March 2022

CENTER STAGE

A VISION FOR THE EAST CENTER STREET CORRIDOR

TN TDOT Department of Transportation

KINGSPORT TENNESSEE

Kimley»Horn

RESOLUTION NO. 2022-174

A RESOLUTION TO ENDORSE THE EAST CENTER STREET CORRIDOR STUDY FINAL REPORT AND RECOMMENDATIONS BY THE TENNESSEE DEPARTMENT OF TRANSPORTATION THROUGH THE URBAN TRANSPORTATION PLANNING GRANT

WHEREAS, in the Spring of 2021, the Tennessee Department of Transportation (TDOT) offered the first year of the Urban Transportation Planning Grant (UTPG) and began the East Center Street Corridor Study; and

WHEREAS, as part of this grant program, TDOT selected the consultant, and funded 90% of the study through a Urban Transportation Planning Grant (UTPG), the city provided the remaining 10%; and

WHEREAS, the study area includes East Center Street from Sullivan Street to Fort Henry Drive; and

WHEREAS, early in the study, the consultant team walked the corridor and spoke to business owners/stakeholders along the study area and hosted a booth at the Farmers Market on a Saturday morning to gather input from residents; and

WHEREAS, over the past several months, staff and stakeholders have met to discuss and provide input in the development of the plan/study, with several public meetings (online and in-person) and surveys were also conducted as part of the study process; and

WHEREAS, the consultant team developed scenarios for two sections that the city can "mix and match": west of Wilcox Drive (between Wilcox Drive and Sullivan Street) and east of Wilcox Drive (between Wilcox Drive and Fort Henry Drive), and in addition to the roadway recommendations, the consultant also looked at land use along the corridor and developed options for consideration; and

WHEREAS, on January 18, 2022, the plan was presented to the Kingsport Planning Commission; and

WHEREAS, the city of Kingsport will implement the components of East Center Street Corridor Study to the best of the city's ability and as resources are available; and

WHEREAS, approval of this resolution will fulfill the requirement TDOT places on the UTPG recipients to adopt a resolution endorsing the study document and to implement, to the best of their ability the recommendations from the study.

Now therefore,

BE IT RESOLVED BY THE BOARD OF MAYOR AND ALDERMEN AS FOLLOWS:

SECTION I. That the East Center Street Corridor Study, prepared by the Tennessee Department of Transportation through the Urban Transportation Planning Grant (UTPG) (attached as EXHIBIT A) is adopted as part of the municipality's general plan.

SECTION II. That the board finds that the actions authorized by this resolution are for a public purpose and will promote the health, comfort and prosperity of the citizens of the city.

SECTION III. That this resolution shall take effect from and after its adoption, the public welfare requiring it.

ADOPTED this the 8th day of March, 2022.

PATRICK W. SHULL, Mayor

ATTEST:

ANGELA MARSHALL
Deputy City Recorder

APPROVED AS TO FORM:

J. MICHAEL BILLINGSLEY, City Attorney

ACKNOWLEDGEMENTS

We extend our sincere appreciation and gratitude to the residents of Kingsport, Kingsport staff, elected officials, and stakeholders who assisted in the public outreach process, meetings and the entire planning process. This critical input guided the development of this study and will in turn have a positive impact on Kingsport.

City of Kingsport

- Michael Thompson, P.E.
- Jessica Harmon
- John Rose
- Ken Weems
- Chris McCartt

Tennessee Department of Transportation

- Ronda Sawyer
- Troy Ebbert
- Andy Padgett, P.E.
- Bryan Bartnick, P.E.

Kingsport Metropolitan Transportation Planning Organization

- Lesley Phillips
- Bill Albright

Kimley-Horn

- Kevin Tilbury, AICP
- Winston Mitchell, PLA
- Terrance Hill, P.E.
- Rachel Robinson, E.I.
- Laura Kelly, E.I.T.

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TABLE OF CONTENTS

Introduction **4**

Background and History 4

Urban Transportation Planning Grant 5

Existing Context **6**

Study Area 6

Data 6

Public Engagement 21

Multimodal Transportation and Land Use Scenarios **26**

Corridor Options 26

Land Use Options 44

Preferred Vision **52**

Overview 54

Vision Elements 55

Implementation 60

Conclusion **67**

INTRODUCTION

Background and History

In June 2021, the City of Kingsport launched Center Stage: A Vision for the East Center Street Corridor. Center Stage is a long-term visioning and planning initiative that encompasses East Center Street between East Sullivan Street and Fort Henry Drive in Kingsport, Tennessee. The City of Kingsport and Tennessee Department of Transportation (TDOT) have partnered together to complete this corridor study that will set the stage for reinvestment, improve mobility, and revitalize the corridor. The goal of the study is to make East Center Street a better place to live, work, play and go to school while recognizing its historic legacy and role within the city.

Kingsport was initially incorporated in 1917 as a privately financed, professionally planned community, with an economically diverse industrial base organized around the Carolina, Clinchfield and Ohio Railway. The street network was laid out by John Nolen, a prominent city planner during the City Beautiful movement, and East Center Street, once known as Bristol Highway, has been at the "center" of the community since the City's founding. The original Dobyns-Bennett High School (then Kingsport High School, now Renaissance Center), as well as the original Douglass-Rosenwald School have all been in the corridor. Areas near East Center Street and Dale, Maple, Oak, and Walnut (now Sevier) Streets were historically the core of Kingsport's African American Community. In 1985, Kingsport was recognized as a Main Street Community and in 1997, Kingsport was named an "All-American City."

East Center Street at Fort Henry Henry Drive

East Center Street near Mapleoak Lane

Urban Transportation Planning Grant

Center Stage is a partnership between TDOT and the City of Kingsport. It is funded through TDOT's Urban Transportation Planning Grant (UTPG) Program with matching funds provided by the City. TDOT funds 90% of the study and the City funds 10%.

A Corridor Study examines the relationship between a roadway and its adjacent land. Corridor studies are often used to:

- Define levels of access and mobility
- Determine appropriate land uses
- Consolidate and control access points
- Identify operational breakdowns and promote efficiency
- Encourage redevelopment of an underperforming corridor

Corridor studies provide a framework to develop a preferred future condition and interim solutions. Specific benefits may include maximizing existing infrastructure, improving safety, and coordinating land uses (TDOT Long Range Planning).

Public engagement at the Farmer's Market

East Center Street near East Sevier Avenue

EXISTING CONTEXT

Study Area

East Center Street provides local and regional connectivity for Kingsport and Sullivan County. As part of the Tennessee State Route System (State Route (SR) 36 along the entire corridor and SR 126 between Fort Henry Drive and North Wilcox Drive), East Center Street connects downtown Kingsport to SR 93, Interstate 81 and Interstate 26. Between the project limits of East Sullivan Street and Fort Henry Drive, East Center Street provides access to the Renaissance Center, churches, residences and local businesses. Dobyns-Bennett High School is located just east of the study area. West of the study area is downtown Kingsport with civic buildings, local restaurants and businesses, churches and residences. The study area is shown in Figure 1, and the surrounding context is shown in Figure 2.

The Corridor Study's foundation relies on understanding the existing context to guide the recommendations. This can be divided into context provided by **data**, and context provided by Kingsport residents' participation, opinions and insight through **public engagement**.

Figure 1. Study Area Map

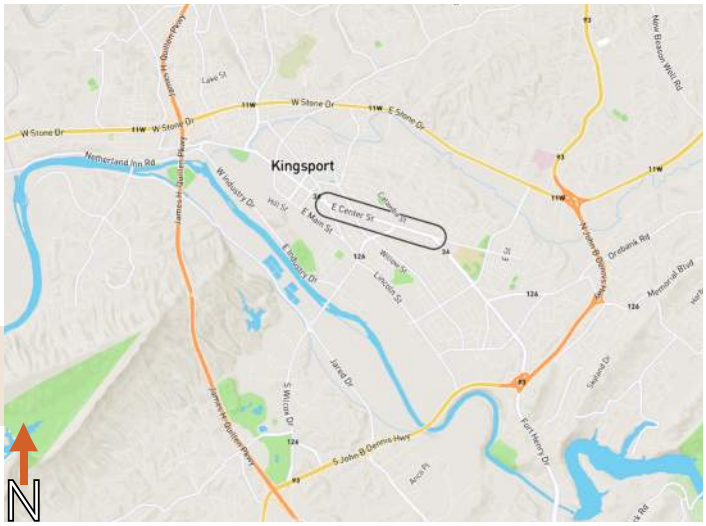


Figure 2. Area Map

Data

Mobility

Mobility includes vehicles, pedestrians, bicycles and transit users. Throughout the study corridor, the posted speed limit is 30 miles per hour (mph). A TDOT count station located on East Center Street east of North Wilcox Drive indicates that the Annual Average Daily Traffic (AADT) volumes fluctuate significantly over the last few years, which can likely be attributed in to the COVID-19 pandemic. Traffic volumes between 2017 and 2021 range from 16,000 to over 21,000 as shown in Table 1.

Table 1. Annual Average Daily Traffic

Annual Average Daily Traffic	East Center Street east of North Wilcox Drive
2017	18.700
2018	17,720
2019	21,260
2020	16,030
2021	20,732

These numbers provide detail to the amount of daily, bi-directional traffic that exists along the corridor. Images of the corridor that display vehicular mobility facing east and west, respectively, are shown in Figures 3 and 4.

Figure 3. East Center Street

Figure 4. East Center Street

In addition to TDOT traffic counts, traffic counts were collected at key points throughout the corridor. Figure 5 presents a key map of the three locations . Counts were collected between Tuesday, September 7th 2021 and Wednesday, September 15th 2021 at:

1. Dale Street/Mapleoak Lane
2. Yadkin Street/Wateree Street
3. Summer Street/Lamont Street

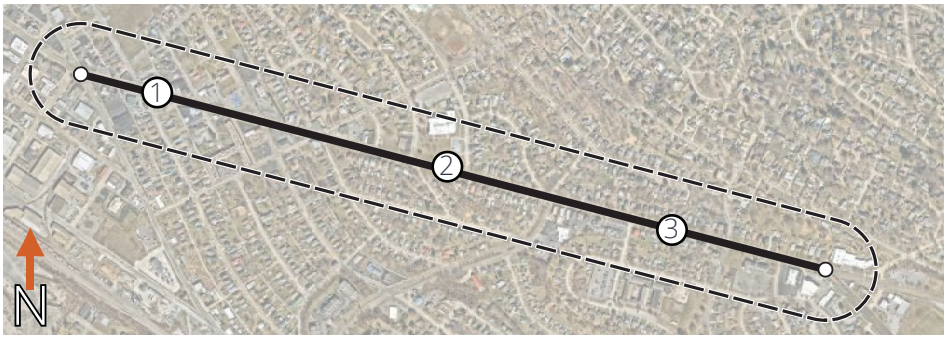


Figure 5. Traffic Count Key Map

Between Dale Street and Mapleoak Lane, the following data was gathered and is presented in the following figures. Figure 6 displays time of day traffic volumes during a 24-hour period.

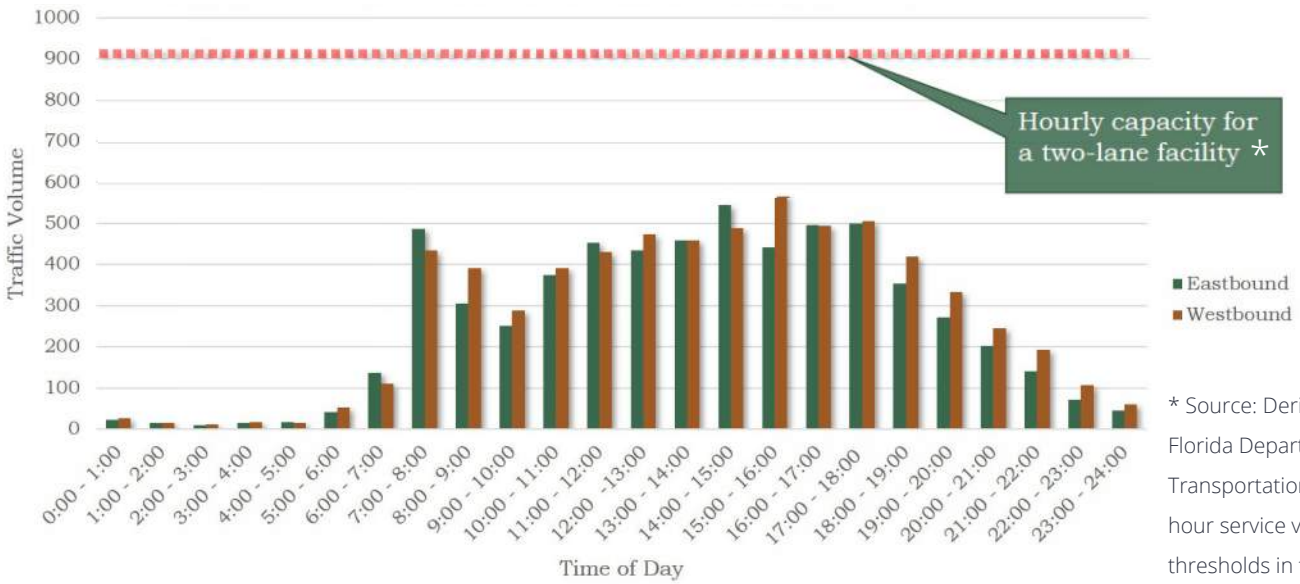


Figure 6. East Center Street Traffic Volumes Between Dale Street and Mapleoak Lane

* Source: Derived from Florida Department of Transportation peak hour service volume thresholds in the 2020 Quality and Level of Service Handbook.

Figure 7 displays bi-directional traffic counts for each day of the week.

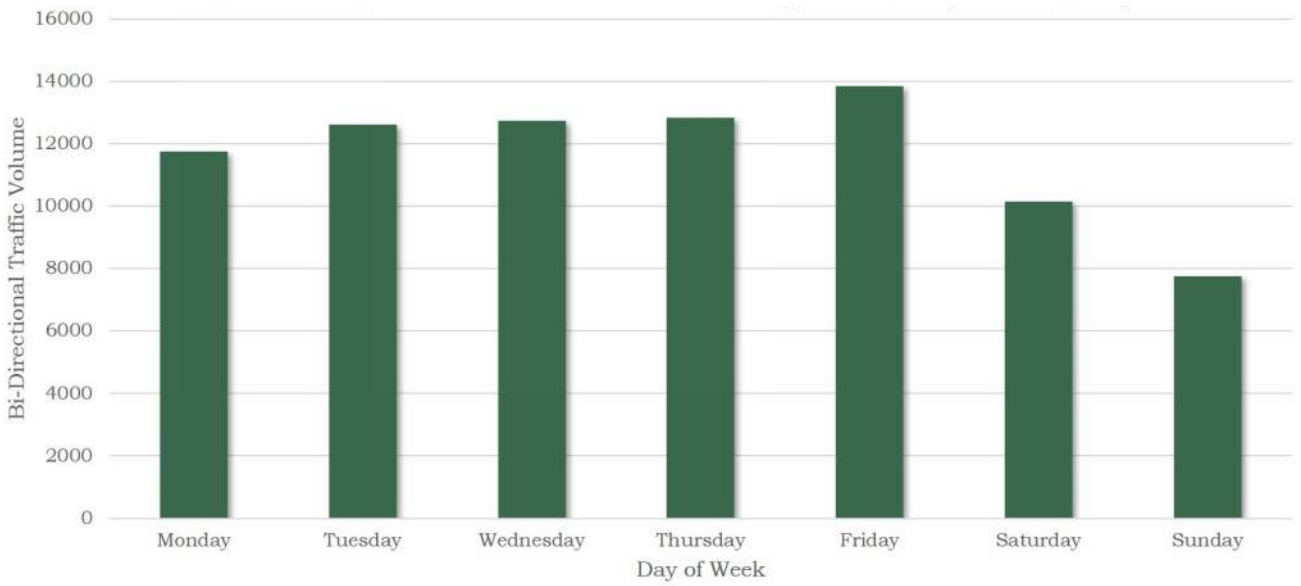


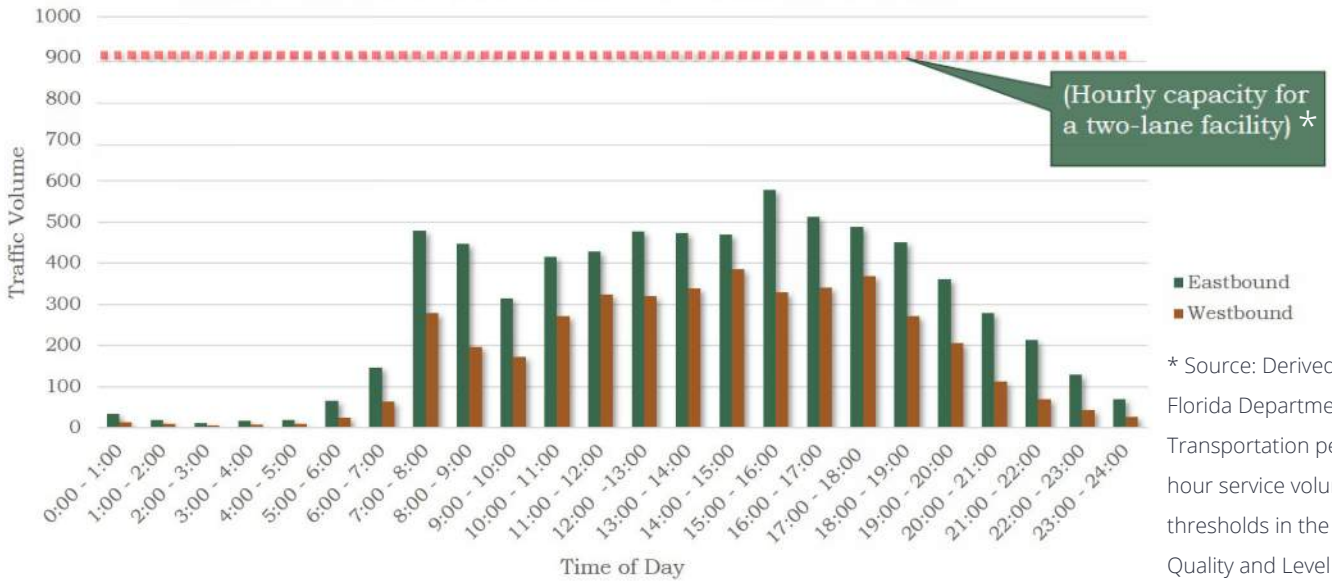
Figure 7. East Center Street Bi-Directional Traffic Volumes Between Dale Street and Mapleoak Lane

These metrics describe the data gathered on East Center Street between Dale Street and Mapleoak Lane. Motorists drive faster than the speed limit in this section of roadway on average and during the peak hours.

Count Location 1

- Weekday Average ADT: 12,606
  - Highest ADT: Friday - 13,840
  - Lowest ADT: Sunday - 7,750
- Average 85th percentile speed: 36 mph
  - Varies between 34.8 and 37.5 mph
  - Speed Limit: 30 mph
- AM Peak Hour: 7 AM to 8 AM
  - 85th percentile speed: 35 to 40 mph
- PM Peak Hour: 2 PM to 3 PM
  - Varies between 30 to 35 mph

Between Yadkin Street and Wateree Street, the following data was gathered and is presented in the following figures. Figure 8 displays time of day traffic volumes during a 24-hour period.



* Source: Derived from Florida Department of Transportation peak hour service volume thresholds in the 2020 Quality and Level of Service Handbook.

Figure 8. East Center Street Traffic Volumes Between Yadkin Street and Wateree Street

Figure 9 displays bi-directional traffic counts for each day of the week.

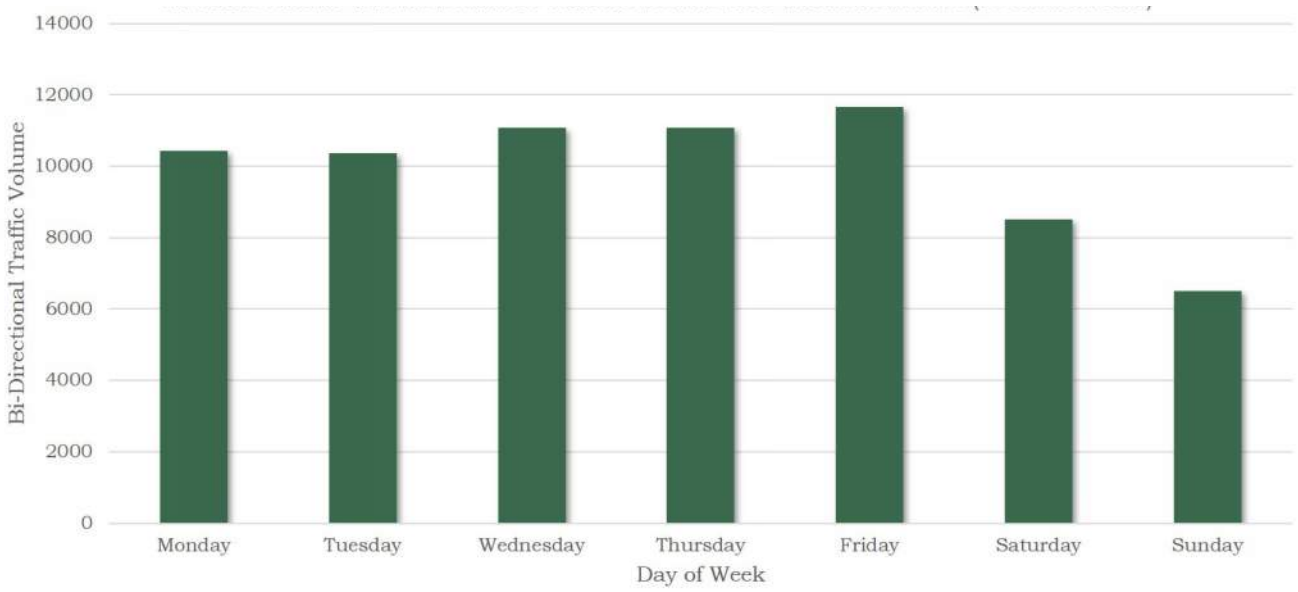


Figure 9. East Center Street Bi-Directional Traffic Volumes Between Yadkin Street and Wateree Street

Count Location 2

- Weekday Average ADT: 10,090
  - Highest ADT: Friday - 11,674
  - Lowest ADT: Sunday - 6,503
- Average 85th percentile speed: 41 mph
  - Varies between 39 and 42.8 mph
  - Speed Limit: 30 mph
- AM Peak Hour: 7 AM to 8 AM
  - 85th percentile speed: 40 to 45 mph
- PM Peak Hour: 3 PM to 4 PM
  - Varies between 40 to 45 mph

These metrics describe the data gathered on East Center Street between Yadkin Street and Wateree Street. Motorists drive faster than the speed limit in this section of roadway on average and during the peak hours. The highest speeds of all three count locations were recorded in this segment, which could be attributed to the vertical curve and merge at this location.

Between Summer Street and Lamont Street, the following data was gathered and is presented in the following figures. Figure 10 displays time of day traffic volumes during a 24-hour period.

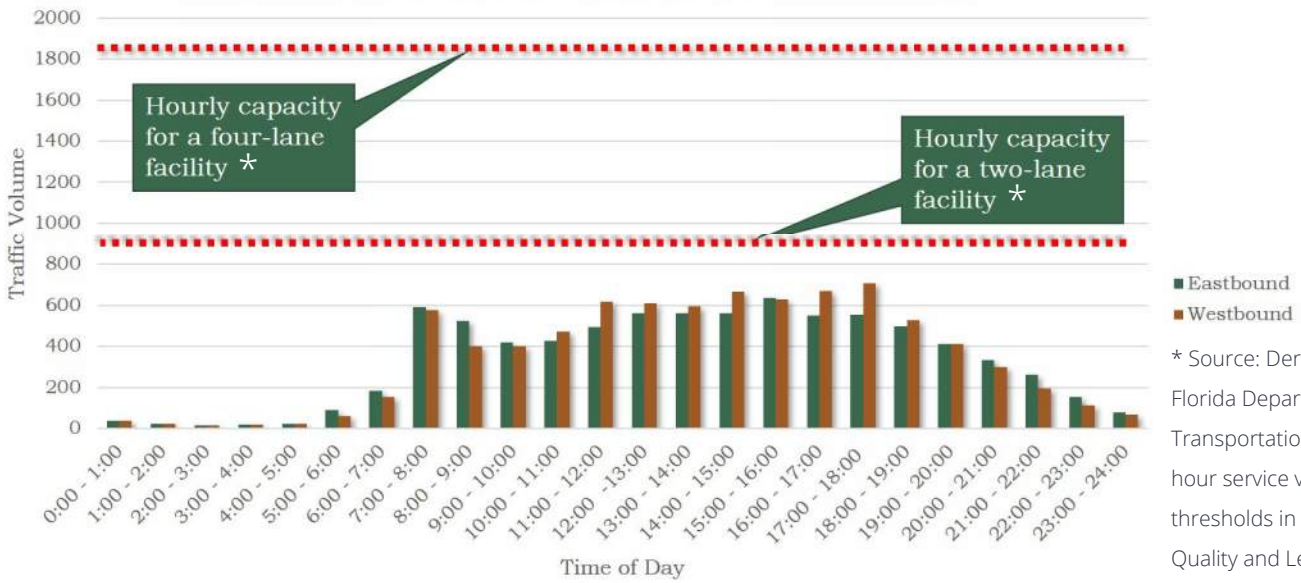


Figure 10. East Center Street Traffic Volumes Between Summer Street and Lamont Street

* Source: Derived from Florida Department of Transportation peak hour service volume thresholds in the 2020 Quality and Level of Service Handbook.

Figure 11 displays bi-directional traffic counts for each day of the week.

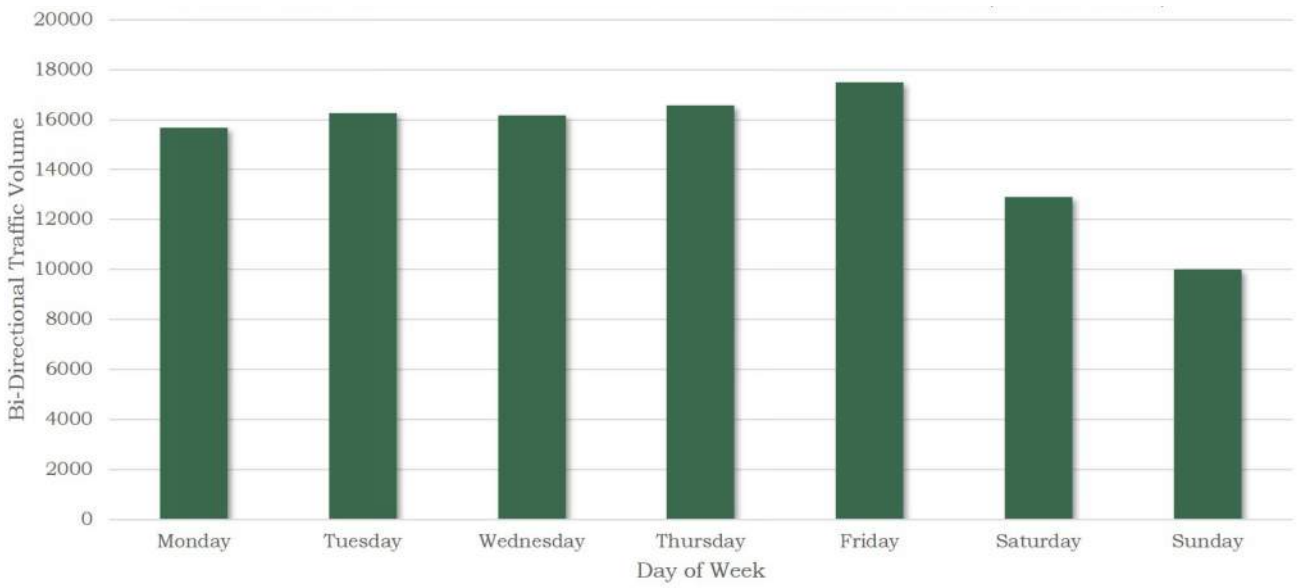


Figure 11. East Center Street Bi-Directional Traffic Volumes Between Summer Street and Lamont Street

These metrics describe the data gathered on East Center Street between Summer Street and Lamont Street. Motorists drive faster than the speed limit in this section of roadway on average and during the peak hours.

Count Location 3

- Weekday Average ADT: 16,290
  - Highest ADT: Friday - 17,491
  - Lowest ADT: Sunday - 10,007
- Average 85th percentile speed: 39 mph
  - Varies between 37.1 and 41.5 mph
  - Speed Limit: 30 mph
- AM Peak Hour: 7 AM to 8 AM
  - 85th percentile speed: 35 to 40 mph
- PM Peak Hour: 3 PM to 4 PM
  - Varies between 40 to 45 mph

Table 2 provides a comparison of the three traffic count locations.

Table 2. Traffic Count Comparison

	Dale Street/Mapeloak Lane	Yadkin Street/Wateree Street	Summer Street/Lamont Street
ADT	12,606	10,990	16,290
Average 85th percentile speed	36 mph	41 mph	39 mph
AM Peak Hour	7 AM to 8 AM	7 AM to 8 AM	7 AM to 8 AM
PM Peak Hour	2 PM to 3 PM	3 PM to 4 PM	3 PM to 4 PM

Traffic volumes do not suggest a congestion or delay issue, especially in locations west of Wateree Street where there are two travel lanes in each direction. Daily traffic volumes are below maximum thresholds and measured operating speeds are above the posted speed limit.

The pedestrian experience along East Center Street between East Sullivan Street and Fort Henry Drive is characterized by continuous sidewalk coverage and significant gaps in crossing opportunities. Figures 12 - 15 show sidewalk facilities, which vary between three and seven feet throughout the corridor.

Figure 12. East Center Street Sidewalk

Figure 13. East Center Street Sidewalk

Figure 14. East Center Street Curb Ramps

Figure 15. East Center Street Sidewalk

The lack of crossing opportunities is displayed in Figure 16. There are more crosswalks on the western side of the corridor, however there is a large gap that spans over half a mile that prevents pedestrians from crossing safely.

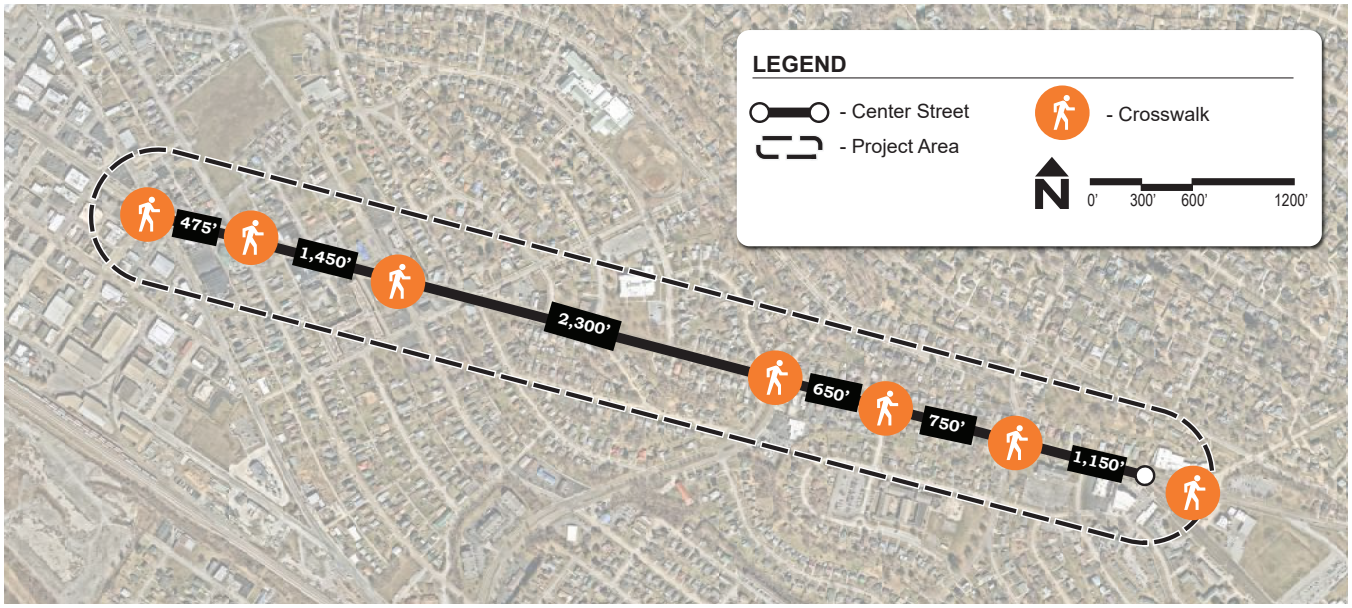


Figure 16. East Center Street Crosswalk Locations

Pedestrian counts were collected on Wednesday, August 11th, 2021 between 6 A.M. and 6 P.M. As shown in Figure 17, there is a significant amount of pedestrian activity in the corridor, which is highest in the eastern and central portions.

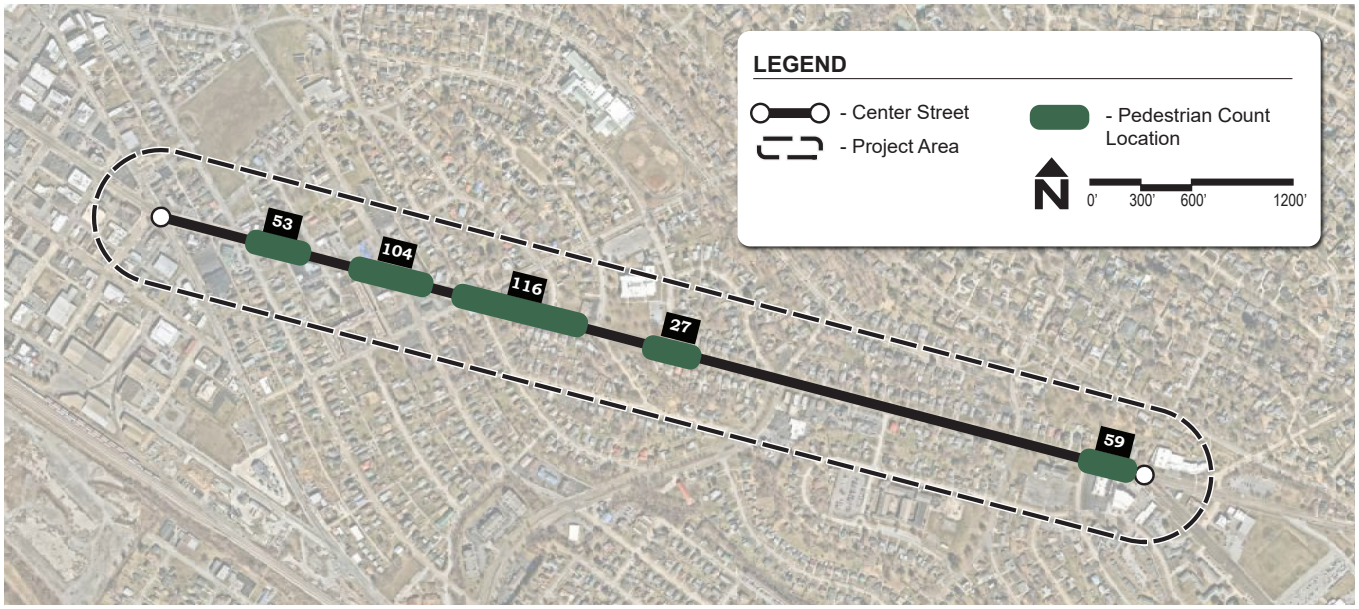


Figure 17. Pedestrian Count Locations and Results

The count locations and 12-hour counts are detailed below:

- E Center Street (150 feet on either side of Mapleoak Lane): 53 pedestrians
- E Center Street from Sevier Avenue to Myrtle Street: 104 pedestrians
- E Center Street from Myrtle Street to past the Minute Mart driveway: 116 pedestrians
- E Center Street (150 feet on either side of Wateree Street): 27 pedestrians
- E Center Street (150 feet on either side of Summer Street): At this location, the cameras were tampered with an no count data was gathered
- E Center Street from Prospect Drive to Fort Henry Drive: 59 pedestrians

Bicycle lanes exist along East Center Street between East Sullivan Street and Yadkin Street. These lanes range between four and a half feet and five feet, and do not have a buffer between them and the travel lane. These bike lanes have anecdotally very low use. During a field visit, cyclists were observed using the sidewalk and roadway to bike instead of the marked bike lanes. Figure 18 and 19 show the presence of the bike lane and of a cyclist along the corridor.

Figure 18. Bike Lanes on East Center Street

Figure 19. Cyclist on East Center Street

The Kingsport Area Transit Service (KATS) operates buses within the study corridor. The entire KATS network is shown in Figure 20, with a total of six routes running fixed-route service in addition to the demand response service they provide. KATS Routes 1, 2 and 6 provide service within the study area. Field observations and daily ridership data suggest there is minimal passenger activity in the corridor. There are no transit amenities on East Center beyond a KATS sign. A bus stop along East Center Street is shown in Figure 21.

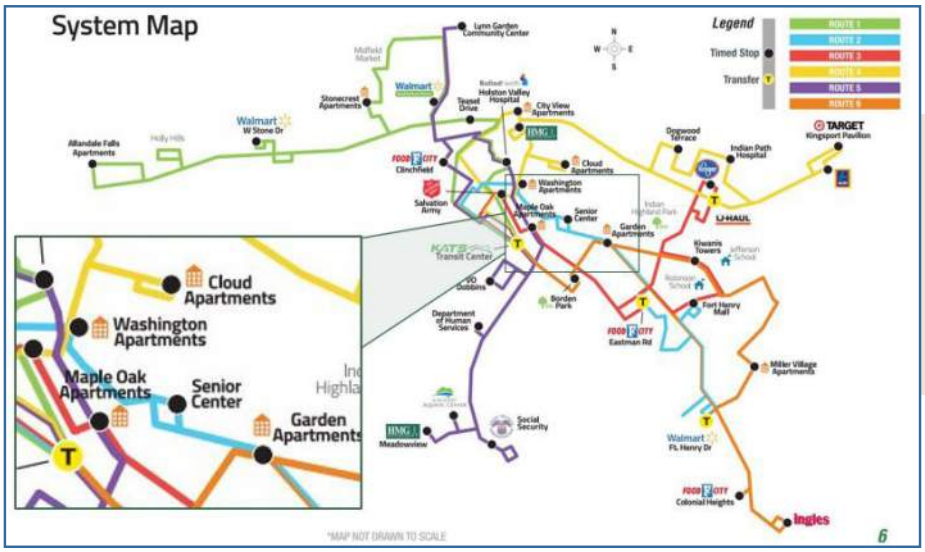


Figure 20. Transit Service Map

Figure 21. Transit Stop

Mobility Key Takeaways

- East Center Street is an important element of the regional network
- Traffic Volumes do not suggest a congestion or delay issue
- Complete sidewalk network, but few crossing opportunities
- Bicycle lanes east of Sullivan Street, but little use
- Intermittent transit route coverage, minimal transit facilities

Safety

A critical component of the existing context analysis is safety. TDOT's Enhanced Tennessee Roadway Information Management System (E-TRIMS) and Tennessee Integrated Traffic Analysis Network (TITAN) were the two sources utilized to complete this analysis, which provides crash information along the study corridor. Near-term (2018-2021) and long-term (2014-2021) crash data was inventoried, and is displayed in Table 3.

Table 3. Crash History

	Near Term (2018 - 2021)[1]	Long Term (2014 -2021)[2]
Total Crashes	200	505
Total Injuries	55	154
Suspected Serious Injuries	2	7
Fatalities	3	5
Crashes with Pedestrian Involvement	5	11

[1]Near Term crash data is from TDOT's ETRIMS database from 01/01/2018 to 06/22/2021
[2]Long Term crash data is from TDOT's ETRIMS database from 01/01/2014 to 06/22/2021

Approximately 30% of all crashes resulted in injury. Of the injury crashes, the majority of these incidents result in minor injuries; only 10% of injury crashes result in a serious injury or a fatality.

Safety Key Takeaways

- Crashes are more common towards the west half of the corridor
- Crashes involve pedestrians and some result in injury
- Perceived Safety issue with pedestrian activity, lack of crosswalks, and road diet

Right-of-Way Context and Character

Figure 22 presents a key for the subsequent figures that examine the right-of-way throughout the corridor. Four typical sections are displayed in Figures 23-26 that show eastbound perspectives along East Center Street at Dale Street, Yadkin Street, Wateree Street and North Wilcox Drive.

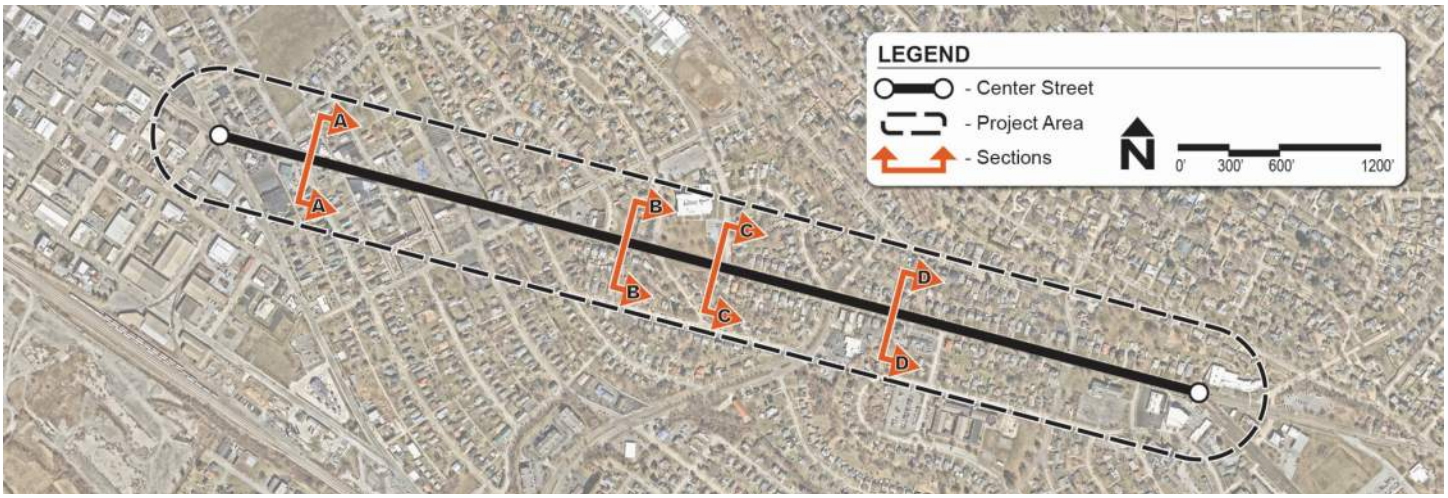


Figure 22. Right-of-Way Key Map

A - A

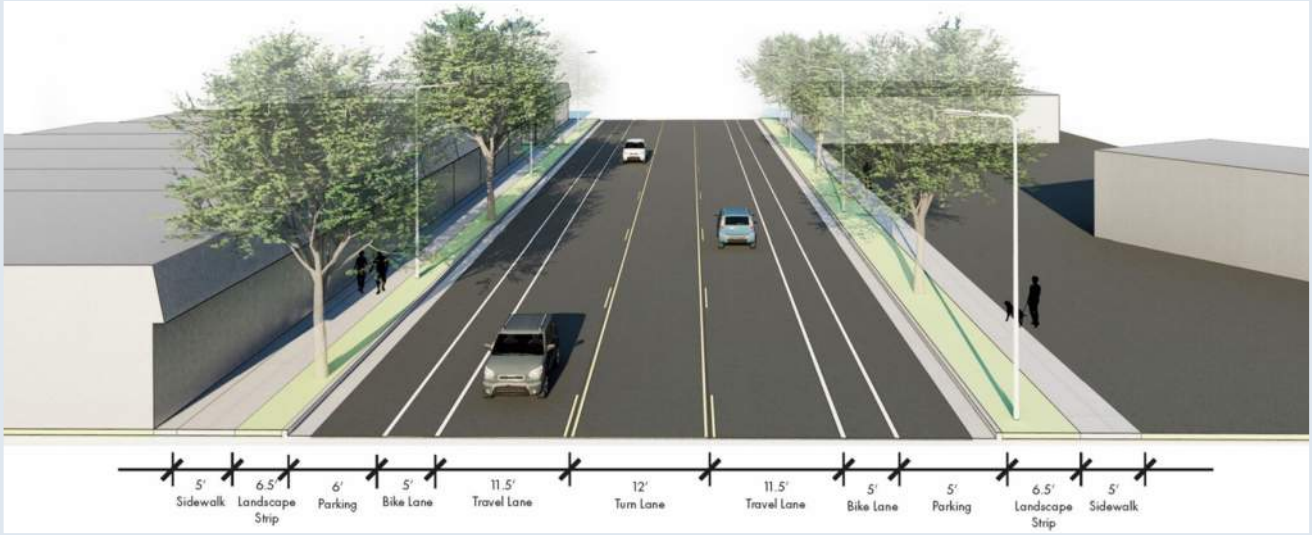


Figure 23. Right-of-Way at Dale Street

B - B

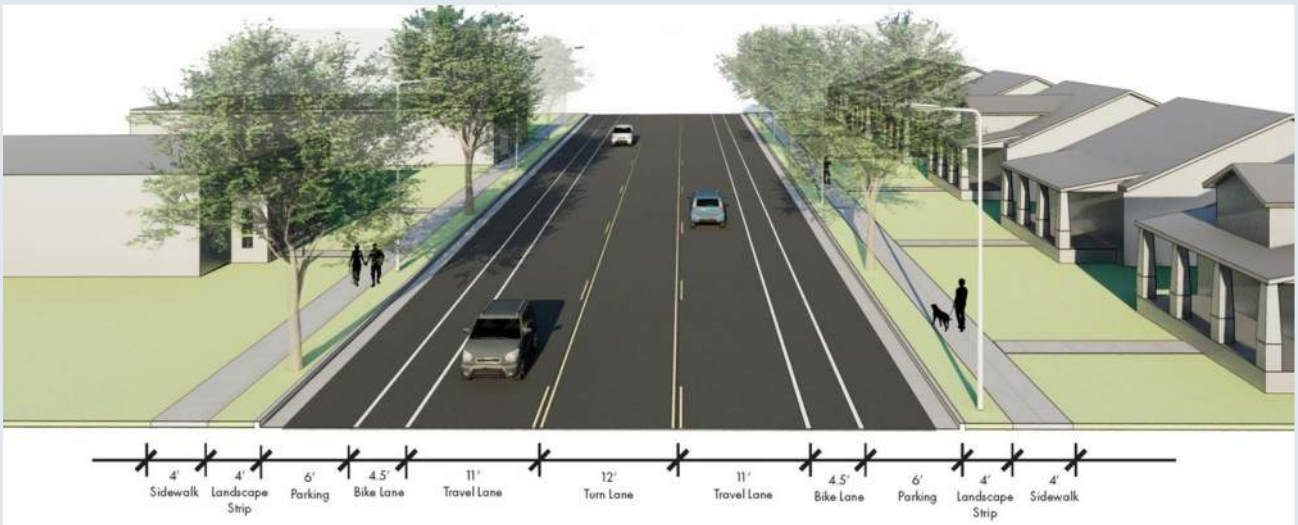


Figure 24. Right-of-Way at Yadkin Street

C - C

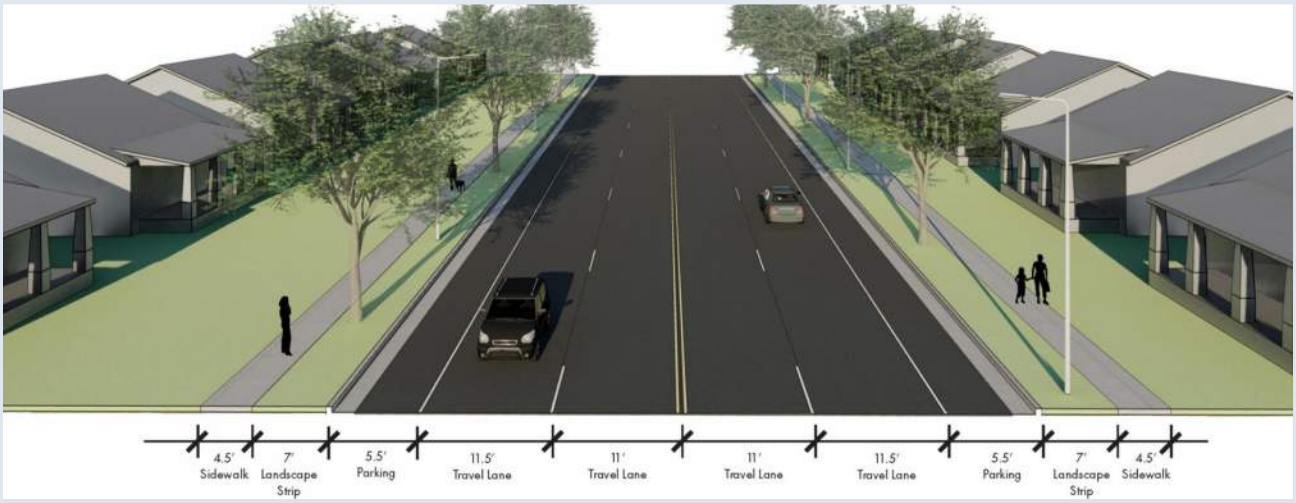


Figure 25. Right-of-Way at Wateree Street

D - D

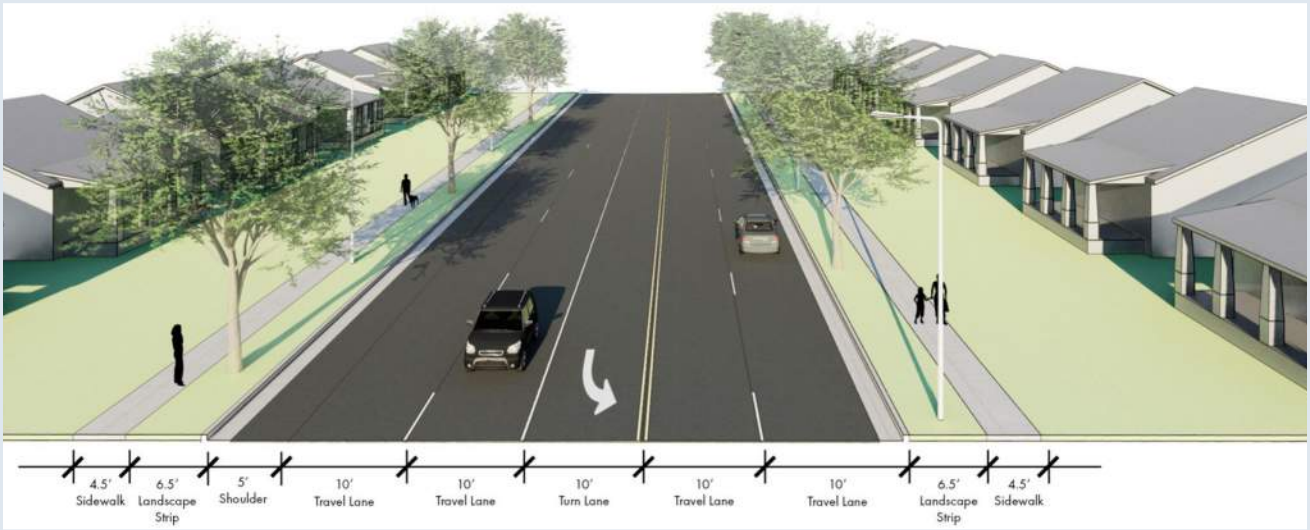


Figure 26. Right-of-Way at North Wilcox Drive

While the curb-to-curb layout from East Sullivan Street to Fort Henry Drive changes throughout the corridor, the landscaping strip and sidewalk are fairly uniform throughout this portion of East Center Street. Despite this consistency, there are frequent driveways; some driveways have dips that provide challenges to motor vehicle operation. Two examples of this are shown in Figure 27 and 28 near the CenterDale Service Station and Mac's Medicine Mart, respectively.

Figure 27. Driveway Dip Example

Figure 28. Driveway Dip Example

Figure 29. Angled Intersection at East Sullivan Street

Many of these driveways, as well as cross streets such as Dale Street, East Sevier Avenue, Myrtle Street and Oak Street intersect East Center Street at skew angles, shown in Figure 29. The character of the corridor can also be defined by a variety of distances between the curb and the building faces.

Land Use and Demographics

Land use and demographics were also considered to better understand how businesses and residents interact with the corridor.

Land Use

Overall, there is a wide range of uses along East Center Street, including a mix of more traditional housing and older retail establishments. There are numerous civic assets in close proximity, including Dobyns-Bennet High School, John Sevier Middle School, and Lincoln Elementary. Figure 30 presents the overall context of the East Center Street corridor and surrounding areas.

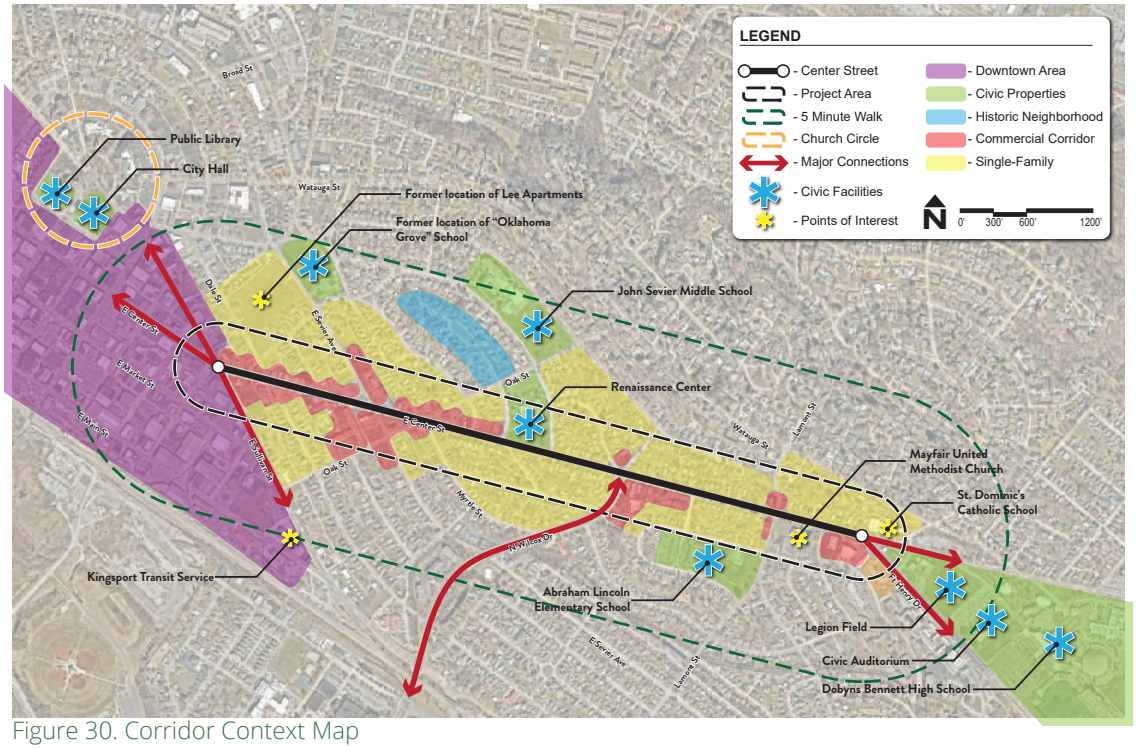


Figure 30. Corridor Context Map

Most of the East Center Street corridor between East Sullivan Street and Fort Henry Drive is single family residential. South of the corridor, there is some multi-family residential. Throughout the corridor, there are many public uses, as a significant portion of the corridor is owned by the city or school system. The commercial uses are concentrated along East Center Street, at both ends of the corridor, and extending west into downtown. Between Wilcox Drive and Fort Henry Drive a number of single family homes have been converted to small office and service uses. Figure 31 summarizes existing land uses for the corridor and surrounding areas.

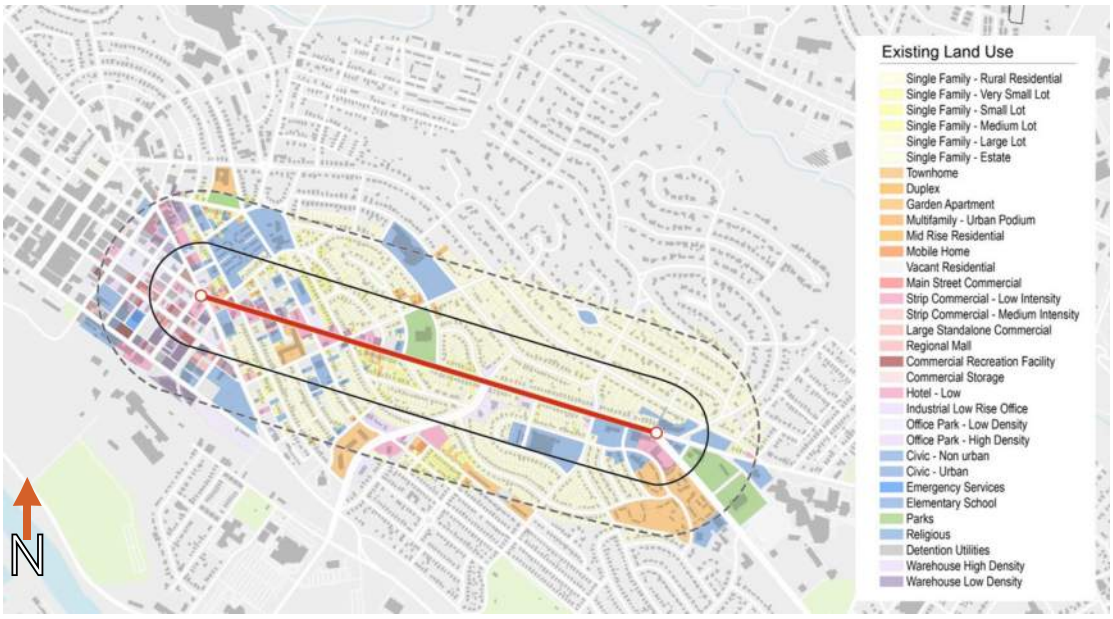


Figure 31. Land Use Map

Figure 32 identifies each parcel's improvement to land value ratio provided by the Sullivan County Property Assessor. The parcels with low improvement to land value ratios are more likely to redevelop, as the value of the land begins to exceed the value of their respective buildings. These parcels are concentrated on the western half of the corridor and are predominantly commercial.

Figure 32. Improvement to Land Value Ratio Map

Figure 33 shows the range of parcel sizes throughout the corridor, grouped into categories based on their acreage. Generally, larger parcels, those that are darker in color, are generally more attractive for large scale redevelopment. Most parcels, however, are less than a half-acre in size. Of the parcels that are larger, most of them are municipally owned.

Figure 33. Parcel Size Map

As much of the corridor is composed of residential land uses, there is a prevalence of renters. Renters occupy more than 40% of housing along most of the corridor. As shown in Figure 34, East Center Street acts as a divide between an area with predominantly homeowners (Fair Acres to the north) and an area with more than 60% renters (to the south). Renter-occupied parcels are more prone to redevelopment.

Figure 34. Rental Housing Map

Structure age was examined in Figure 35. A majority of structures along the East Center Street corridor were built before 1960. There are few properties that are less than 20 years old.

Figure 35. Structure Age Map

Land Use Key Takeaways

- Diverse land uses and activities
- Close proximity of complementary land uses = walk potential
- Relatively low redevelopment potential
- Few large-scale redevelopment sites
- Large percentage of renter-occupied housing

Demographics

The demographic analysis compares the East Center Street corridor to the City of Kingsport as a whole. Age, income, and race metrics were analyzed.

Table 4 compares the age groups represented in the City of Kingsport and the Study Corridor using 2019 data (US Census). There is not a significant difference between the ages of residents along the Study Corridor compared to those in the City of Kingsport.

Table 4. Age Comparison

	City of Kingsport	Study Corridor
Persons under 5 years, percent (2019)	5.5%	4.2%
Persons under 18 years, percent (2019)	20.2%	19.4%
Persons 65 years and older, percent (2019)	23.3%	20.5%

Table 5 compares the median household income in the study corridor with that in the City of Kingsport. In 2019, the median household income in the City of Kingsport was over $12,000 higher than the study corridor's.

Table 5. Income Comparison

	City of Kingsport	Study Corridor
Median Household Income (2019 dollars)	$42,856	$29,300

Table 6 compares race across the City of Kingsport and the Study Area. The Study Corridor has a higher minority population than the City of Kingsport.

Table 6. Race Comparison

	City of Kingsport	Study Corridor
White alone*	91.2%	86.7%
Black/African American alone	3.5%	10.9%
American Indian/Alaska Native alone	0.1%	0.1%
Black/African American alone	1.2%	0%
Native Hawaiian or Other Pacific Islander alone	0.2%	0.6%
Hispanic or Latino*	2.3%	2.3%
White alone, not Hispanic or Latino*	89.9%	79.5%

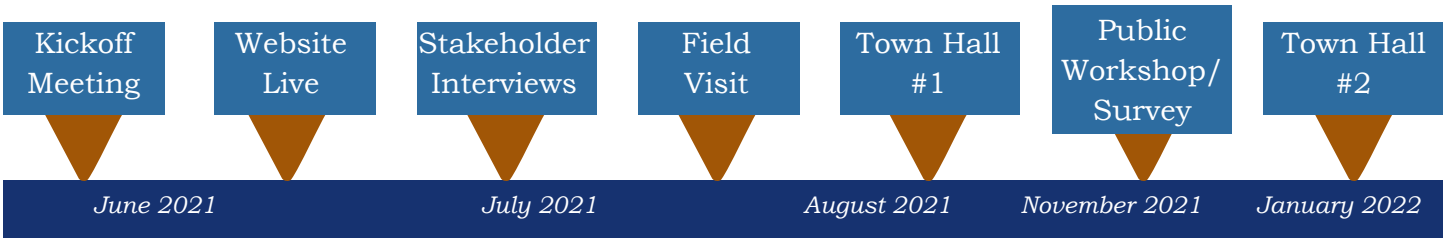
* "White alone, not Hispanic or Latino" are individuals who responded "No, not Spanish/Hispanic/Latino" and who reported "White" as their only entry in the race question. "White alone" includes Hispanic or Latino individuals.

Demographics Key Takeaways

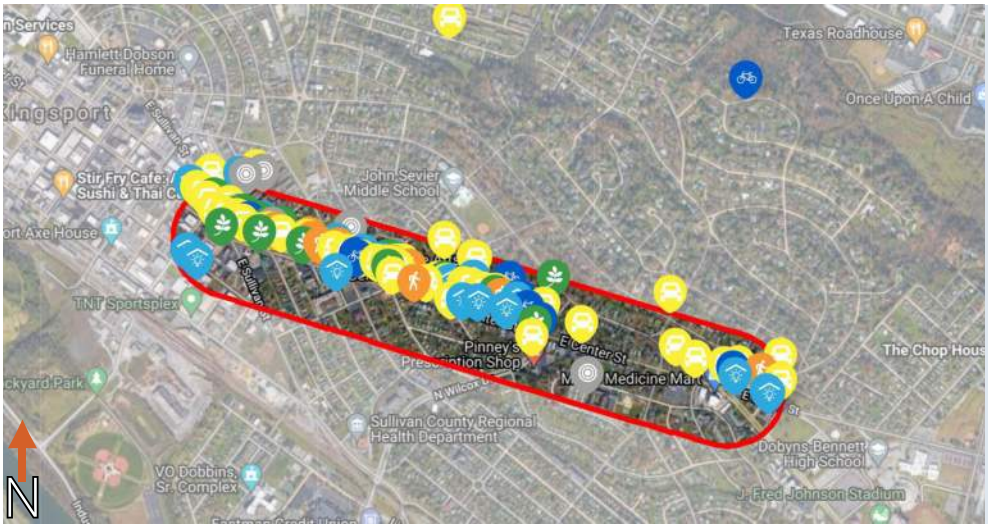
- Corridor residents have significantly lower household income
- Minority populations are disproportionately higher along the Corridor
- Not a significant difference in age

Public Engagement

Community involvement and input is crucial to the success of any planning process because it provides an understanding of the desires and preferences of citizens and City staff. It provides citizens the opportunity to have a voice in shaping the future of the community, giving the project team the ability to discover concerns that aren't readily apparent from field visits or traffic counts alone. The outreach process broadened the project team's understanding of the corridor, which led to the identification and expansion of recommendations, identified in subsequent sections in this report. The timeline of outreach is represented in the graphic below.



The planning process began with an initial kickoff meeting on June 15th, 2021 with representatives from the project team, including members from the MTPO, City of Kingsport and TDOT. The purpose of this meeting was to set priorities, understand data needs, determine initial logistics for community engagement and discuss scheduling and communication preferences. Following the initial kickoff meeting, the first step in informing project stakeholders and the public of the upcoming planning process was the public website with comment mapper. Residents could leave comments in six different categories on the map: walking, driving, cycling, beautification, land use and development and other. The online mapper was interactive and allowed users to place comments at specific locations along the project extents. An image of the online comment mapper is shown in Figure 36 below.



Cycling
Driving
Walking
Beautification
Land Use and Development

Figure 36. Online Comment Mapper

The initial comments from the online mapper provided a framework for the site visit and gave the project team insight into what issues and opportunities had been identified when stakeholder interviews began. In addition to understanding perceptions about East Center Street from online comment map users, key stakeholder interviews were conducted both virtually and in-person to supplement the public engagement effort. The following stakeholders were interviewed between July 9, 2021 and July 16, 2021.

- Lieutenant Justin Quillin (Kingsport Police Department)
- Ken Weems (Planning Manager and Zoning Administrator)
- Performance Medicine
- Hunger First
- Kingsport Senior Center

In addition to these scheduled interviews, the planning team met with business owners along East Center Street during the field visit. The interviewed businesses include:

- Larry's Cycle Shop
- All American Autos
- Jeff's Morrell Music Shop
- A Cut Above
- Plaques Etc. / Able Printers
- Lindsey Bolton, State Farm
- Redi Mart
- Minute Market
- American Job Center
- The Yates Agency
- The Iron Works
- Kingsport Door Company

These interviews served an important role in understanding varied perspectives of Kingsport residents and stakeholders. The impromptu conversations during the field visit were critical to gathering opinions on what business owners believe to be major opportunities for and major hindrances to growth along the East Center Street corridor. Figures 37-38 present images from the interview process during the site visit.

Figure 37. Field Visit Conversations

Figure 38. Field Visit Conversations

Beyond the interviews, the purpose of the field visit was to gather measurements, document photos and attend the Farmer's Market. The data generated from the site visit served as a baseline for how the corridor currently operates and gave context for many of the statements and opinions provided throughout the interview process.

On Saturday, July 17, the project team attended the Kingsport Farmer's Market. At the event, which was held on the first weekend of Kingsport's Fun Fest, the project team spoke with residents and visitors to Kingsport to understand their perspectives of the corridor. The project team also handed out information flyers that explained more information and described additional ways to participate in the project, shown in Figure 39.

Figure 39. Field Visit Flyers

Figures 40 and 41 present images from the Farmer's Market, where the project team spent the day talking with Farmer's Market attendees.

Figure 40. Farmer's Market

Figure 41. Farmer's Market

Figure 42 demonstrates how the project team provided participants with maps and colored stickers to gather detail on specific issues and opportunities. The color stickers corresponded to five comment categories: bicycling, driving, walking, beautification, and land use, as shown below. This event provided the project team with general feedback on the study, individual anecdotes about East Center Street and resident and stakeholder hopes for the corridor.

Figure 42. Farmer's Market

With the field visit and interviews concluded, the project team organized a Virtual Town Hall held on August 19th, 2021, to present initial findings, share next steps and gather feedback. The virtual setting allowed participants to register in advance, participate in interactive polls and submit questions to be answered by panelists. The Town Hall was later posted to the project website so interested parties could watch if they could not attend the originally scheduled meeting, shown in Figure 43. An additional Town Hall meeting is scheduled for January 27th, 2022 that will have a similar format and will present recommendations to the public.

Figure 43. Virtual Town Hall #1

The project team spent the weeks following the August 2021 Virtual Town Hall summarizing the critical details and opinions provided by stakeholders, residents and staff to then begin drafting multimodal scenarios and transportation plans for the corridor. After reviewing these draft plans with City staff, the project team scheduled a public workshop for Tuesday, November 9th, 2021. This public workshop operated as an open house for participants to learn more about the project and provide feedback on draft scenario ideas. It was held in the Renaissance Center, located centrally along the East Center Street corridor. Images from this public workshop are presented in Figures 44-46.

Figure 44. Public Workshop

Figure 45. Public Workshop

Figure 46. Public Workshop Comment Map

To complement the in-person public workshop, the project team developed a survey to gather feedback virtually. This survey remained active from November 9th, 2021 to December 1st, 2021 and provided an outlet for residents to view each corridor draft option and provide feedback. The survey was promoted on City social media pages and was accessible via the project website. The results of the public workshop and survey are summarized in the Public Feedback on Corridor Options section.

With the critical insight provided by data, observations and conversations from the field visit and the information provided by the public throughout the course of the project, the following summarizes the baseline conditions:

Existing Context Key Takeaways

- East Center Street is an important element of the regional network
- Traffic volumes do not suggest a congestion/delay issue, despite concerns outlined by residents
- There is a complete sidewalk network, but few crossing opportunities
- There are bicycle lanes east of Sullivan Street, but receive little use
- There is intermittent transit route coverage and minimal transit facilities
- Crashes are more common towards the west half of the corridor
- Crashes involve pedestrians and some result in injury
- Perceived safety issue with pedestrian activity, lack of crosswalks and road diet

Analyzing the baseline conditions to best understand where East Center Street has been and the potential for its future, the following graphic divides the conclusions into issues, opportunities and hotspots.

Issues

- Road diet and perceived traffic congestion
- Random pedestrian crossings
- Land use compatibility
- Low evident redevelopment potential
- Lack of catalyst opportunities

Opportunities

- Plenty of pavement = lots of design flexibility
- Character and structure
- Complimentary land uses and walk potential
- Complete sidewalk network
- Proximity to downtown and civic uses

Hotspots

- Myrtle Street/Oak Street intersection
- East Sullivan Street intersection
- Road diet
- Driveways

MULTIMODAL TRANSPORTATION AND LAND USE SCENARIOS

The public engagement process provided a wealth of insight into the community's preferences, and the baseline conditions analysis helped the project team understand the existing character and functionality of the corridor. The next step was to build on both of these elements to generate multimodal transportation and land use scenarios that identify alternative approaches to addressing corridor needs. Additionally, a framework for comparison would need to be established to accurately understand the advantages and disadvantages of options.

Corridor Options

Separate Corridor options are provided for the two distinct sections of East Center Street, east of North Wilcox Drive and west of North Wilcox Drive, as illustrated in Figure 47. The corridor options address the needs identified by this study but are also designed to minimize property impacts, keep the curb intact and maintain the center turn lane.

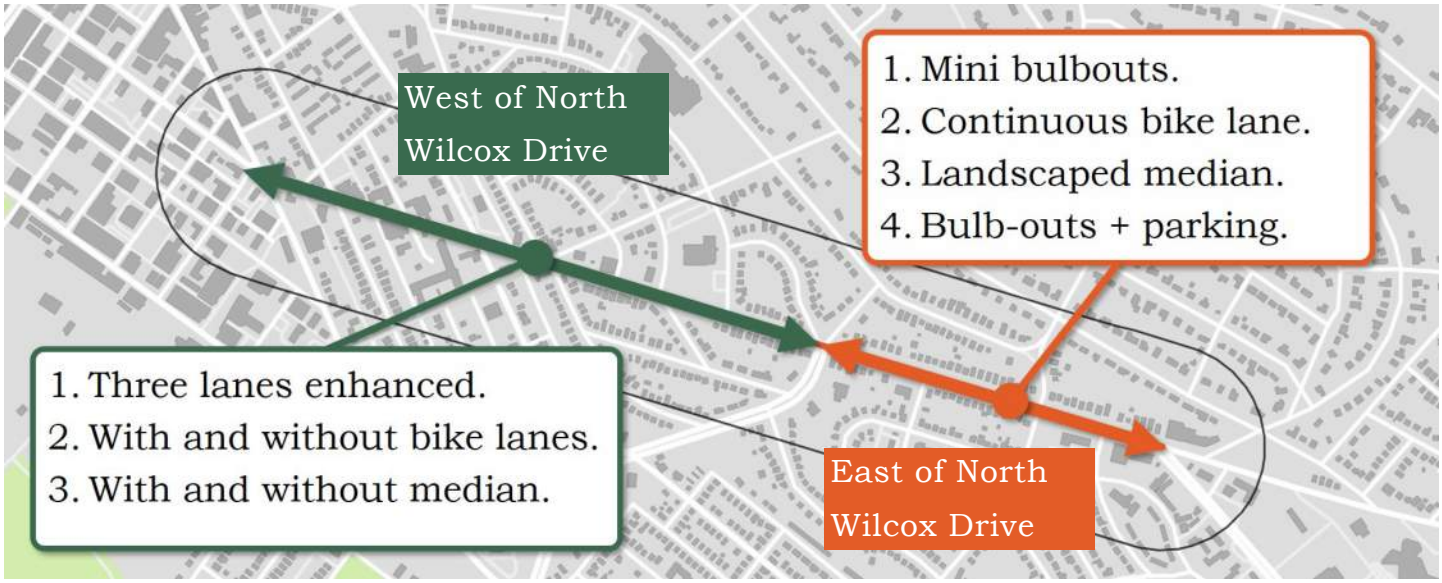


Figure 47. Corridor Options Overview

West of North Wilcox Drive

The three options for the section west of North Wilcox Drive are:

1. Three lanes enhanced
2. Three lanes enhanced with bike lane
3. Bike lanes with no median

Option 1 - Three lanes enhanced

Option 1 includes the following elements:

- Bulbouts alternate with on-street parking
- Possible space for outdoor dining
- Bulbouts, medians, and crosswalks align
- Removal of bike lane

These elements calm traffic through horizontal deflection by alternating bulbouts and parking. This option is presented in Figure 48.

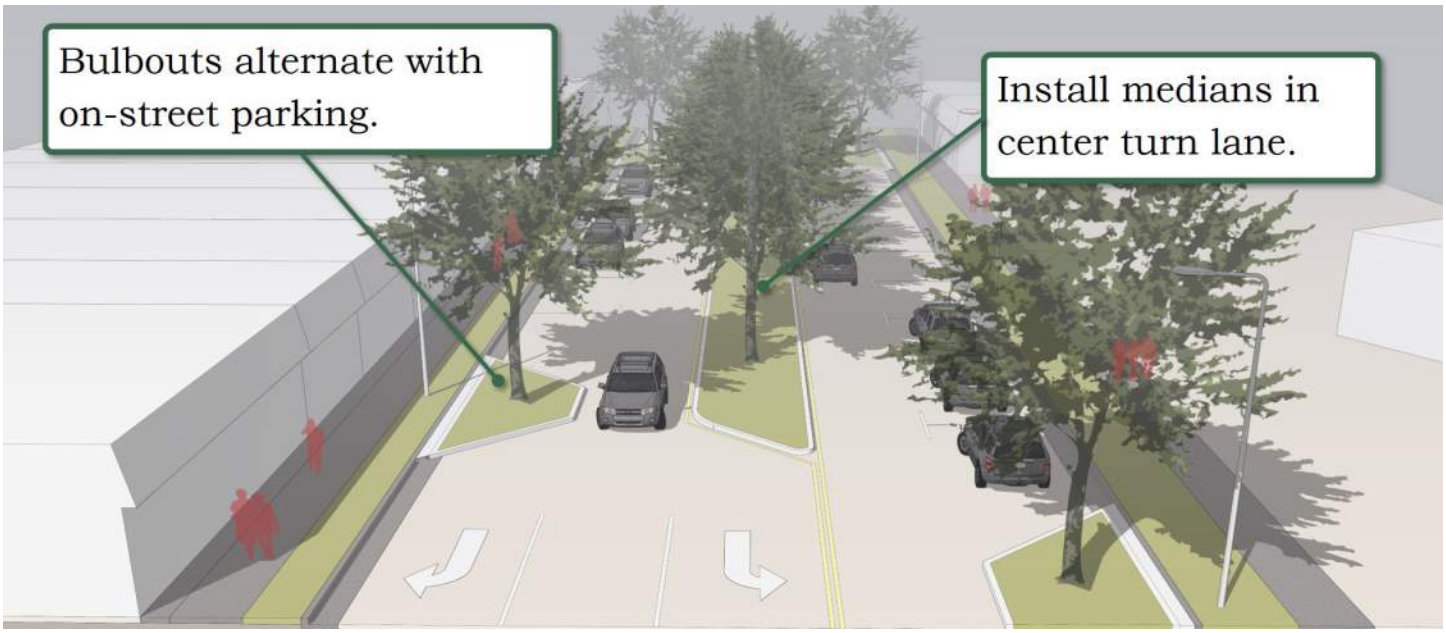


Figure 48. Option 1 West of North Wilcox Drive

Medians will be placed strategically in this option to prevent left-turn movements from selected side streets, demonstrated in Figure 49.

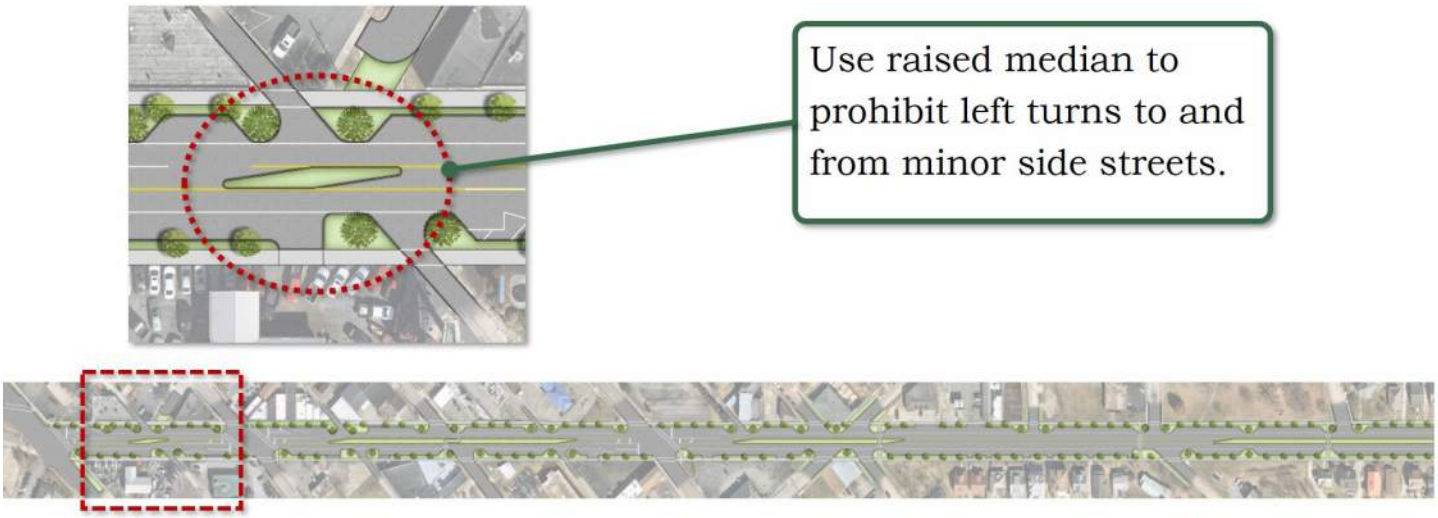


Figure 49. Median Example in Option 1

This option creates opportunities for landscaping and trees on medians. Bulbouts can also serve multiple purposes, including providing shade for pedestrians, adding a buffer between pedestrians and vehicles and creating space for outdoor dining and seating. This is displayed in Figure 50.

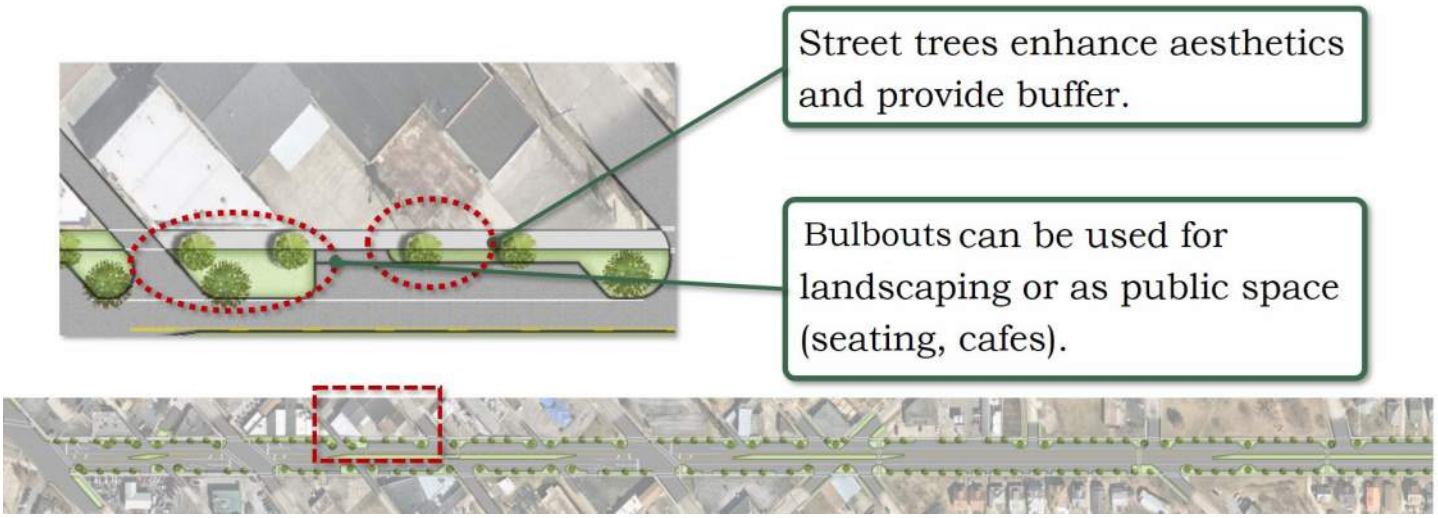


Figure 50. Landscaping in Option 1

The bulbouts identified in Figure 51 will provide horizontal deflection and opportunities for landscaping, however will also reduce the amount of on-street parking available throughout this portion of the corridor. As shown in Figure 52, driveways will also be impacted with this option; driveway widths and redundant driveways will be reduced or removed.

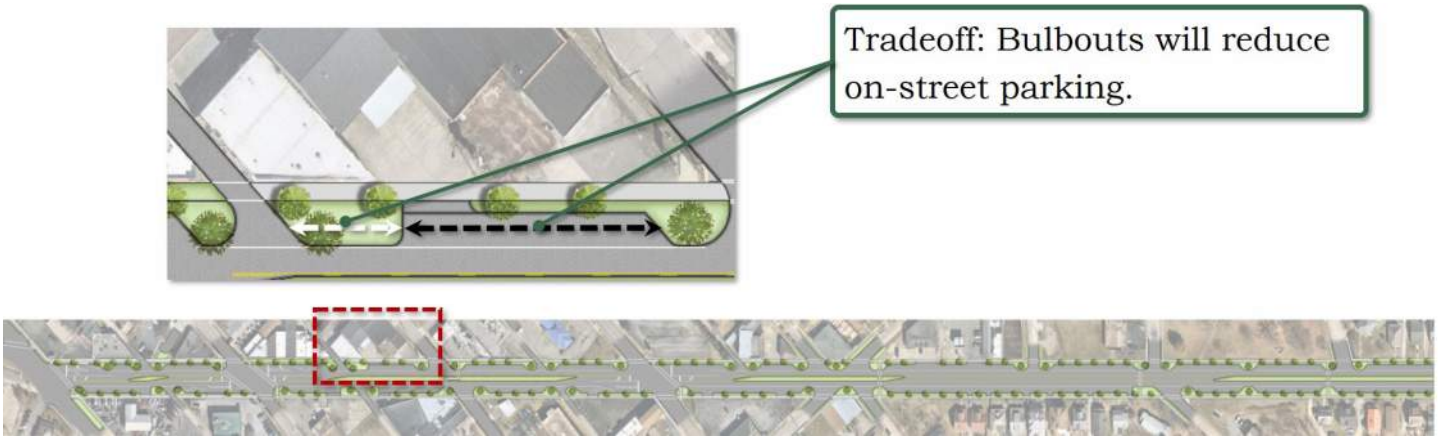


Figure 51. Bulbouts in Option 1

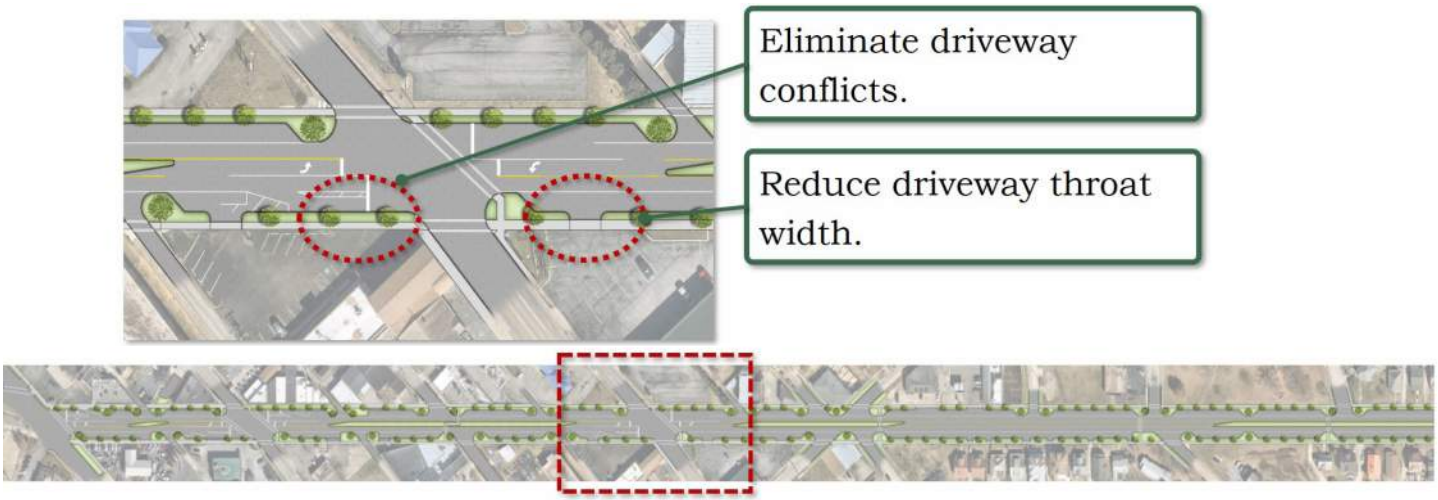


Figure 52. Driveway Reductions in Option 1

Presented in Figure 53, bulbouts placed strategically to align with medians will minimize crossing distances and provide refuge islands.

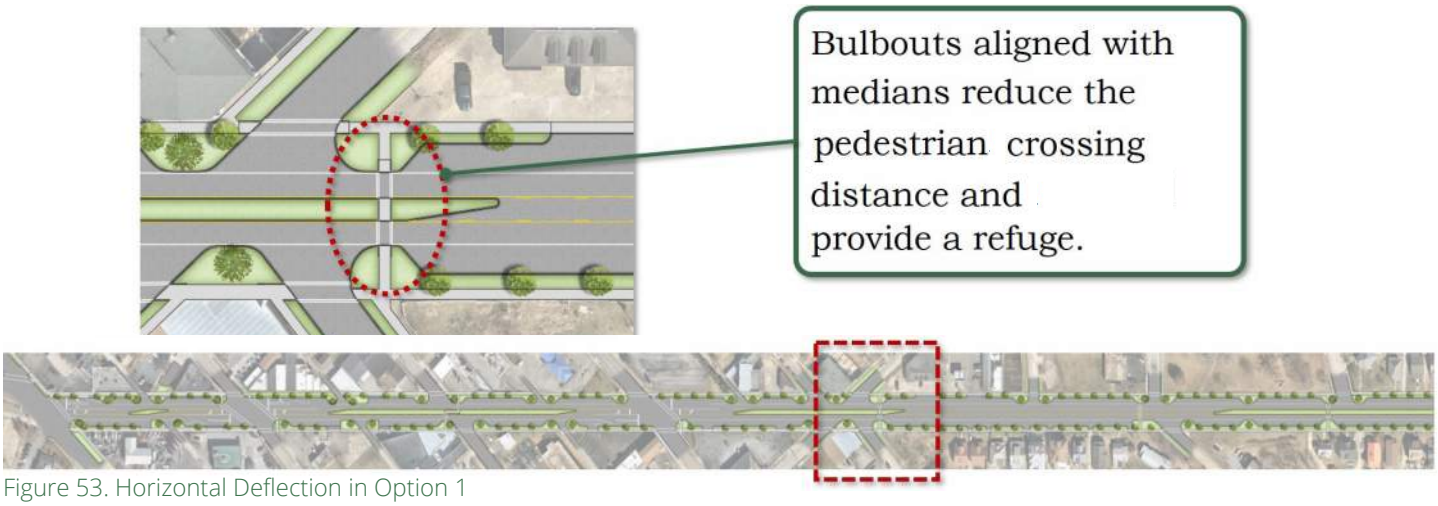


Figure 53. Horizontal Deflection in Option 1

From a mobility perspective, shown in Figure 54, these measures will also serve as traffic calming. By creating horizontal deflection, the vehicular experience will better match the context of East Center Street – slower traffic, more pedestrian comfort and more landscaping.

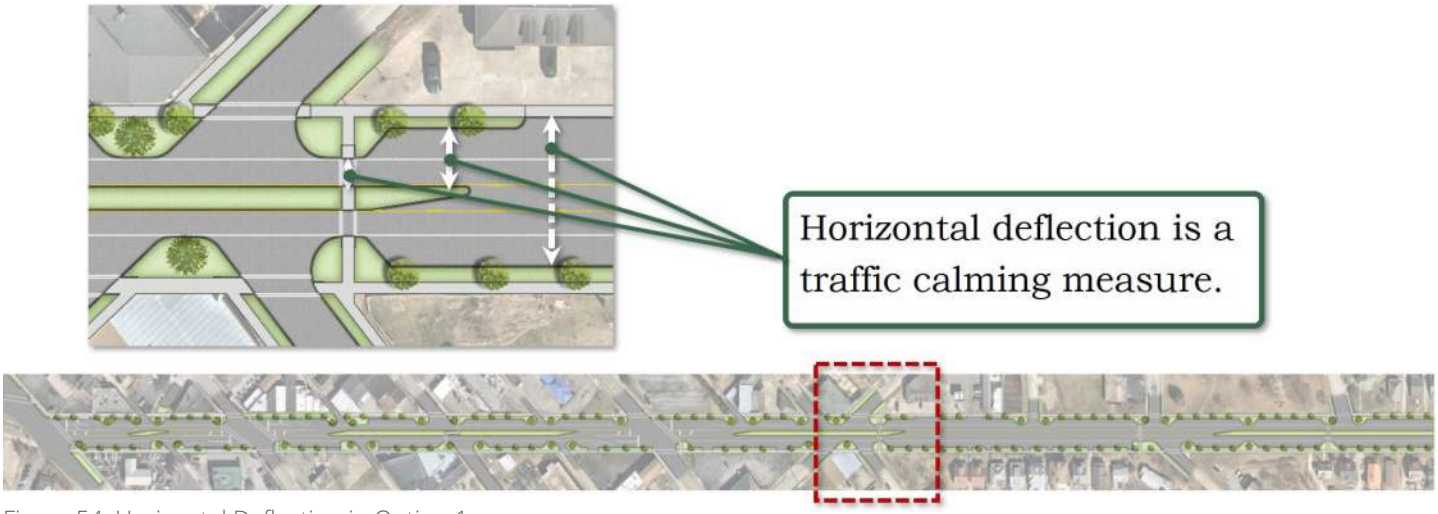


Figure 54. Horizontal Deflection in Option 1

Rapid rectangular flashing beacons, identified in Figure 55, can also be utilized to increase pedestrian visibility.

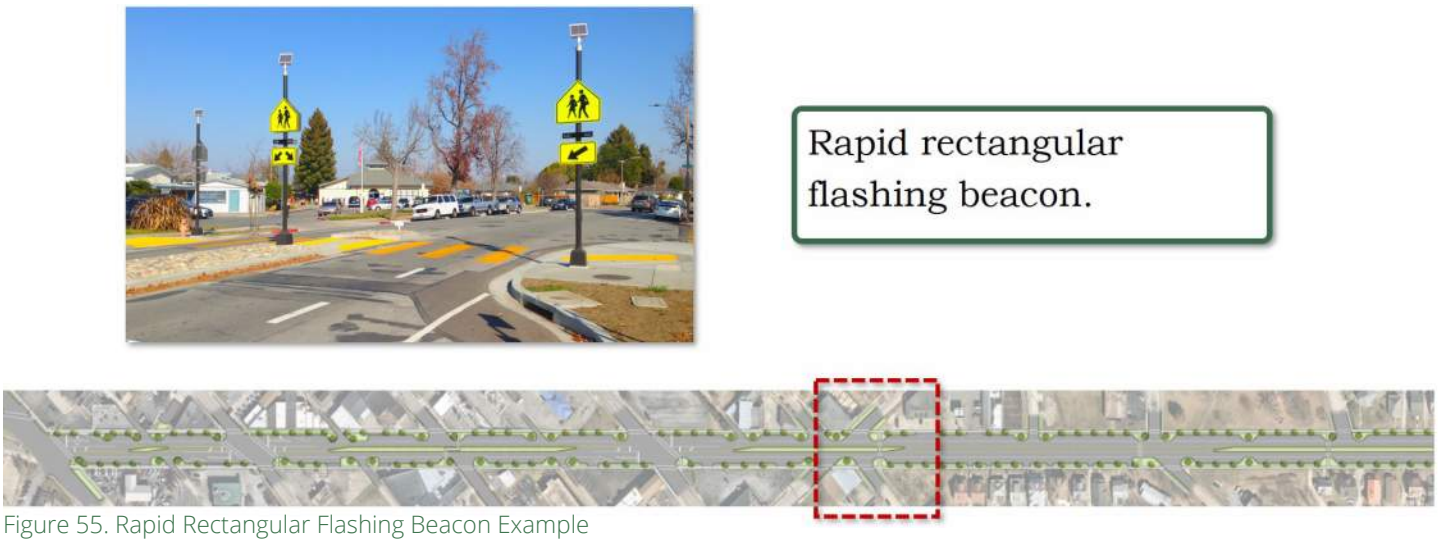


Figure 55. Rapid Rectangular Flashing Beacon Example

Currently, the merge from two westbound lanes to one has the potential to create a speeding condition where vehicles exceed the posted speed limit to "beat" the merge. Stakeholders have also identified the merge as a source of confusion for senior drivers exiting and entering the Renaissance Center. The placement also is at the crest of a vertical curve, which can lead to sight distance issues. By relocating the merge from Wateree Street to North Wilcox Drive, presented in Figure 56, these existing issues will be resolved.

Figure 56. Merge Relocation

Figure 57 shows the operation of the new transition from four lanes to three lanes. North Wilcox Drive will be the new intersecting street where the transition from two lanes in each direction to one lane in each direction occurs.

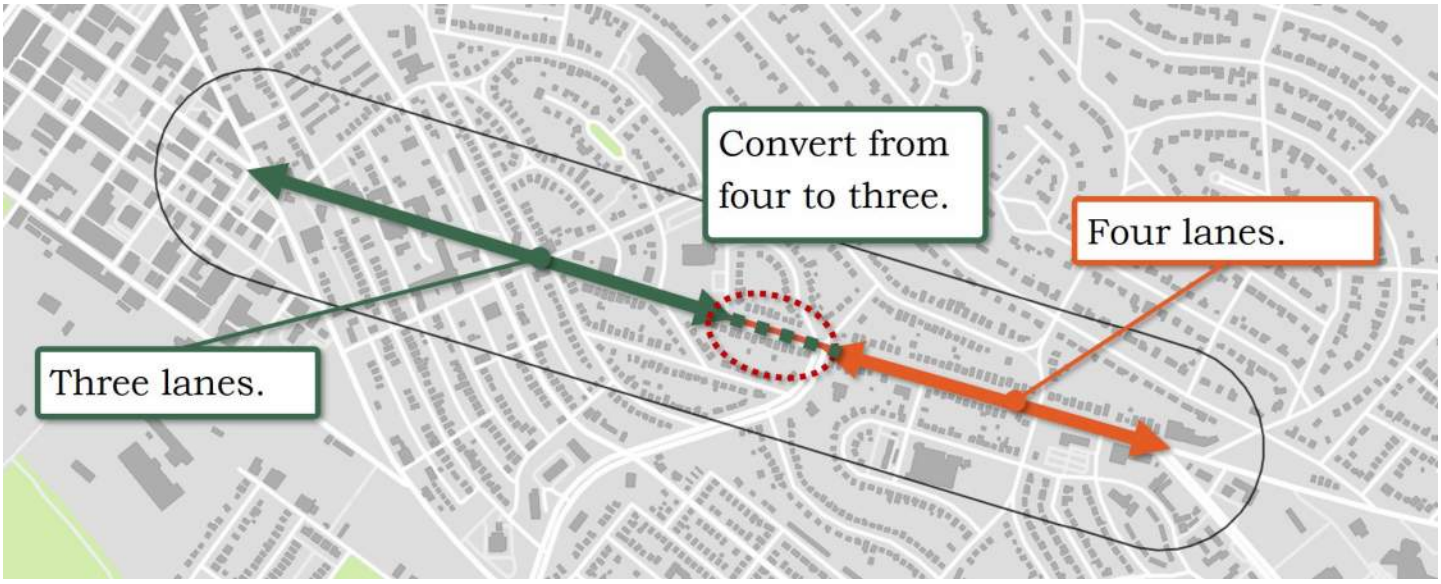


Figure 57. Merge Conversion

Option 2 - Three lanes enhanced with bike lane

Option 2 is similar to Option 1, but includes a bicycle lane between the bulbouts, on-street parking and the curb. These elements continue to provide horizontal deflection through alternating bulbouts and parking while still maintaining a more protected facility for cyclists because it is separated from the motor vehicle travel lane. This option is presented in Figure 58.

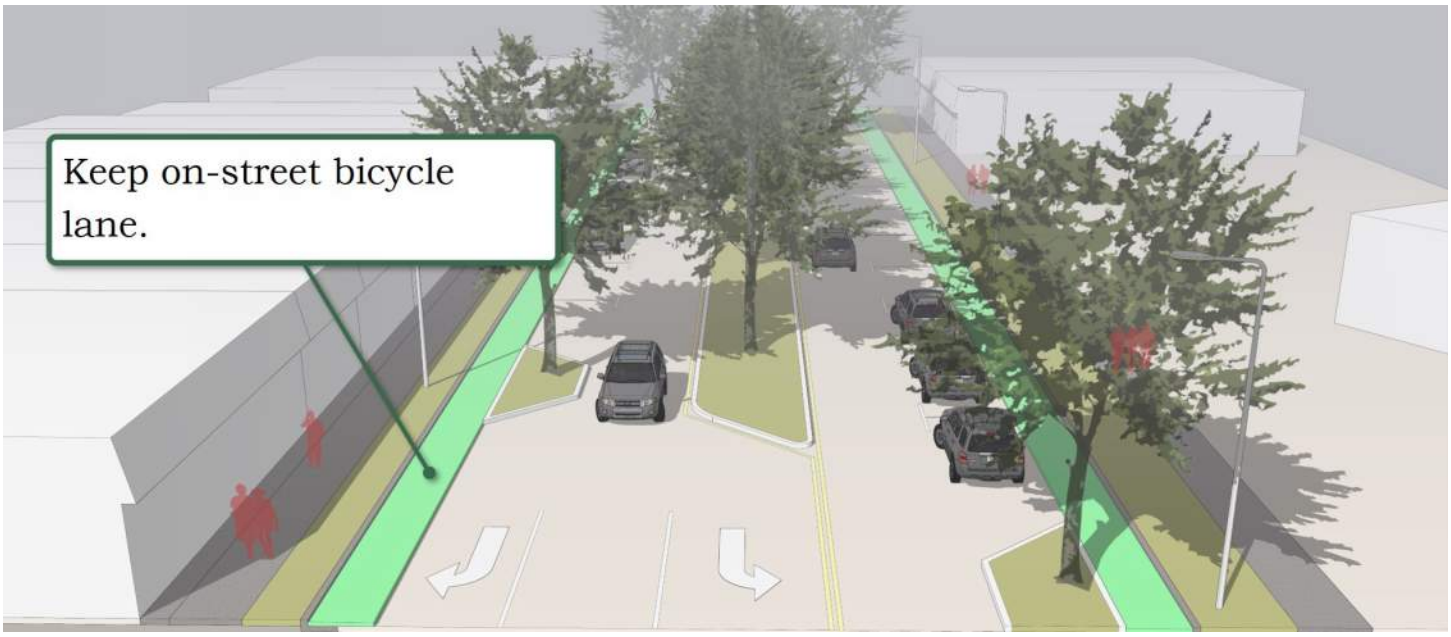


Figure 58. Option 2 West of North Wilcox Drive

The comparison between bike lanes and no bike lanes is shown in Figure 59. Including the bike lanes will provide less space for on-street parking and street trees.

Figure 59. Bike Lane Comparison

Option 3- Bike lanes with no median

Option 3 is similar to Option 2 in that it includes bulbouts, on-street parking and a bike lane, but different in that it does not include a raised median, instead maintaining the existing continuous center turn lane. This option is illustrated in Figure 60.

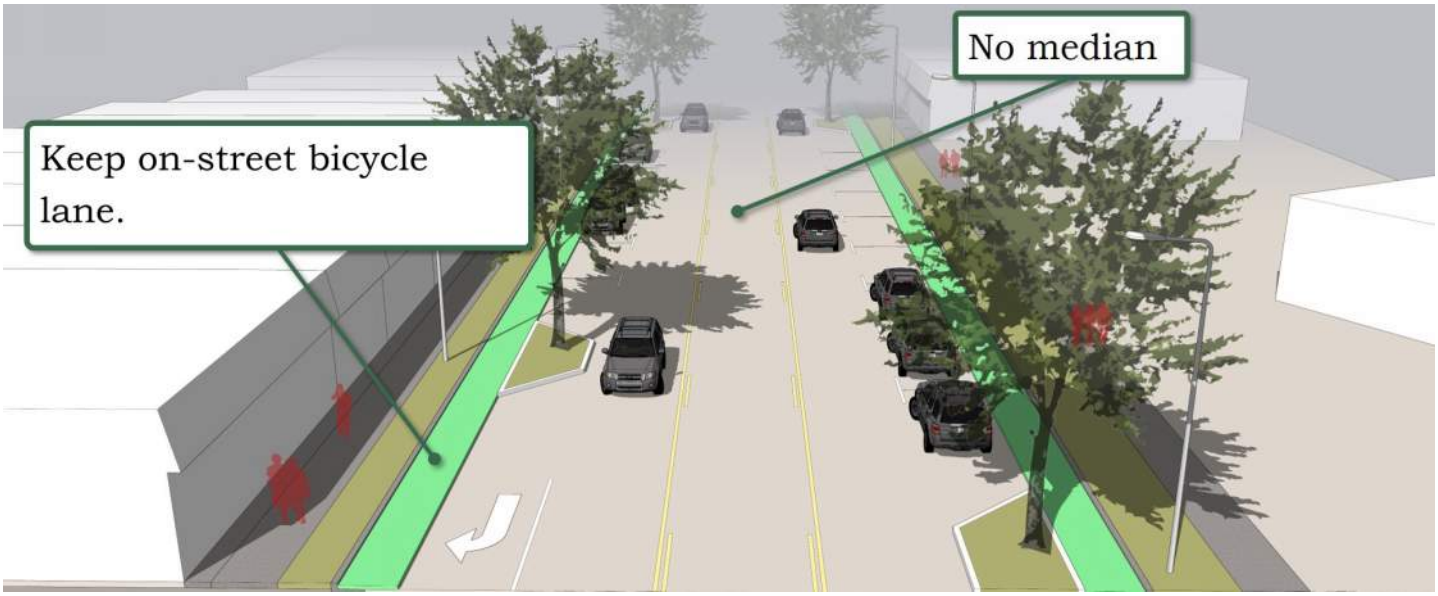


Figure 60. Option 3 West of North Wilcox Drive

A comparison of this option with the second option is presented in Figure 61. This option provides better access for side streets. The tradeoff is the loss of pedestrian refuge islands, and less horizontal deflection for traffic calming.

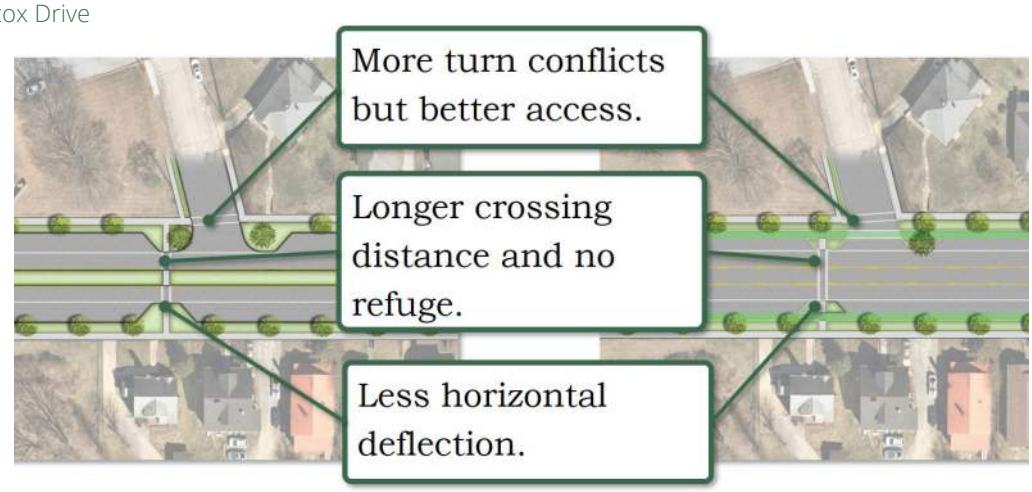


Figure 61. Option 3 West of North Wilcox Drive

Corridor Option Evaluation: West of North Wilcox Drive

The three options for East Center Street west of North Wilcox Drive were evaluated against four sets of criteria: mobility, safety, parking/access and community character.

Mobility

Generally speaking, Options 1 and 2 provide better mobility for motor vehicles because the raised median will prohibit left turns at many driveways and minor cross-streets, thereby reducing friction on east-west movement. The bulbouts and street trees will buffer the sidewalk from adjacent traffic, improving walking conditions for all three options. The presence of a raised median makes Options 1 and 2 slightly better for walking because they permit a refuge for mid-block crossing and will encourage appropriate (more safe) motor vehicle speeds. Option 1 performs poorly for cyclists because it removes the dedicated lane, while Options 2 and 3 slightly improve cycling conditions by introducing a buffer between the bike lane and motor vehicle travel lanes. All three options improve transit conditions by creating opportunities for enhanced passenger boarding at the bulbouts. Table 7 presents the mobility evaluation.

The following evaluations for both portions of East Center Street use the following items to describe their affect on safety, mobility, parking and access and community character. This legend will be utilized in Table 7 through Table 16

- ● Significant Positive Impact
- ◖ Positive Impact
- ⚠ Potential Concern
- ● No Impact
- ◖ Negative Impact
- ● Significant Negative Impact

Table 7. Mobility Evaluation

	Option 1 - Three Lanes Enhanced		Option 2 - Three Lanes Enhanced + Bike Lanes		Option 3 - Bike Lanes with No Median	
Motor Vehicles	●	• Adequate capacity • Medians will reduce friction from left turn lanes	●	• Adequate capacity • Medians will reduce friction from left turn lanes	◖	• Adequate capacity • Turn movement friction still present
Walking	●	• Street trees and bulbouts provide buffer • Midblock crossing + median refuge	●	• Street trees and bulbouts provide buffer • Midblock crossing + median refuge	◖	• Street trees and bulbouts provide buffer
Cycling	●	• Existing bike lane is removed	◖	• Bike lane is buffered from vehicle lanes	◖	• Bike lane is buffered from vehicle lanes
Transit	◖	• Bulbouts provide opportunity for transit stop • Adequate crossing opportunities	◖	• Bulbouts provide opportunity for transit stop • Adequate crossing opportunities	◖	• Bulbouts provide opportunity for transit stop • Adequate crossing opportunities

Safety

The presence of a raised median in Options 1 and 2 will significantly improve safety by eliminating many left turn movements, a significant cause of crashes that result in death, injury and property damage. All three options include provisions for street trees and other landscaping elements that could create sight distance issues. This condition should be carefully considered when installing landscaping within the corridor.

Excessive motor vehicle speeds are the leading cause of motor vehicle crashes with pedestrians in the United States. Therefore, strategies that calm traffic and encourage appropriate motor vehicle speeds are beneficial for walking. Options 1 and 2 are slightly better than Option 3 because the raised median will provide better traffic calming than the bulbouts alone. Similarly, the median makes Options 1 and 2 better for safe crossing opportunities because they introduce a midblock refuge. Table 8 presents the safety evaluation.

Table 8. Safety Evaluation

	Option 1 - Three Lanes Enhanced		Option 2 - Three Lanes Enhanced + Bike Lanes		Option 3 - Bike Lanes with No Median	
Turn movement conflicts	●	• Medians will direct left turns to major intersections • Excessive driveway cuts are eliminated	●	• Medians will direct left turns to major intersections • Excessive driveway cuts are eliminated	●	• Excessive driveway cuts are eliminated
Sight distance	⚠	• Street trees and landscaping create potential for sight distance conflicts	⚠	• Street trees and landscaping create potential for sight distance conflicts	⚠	• Street trees and landscaping create the potential for sight distance conflicts
Motor vehicle speeds	●	• Medians and bulbouts create horizontal deflection to encourage appropriate motor vehicle speeds	●	• Medians and bulbouts create horizontal deflection to encourage appropriate motor vehicle speeds	◐	• Bulbouts create horizontal deflection but are significantly less effective without the median
Safe crossing	●	• Bulbouts minimize crossing distance • Medians provide up to four additional crossing opportunities	●	• Bulbouts minimize crossing distance • Medians provide up to four additional crossing opportunities	◐	• Bulbouts minimize crossing distance

Parking and Access

The presence of bulbouts will result in the removal of some on-street parking for all three options. However, each option also proposes the closure of some driveways on East Center Street, which creates opportunities for new on-street spaces. Therefore, the net impacts to parking are likely negligible.

As many as 15 driveways that provide direct access to East Center Street from adjacent property could be closed. However, the corridor has a robust network of connecting streets that provides direct access to each of these properties, lessening the impact of the closures. The presence of a raised median for Options 1 and 2 could prohibit left turns at as many as 27 driveways and minor cross-streets. Table 9 presents the parking and access evaluation.

Table 9. Parking and Access Evaluation

	Option 1 - Three Lanes Enhanced		Option 2 - Three Lanes Enhanced + Bike Lanes		Option 3 - Bike Lanes with No Median	
Parking	●	• Some parking may be affected by bulbouts	?	• Bicycle lane may create conflicts with parking	?	• Bicycle lane may create conflicts with parking
Driveway impacts*	◐	• Up to 15 driveways closed	◐	• Up to 15 driveways closed	◐	• Up to 15 driveways closed
Left turn impacts*	◐	• Left turns prohibited at up to 27 driveways and cross streets	◐	• Left turns prohibited at up to 27 driveways and cross streets	●	• No left turns prohibited at driveways and cross streets

*Direct parcel access is still available through parallel side streets

Community Character

The presence of medians and bulbouts will create many opportunities for landscaping, branding and placemaking elements. In this respect, Options 1 and 2 are superior to Option 3 because it lacks a raised median. Similarly, the presence of a bike lane will result in smaller bulbouts, reducing the opportunity for landscaping and placemaking, giving Option 1 superiority over the other two options for this criteria. Table 10 presents the community character evaluation.

Table 10. Community Character Evaluation

	Option 1 - Three Lanes Enhanced		Option 2 - Three Lanes Enhanced + Bike Lanes		Option 3 - Bike Lanes with No Median	
Landscaping and placemaking	●	• Bulbouts and medians create many opportunities for landscaping, branding and placemaking elements	●/◐	• Bulbouts and medians create many opportunities for landscaping, branding and placemaking elements • Presence of bike lane may limit ability of bulbouts for placemaking and landscaping	◐/●	• Presence of bike lane may limit ability of bulbouts for placemaking and landscaping

Table 11 provides an overall evaluation matrix for East Center Street west of North Wilcox Drive.

Table 11. West of North Wilcox Drive Evaluation

		Option 1 - Three Lanes Enhanced	Option 2 - Three Lanes Enhanced + Bike Lanes	Option 3 - Bike Lanes with No Median
Mobility	Motor vehicles	●	●	◐
	Walking	●	●	◐
	Bicycling	●	◐	◐
	Transit	◐	◐	◐
Safety	Turn movement conflicts	●	●	●
	Sight distance	⚠	⚠	⚠
	Motor vehicle speeds	●	●	◐
	Safe crossing	●	●	◐
Parking and Access	Parking	●	⚠	⚠
	Driveway Impacts	◐	◐	◐
	Left turn impacts	◐	◐	●
	Landscaping/Placemaking	●	●◐	◐●

East of North Wilcox Drive

The four options for the section east of North Wilcox Drive are:

1. Mini bulbouts
2. Continuous bike lane
3. Continuous landscaped median and turn lane
4. On-street parking and bulbouts

Option 1 - Mini bulbouts

Option 1 includes the following elements:

- Bulbouts alternate with on-street parking
- Possible space for outdoor dining
- Bulbouts, medians and crosswalks align

Option 1 is illustrated in Figure 62. It includes the placement of mini-bulbouts within the existing shoulder on both sides of the road. The operation of the mini bulbouts is shown in Figure 63. This option does not modify the travel lanes, as the mini-bulbouts are located within the width of the shoulder.

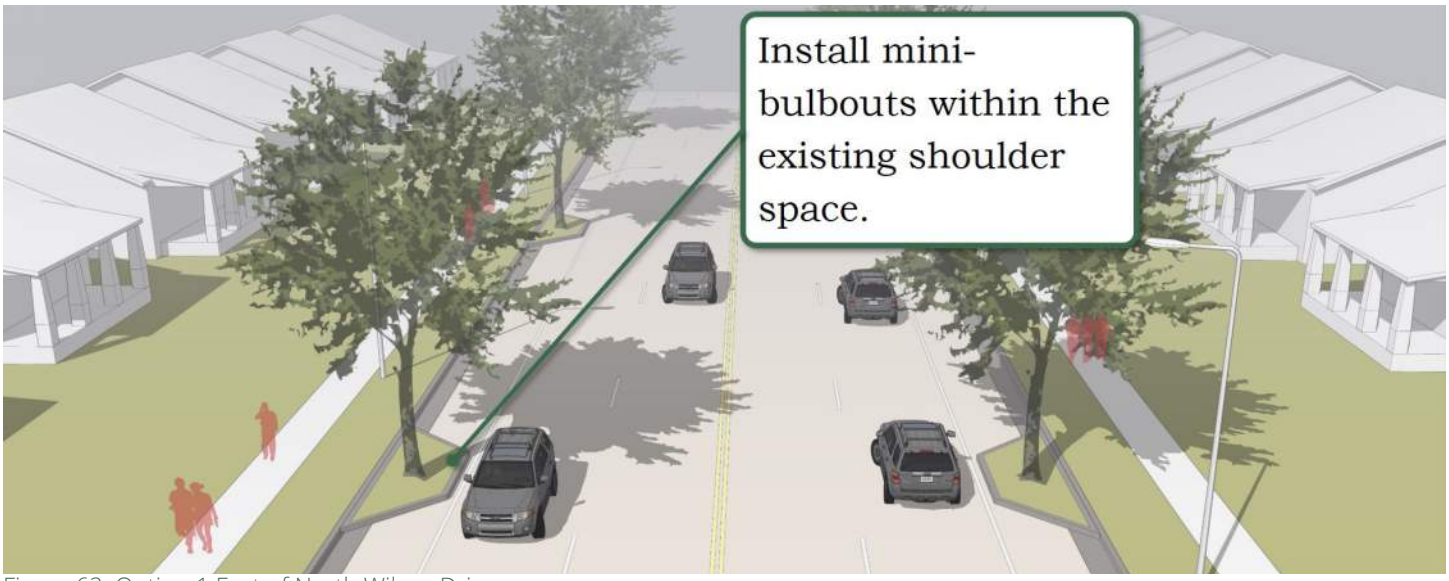


Figure 62. Option 1 East of North Wilcox Drive

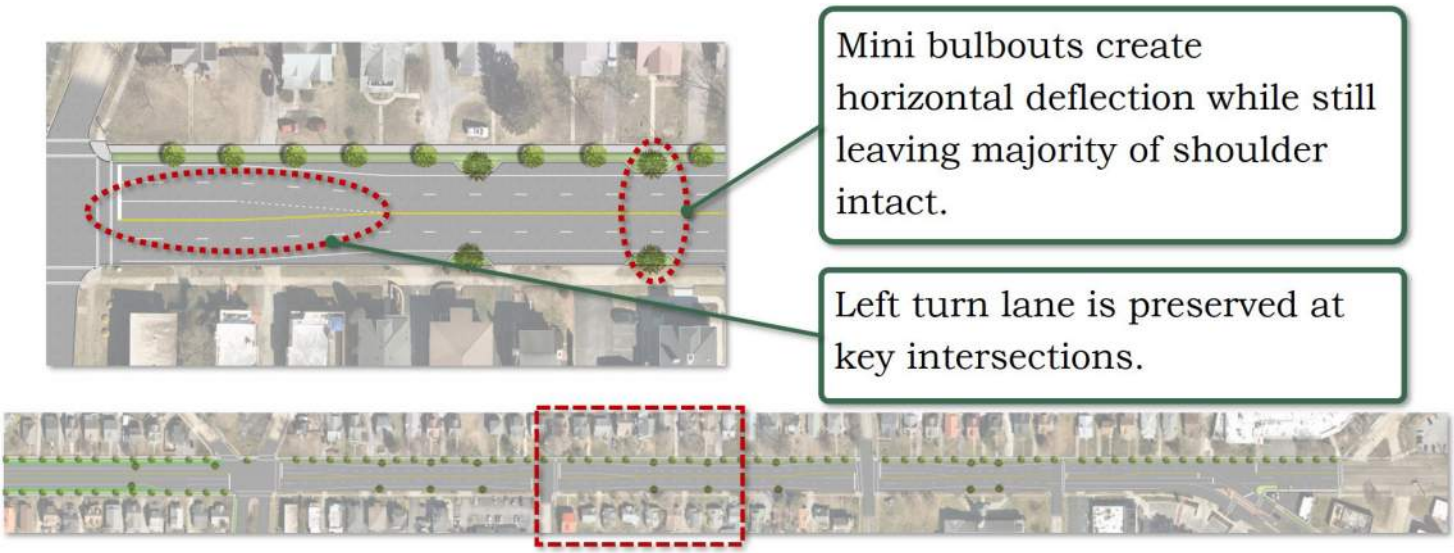


Figure 63. Mini Bulbouts in Option 1

Option 2 - Continuous bike lane

Option 2 extends the existing bike lanes beyond their terminus at the merge east to Fort Henry Drive. The existing shoulders are replaced with bike lanes; this option is illustrated in Figure 64. East Center Street currently has bike lanes that begin at Yadkin Street and extend west past the project limits. This option will result in continuous bike lanes from downtown to Fort Henry Drive as shown in Figure 65.

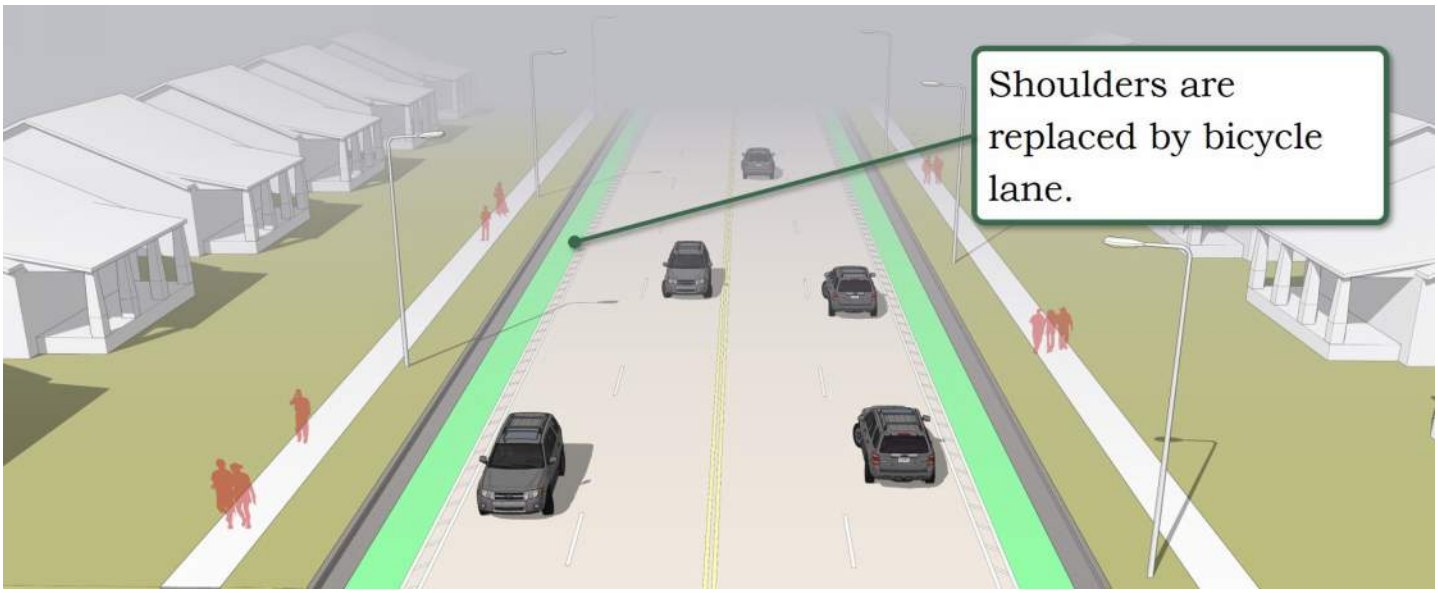


Figure 64. Option 2 East of North Wilcox Drive

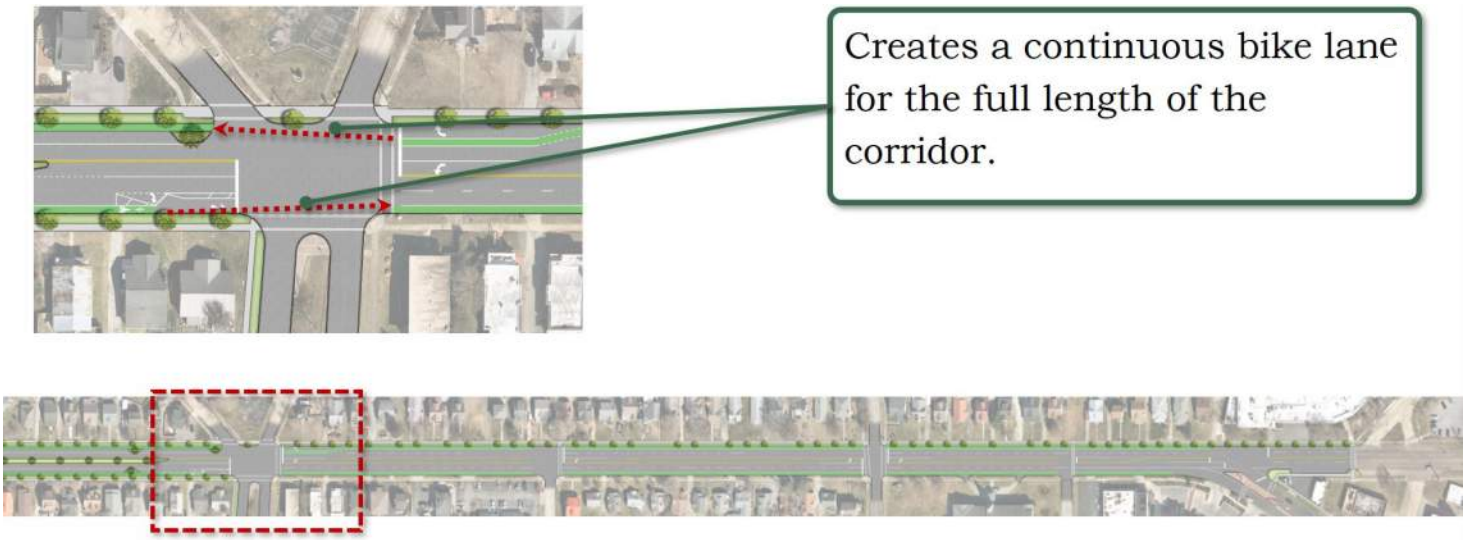


Figure 65. Continuous Bike Lane

Option 3 - Continuous landscaped median and turn lane

Option 3 introduces a continuous raised landscaped median that divides eastbound traffic and westbound traffic. To accommodate the median, travel lanes in both directions shift outward and replace the existing shoulder, illustrated in Figure 66.

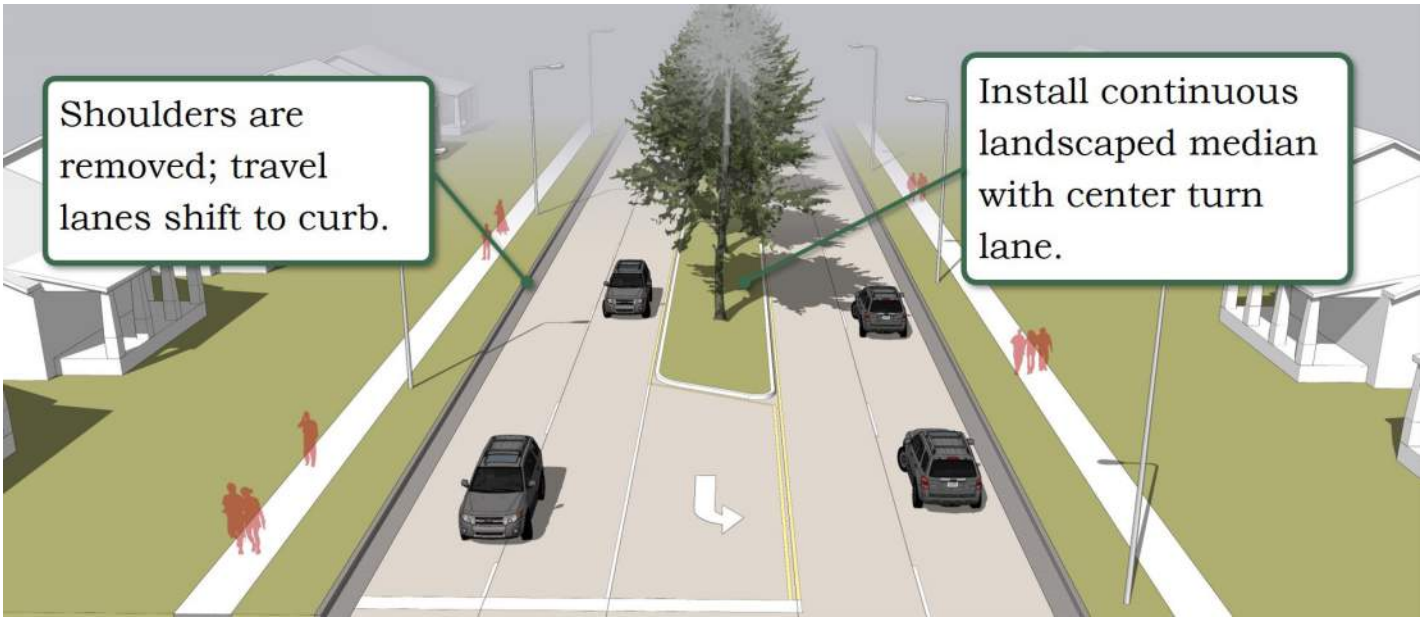


Figure 66. Option 3 - East of North Wilcox Drive

This option would present opportunities for reduced crossing distances, improving the pedestrian experience. The median is replaced by a left turn lane at signalized intersections. This would create horizontal deflection, a traffic calming measure, and is demonstrated in Figure 67.

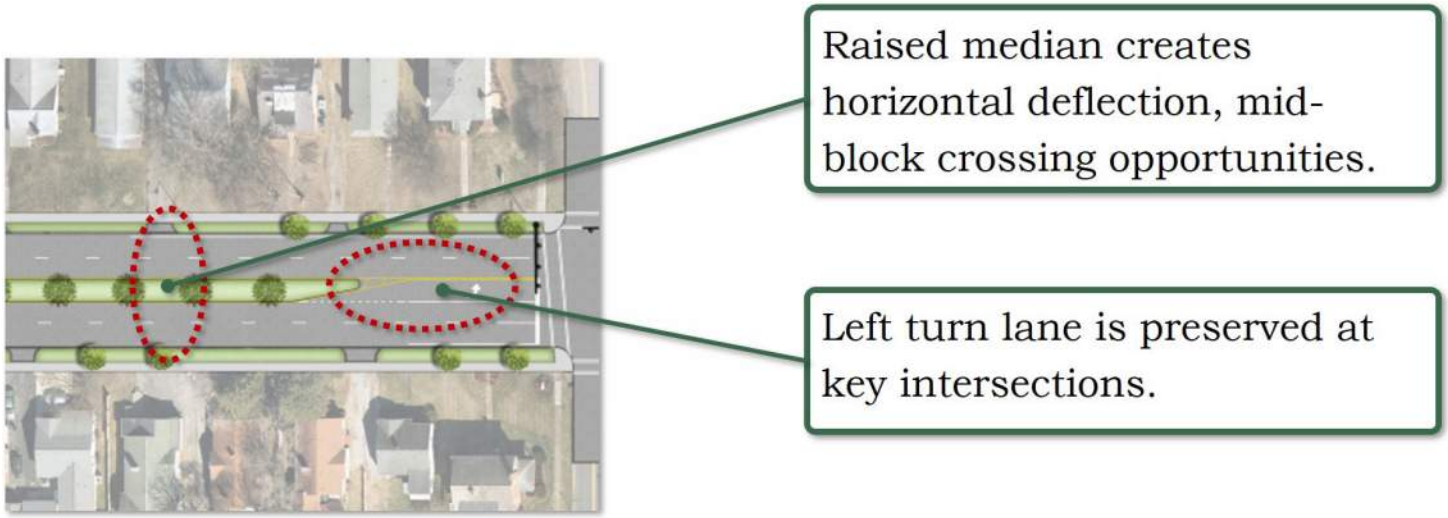


Figure 67. Option 3 - Horizontal Deflection

Option 4 - On-street parking and bulbouts

Option 4 shifts all four travel lanes to one side of the road and installs on-street parking and full size bulbouts in the residual pavement. It eliminates the existing shoulders on both sides of the road. The on-street parking and bulbouts may alternate from one side of the street to the other along varying sections of the corridor. This option is presented in Figure 68.

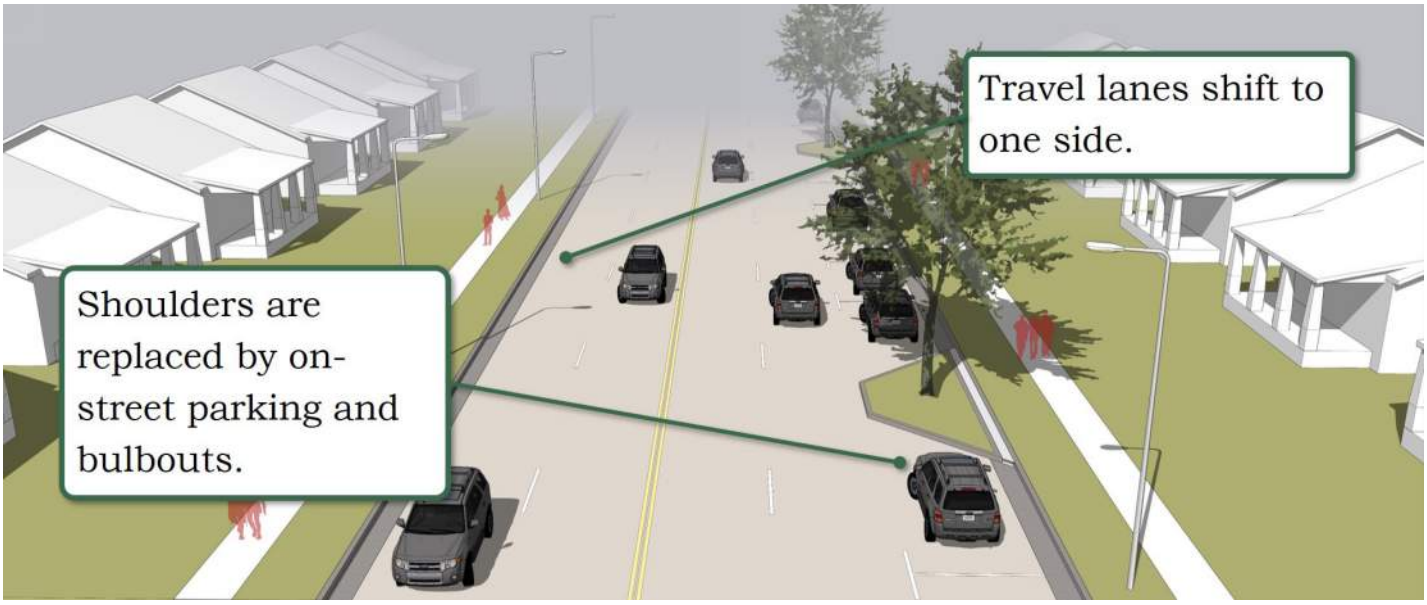


Figure 68. Option 4 - East of North Wilcox Drive

By installing a bulbouts and parking on one side of the roadway, a shift will be created that can serve as traffic calming. The bulbouts also provide opportunities for some landscaping. This idea is presented in Figure 69.

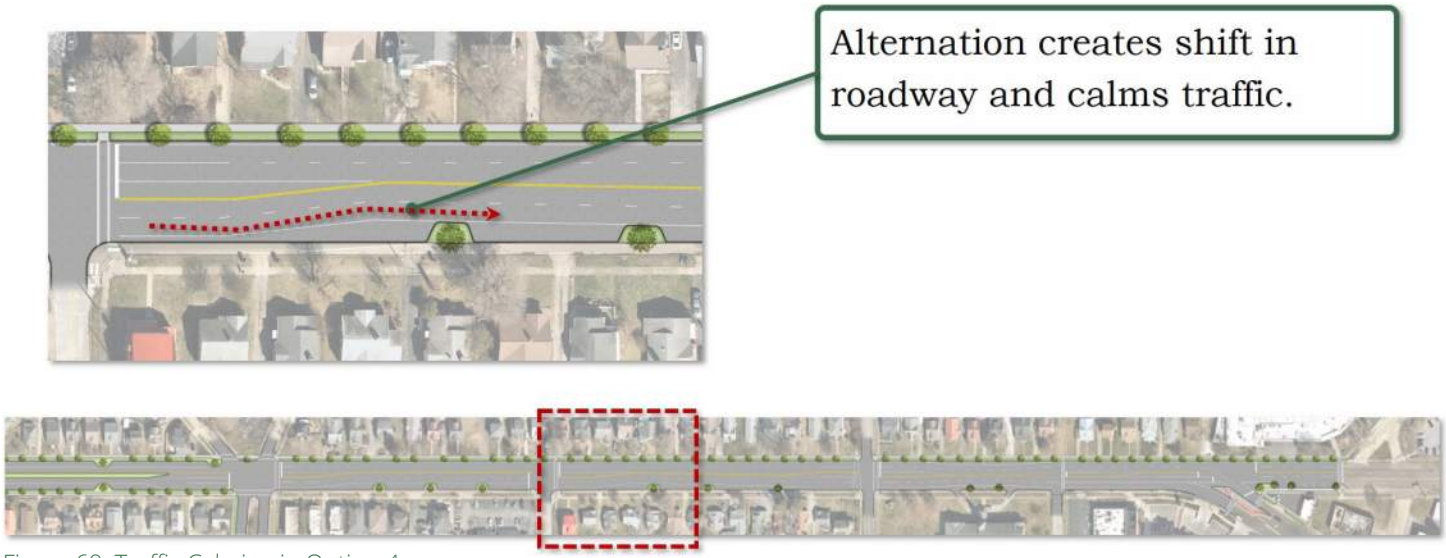


Figure 69. Traffic Calming in Option 4

Corridor Option Evaluation: East of North Wilcox Drive

The four options for East Center Street east of North Wilcox Drive were evaluated against four sets of criteria: mobility, safety, parking/access and community character.

Mobility

Option 3 provides better mobility for motor vehicles because the raised median will prohibit left turns at many driveways and minor cross-streets, thereby reducing friction on east-west movement. The bulbouts and street trees, included in Options 1 and 4, will buffer the sidewalk from adjacent traffic, improving walking conditions, while the presence of a raised median makes Option 3 slightly better for walking because it permits a refuge for mid-block crossing.

Option 2 is the best option for cyclists because it introduces a dedicated on-street bike lane. Options 1 and 4 improve transit conditions by creating opportunities for enhanced passenger boarding at the bulbouts. Table 12 presents the mobility evaluation.

Table 12. Mobility Evaluation

	Option 1 - Mini Bulbouts		Option 2 - Continuous Bike Lane		Option 3 - Continuous Landscaped median + Turn Lane		Option 4 - On-Street Parking + Bulbouts	
Motor Vehicles	●	• No change in capacity	●	• No change in capacity	◖	• Medians will reduce left turn friction	●	• No change in capacity
Walking	◖	• Mini bulbouts will increase separation with roadside environment	●	• No change in roadside environment	◖	• Medians provide opportunity for mid-block crossing	◖	• Bulbouts will increase separation with roadside environment
Cycling	◖	• Mini bulbouts will eliminate possibility of cycling in shoulder	◖	• Dedicated facility for cycling	◖	• Shoulder is eliminated	◖	• Shoulder is eliminated
Transit	◖	• Bulbouts provide opportunity for transit stop	●	• No change	●	• No change	◖	• Bulbouts provide opportunity for transit stop

Safety

The presence of a raised median in Option 3 will improve safety by eliminating many left turn movements, a significant cause of crashes that result in death, injury and property damage. Options 1 and 4 (bulbouts) and Option 3 (median) include provisions for street trees and other landscaping elements that could create sight distance issues. This condition should be carefully accounted for when installing landscaping within the corridor.

As addressed in the previous section, strategies that calm traffic and encourage appropriate motor vehicle speeds are beneficial for walking. In this respect, Option 4 has the potential for significant impact on pedestrian safety by introducing a continuous shift in motor vehicle through movement by continuously alternating the bulbouts and on-street parking from one side of the street to the other. Option 3 is also better for safe crossing because it introduces a midblock refuge, while Option 4 could reduce crossing distance by aligning mid-block crossing with bulbouts. Table 13 presents the safety evaluation.

Table 13. Safety Evaluation

	Option 1 - Mini Bulbouts		Option 2 - Continuous Bike Lane		Option 3 - Continuous Landscaped median + Turn Lane		Option 4 - On-Street Parking + Bulbouts	
Turn movement conflicts	●	• No change	●	• No impact	●	• Medians will direct left turns to major intersections	●	• No change
Sight distance	⚠	• Street trees and landscaping create the potential for sight distance conflicts	●	• No impact	⚠	• Street trees and landscaping create the potential for sight distance conflicts	⚠	• Street trees and landscaping create the potential for sight distance conflicts
Motor vehicle speeds	◖	• Mini bulbouts create horizontal deflection	●	• No impact	◖	• Medians create horizontal deflection	●	• Alternation creates shift in roadway
Safe crossing	●	• No significant impact	●	• No impact	◖	• Median creates opportunity for two-stage cross + reduced crossing width	● ◖	• Bulbouts reduce crossing distance

Parking and Access

The existing shoulders on this section of East Center Street are not formally designated for on-street parking, although they are frequently used as such. As a result, Options 2 and 3 have the greatest impact on parking because they completely eliminate the shoulders. Option 1 keeps the shoulders, but will have a minor impact on parking by introducing mini-bulbouts in some locations. Option 4 provides full-size on-street parking, which is a positive, but is limited to one side of the street, effectively cutting the amount of parking in half.

None of the options impact existing driveways. Option 3 introduces a raised median, which eliminates left turns at driveways. Table 14 presents the parking and access evaluation.

Table 14. Parking and Access Evaluation

	Option 1 - Mini Bulbouts		Option 2 - Continuous Bike Lane		Option 3 - Continuous Landscaped Median + Turn Lane		Option 4 - On-Street Parking + Bulbouts	
Parking	● ◐	• Presence of bulbouts will have a minor impact on parking in shoulder	◐	• Bike lane will eliminate parking on shoulder	◐	• Median will eliminate parking in shoulder	◐ ◐	• Replaces shoulder parking with dedicated parking on one side of street
Driveway Impacts	⚠	• Street trees and landscaping create the potential for sight distance conflicts	●	• No impact	⚠	• Street trees and landscaping create the potential for sight distance conflicts	⚠	• Street trees and landscaping create the potential for sight distance conflicts
Left turn Impacts	●	• No impact	●	• No impact	◐	• Median will eliminate left turns from driveways	●	• No impact

Community Character

The presence of medians and bulbouts will create opportunities for landscaping, branding and placemaking elements. Option 3 is slightly superior in this respect because it includes a full sized raised median, while Options 1 (mini-bulbouts) and 4 (full size bulbouts on one side only) offer more limited opportunities. Option 2 provides no additional opportunities for landscaping or placemaking. Table 15 presents the community character evaluation.

Table 15. Community Character Evaluation

	Option 1 - Mini Bulbouts		Option 2 - Continuous Bike Lane		Option 3 - Continuous Landscaped median + Turn Lane		Option 4 - On-Street Parking + Bulbouts	
Landscaping and placemaking	◐	• Bulbouts create opportunities for landscaping elements	●	• No impact	◐	• Medians create opportunities for landscaping elements	◐	• Bulbouts create opportunities for landscaping elements

Table 16 provides an overall evaluation matrix for East Center Street east of North Wilcox Drive.

Table 16. East of North Wilcox Drive Evaluation

		Option 1 - Mini Bulbouts	Option 2 - Continuous Bike Lane	Option 3 - Continuous Landscaped median + Turn Lane	Option 4 - On-Street Parking + Bulbouts
Mobility	Motor vehicles	●	●	◖	●
	Walking	◖	●	◖	◖
	Bicycling	◖	◖	◖	◖
	Transit	◖	●	●	◖
Safety	Turn movement conflicts	●	●	●	●
	Sight distance	⚠	●	⚠	⚠
	Motor vehicle speeds	◖	●	◖	●
	Safe crossing	●	●	◖	●◖
Parking and Access	Parking	●◖	◖	◖	◖◖
	Driveway Impacts	⚠	●	⚠	⚠
	Left turn impacts	●	●	◖	●
	Landscaping/ Placemaking	◖	●	◖	◖

Land Use Options

In addition to the corridor options that focus on transportation and mobility, two potential land use options were evaluated. The baseline conditions analysis reveals that smaller parcel sizes and stable improvement to land value ratios west of Yadkin Street limit redevelopment potential to mostly smaller scale uses on the west end of the corridor.

Land Use Option 1

The first land use option, presented in Figure 70, reinforces the corridor's strengths and focuses limited redevelopment opportunities in the areas that need it the most. This option reinforces stable anchors including the Renaissance Center and the commercial and civic uses at the intersection with Fort Henry Drive. It expands the office and services uses between Wilcox Drive and Fort Henry Drive, which has witnessed the successful repurposing of homes into small businesses, such as Performance Medicine.

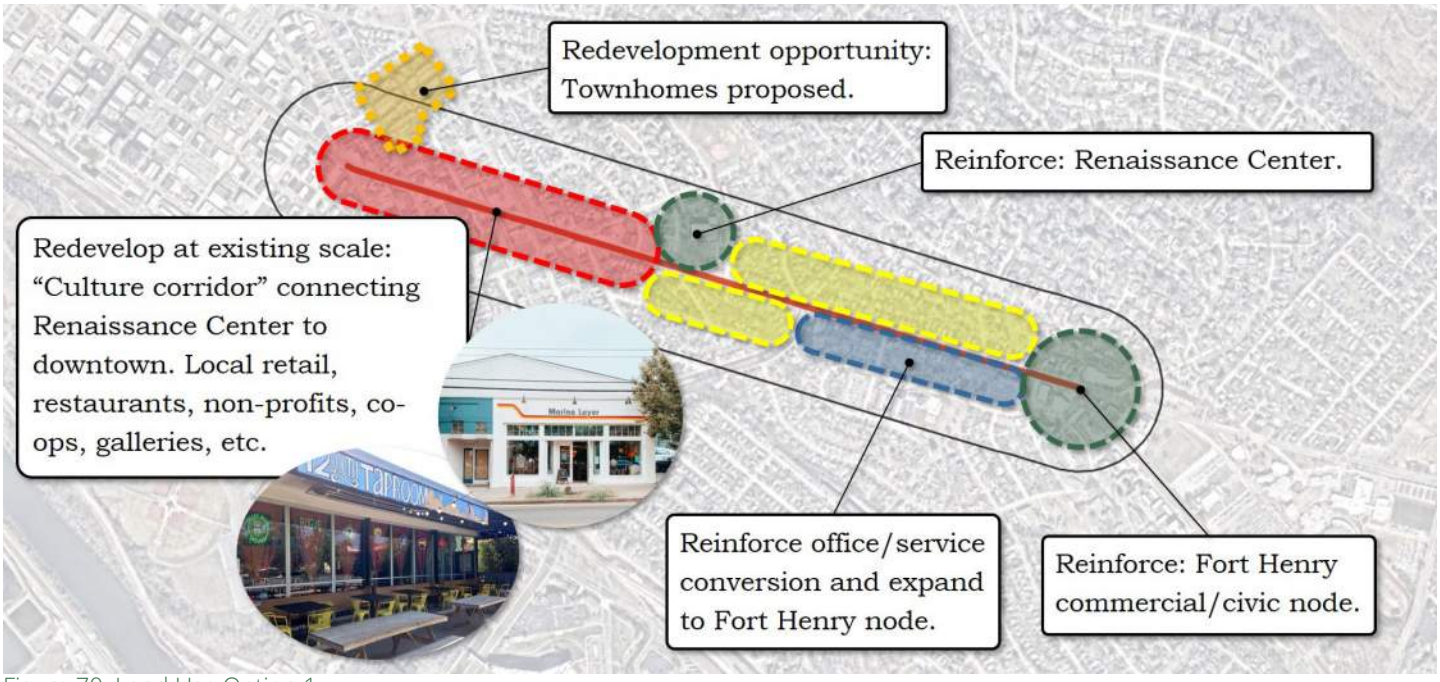


Figure 70. Land Use Option 1

Redevelopment is focused on the section of the corridor between Yadkin Street and downtown, which envisions redevelopment and reuse at the existing scale, primarily single story and single use structures and some mini strip centers. Recommended uses build on the creative energy of the Renaissance Center, creating a "culture corridor" extending from downtown to include local restaurants, galleries and artisans, local retail and the like. Figure 71 is an image of the existing Renaissance Center, and Figure 72 is an image of the Fort Henry commercial/civic node.

Figure 71. Renaissance Center

Figure 72. Fort Henry Commercial/Civic Node

Land Use Option 2

Land use option two is similar to the first option, but envisions the consolidation of parcels at the intersection of Sullivan Street to redevelop at a larger scale to include mid-rise urban mixed-use and multifamily, as illustrated in Figure 73. These uses will anchor the western end of the corridor and provide commercial opportunities to new businesses as well as increased residential density. Recent anecdotal evidence suggests demand for new multifamily housing in close proximity to downtown Kingsport. For example, the Town Park Lofts, a four-story multifamily development with one, two and three bedroom units recently opened on the block formed by Sullivan, Clinchfield and Press Street northwest of the circle. It is fully leased.

Figure 73. Land Use Option 2

Public Feedback on Corridor Options

The draft corridor and land use options were presented in-person at the public workshop and virtually within the online survey. These two formats provided the project team with valuable feedback.

Public workshop attendees shared their likes, dislikes, questions and opinions on the different scenarios and options. The online survey had approximately 50 respondents; the survey had 11 questions that referenced the renderings of each scenario option and provided opportunities for feedback and comment on each.

The survey asked respondents to identify their current interaction and use level with East Center Street to understand what groups of individuals are represented. As shown in Figure 74, most respondents are frequent users of East Center Street. Business owners and homeowners that live along or near the corridor were underrepresented within the survey.

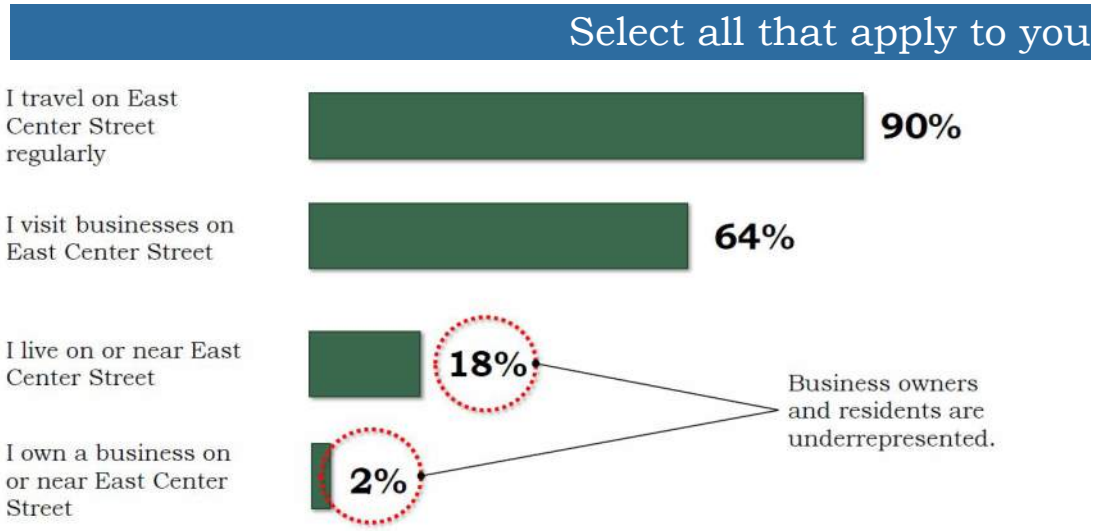


Figure 74. Survey Response - Current Use of East Center Street

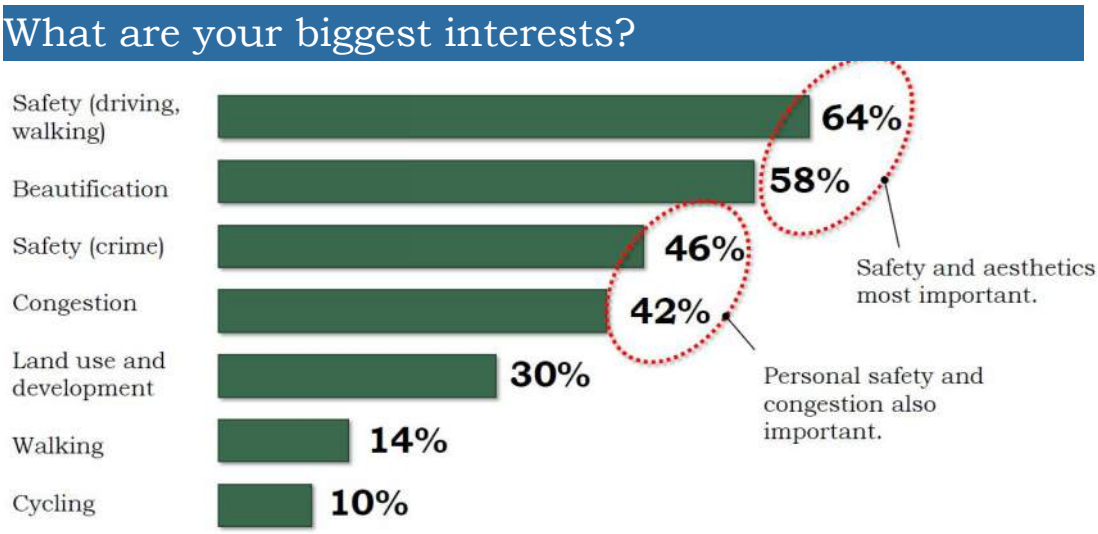


Figure 75. Survey Response - Biggest Interests

To better understand priorities, the respondents were asked to identify their key interests in the corridor. As shown in Figure 75, Safety and beautification were the two most important factors, followed by crime and congestion. Walking and cycling were selected by participants the least frequently. This indicates a priority should be given to improving vehicular and pedestrian safety as well as providing aesthetic opportunities along the corridor.

Looking specifically at the corridor options for East Center Street west of North Wilcox Drive, survey participants were able to view each option and select what they like about each. An equal number of participants selected Option 1 (three lanes enhanced) and Option 2 (three lanes enhanced with bike lane), with Option 3 being the least popular; these results are presented in Figure 76.

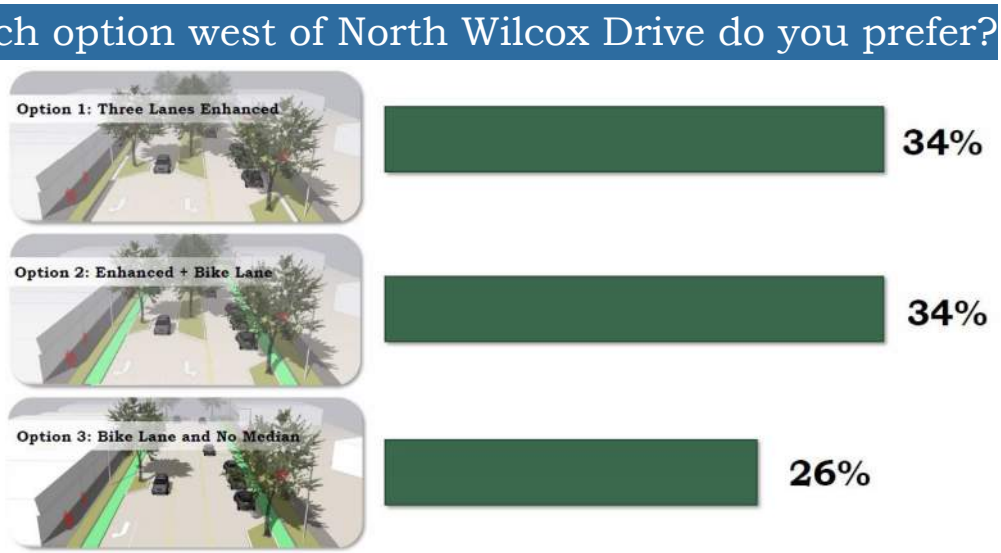


Figure 76. Survey Response - West of North Wilcox Drive

When asked about Option 1, respondents liked the landscaping shown in the rendering, followed by on-street parking and bulbouts. This is displayed in Figure 77,

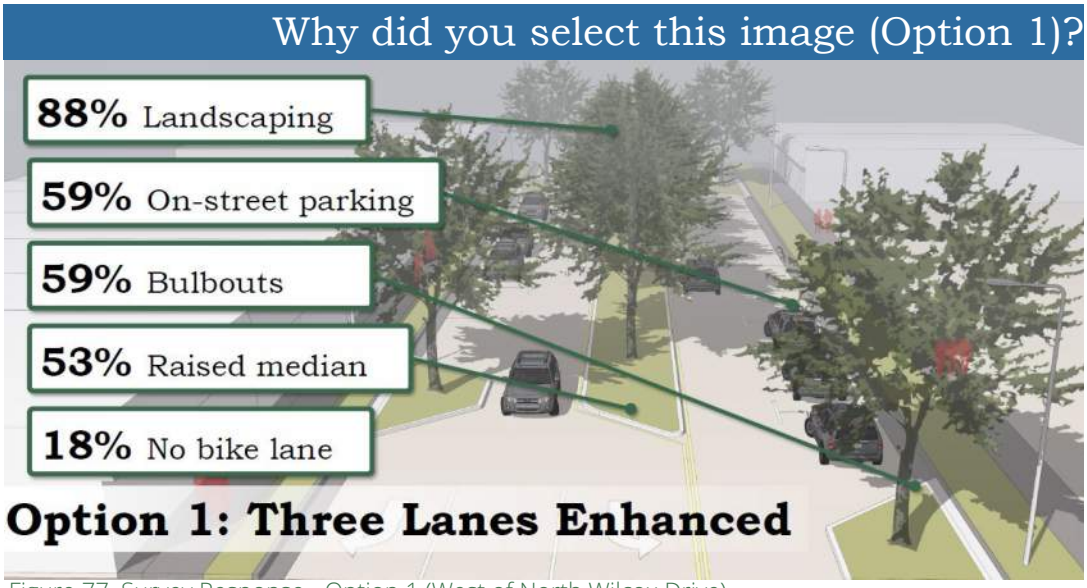


Figure 77. Survey Response - Option 1 (West of North Wilcox Drive)

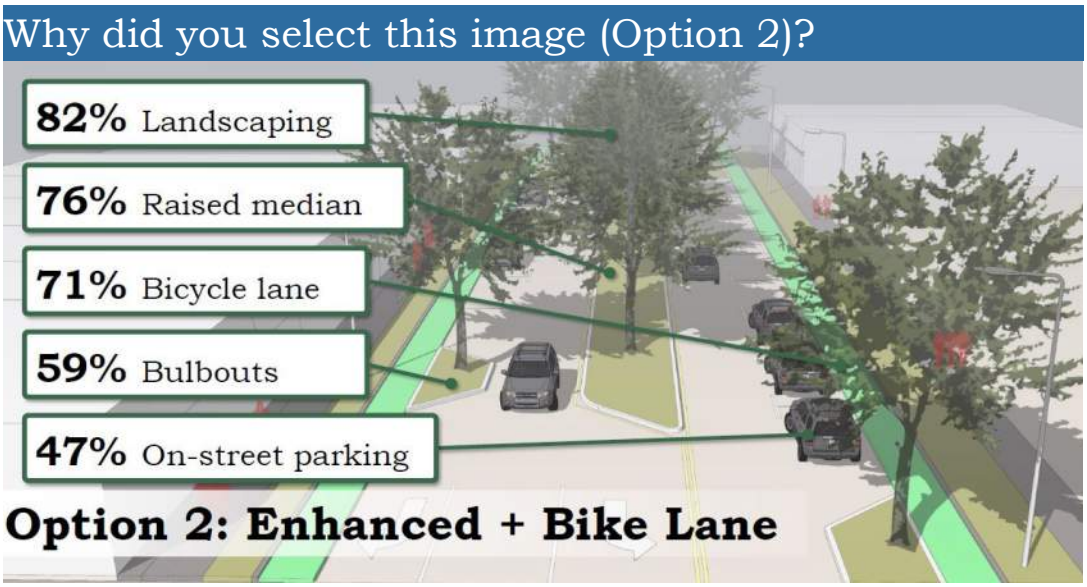


Figure 78. Survey Response - Option 2 (West of North Wilcox Drive)

When asked about Option 2, respondents liked the landscaping shown in the rendering, followed by the raised median and bicycle lane. These results are shown in Figure 78.

When asked about Option 3, respondents liked the fact that this option has no median. These results are presented in Figure 79.

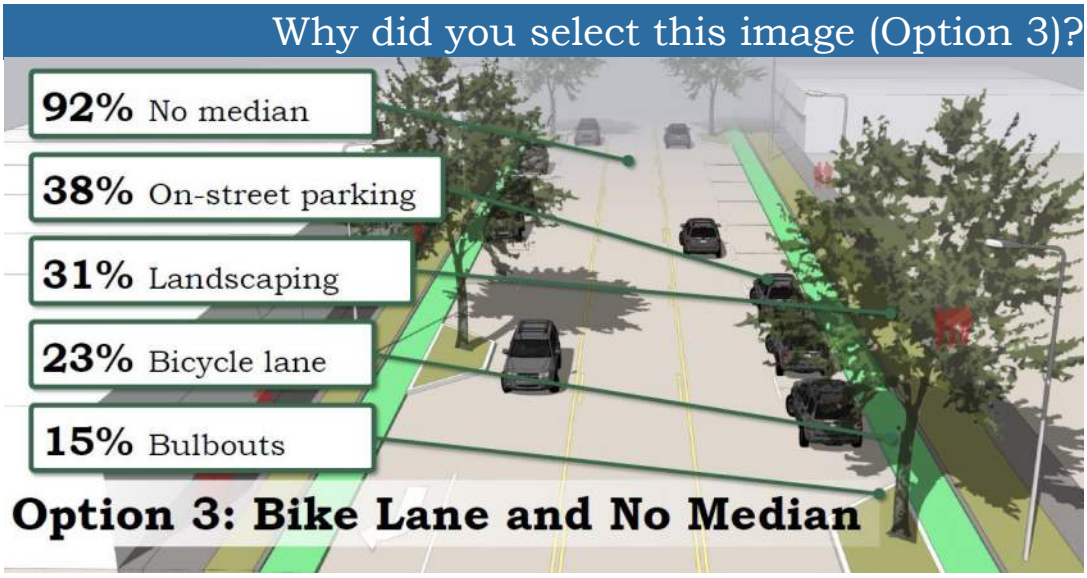


Figure 79. Survey Response - Option 3 (West of North Wilcox Drive)

The key takeaways for the portion of East Center Street west of North Wilcox Drive are:

- Landscaping/beautification is most important
- Median + bulbouts also popular, but maybe these were selected due to their landscaping and aesthetic potential
- About half favor on-street parking
- There is a small but devoted following of users that prefer:

  No medians
  Bike lane

Which option east of North Wilcox Drive do you prefer?

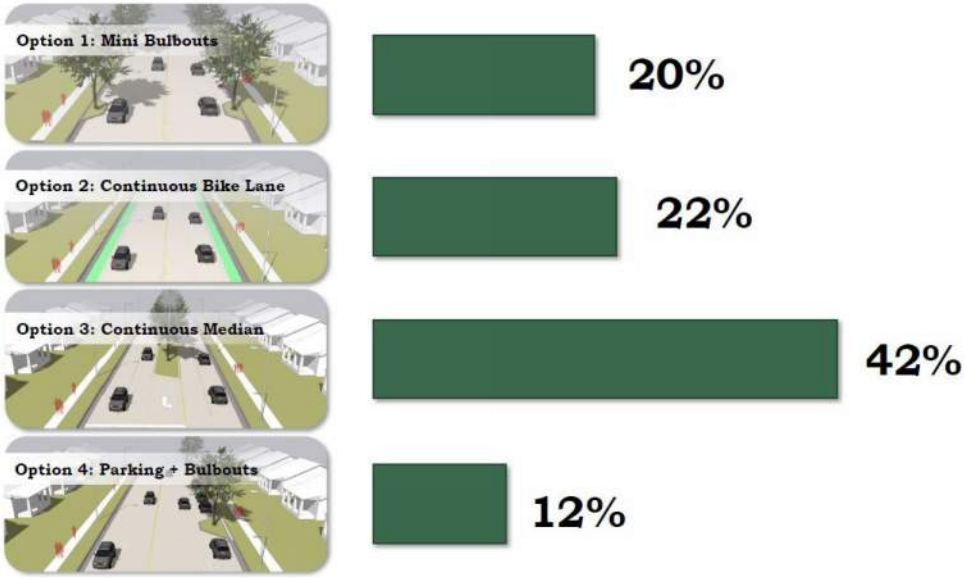


Figure 80. Survey Response - East of North Wilcox Drive

For East Center Street east of North Wilcox Drive, Option 3 (continuous landscaped median and turn lane) was the most popular response, followed by Option 2 (continuous bike lane), Option 1 (mini bulbouts) and Option 4 (on-street parking and bulbouts). These results are shown in Figure 80.

When asked about Option 1, respondents liked the landscaping and mini bulbouts shown in the rendering, This is displayed in Figure 81.

Why did you select this image (Option 1)?

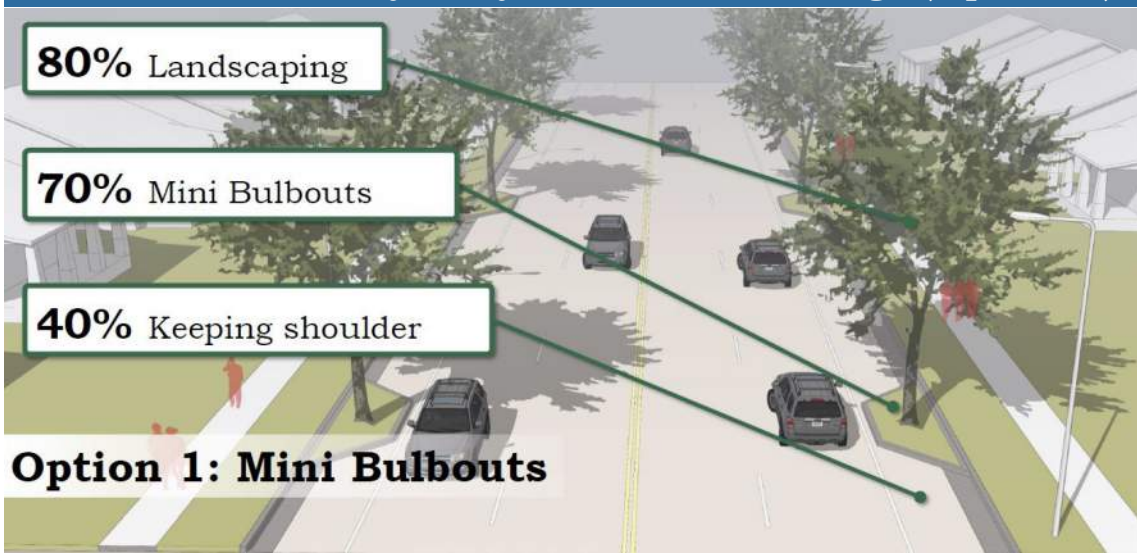


Figure 81. Survey Response - Option 1 (East of North Wilcox Drive)

When asked about Option 2, respondents liked the bike lane. In the comments, many respondents wrote in that they like this option because it does not provide a median. These results are shown in Figure 82.

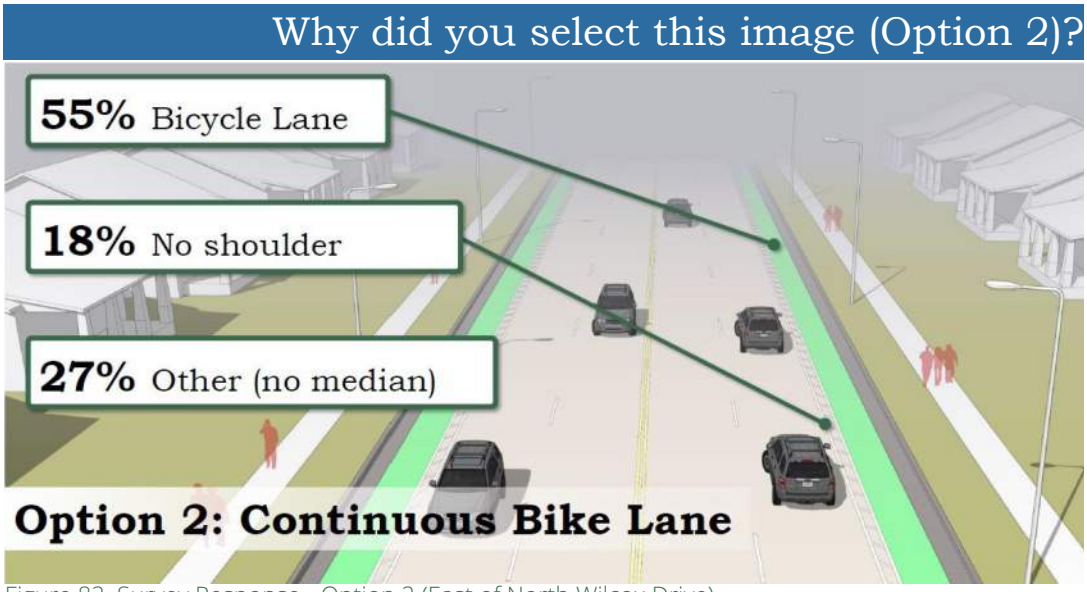


Figure 82. Survey Response - Option 2 (East of North Wilcox Drive)

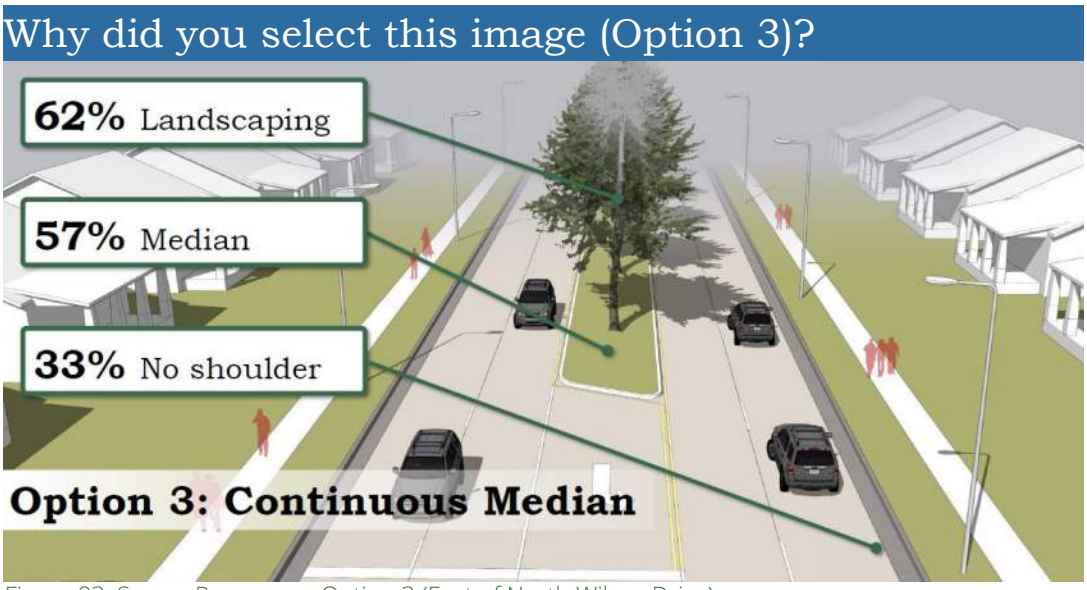


Figure 83. Survey Response - Option 3 (East of North Wilcox Drive)

When asked about Option 3, respondents liked the fact that this option has a center median and landscaping opportunities. These results are presented in Figure 83.

When asked about Option 4, respondents primarily preferred that this option maintains on-street parking. Landscaping was also selected as a positive for this option. This is illustrated in Figure 84.

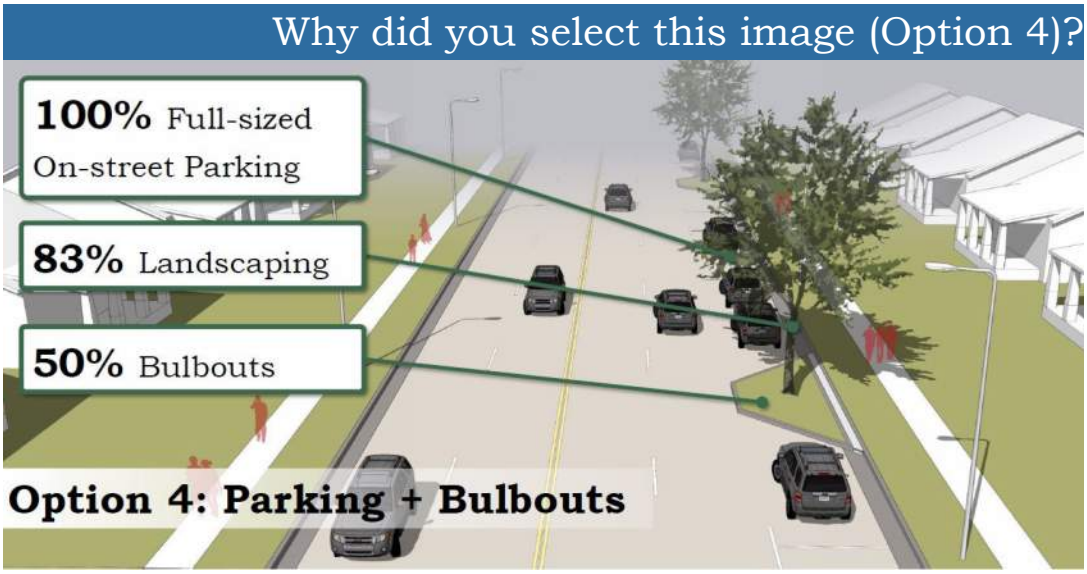


Figure 84. Survey Response - Option 4 (East of North Wilcox Drive)

The key takeaways for the portion of East Center Street east of North Wilcox Drive are:

- Landscaping/beautification is most important
- Whether it is in the median or bulbout, landscaping is the priority
- Not much support for bike lane
- Equal importance:

  Median
  On-street parking
  Bulbouts

In the last question, survey participants were asked about the two land use options. These results are presented in Figure 85. The majority of respondents preferred Option 1, and many commented additional notes, including their desire for more local businesses, civic uses, beautification and mixed-use development.

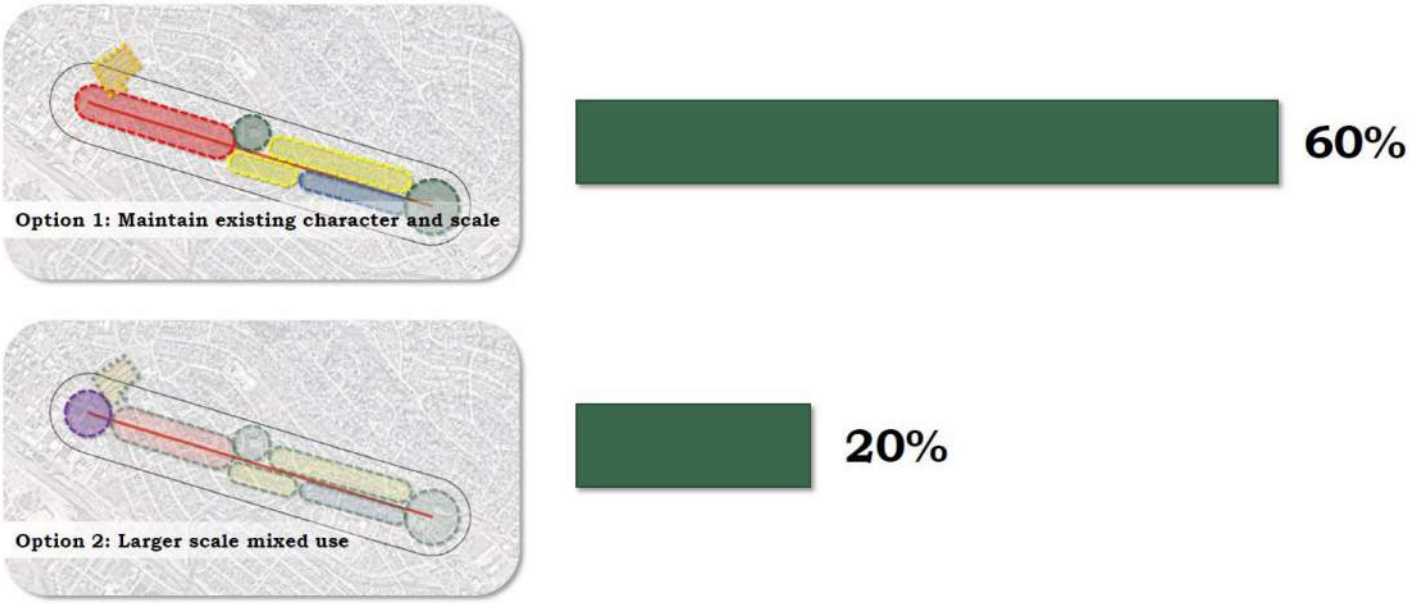


Figure 85. Survey Response - Land Use Scenarios

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PREFERRED VISION

The preferred vision for East Center Street balances community feedback and technical analysis to recommend a strategy for the corridor that promotes safe multimodal travel, improves its visual appeal and supports continued improvement and reinvestment. Through the design iterations, the project team incorporated the public's vision to create the preferred corridor vision and land use vision.

The preferred vision for East Center Street east of West Wilcox Drive is presented in Figures 86 and 87.

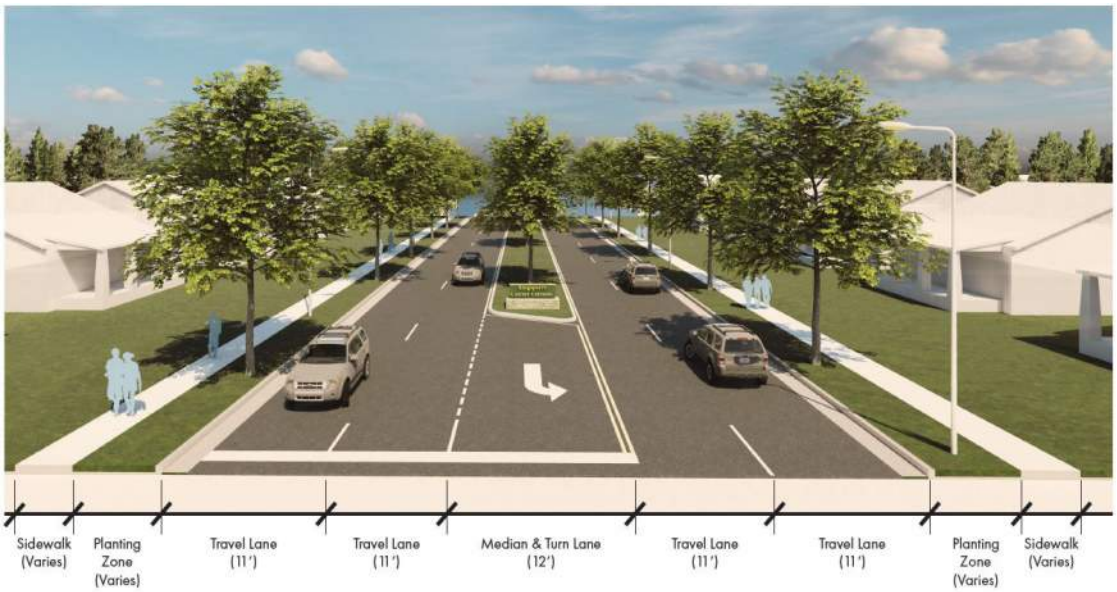


Figure 86 includes gateway signage, four 11' travel lanes, a 12' median and turn lane, and an activated curbside with a planting zone and sidewalk.

Figure 86. East of Wilcox Drive Typical Section - Center Turn Lane

Figure 87 includes four 11' travel lanes, with bulbouts and parking separating the travel lanes from the planting zone and sidewalk.

Figure 87. East of Wilcox Drive Typical Section - Bulbouts and Parking

The preferred vision for East Center Street west of West WIlcox Drive is presented in Figures 88 and 89.

Figure 88 includes one 11′ travel lane in each direction, a right-turn lane, and a bike lane. Bulbouts and parking line the curbside, separating the bike lanes from the planting zone and sidewalk.

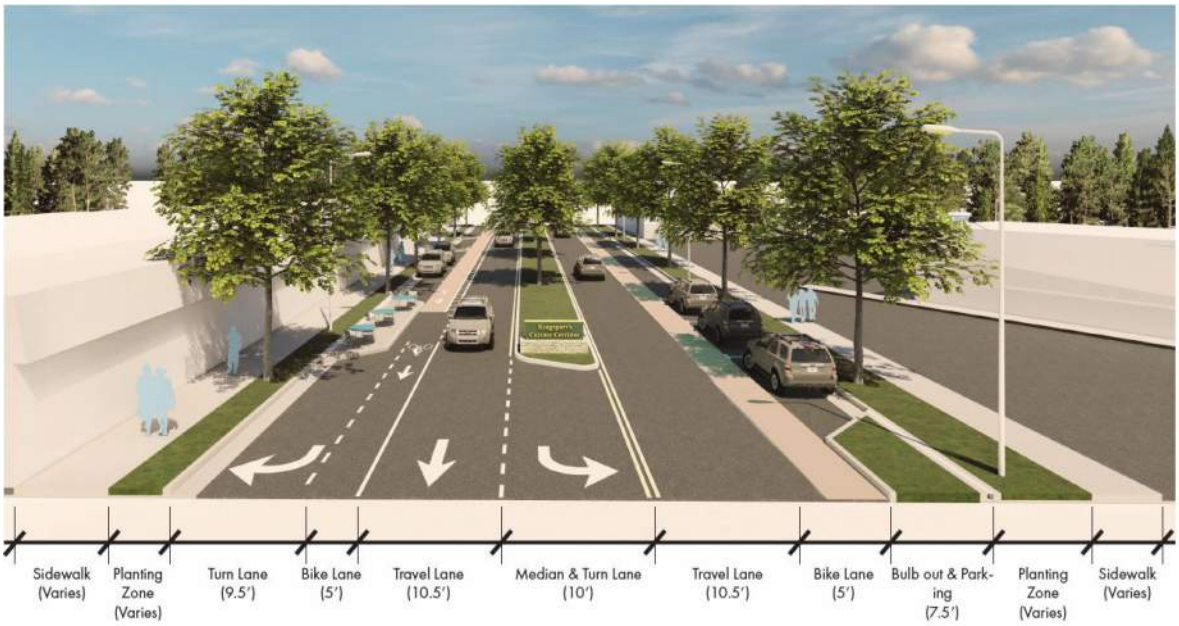


Figure 88. West of Wilcox Drive Typical Section

Figure 89 provides a street-level perspective of East Center Street, just east of the intersection with Dale Street.

Figure 89. East Center Street Perspective, East of Dale Street

Overview

West of North Wilcox Drive

West of Wilcox Drive, the preferred vision for East Center Street includes the strategic placement of raised medians/traffic islands and bulb-outs and keeps the existing on-street bike lane. The design most closely resembles Option 2 (Three Lanes Enhanced with Bike Lane), but with a few modifications:

First, the bicycle lanes remain in their current location between the on-street parking and the travel lane. This will enable the bulbouts to connect to the sidewalk and planting strip, providing opportunities for street furniture and outdoor dining.

Second, the raised medians are truncated so that they become mini-traffic islands. This design will still convey the benefits of traffic calming, landscaping and mid-block pedestrian refuge, but is less prohibitive of left turn movements. This is presented in Figure 90.

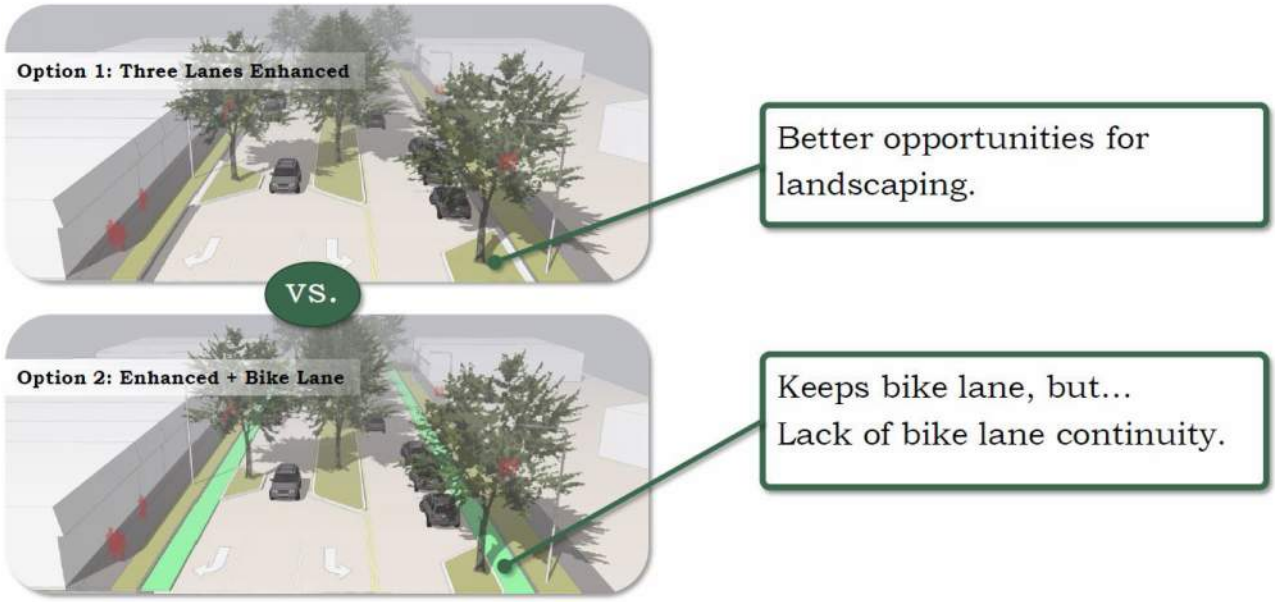


Figure 90. West of North Wilcox Drive

East of North Wilcox Drive

East of Wilcox Drive, the preferred vision combines elements of Options 1 (mini-bulbouts) and 3 (continuous raised median). Traffic islands will be installed at midblock locations, while mini-bulbouts with existing shoulders will be installed elsewhere. This essentially provides the best of all worlds, including landscaping and placemaking opportunities, mid-block refuge and on-street parking. Additionally, the transition between mini-bulbouts and traffic islands will produce the traffic calming effect of lane shifts. The two options the preferred vision incorporates (Option 1 and 3) are illustrated below in Figure 91.

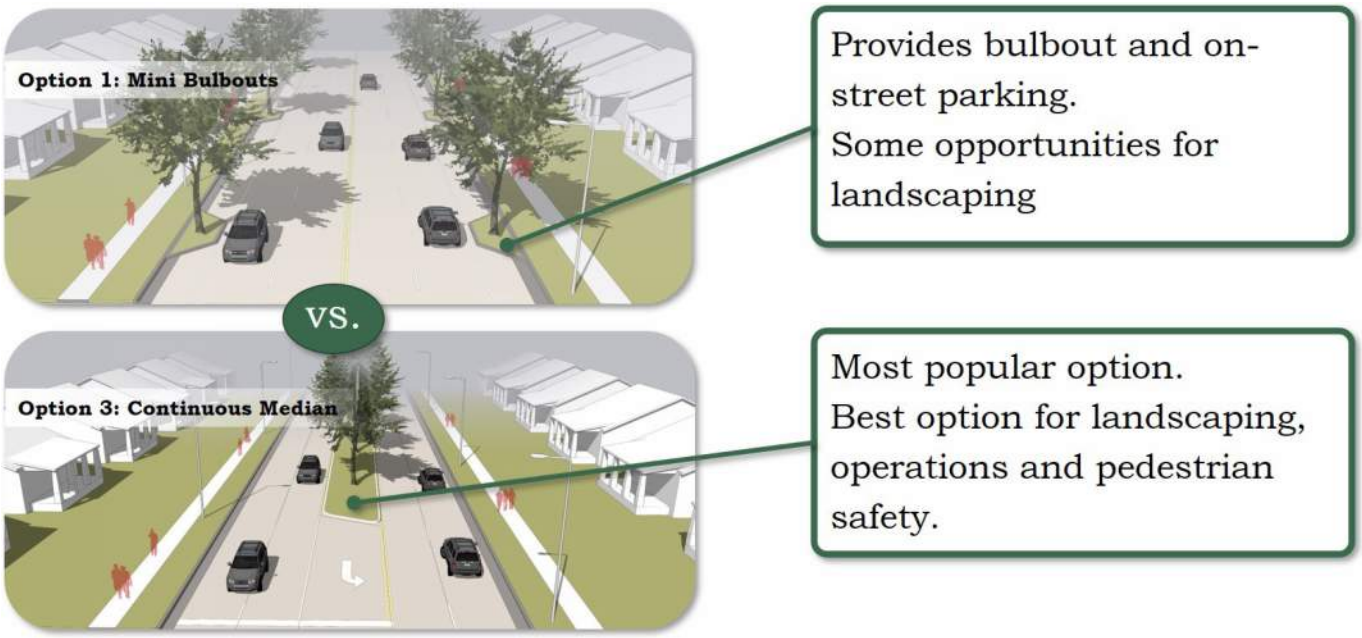


Figure 91. East of North Wilcox Drive

Preferred Land Use

The first land use option, which reinforces and redevelops at the existing scale, is the preferred vision for the corridor. This was the overwhelming choice from the online survey respondents and is the least disruptive to the corridor.

Vision Elements

The preferred vision and recommendations for East Center Street include a number of important elements that are central to the vision for the corridor. Among them are landscaping, branding, traffic calming, intersections, mid-block crossing, bicycle facilities and access management. Each is briefly described below.

Landscaping

Improving the overall appearance of East Center Street is one of the most popular sentiments expressed to the project team during stakeholder interviews, interactions at public events and in the online survey. The raised medians and bulbouts provide plenty of opportunities to install landscaping along the corridor. There is sufficient width in the traffic islands and full size bulbouts to place trees while maintaining adequate horizontal clearance from travel lanes. The placement of trees at the mini bulbouts should consider placement of trees closer to the existing planting strip to provide the necessary clearance. Trees and ornamental shrubbery should consist of low-maintenance drought resistant native species such as Flowering Dogwoods, American Holly, Chickasaw Plum and Elderberry.

Branding

East Center Street is a prominent gateway into downtown Kingsport from SR 93, I-26 and I-81. The corridor's gateway status provides a significant branding opportunity through strategic placement of signage and other themed branding elements (colors, symbols, landscaping and materials). Branding themes could represent the recommended land use vision ("Kingsport's Culture Corridor") or another theme. Branding elements could be placed throughout the corridor. Gateway treatments can occur at strategic locations, including just west of Fort Henry Drive within a traffic island, at North Wilcox Drive at the opposite side of the intersection and just east of Sullivan Street in a traffic island or bulbout. Existing thematic branding that Kingsport currently embraces are featured in Figure 92 and 93.

Figure 92. Kingsport Branding

Figure 93. Gateway Signage at East Sullivan Street

Traffic Calming

Motor vehicle speed is fundamental to many aspects of a successful and viable corridor, including pedestrian safety, bicycle safety, motor vehicle safety and a comfortable and attractive roadside environment. The preferred vision for East Center Street includes many design elements that are intended to calm traffic:

- Medians and bulbouts that introduce horizontal deflection and narrow the traveled way;
- Street trees and other vertical elements that will contribute to horizontal deflection and increase driver perception of speed;
- Horizontal shift created by the alternation of medians/traffic islands and bulbouts.

It is essential that these traffic calming benefits be taken into consideration when determining if, how and when to implement them. West of North Wilcox Drive, medians and bulbouts should align to maximize the narrowing effect. An example between Yadkin Street and Wateree Street is shown in Figure 94.

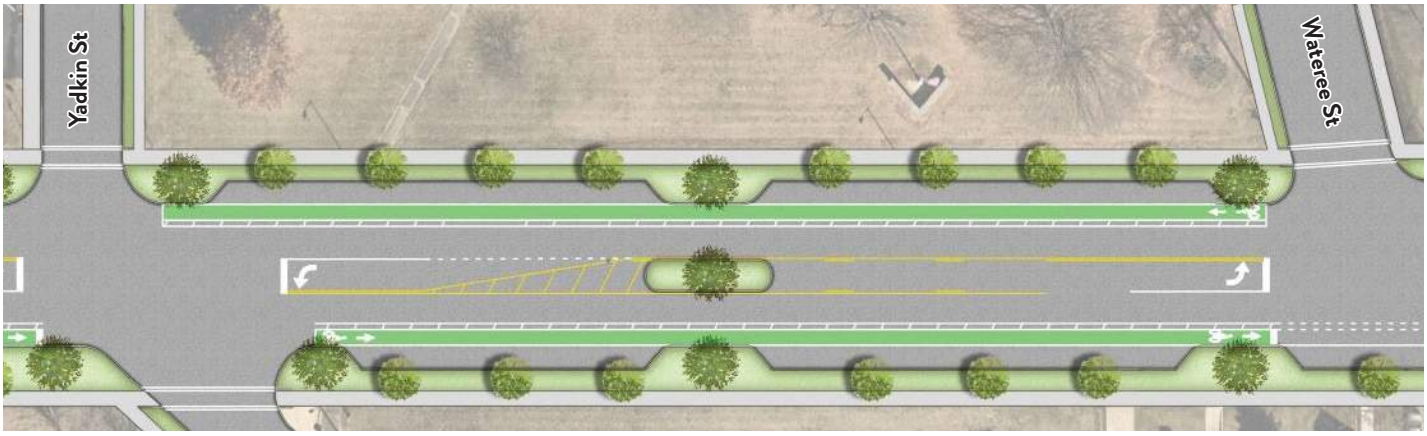


Figure 94. Bulbout and Median Alignment

East of North Wilcox Drive, medians and bulbouts should be intentionally placed to achieve horizontal shift of travel lanes, illustrated in Figure 95, between Lamont Street and Prospect Drive.

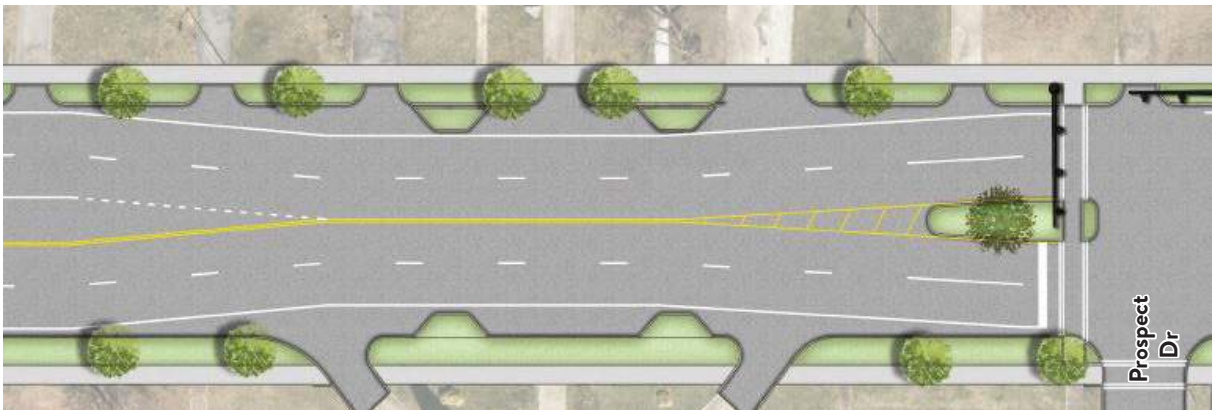


Figure 95. Mini Bulbout and Traffic Island Transition

Intersections

Feedback received from stakeholder interviews and informal discussions with residents and businesses indicates a perception that the road diet on East Center Street has been a cause of congestion. An analysis of daily and peak hour traffic volumes indicates that the road has sufficient mainline capacity to accommodate existing traffic volumes. Rather, it is more likely that intersection delay is the cause of any congestion on East Center Street.

Further analysis of intersections is recommended to better understand potential causes and solutions for congestion. The recommended vision includes provisions for dedicated right and left turn lanes at signalized intersections, which is illustrated in Figure 96. Additional intersection recommendations include:

- A maximum curb radius of 15 feet to encourage turn movements at appropriate motor vehicle speeds and to minimize the pedestrian crossing distance.
- Clearly marked pedestrian crosswalks at all legs.
- Bulbouts on the far side of intersections to minimize pedestrian crossing distance.
- Replacement of overhead wire with decorative mast arms at signalized intersections. The mast arms can reinforce the branding theme of the corridor.

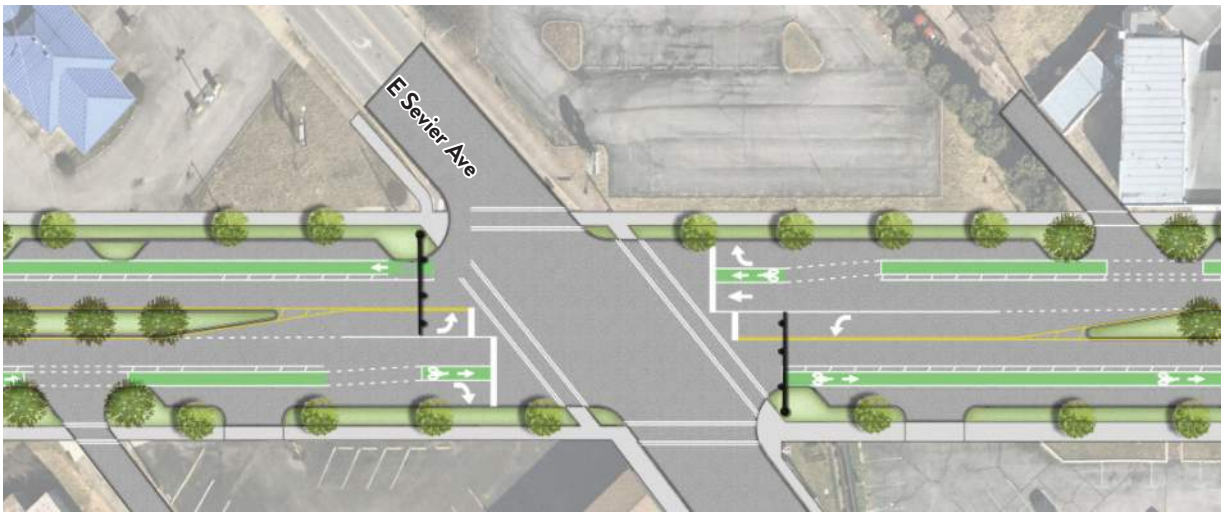


Figure 96, Signalized Intersection with Right and Left Turn Lane

Mid-Block Crossing

The baseline conditions analysis notes the lack of designated crossing opportunities for long stretches of East Center Street and the resulting pedestrian crossing at mid-block locations. The preferred vision identifies specific locations for safe, visible mid-block crossing. These locations include raised medians that serve as a refuge and can allow a two-stage crossing. Where possible, the crossing should also include bulbouts to minimize the length of crossing distance in pavement. An example of this within the recommended plan is shown below in Figure 97.

Additionally, it is recommended that mid-block crossing locations include rapid rectangular flashing beacons (RRFB). These are pedestrian-actuated signage systems that are proven to increase driver awareness of pedestrians. RRFB's include branding elements such as decorative mast arms.

Figure 97. Mid-Block Crossing in Recommended Plan

Bicycle Facilities

The preferred vision for East Center Street includes bike lanes from East Sullivan Street to North Wilcox Drive, but not from North Wilcox Drive to Fort Henry Drive. To provide continuous bicycle connections between East Center Street and other important destinations in Kingsport, the following are recommended for further study:

- Connections to downtown and the Greenbelt from East Center Street via Sullivan Street.
- Connections between Dobyns-Bennett High School and Fort Henry Drive to downtown and the Greenbelt via Watauga Street.
- Expansion of the existing sidewalks on North Wilcox Drive to full sidepaths that can accommodate bicycles, pedestrians and other forms of active transportation, connecting through the Eastman campus to the existing sidepath and on to the YMCA.
- Connections to downtown and the Greenbelt from North Wilcox Drive via Catawba Street.

These connections are featured in Figure 98.

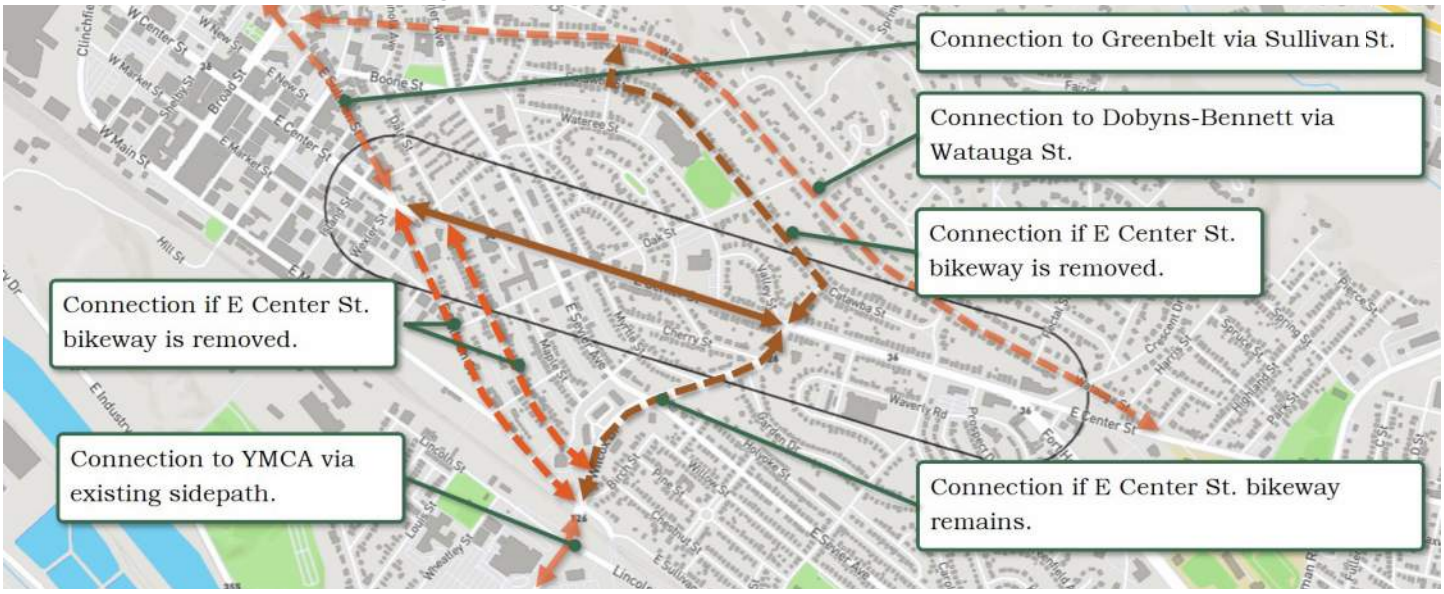


Figure 98. Bike Connectivity

Access Management

One potential source of congestion and safety issues is the presence of multiple turn movements from and to East Center Street. The preferred vision includes recommendations for driveway closure at locations in close proximity to connecting streets and where alternative access is readily available. These proposed closures should be given serious consideration for their safety and mobility benefits as well as their impact on creating a more continuous pedestrian experience along the corridor and the ability to create additional on-street parking opportunities.

The preferred vision also recommends locations for the placement of raised medians or traffic islands. These locations were chosen to minimize impact to important turn movements to and from East Center Street and to prohibit non-essential turning movements.

Land Use

Generally speaking, the preferred land use vision for East Center Street is compatible with existing land use regulations. An urban design overlay (UDO) is a potential strategy to encourage preferred land uses through density bonuses, relaxed parking standards and other incentives. The UDO can also be used to convey specific design standards and guidelines, such as building placement, sidewalks, materials and signage.

Pedestrian Lighting

Pedestrian-scale lighting is a potential enhancement that will add to the aesthetic appeal of East Center Street and improve visibility along the corridor. Such lighting was not included in the corridor options or preferred vision because of the considerable expense and its relevance to the mobility function of East Center Street, but may be a long term consideration of the City as part of redevelopment initiatives.

Implementation

This section puts the preferred vision and recommendations into more practical terms by organizing them into projects to be implemented in two distinct phases. Table 20 identifies the projects and associated costs of each phase. The full plan set is shown in Appendix A.

Phase 1 (Within Three Years)

The first phase of implementation includes projects that are of higher priority or can be achieved relatively easily. Phase 1 is intended to be initiated within the first three years of finalization of study and includes:

- Intersection improvements: Installation of more aesthetic mast arm signal poles, bulbouts, landscaping and crossing enhancements at priority intersections Sevier Avenue, Sullivan Street, North Wilcox Drive and Fort Henry Drive.
- Mid-block crossing: Installation of traffic islands, bulb-outs and RRFBs at mid-block crossing locations between Oak Street and Forest Street and east of Wateree Street.
- Branding and signage: Installation of branded signage at gateway locations: Sullivan Street, North Wilcox Drive and Fort Henry Drive.

Phase 2 (Beyond Three Years)

The second phase of implementation includes projects that can be implemented beyond the initial three year time frame. They include:

- Intersection improvements: Continued installation of mast arm signal poles, bulbouts, landscaping and crossing enhancements at Dale Street, Lamont Street and Summer Street.
- Medians, traffic islands, bulb-outs and driveway closure: Installation of remaining medians, traffic islands, bulbouts and mini-bulbouts throughout the corridor.
- Repaint bike lane: Repainting of the existing bike lane between Sullivan Street and North Wilcox Drive to a solid green color.

Additional Considerations

Leveraging Economic Development Potential

Street enhancements that improve visual appeal and character and address safety and mobility for all users are well documented to generate a positive economic return (see Table 17).

Table 17. Economic Development Potential

Economic Benefits of Street Enhancements
• Lancaster, CA turned a $10.6 million street investment into $125 million in private investment, and a 26 percent increase in property values and 800 new jobs • Street trees in Portland, OR added more than $7,000 to home selling prices • Washington, DC completed streetscape enhancements, including patterned sidewalks and signal upgrades, to Barracks Row, which attracted over 40 new businesses and 200 new jobs
Source: Smart Growth America (https://smartgrowthamerica.org/wp-content/uploads/2016/08/cs-economic.pdf)

The preferred land use vision has the potential to generate up to 50,000 square feet of office uses and 200,000 square feet of retail uses (Table 18). This development potential has a greater chance of happening with the enhancements proposed in the vision plan and recommendations.

Table 18. Development Potential on East Center Street

Category	Floor Area (square feet)	Jobs
Office	50,000	80
Retail	200,000	250
Source: UrbanFootprint		

In addition to spurring new development, the proposed enhancements have the potential to increase property values. Properties within the study area have an estimated cumulative value of just under $80 million. A ten percent increase in property values translates into almost $8 million of addition value, a 20 percent increase would generate almost $16 million and a 30 percent increase would generate an almost $24 million of additional value. This increase in property values benefits property owners, but also results in additional tax revenue that could be used to finance many of the improvements proposed in vision plan and recommendations. This is detailed in Table 19.

Table 19. Property Value Increase Potential in the Study Area

Existing Property Value	Increase in Property Value	
	Percent	Amount
$79,300,000	10%	$7,930,000
$79,300,000	20%	$15,860,000
$79,300,000	30%	$23,790,000
Source: UrbanFootprint, CoreLogic (existing property value)		

Parking

The vision plan and recommendations propose redevelopment of many of the properties along East Center Street, especially those between the Renaissance Center and downtown. New development will generate demand for parking that could exceed the existing supply of off-street and on-street parking. The City may want to consider parking strategies concurrent with redevelopment, such as:

- Purchase of property in the corridor (existing surface lot, vacant parcel or one with an obsolete structure) to develop a centralized public parking spot.
- Establish a parking agreement with the Renaissance Center to use their parking on non-event days (the Renaissance Center is in the process of expanding the parking lot in the front of the building).

Table 20. Center Stage Projects

Project Name	Location	Description
Phase 1		
Intersection Improvements	Sullivan Street and Sevier Avenue	Install bulbouts, mast arm signal poles with pedestrian indications, marked crosswalks, restripe where necessary.
Intersection Improvements	North Wilcox Drive	Install bulbouts, mast arm signal poles with pedestrian indications, marked crosswalks, restripe where necessary.
Intersection Improvements	Fort Henry Drive	Install bulbouts, marked crosswalks, restripe where necessary. Relocate pedestrian crossing at Fort Henry Drive with a raised landscaped median and crosswalks.
Traffic Islands, Bulbouts and Mid-Block Crossing	Between Oak Street and Forest Street and east of Wateree Street	Install raised landscaped median and bulbouts, marked crosswalk, mast arm RRFB, landscaping
Branding and Signage	At Sullivan Street, North Wilcox Drive and Fort Henry Drive	Install branded gateway signage

Unit Costs for each item can be found in Appendix B.

Item	Quantity	Unit Cost	Total Cost
Mast arm signals - small intersection	2	$312,500	$625,000
Bulbouts	8	$3,700	$29,600
Curb ramps	8	$600	$4,800
Marked crosswalks	8	$500	$4,000
Intersection restriping	2	$12,500	$25,000
			$690,000
Mast arm signals - large intersection	1	$500,000	$500,000
Bulbouts	4	$5,000	$20,000
Curb ramps	4	$500	$2,000
Marked crosswalks	4	$500	$2,000
Intersection restriping	1	$12,500	$12,500
			$540,000
Median island	1	$3,000	$3,000
Curb ramps	4	$600	$2,400
Intersection restriping	1	$12,500	$12,500
			$18,000
Median island	2	$15,250	$30,500
Bulbouts	4	$3,700	$14,800
Curb ramps at median	2	$750	$1,500
Curb ramps at bulbout	4	$600	$2,400
Marked crosswalks	2	$500	$1,000
RRFB	2	$31,250	$62,500
			$113,000
Gateway signage	3	$3,125	**$9,400**
		Phase 1 Total	**$1,370,400**

Table 20. Center Stage Projects, *continued*

Project Name	Location	Description
Phase 2		
Intersection Improvements	Dale Street, Summer Street and Lamont Street	Install bulbouts, mast arm signal poles with pedestrian indications, marked crosswalks, restripe where necessary.
Medians, Traffic Islands, Bulbouts and Driveway Closure	Between Sullivan Street and North Wilcox Drive	Install raised landscaped medians, traffic islands and bulbouts. Driveway closure concurrent with bulbout installation.
Medians, Traffic Islands and Mini Bulbout	Between North Wilcox Drive and Fort Henry Drive	Install raised landscaped medians, traffic islands and mini-bulbouts. Restripe to accommodate new lane configuration.
Repaint Bike Lane	Sullivan Street to North Wilcox Drive	Repaint existing lane to green color and include intersection markings.

Unit Costs for each item can be found in Appendix B.

Item	Quantity	Unit Cost	Total Cost
Mast arm signals - small intersection	3	$312,500	$937,500
Bulbouts	12	$3,700	$44,400
Curb ramps	12	$600	$7,200
Marked crosswalks	12	$500	$6,000
Intersection restriping	3	$12,500	$37,500
			$1,030,000
Medians	5	$15,250	$76,250
Traffic islands	2	$6,000	$12,000
Bulbouts	20	$12,500	$74,000
			$162,000
Mini bulbouts	10	$3,350	$34,000
Medians	2	$15,250	$31,000
Traffic islands	3	$2,750	$8,000
Lane restriping	2,000	$6	$13,000
			$86,000
Bike lane restriping	3,700	$12	**$44,000**
		Phase 2 Total	**$1,322,000**
		Total	**$2,692,400**

Funding Opportunities

The City of Kingsport can pursue a variety of local, state and federal grant options that best fit their needs based on project and location. Current grant opportunities and potential funding sources are highlighted in Table 21 below.

Table 21. Funding Opportunities

Grant Option	Potential Uses	Funding Breakdown	Time Frame	Eligibility
Multimodal Access Grants	• Pedestrian crossings • Bike lanes/facilities • ADA improvements • Pedestrian lighting	95% state, 5% local, maximum award of $950,000	Application cycle June to November, awarded in June	Project must be on or, rarely, near a State Route
Transportation Alternatives Program (TAP)	• Pedestrian facilities • Bike lanes/facilities • Signage • Crosswalks	80% state, 20% federal - does not cover ROW or engineering costs	Application cycle July to November, awarded in May	Any agency can apply through TDOT
Healthy Built Environments	• Publicly accessible spaces	$85,000 maximum, 100% state	Application cycle September to January, awarded in March	Any agency can complete an application
Spot Safety and Highway Spot Safety Improvement Program	• Signage improvements • Roadway restriping • Intersection enhancements	Varies from 80% federal, 20% local to 100% federal	Based on need	Contact Regional Traffic Engineer or TDOT Safety Office
Surface Transportation Block Grant (STBG)	• Improvements to highways and roads • Rideshare and vanpool projects • Intelligent transportation systems (ITS) • Incident management activities	80% of the total project costs covered by STBG, TDOT may provide additional 20%	Annually awarded	Federal aid eligible highways and roads, any activity that is also eligible for the TAP Projects selected by MPO

CONCLUSION

East Center Street is one of Kingsport's most important corridors and represents a significant opportunity to create an interesting and unique place live and visit. The Center Stage Study makes recommendations so that East Center Street can fulfill that goal.

This report reflects understanding of context, analysis of relevant data and stakeholder input to create a vision and recommendations for East Center Street. The City is now able to pursue grant funding and other resources to make the recommendations a reality.

East Center Street facing west near the Renaissance Center

East Center Street facing west near Fort Henry Drive

TN TDOT Department of Transportation

KINGSPORT TENNESSEE

Kimley»Horn

APPENDIX

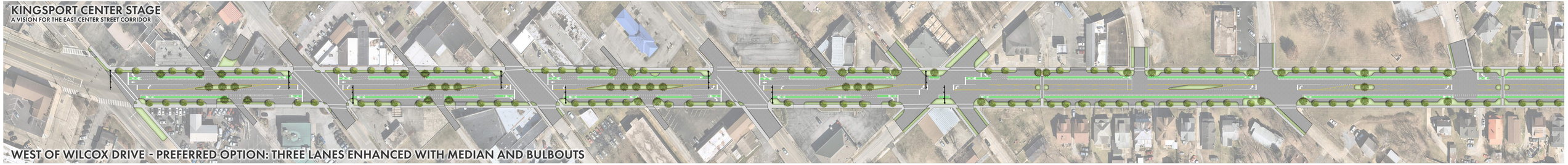
Appendix A: Full Recommended Plan Map

Appendix B: Unit Costs

Appendix A: Full Recommended Plan Map

KINGSPORT CENTER STAGE

A VISION FOR THE EAST CENTER STREET CORRIDOR



WEST OF WILCOX DRIVE - PREFERRED OPTION: THREE LANES ENHANCED WITH MEDIAN AND BULBOUTS

KINGSPORT CENTER STAGE

A VISION FOR THE EAST CENTER STREET CORRIDOR

EAST OF WILCOX DRIVE - PREFERRED OPTION: BULB OUTS AND MEDIAN

Locations of elements and devices along East Center Street are conceptual and meant to be illustrative. Final locations for bulbouts, medians, parking and crosswalks are to be determined in final design.

Appendix B: Unit Costs

Center Stage
DRAFT Unit Costs

Project Type	Elements	Unit Cost ($)		Units	Total Cost	Notes
Bulbout	Curb	$50	Per LF	16	$1,000	Assumes a four foot wide by eight foot deep bulbout with sod, turf seed, mulch and shrubbery or tree).
	Tree	$2,000	Per	1	$2,500	
	Landscape/fill	$5	Per SF	32	$200	
					$3,700	
Mini-Bulbout	Curb	$50	Per LF	12	$750	Assumes a four foot wide by four foot deep bulbout with sod, turf seed, mulch and shrubbery or tree).
	Tree	$2,000	Per	1	$2,500	
	Landscape/fill	$5	Per SF	16	$100	
					$3,350	
Raised Median	Curb	$50	Per LF	116	$7,250	Assumes a 10 foot wide by 48 foot long bulbout with sod, turf seed, mulch and shrubbery or tree).
	Tree	$2,000	Per	2	$5,000	
	Landscape/fill	$5	Per SF	480	$3,000	
					$15,250	
Raised Island	Curb	$50	Per LF	44	$2,750	Assumes a 10 foot wide by 12 foot long island with sod, turf seed, mulch and shrubbery or tree).
	Tree	$2,000	Per	1	$2,500	
	Landscape/fill	$5	Per SF	120	$750	
					$6,000	
Curb Ramp at Bulbout	Curb Ramp	$15	Per SF	32	**$600**	Cost concurrent with bulbout installation. Assumes four foot wide ramp.
Curb Ramp at Meidan	Curb Ramp	$15	Per SF	40	**$750**	Cost concurrent with bulbout installation. Assumes four foot wide ramp.
Lane Restriping	Restriping	$5	Per LF	1	**$6**	Assumes restriping of all roadway elements, including lane marking, offsets and symbols for 50 feet of pavement.
RRFB	RRFB	$25,000	Per	1	**$31,250**	Includes signage, mast arm and signal.
Intersection Restriping	Restriping	$2	Per SF	5,000	**$12,500**	Assumes 25 feet of restriping at all four approaches.
Gateway Signage	Sign	$2,500	Per	1	**$3,125**	Assumes quality metallic materials.
Crosswalk Marking	Crosswalk Markin	$8	Per LF	50	**$500**	Assumes a single 50 foot long crossing.
Bike Lane Painting	Bike Lane	$9	Per LF	1	**$12**	Assumes a four foot wide painted bike lane on both sides of the road.
Mast Arm Signal - Small Intersection	Mast Arm Signal	$250,000	Per intersection	1	**$312,500**	Single lane intersecting streets
Mast Arm Signal - Large Intersection	Mast Arm Signal	$400,000	Per intersection	1	**$500,000**	Multi-lane intersecting streets

All costs include 25 percent contigency.