structures that extend the curb line out into the shoulder or parking lane to physically/visually narrow the roadway, while keeping curb radii to a minimum. Ideally, bulb-outs are constructed out of concrete and are an extension of the sidewalk; however, where funding is limited, bulb-outs may be implemented using striping and other physical features, such as bollards, curbs, and planters (as illustrated in the photos below). Benefits of bulb-outs include a shorter crossing distance for pedestrians, improved sight distances for both motorists and pedestrians, and narrower travel lanes which helps to slow vehicular traffic.







Bulb-outs, also known as curb extensions, can be constructed out of concrete (as illustrated in the bottom left photo) or can be accomplished through a combination of striping and/or painting as well as physical barriers (such as bollards or curbs). The photos on the top row illustrate examples of the latter, which is a much cheaper alternative to concrete.

Bulb-out locations are identified in the long-term improvement figures at key intersections within the community's core. These include SR 33 / Main Street intersections with Court St, Jockey St, and College St. While these cross streets have limited width, excess pavement width along SR 33 / Main Street (where the on-street parking drops within 30 feet of the intersection) allows for bulbout structures to be constructed. These three intersections were identified based on the lack of an existing seamless sidewalk connection on the south side of SR 33 / Main Street, in addition to the pedestrian-generating presence of destinations on either side of the corridor within these four blocks of downtown. This infrastructure will assist pedestrians in navigating to existing sidewalks on the northern side of SR 33 / Main Street. Constructing bulb-outs will



Looking westbound from the SR 33 / Main Street / Court Street intersection, this image shows the excess pavement space that could be utilized for the construction of bulbouts at key intersections.

also mean that the new curb ramps will be ADA/PROWAG-compliant. If envisioned bulb-outs are not constructed at all identified intersections, the curb ramps will still need to be brought up to standard.

Figure 14 illustrates general design guidelines for bulb-outs. The curb radius is an important aspect of the design as this impacts turning vehicle speeds. The larger the radii the greater the encouragement for vehicles to move quickly when turning. Desired turning speeds for vehicles should be limited to 15 mph or less in an urban environment. This is crucial for the safety of pedestrians and cyclists as intersections are where motorists are most likely cross paths with non-motorized users. In addition, a larger radius creates a longer crossing distance leading to greater exposure to conflicts with vehicles; therefore, the curb radii should be keep to a minimum where possible. Truck movements should be considered when identifying appropriate curb radii and/or intersections for bulb-outs.

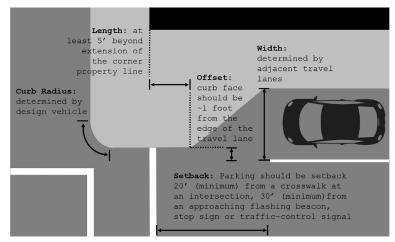


Figure 14 Bulb-Out Design Guidance

Crosswalks

Providing safe and convenient crossings, especially across SR 33 / Main Street, is an important goal for the community of Sneedville. Key unsignalized intersections along the study corridor have been identified for potentially warranting pedestrian-activated warning systems, specifically Rectangular Rapid Flashing Beacons (RRFBs). An example of this device is illustrated to the right. Key intersections include Campbell Drive and Willow Street, as well as potentially Walnut Avenue / Newman Street just outside of the study area. The Campbell Drive intersection should be considered the top priority intersection given the potential for non-motorized demand (five multi-family housing complexes located within a half mile).

Given the community's limited amount of resources, TDOT should consider using an alternative striping pattern for crosswalks along the corridor. The proposed design pattern (known as 'gapped-and-halved zebra') deviates from the two standard crosswalk styles the Department typically applies which are illustrated in Figure 15. The benefit of the proposed pattern, described in Figure 16, is that the design reduces the amount of vehicles driving over the striping (thus, reducing wear and tear) by placing the longitudinal striping in the gaps between the wheel wells of a center-positioned vehicle in the travel lane. This alteration would provide the greatest longevity of crosswalk striping for the community of Sneedville requiring a limited amount of maintenance until the next resurfacing project occurs.



button on a RRFB prompting a flash

crosswalk.

pattern to temporarily appear that warns oncoming drivers of pedestrians in a

TRANSVERSE MARKING PATTERN



Figure 15 Typical TDOT Crosswalk Designs



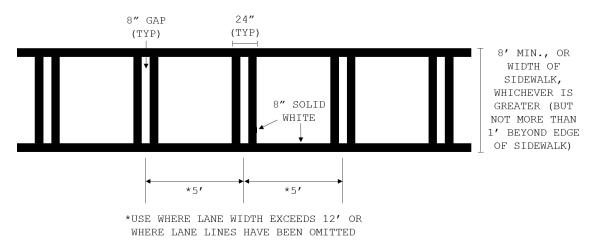


Figure 16 Alternate Crosswalk Striping Design Guidance

Recommended Long-Term Improvements

Prior to describing improvements for the study corridor, one intersection (just beyond the study's limits) should be mentioned given its importance for non-motorized connectivity in the community. Two of Sneedville's five multifamily complexes are located just beyond the extent of the map in Figure 17 (to the north and west of the Walnut Avenue / Newman Street and SR 33 / Main Street intersection). The City should evaluate the need for a potential marked crosswalk at this intersection to encourage a safe crossing for potential pedestrians and cyclists making their way to the existing sidewalk on the eastside of SR 33 / Main Street and into downtown. It should be noted that striping a crosswalk requires two ADA/PROWAG-compliant curb ramps on either side of the crosswalk (which would need to be constructed). Given the curvature of SR 33 / Main Street at this location, consideration for additional measures, such as painted rumble strips and/or additional warning signage, should be given. While an important connection, this location should be considered a secondary priority to the proposed crosswalk at Campbell Drive, which is a key nexus intersection in Sneedville's non-motorized network.



Figure 17 Walnut Avenue / Newman Street Intersection

The corridor has been broken down into five sections for purposes of illustrating conceptual recommendations, as illustrated in Figure 18. Sidewalk projects are denoted by letters (A, B, C, etc.) and correspond to planning-level cost estimates provided in this section. Sections are roughly as follows:

- Section A Cemetery Rd to Harrison St
- Section B Harrison St to Court St
- Section C Court St to College St
- Section D College St to Family Dollar
- Section E Jarvis St and Willow St intersections with SR 33 / Main St

PROPOSED CORRIDOR IMPROVEMENTS FIGURE KEY

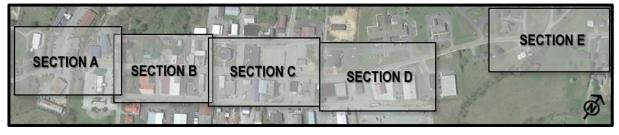


Figure 18 Long-Term Improvement Figure Key

Figure 19 illustrates the long-term vision for Section C in the downtown core, specifically near the Rite Aid/Walgreens, Marathon Gas Station, and Sneedville Laundromat. For this segment of the corridor, the construction of a sidewalk on the southern side is envisioned. This recommendation will ultimately remove the open frontage (and thus, open parking) for several businesses on the south side between Court Street and River Road. On-street parking, however, will be part of the new roadway cross-section providing alternative parking areas for these businesses. Additional challenges associated with the new sidewalk connection, particularly the need for drainage infrastructure, are highlighted in Figure 20 – Figure 24.

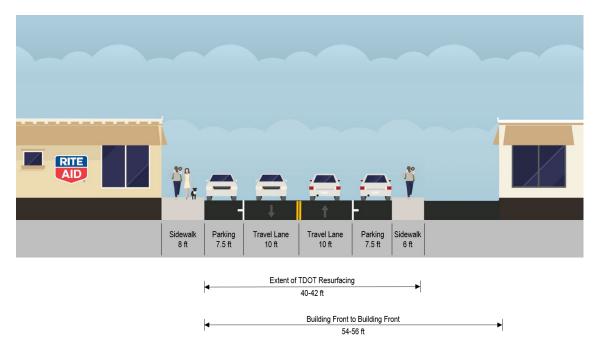


Figure 19 Long-Term Vision for SR 33 / Main Street Cross-Section in Downtown Sneedville



Rendering of how a new sidewalk and on-street parking could look along the south side of SR 33 / Main Street in Downtown.

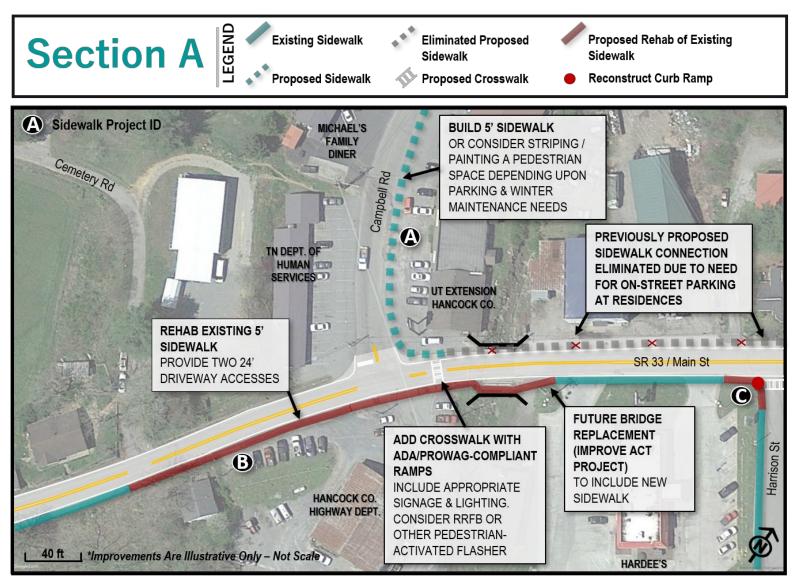


Figure 20 Section A Recommended Long-Term Improvements

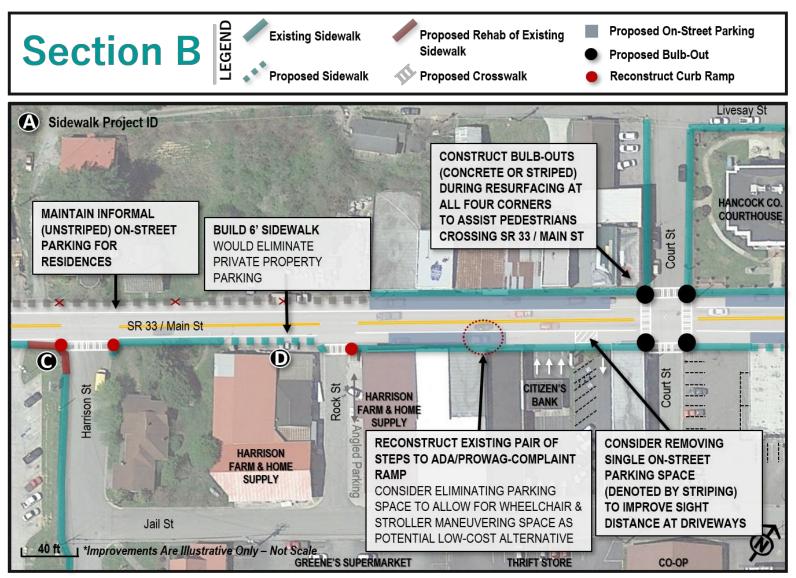


Figure 21 Section B Recommended Long-Term Improvements

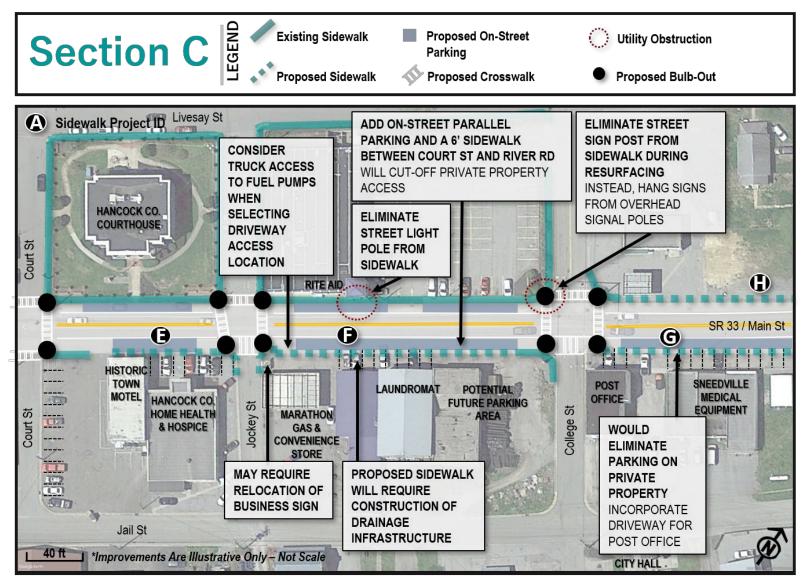


Figure 22 Section C Recommended Long-Term Improvements

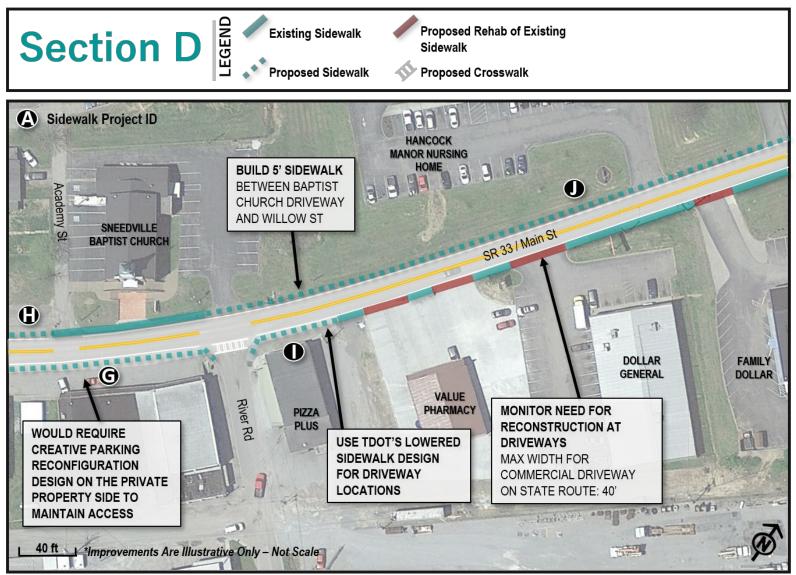


Figure 23 Section D Recommended Long-Term Improvements

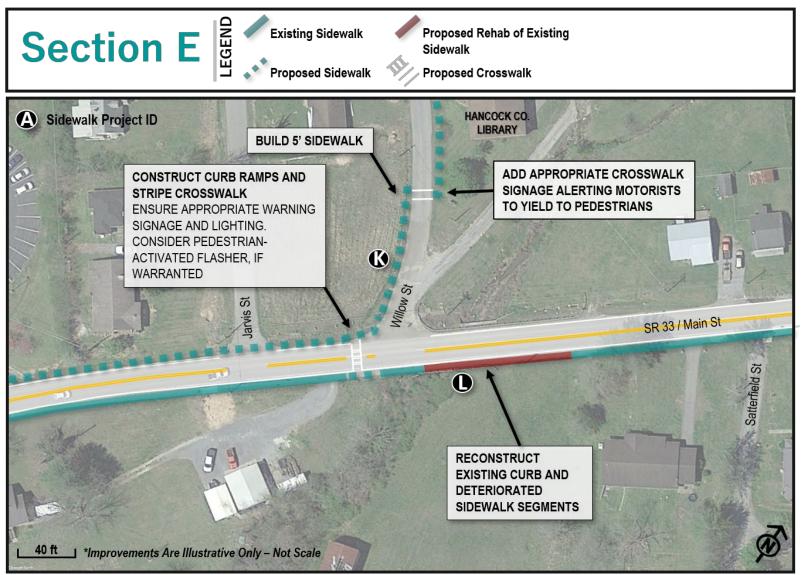


Figure 24 Section E Recommended Long-Term Improvements

Recommended Improvement Cost Estimates

Planning-level cost estimates provided in Table 3 were developed largely using TDOT's Average Unit Prices (2018) from awarded contracts as well as prices. When available, the average unit price for Region 1 was used; if one was not provided specifically for the region, then the statewide average value was used. A contingency value of 30% was applied to cost estimates for CEI services (Construction, Engineering, and Inspection) for all estimates. It should be noted that cost savings could be realized if projects are bundled for implementation. In addition, drainage costs were calculated using the assumption that trench drains would be utilized in combination with Type 12 catch basins; however, more robust drainage may be required.

Project Description	Number of Measures (If Applicable)	Project Measurement	Measurement Unit*	Avg. Cost / Unit			Cost for Proposed Recommendations	Contingency (30%)		Cost Estimate + Contingency	Cost Estimate Rounded to Nearest Tenth	Assumptions
Existing Sidewalk Rehabilitati	on											
PROJECT B - CAMPBELL DR												
REMOVAL OF RIGID PVMT, SIDEWALK, ETC.	-	500	SY	\$	66.15	\$	33,075.00	\$ 9,922.50	\$	42,997.50	\$43,000	
CONCRETE SIDEWALK (4 ")	-	1500	SF	\$	8.66	\$	12,990.00	\$ 3,897.00	\$	16,887.00	\$16,890	
										SUB-TOTAL	\$59,890	Sidewalk width:
PROJECT C - HARRISON ST												5' (consider
REMOVAL OF RIGID PVMT, SIDEWALK, ETC.	-	22	SY	\$	66.15	\$	1,455.30	\$ 436.59	\$	1,891.89	\$1,900	Lowered Standard
CONCRETE SIDEWALK (4 ")	-	200	SF	\$	8.66	\$	1,732.00	\$ 519.60	\$	2,251.60	\$2,260	Concrete
										SUB-TOTAL	\$4,160	Driveways at
PROJECT L - WILLOW ST												needed locations)
REMOVAL OF RIGID PVMT, SIDEWALK, ETC.	-	67	SY	\$	66.15	\$	4,432.05	\$ 1,329.62	\$	5,761.67	\$5,770	
CONCRETE SIDEWALK (4 ")	-	600	SF	\$	8.66	\$	5,196.00	\$ 1,558.80	\$	6,754.80	\$6,760	
										SUB-TOTAL	\$12,530]
	PROJECT TYPE SUB-TOTAL											

Table 3 Recommended Improvement Cost Estimates

Project Description	Number of Measures (If Applicable)	Project Measurement	Measurement Unit*		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Avg. Cost / Unit		Cost for Proposed Recommendations		Contingency (30%)	Cost Estimate + Contingency	Cost Estimate Rounded to Nearest Tenth	Assumptions
New Sidewalk Construction								-																																																
PROJECT A - CAMPBELL DR [BETWEEN SR 33 & STERLING DR]																																																								
CONCRETE SIDEWALK (4 ")	-	7,125	SF	\$	8.66	\$	61,702.50	\$	18,510.75	\$ 80,213.25	\$80,220																																													
CONCRETE CURB AND GUTTER	-	1,425	LF	\$	25.00	\$	35,625.00	\$	10,687.50	\$ 46,312.50	\$46,320																																													
CONCRETE CURB RAMP	2	220	SF	\$	21.56	\$	4,743.20	\$	1,422.96	\$ 6,166.16	\$6,170																																													
PLASTIC PAVEMENT MARKING (8IN LINE)	-	0.02	LM	\$	8,016.24	\$	160.32	\$	48.10	\$ 208.42	\$210																																													
SIGNAGE	4	4	EACH	\$	300.00	\$	1,200.00	\$	360.00	\$ 1,560.00	\$1,600																																													
TRENCH DRAINS	-	1,425	LF	\$	195.11	\$	278,031.75	\$	83,409.53	\$ 361,441.28	\$361,450																																													
CATCH BASINS, TYPE 12, 0' - 4' DEPTH	14	14	EACH	\$	4,079.40	\$	57,111.60	\$	17,133.48	\$ 74,245.08	\$74,250																																													
										SUB-TOTAL	\$570,220	Sidewalk width:																																												
PROJECT D - ROCK ST												6' (consider																																												
CONCRETE SIDEWALK (4 ")	-	530	SF	\$	8.66	\$	5,507.76	\$	1,652.33	\$ 7,160.09	\$7,160	Lowered Standard																																												
CONCRETE CURB AND GUTTER	-	106	LF	\$	25.00	\$	2,650.00	\$	795.00	\$ 3,445.00	\$3,450	– Concrete																																												
TRENCH DRAINS	-	106	LF	\$	195.11	\$	20,681.66	\$	6,204.50	\$ 26,886.16	\$26,890	Driveways at																																												
CATCH BASINS, TYPE 12, 0' - 4' DEPTH	1	1	EACH	\$	4,079.40	\$	4,079.40	\$	1,223.82	\$ 5,303.22	\$5,310	needed locations)																																												
										SUB-TOTAL	\$42,810																																													
PROJECT E - COURT ST TO JOCKEY ST																																																								
CONCRETE SIDEWALK (4 ")	-	530	SF	\$	8.66	\$	5,507.76	\$	1,652.33	\$ 7,160.09	\$7,160																																													
CONCRETE CURB AND GUTTER	-	106	LF	\$	25.00	\$	2,650.00	\$	795.00	\$ 3,445.00	\$3,450																																													
TRENCH DRAINS	-	106	LF	\$	195.11	\$	20,681.66	\$	6,204.50	\$ 26,886.16	\$26,890																																													
CATCH BASINS, TYPE 12, 0' - 4' DEPTH	1	1	EACH	\$	4,079.40	\$	4,079.40	\$	1,223.82	\$ 5,303.22	\$5,310																																													
										SUB-TOTAL	\$42,810																																													
PROJECT F - JOCKEY ST TO COLLEGE ST																																																								
CONCRETE SIDEWALK (4 ")	-	1,266	SF	\$	8.66	\$	10,963.56	\$	3,289.07	\$ 14,252.63	\$14,260																																													

Project Description	Number of Measures (If Applicable)	Project Measurement	Measurement Unit*	Avg. Cost / Unit	Cost for Proposed Recommendations	Contingency (30%)	Cost Estimate + Contingency	Cost Estimate Rounded to Nearest Tenth	Assumptions
CONCRETE CURB AND GUTTER	-	211	LF	\$ 25.00	\$ 5,275.00	\$ 1,582.50	\$ 6,857.50	\$6,860	
TRENCH DRAINS	-	211	LF	\$ 195.11	\$ 41,168.21	\$ 12,350.46	\$ 53,518.67	\$53,520	
CATCH BASINS, TYPE 12, 0' - 4' DEPTH	2	2	EACH	\$ 4,079.40	\$ 8,158.80	\$ 2,447.64	\$ 10,606.44	\$10,610	
							SUB-TOTAL	\$85,250	
PROJECT G - COLLEGE ST TO RIVER RD									
CONCRETE SIDEWALK (4 ")	-	1,850	SF	\$ 8.66	\$ 16,021.00	\$ 4,806.30	\$ 20,827.30	\$20,830	
CONCRETE CURB AND GUTTER	-	370	LF	\$ 25.00	\$ 9,250.00	\$ 2,775.00	\$ 12,025.00	\$12,030	
TRENCH DRAINS	-	370	LF	\$ 195.11	\$ 72,190.70	\$ 21,657.21	\$ 93,847.91	\$93,850	
CATCH BASINS, TYPE 12, 0' - 4' DEPTH	3	3	EACH	\$ 4,079.40	\$ 12,238.20	\$ 3,671.46	\$ 15,909.66	\$15,910	
							SUB-TOTAL	\$142,620	
PROJECT H – COLLEGE ST TO ACADEMY ST									
CONCRETE SIDEWALK (4 ")	-	930	SF	\$ 8.66	\$ 8,053.80	\$ 2,416.14	\$ 10,469.94	\$10,470	
CONCRETE CURB AND GUTTER	-	155	LF	\$ 25.00	\$ 3,875.00	\$ 1,162.50	\$ 5,037.50	\$5,040	
TRENCH DRAINS	-	155	LF	\$ 195.11	\$ 30,242.05	\$ 9,072.62	\$ 39,314.67	\$39,320	
CATCH BASINS, TYPE 12, 0' - 4' DEPTH	2	2	EACH	\$ 4,079.40	\$ 8,158.80	\$ 2,447.64	\$ 10,606.44	\$10,610	
							SUB-TOTAL	\$65,440	
PROJECT I - RIVER RD									
CONCRETE SIDEWALK (4 ")	-	636	SF	\$ 8.66	\$ 5,507.76	\$ 1,652.33	\$ 7,160.09	\$7,160	Sidewalk width:
CONCRETE CURB AND GUTTER	-	106	LF	\$ 25.00	\$ 2,650.00	\$ 795.00	\$ 3,445.00	\$3,450	6' (consider
TRENCH DRAINS	-	106	LF	\$ 195.11	\$ 20,681.66	\$ 6,204.50	\$ 26,886.16	\$26,890	Lowered Standard
CATCH BASINS, TYPE 12, 0' - 4' DEPTH	1	1	EACH	\$ 4,079.40	\$ 4,079.40	\$ 1,223.82	\$ 5,303.22	\$5,310	Concrete Driveways at
							SUB-TOTAL	\$42,810	needed
PROJECT J – BAPTIST CHURCH DRIVE TO WILLOW ST									locations)
CONCRETE SIDEWALK (4 ")	-	6,750	SF	\$ 8.66	\$ 58,455.00	\$ 17,536.50	\$ 75,991.50	\$76,000	

Project Description	Number of Measures (If Applicable)	Project Measurement	Measurement Unit*	Avg. Cost / Unit	Cost for Proposed Recommendations		Contingency (30%)	Cost Estimate + Contingency	Cost Estimate Rounded to Nearest Tenth	Assumptions		
CONCRETE CURB AND GUTTER	-	1,125	LF	\$ 25.00	\$ 28,125.00	\$	8,437.50	\$ 36,562.50	\$36,570			
TRENCH DRAINS	-	1,125	LF	\$ 195.11	\$ 219,498.75	\$	65,849.63	\$ 285,348.38	\$285,250			
CATCH BASINS, TYPE 12, 0' - 4' DEPTH	11	11	EACH	\$ 4,079.40	\$ 44,873.40	\$	13,462.02	\$ 58,335.42	\$58,340			
RETAINING WALL	-	385	SF	\$ 107.29	\$ 41,306.65	\$	12,392.00	\$ 53,698.65	\$53,700			
REMOVE AND RELOCATE UTILITY POLE	3	3	EACH	\$ 4,000.00	\$ 12,000.00	\$	3,600.00	\$ 15,600.00	\$15,600			
								SUB-TOTAL	\$525,460			
PROJECT K - WILLOW ST [BETWEEN SR 33 & LIBRARY DRIVEWAY]												
CONCRETE SIDEWALK (4 ")	-	1,625	SF	\$ 8.66	\$ 14,072.50	\$	4,221.75	\$ 18,294.25	\$18,300			
CONCRETE CURB AND GUTTER	-	317	LF	\$ 25.00	\$ 7,925.00	\$	2,377.50	\$ 10,302.50	\$10,310			
CONCRETE CURB RAMP	4	440	SF	\$ 21.56	\$ 9,486.40	\$	2,845.92	\$ 12,332.32	\$12,340			
REMOVAL OF RIGID PVMT, SIDEWALK, ETC.	-	65	SY	\$ 66.15	\$ 4,299.75	\$	1,289.93	\$ 5,589.68	\$5,590			
PLASTIC PAVEMENT MARKING (8IN LINE)	-	0.02	LM	\$ 8,016.24	\$ 160.32	\$	48.10	\$ 208.42	\$210			
SIGNAGE	4	4	EACH	\$ 300.00	\$ 1,200.00	\$	360.00	\$ 1,560.00	\$1,600			
TRENCH DRAINS	-	106	LF	\$ 195.11	\$ 61,849.87	\$	18,554.96	\$ 80,404.83	\$80,410			
CATCH BASINS, TYPE 12, 0' - 4' DEPTH	3	3	EACH	\$ 4,079.40	\$ 12,238.20	\$	3,671.46	\$ 15,909.66	\$15,910			
								SUB-TOTAL	\$144,670			
	PROJECT TYPE SUB-TOTAL											
Existing Curb Ramp Rehabilita	tion											
CONCRETE CURB RAMP (RETROFIT)	3	330	SF	\$ 32.47	\$ 10,715.10	\$	3,214.53	\$ 13,929.63	\$13,930	Curb ramp size: 110'		

Project Description	Number of Measures (If Applicable)	Project Measurement	Measurement Unit*	Avg. Cost / Unit	Cost for Proposed Recommendations	Contingency (30%)	Cost Estimate + Contingency	Cost Estimate Rounded to Nearest Tenth	Assumptions		
Bulb-Out Construction	1						-				
CONCRETE MEDIAN PAVEMENT	12	36	CY	\$ 393.85	\$ 14,178.60	\$ 4,253.58	\$ 18,432.18	\$18,440	Bulb-out size: 3 CY		
TRUNCATED DOME DETECTABLE WARNING MAT	24	192	SF	\$ 25.51	\$ 4,897.92	\$ 1,469.38	\$ 6,367.30	\$6,370	Mat size: 8 SF; Assumes 2 per bulb-out		
				•			SUB-TOTAL	\$24,810			
Crosswalks (Alternative Striping)	ng)										
PLASTIC PAVEMENT MARKING (8IN LINE)	17	0.28	LM	\$ 8,016.24	\$ 2,244.55	\$ 673.36	\$ 2,917.91	\$2,920	Crosswalk length: 20' Crosswalk width: 8'		
Rectangular Rapid Flashing B	eacon (F	RFB)		•					-		
SOLAR PANEL AND POWER SYSTEM UNIT	6	6	EACH	\$ 2,257.96	\$ 13,547.76	\$ 4,064.33	\$ 17,612.09	\$17,620			
PEDESTAL POLE	6	6	EACH	\$ 2,859.00	\$ 17,154.00	\$ 5,146.20	\$ 22,300.20	\$22,300	Assumes 3		
FOUNDATION (PED POLE 24" X 3')	6	6	EACH	\$ 600.00	\$ 3,600.00	\$ 1,080.00	\$ 4,680.00	\$4,680	crosswalk locations;		
PEDESTRIAN PUSH BUTTON WITH 15''' SIGN	6	6	EACH	\$ 400.00	\$ 2,400.00	\$ 720.00	\$ 3,120.00	\$3,120	Assumes		
FLASHING WARNING BEACON (RECT RAPID FALSHING (sic) BEACON)	6	6	EACH	\$ 3,000.00	\$ 18,000.00	\$ 5,400.00	\$ 23,400.00	\$23,400	decorative pole		
	PROJECT TYPE SUB-TOTAL										

*Measurement Unit Abbreviations: Linear Feet (LF); Square Feet (SF); Linear Mile (LM); Cubic Yard (CY); Square Yard (SY)

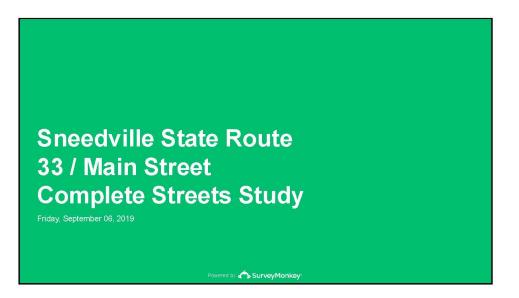
CHAPTER 4 - CONCLUSION

The transportation network in this small rural town is important for the vitality and health of the community and county in many respects. The walkable nature of Sneedville's core, i.e., close proximity of numerous destinations, grid street network, and sidewalk connectivity in areas, provides an excellent foundation for further increasing multimodal accessibility within the downtown and the greater community. Recommendations presented in this plan work towards this goal allowing the City to maximize resources available to them, including grant opportunities as well as routine resurfacing projects completed by TDOT. Moving forward, the City should consider this plan as documentation for the community's long-term vision for multimodal accessibility, should be referenced when pursing grants, and be updated as needed.

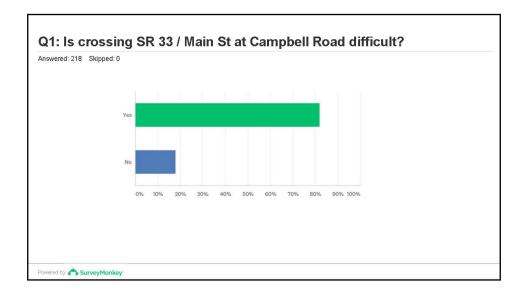


APPENDIX A - PUBLIC ENGAGEMENT

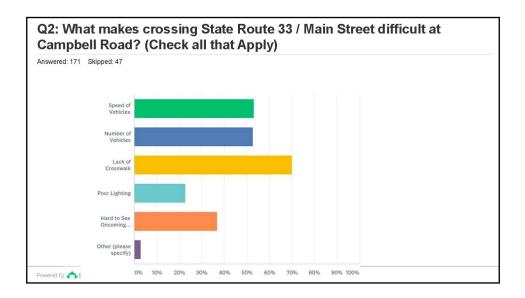
An online survey was used to refine the final recommended improvements for the SR 33 / Main Street corridor. In addition, the information provides the City with an idea for the relative importance of the improvements to the residents of the community. This is important given the nature of the plan's implementation, i.e., partially through TDOT's upcoming routine resurfacing project, which will seek to incorporate elements of the recommended improvements. The survey link was posted on the community's Facebook page and received 218 total responses. Results may be found on the following pages.







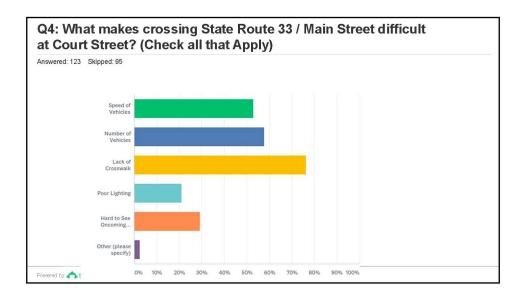
d: 218 Skipped: 0		
ANSWER CHOICES	RESPONSES	
Yes	82.11%	179
No	17.89%	39
TOTAL		218



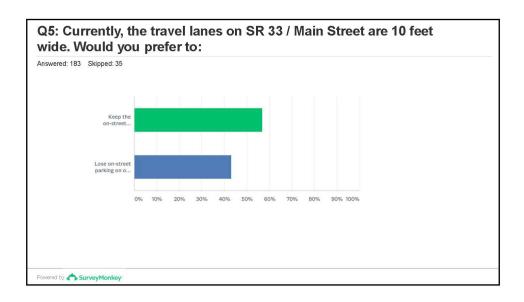
/ered: 171	Skipped: 47			
	ANSWER CHOICES	RESPONSES		
	Speed of Vehicles	53.22%	91	
	Number of Vehicles	52.63%	90	
	Lack of Crosswalk	70.18%	120	
	Poor Lighting	22.81%	39	
	Hard to See Oncoming Traffic	36.84%	63	
	Other (please specify)	2.92%	5	
	Total Respondents: 171			
	internation Fridad Bold Land			



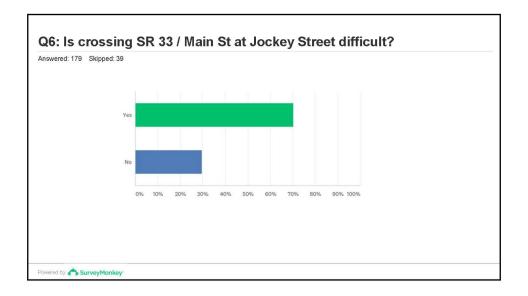
No 34.87%	neu.	195 Skipped: 23		
No 34.87%		ANSWER CHOICES	RESPONSES	
110		Yes	65.13%	127
		No	34.87%	68
TOTAL		TOTAL		195



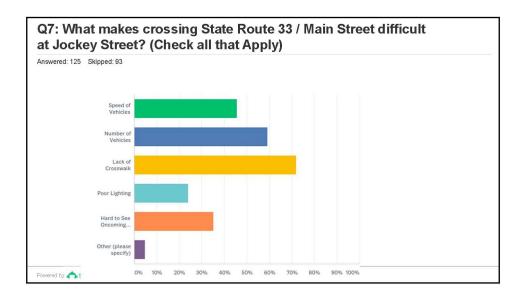
ANSWER CHOICESRESPONSESSpeed of Vehicles52.85%65Number of Vehicles57.72%71Lack of Crosswalk76.42%94Poor Lighting21.14%26
Number of Vehicles 57.72% 71 Lack of Crosswalk 76.42% 94
Lack of Crosswalk 76.42% 94
Poor Lighting 21.14% 26
r oor Eignning
Hard to See Oncoming Traffic 29.27% 36
Other (please specify) 2.44% 3
Total Respondents: 123



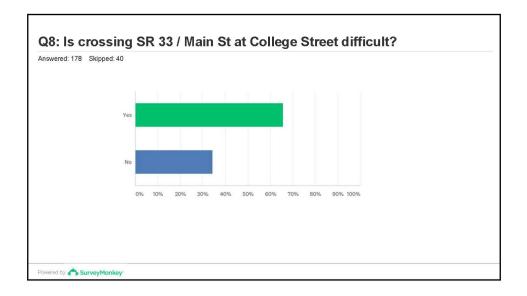
wereu. 163	3 Skipped: 35		
	ANSWER CHOICES	RESPON	SES
	Keep the on-street parallel parking on both sides of the roadway	56.83%	104
	Lose on-street parking on one side in order to make the travel lanes wider	43.17%	79
	TOTAL		183



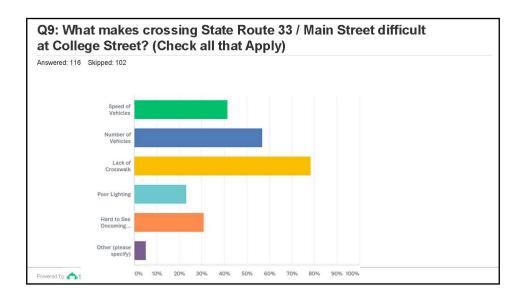
ANSWER CHOICES RESPONSES Yes 70.39%		
160	70.39%	
		120
No 29.61%	29.61%	5
TOTAL		17



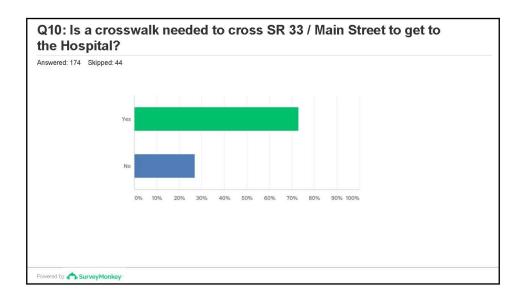
vered: 12	5 Skipped: 93			
	ANSWER CHOICES	RESPONSES		
	Speed of Vehicles	45.60%	57	
	Number of Vehicles	59.20%	74	
	Lack of Crosswalk	72.00%	90	
	Poor Lighting	24.00%	30	
	Hard to See Oncoming Traffic	35.20%	44	
	Other (please specify)	4.80%	6	
	Total Respondents: 125			

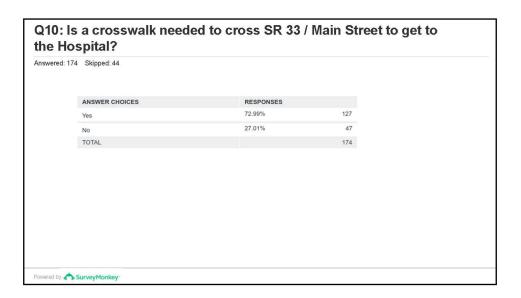


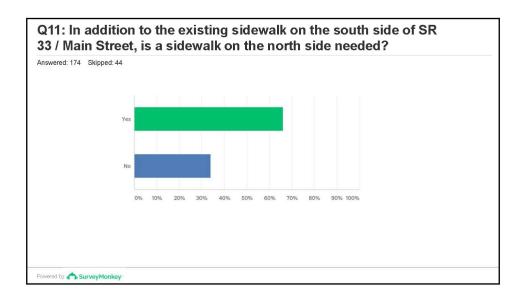
ANSWER CHOICES	RESPONSES	
Yes	65.73%	117
No	34.27%	61
TOTAL		178

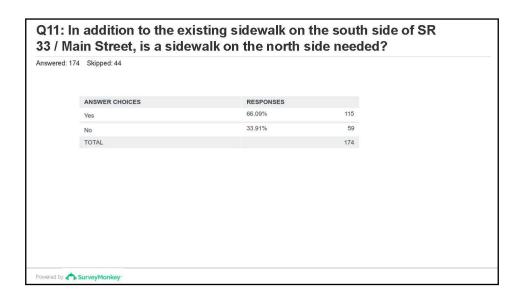


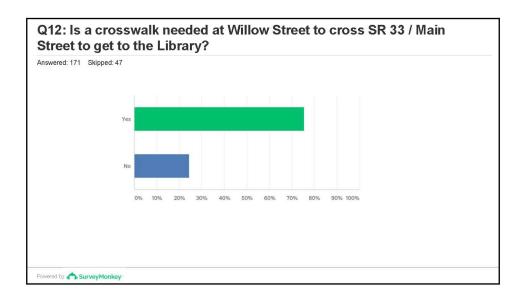
Skipped: 102			
ANSWER CHOICES	RESPONSES		
Speed of Vehicles	41.38%	48	
Number of Vehicles	56.90%	66	
Lack of Crosswalk	78.45%	91	
Poor Lighting	23.28%	27	
Hard to See Oncoming Traffic	31.03%	36	
Other (please specify)	5.17%	6	
Total Respondents: 116			



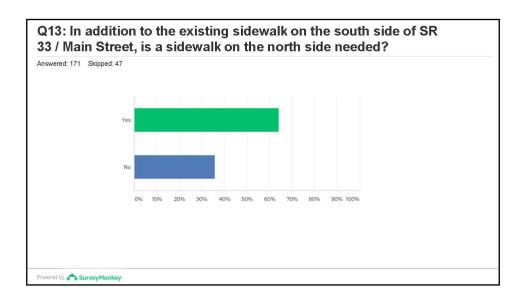


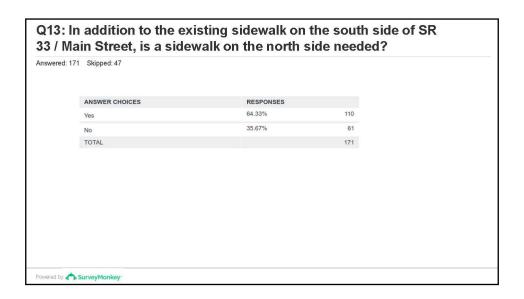


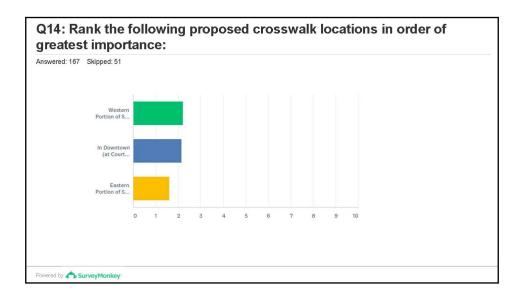




ANSWER CHOICES RESPONSES Yes 75.44% 129 No 24.56% 42 TOTAL 171	
No 24.56% 42	
TOTAL 171	







Skipped: 51						
	1	2	3	TOTAL	SCORE	
Western Portion of SR 33 / Main Street (at Campbell Dr)	44.91% 75	32.34% 54	22.75% 38	167	2.22	
In Downtown (at Court Street, Jockey Street, and College Street)	35.93% 60	43.71% 73	20.36% 34	167	2.16	
Eastern Portion of SR 33 / Main Street (at Willow Street)	19.16% 32	23.95% 40	56.89% 95	167	1.62	