



# Blount St · Person St Corridor Study

## Corridor Plan Report - Executive Summary









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## Acknowledgements

**Prepared for:**  
City of Raleigh, North Carolina  
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**Adopted:**  
July 16, 2013

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Blount St-Person St Corridor Study - Opinion of Probable Cost

## EXECUTIVE SUMMARY

### The Vision

The Blount St.-Person St. Corridor can be seen through multiple lenses: as a major urban thoroughfare, as a commercial and business street, and as a neighborhood address. The corridor extends over five miles from Capital Boulevard to Interstate 40, including Wake Forest Road, Blount Street, Person Street, and Hammond Road, with the core of the corridor being the one-way pair of Blount Street and Person Street. It runs through distinct communities with strong histories, different priorities and a range of needs. Yet it strives to serve each of these communities in different capacities, just not always successfully.

The community's vision dictates change in the corridor. Through the public process hundreds of ideas were collected about the community's values, vision, and desired change for the Blount St.-Person St. Corridor. This collective "voice" has been sorted into a set of themes and translated into a practical vision for the corridor. These themes are critical to the process, guiding the proposed street design and serving as the touchstone for evaluating potential alternatives and making future decisions.

### Theme: Walkable + Multimodal

#### Vision: A Complete Street...

The corridor has the potential to encourage and serve a wide range of users, accommodating motor vehicles is just one. The community sees a future corridor that is safe and highly attractive to pedestrians, cyclists, and transit users. A complete street balances the range of mobility needs by providing a place for all users.

##### Wake Forest Road

The road diet for Wake Forest Road balances the function of the street to serve a range of users. The new street section integrates cyclists, and provides safe and attractive pedestrian crossings, while appropriately accommodating vehicles.



### Theme: Traffic + Mobility

#### Vision: A Functional Street...

The corridor provides valuable and needed access to Downtown Raleigh, adjacent neighborhoods, and major regional destinations such as the State Capital. Providing this important access is a fundamental role of the corridor yet, the speed and behavior of vehicle traffic can be managed without significantly reducing accessibility or capacity. A functional street provides needed access and yet calms traffic.

##### Blount & Person Street (Person Street Business District)

The three-lane to two-lane road diet accommodates traffic while integrating bicycle lanes and additional on-street parking. Landscaped bulb-outs visually narrow the roadway, provide needed tree canopy, and create added sidewalk space for street-oriented businesses.





Theme: Business + Economic Development

Vision: A Vibrant Street...

The corridor connects existing neighborhoods, retail districts, downtown offices, and a growing number of new mixed-use and residential places. The community envisions a thriving corridor with a wide range of housing, shopping and working opportunities. A vibrant street attracts a range of users and development as a place to go “to” and not just “through.”



Theme: Neighborhood + Historic Character

Vision: A Beautiful Street...

The corridor is a unique link to Raleigh's rich history and urban character, and is home to many historic and neighborhood resources. Strengthening and protecting this character is a primary goal of the community. A beautiful street is the result of continued investment in streetscape, tree planting, and street character.

**Blount & Person Street (South Park)**  
Narrowed travel lanes serve to better manage vehicle behavior through the South Park Neighborhood while integrating space for on-street parking and bicycle lanes. The redefined street provides landscaped bulb-outs for street trees and shorter pedestrian crossings. The result is a more valuable address for existing homes and future investment.





## The Choice

Real change will require rethinking and repurposing the role and function of the roadway.

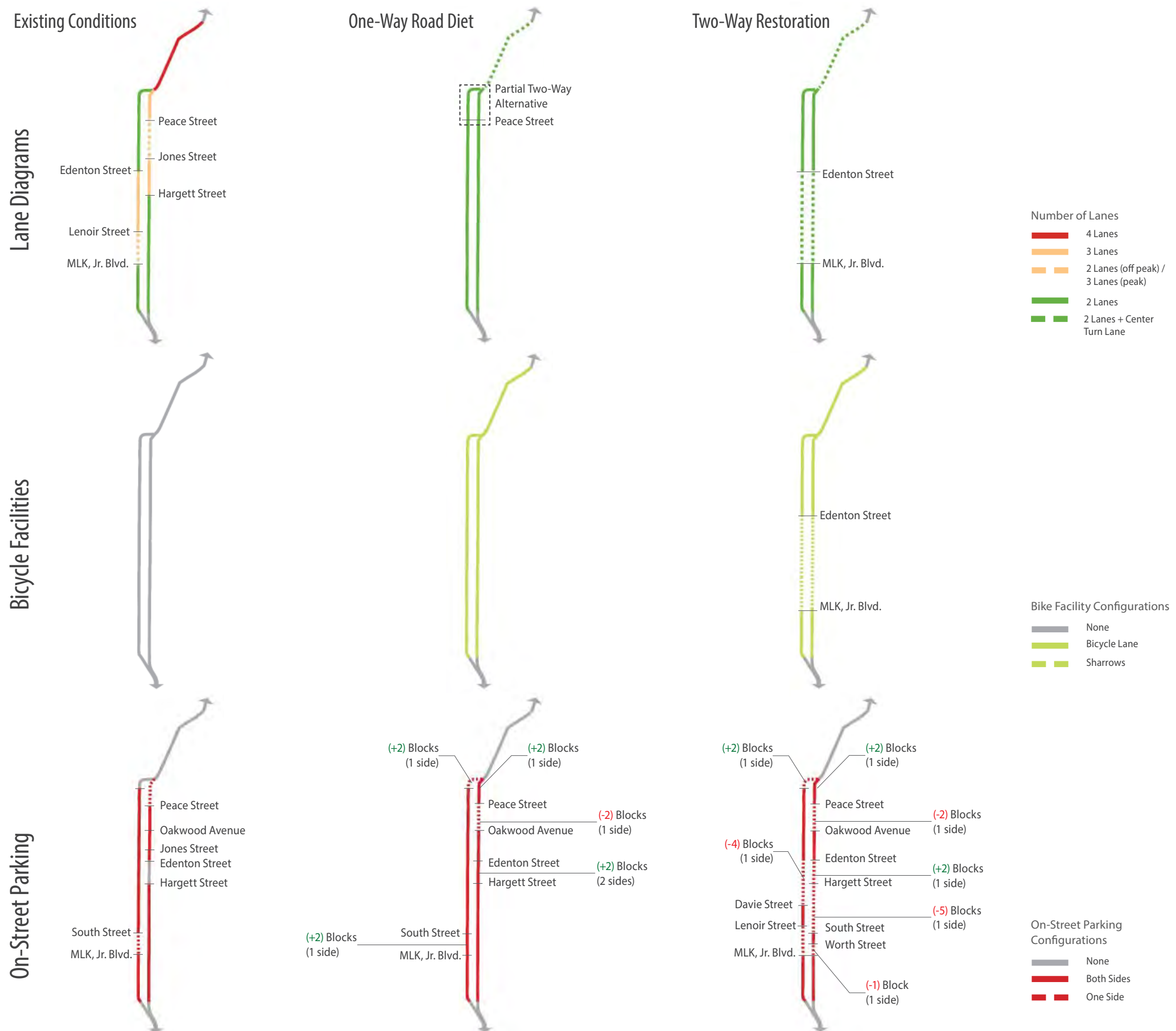
The corridor's issues and opportunities and community vision have uncovered two basic design alternatives; (1) a one-way road diet and (2) a two-way restoration. The design process focused on developing these alternatives in order to understand their traffic implications and urban design opportunities. The strategy that emerged was to view these alternatives not as mutually-exclusive but rather as steps in a longer-term process to reshape the corridor to fit the community's vision. Each step will require a choice. The choices initially are relatively clear, while later steps (such as potential two-way restoration) will require more investigation and the setting of new priorities.

## A Framework for Decision-Making

In order to make informed choices the alternatives have been developed, tested, and compared to each other based on the stated themes and vision for the corridor; business and economic development, neighborhood and historic character, traffic and mobility, and walkable and multimodal. For each theme a set of measures has been summarized and compared. Some are easily measured and quantified while others are more subjective. For each measure, their relative impact has been color coded for summary purposes: dark green – positive, light green – neutral, and orange - potentially negative.

The resulting implementation strategy is based on viewing the full range of alternatives (existing conditions, one-way road diet, two-way restoration) as a continuum that describes the corridor's ultimate evolution. Achieving the vision is possible through a series of small steps and critical choices. Some initial steps will be relatively easy, requiring only action and investment. Some choices, namely committing to two-way restoration, will be more challenging, requiring a collective agreement that the community benefit outweighs the transportation trade-off. Not every choice needs to be made immediately; each step has been designed to be stand-alone, achieving small parts of the vision's goals, while being part of the long-term vision that keeps open future choices.

## Alternatives Summary





A Framework for Decision-Making

		Existing Condition	One-Way Road Diet	Two-Way Restoration
Business + Economic Development	Property & Development Value	One-way access and vehicle speeds constrain adjacent property value, particularly in residential areas.	One-way access effects adjacent property value, particularly in residential areas. Reduced speeds associated with the road diet will improve street-level pedestrian comfort.	Strengthens property value and residential attractiveness.
	Business Access & Visibility	One-way operation limits business visibility & access.	One-way operation limits business visibility & access. Reduced speeds associated with the road diet will improve street-level pedestrian comfort/retail environment.	Maximizes visibility & access.
	On-Street Parking	No changes in on-street parking. Lack of physical definition and areas of off-peak parking result in lack of clarity.	Potential net gain in parking with some loss on one side of Person St from Oakwood Ave to Peace St. Bulb-outs create physical definition and parking aisle clarity.	Net loss of on-street parking due to needed left turn lanes and limited curb-to-curb dimension. (Key areas of parking loss include one side of Blount St from Edenton to Davie St, and Person St from Hargett St to South St)
Neighborhood + Historic Character	Streetscape & Aesthetics	Some streetscape/bulb-outs possible, limited to existing 2-lane sections of Blount & Person.	Median Islands on Wake Forest Road, Streetscape/bulb-outs on Blount & Person.	Median islands on Wake Forest Road, streetscape/bulb-outs on Blount & Person, and roundabouts as designed gateways.
	Vehicular Speeding	Speeding promoted by: 4-lane section of Wake Forest, one-way sections of Blount & Person.	Speeding reduced by: 3-lane road diet on Wake Forest, Lane reduction/road diet of Blount & Person.	Speeding reduced by: 3-lane road diet on Wake Forest, 2-way restoration of Blount & Person.
	Neighborhood Compatibility & Value	One-way operation has negative effect on neighborhood compatibility (vehicle speed and access) and value.	More neighborhood compatible: 3-lane road diet on Wake Forest (reduced speed, easier to cross) Lane reduction/road diet of Blount & Person.	More neighborhood compatible: 3-lane road diet on Wake Forest (reduced speed, easier to cross) 2-way restoration of Blount & Person (better access).
Traffic Mobility	Total Network Delay	Efficient vehicular access to downtown.	+ 14% increase in delay (in PM peak). No significant difference in AM peak.	+ 30% increase in delay (in PM peak). No significant difference in AM peak.
	Average Corridor Travel Time	Efficient vehicular access to downtown, Limited intersection delay except for MLK Jr. Blvd.	+ 9% (47 seconds) in PM peak, northbound. + 5% (40 seconds) in PM peak, southbound.	+ 10% (55 seconds) in PM peak, northbound. + 13% (98 seconds) in PM peak, southbound.
	Vehicular Crash & Safety	Blount & Person Street have crash rates 4-5 times higher than state-wide average. Rates of angle and sideswipe, same direction crashes 2 times higher than city-wide average.	Reduced crash rate anticipated by: Narrowed roadway, reduced speeding, redefinition of appropriate lane widths (in 3-lane sections).	Reduced crash rate anticipated by: Narrowed roadway, reduced speeding, redefinition of appropriate lane widths (in 3-lane sections), and restoration of two-way operation.
Walkable + Multi-Modal	Bicycle Facilities	No bicycle facilities in corridor.	Establishes dedicated bike lanes on Wake Forest Road, and a bike lane northbound on Person Street and southbound on Blount Street.	Establishes dedicated bike lanes on Wake Forest Road, and a bike lane northbound on Person Street and southbound on Blount Street. (Downtown section from Edenton to MLK is limited to sharrows).
	Pedestrian Comfort	One-way operation provides reduced conflicts between pedestrians & vehicles (over 2-way), allows for progressively timed signals that create gaps for pedestrian crossings.	Pedestrian comfort strengthened by: 3-lane road diet on Wake Forest, lane reduction/road diet of Blount & Person, bulb-outs and streetscape.	Pedestrian comfort strengthened by: 3-lane road diet on Wake Forest, lane reduction/2-way restoration diet of Blount & Person, Bulb-outs and streetscape.
	Transit	Some routing options limited by one-way operation.	Some routing options limited by one-way operation, more pedestrian-friendly (narrowed, reduced speed).	More routing options available by 2-way operation, more pedestrian friendly (narrowed, reduced speed).

## How Do We Get There?

The phasing plan outlines the basic steps and choices, identifying the first actions and a logical sequence of implementation. Because these are conceptual plans, changes should be anticipated and a wide range of unanticipated variables will ultimately shape the path to implementation. This phasing plan simply organizes key initial actions and focus.

## Phase 1 | Road Diet Restriping

The Road Diet restriping has been organized into a series of smaller steps that could be implemented separately or together corridor-wide. The intent with this phase is to target quick actions that will not require a large investment but will have an immediate effect on traffic behavior and consequently pedestrian comfort and corridor quality-of-life.

### 1.1 South – South Park (Person & Blount)

**Description** – Defines the lane configuration of Blount Street and Person Street from Hoke Street to MLK Jr. Boulevard, better defining the existing two travel lanes, adding a bicycle lane northbound on Person Street and southbound on Blount Street, and defining on-street parking on both sides.

**Intent** – Serves to immediately redefine the street helping to calm traffic through the South Park Neighborhood, and implements the first segment of corridor-wide bicycle facilities north-south.

**Choice** – Requires no change in traffic operation, simply better defines the existing curb-to-curb space and two travel lanes to calm traffic.

**Cost** – \$65,000

### 1.2 North - Wake Forest Road

**Description** – Converts the four-lane cross section of Wake Forest Road into the proposed three-lane section (one lane in each direction with a center turn lane), and adds bicycle lanes on both sides.

**Intent** – Serves to calm traffic along this neighborhood section of the corridor, incorporates bicycle facilities, and makes pedestrian crossings easier and safer.

**Choice** – Analysis suggests this change will have little effect in traffic operation.

**Cost** - \$245,000

### 1.3 Partial Two-way Restoration (Person Street – Delway Street to Peace Street)

**Description** – Restores Person Street from Delway Street/ Mordecai Drive to Peace Street to two-way operation. This is achieved by making the western-most lane southbound and keeping the remaining two lanes northbound. Partial two-way restoration will require new traffic signals at the Franklin Street and Peace Street intersections to facilitate two-way functionality.

**Intent** – Serves to provide increased access, ease of wayfinding, and visibility to businesses along this predominantly retail section of Person Street.

**Choice** – Analysis suggests this change will have little effect in traffic operation and is consistent with both road diet and potential corridor-wide two-way restoration. However, limits on-street parking to one side and restricts the inclusion of a bicycle lane until future corridor-wide two-way restoration.

**Cost** - \$135,000

### 1.4 Central – Downtown (Person & Blount)

**Description** – Defines the lane configuration of Blount Street and Person Street from Peace Street to MLK Jr, Blvd. to a consistent two travel lanes, adding a bicycle lane northbound on Person Street and southbound on Blount Street, and on-street parking on both sides.

**Intent** – Serves to calm traffic, provide appropriate lane width (in existing areas with three lanes), and complete a connected bicycle facility north-south through the corridor.

**Choice** – Analysis suggests this change will have some effect on traffic operation and will require acceptance of some additional vehicular travel delay.

**Cost** - \$285,000

## Phase 2 | Streetscape

An important component of the vision is the physical transformation of the corridor. The road diet restriping sets in place a framework for focused streetscape and bulb-out investment intended to enhance the corridor’s physical character and improve the pedestrian environment. The initial streetscape investments are targeted on the north and south sections where the investment is most needed and will have the greatest impact.

### 2.1 South – South Park (Person & Blount)

**Description** – Inserts landscaped bulb-outs at intersection corners and selected mid-block locations (MLK Jr. Blvd. to Hoke St.) to better define the on-street parking aisle, narrow pedestrian crossings, add street trees and landscaping, and visually narrows the road to support traffic calming. This phase should include the completion of missing sidewalks on east side of Person Street from Hoke Street to Bragg Street.

**Intent** – Serves to calm traffic, provide additional streetscape and tree canopy enhancement, complete sidewalk network and make safer pedestrian crossings.

**Choice** – Requires final streetscape design, more detailed cost estimate and decision on timing and inclusion in capital budget.

**Cost** – \$1,645,000

### 2.2 North – Wake Forest Road (to Peace Street)

**Description** – Inserts landscaped medians and pedestrian crossings at select locations along Wake Forest Road from Brookside/Automotive Way to Delway Street. This phase should include the completion of missing sidewalks on the west side of Wake Forest Road from Sycamore Street to Cedar Street. This phase includes landscaped bulb-outs at intersection corners and selected mid-block locations on Blount Street and Person Street (from Delway Street to Peace Street).

**Intent** – Serves to calm traffic, provide additional streetscape and tree canopy enhancement, complete sidewalk network and make safer pedestrian crossings.

**Choice** – Requires final streetscape design, more detailed cost estimate and decision on timing and inclusion in capital budget.

**Cost** - \$1,755,000

### 2.3 Central Streetscape – Downtown (Person & Blount)

**Description** – Inserts landscaped bulb-outs at intersection corners and selected mid-block locations (Peace Street to MLK Jr. Blvd.) to better define the on-street parking aisle, narrow pedestrian crossings, add street trees and landscaping, and further visually narrow the road to support traffic calming. This streetscape phase can occur before a decision is made on two-way restoration (the proposed design is not dependent on two-way operation).

**Intent** – Serves to calm traffic, provide additional streetscape and tree canopy enhancement, and make safer pedestrian crossings.

**Choice** – Requires final streetscape design, more detailed cost estimate and decision on timing and inclusion in capital budget.

**Cost** - \$4,070,000

## Phase 3 | Two-Way Restoration

The ultimate two-way restoration of the Blount Street and Person Street sections of the corridor is part of the long-term vision. Preliminary traffic analysis suggests there are no fatal flaws to this scenario; however, there is further analysis necessary and a future choice to be made regarding the level of additional traffic delay acceptable for the community benefits gained.

### 3.1 Refined Traffic Analysis (roundabouts and new corridor signal timing)

**Description** – The preliminary analysis has identified several key intersections (Edenton/New Bern, South/Lenoir) with increase delay caused by the restoration of two-way

traffic operation. This initial analysis was limited by the assumption of the corridor’s existing timing (designed for one-way traffic). Further analysis should be conducted to test alternative signal timing scenarios and their effect on the corridor and adjacent downtown street network. In addition, further engineering design and traffic testing is needed to refine the design and operational analysis of the proposed roundabouts.

**Intent** – Analysis will allow a more accurate picture of the traffic effects and allow a more informed decision.

**Choice** – To continue to work with City staff and elected officials to gain a better picture of the benefits and trade-offs of two-way restoration.

**Cost** - \$50,000-100,000

### 3.2 Two-Way Restoration (Wake Forest to Hammond Road)

**Description** – Based on the results of the additional two-way restoration analysis, potentially restore two-way operation. The implementation will require roundabouts at the transitions with Wake Forest Road and Hammond Road, and new traffic signals at all signalized intersections on Blount Street and Person Street to facilitate two-way functionality.

**Intent** – Maximize routing options and access to the downtown, calm traffic on the corridor, increase business visibility, strengthen the corridor’s neighborhood vitality, and support walkable, street-oriented development.

**Choice** – The acceptance of additional traffic delay to gain community benefits.

**Cost** - \$2,720,000

### 3.3 Capital Boulevard Roundabouts

**Description** – Inserts two potential roundabouts north and south of Capital Boulevard on Wake Forest Road as part of the long-term plan for Capital Boulevard. This project is independent of the Wake Forest road diet and can occur based on the development and timing of the proposed Capital Boulevard improvements.

**Intent** – Serves to redesign the intersection of Wake Forest Road/Automotive Way/Brookside Drive, supports the recommendations of the Capital Boulevard Study, and helps create a stronger pedestrian link for the planned Pigeon House Branch Greenway.

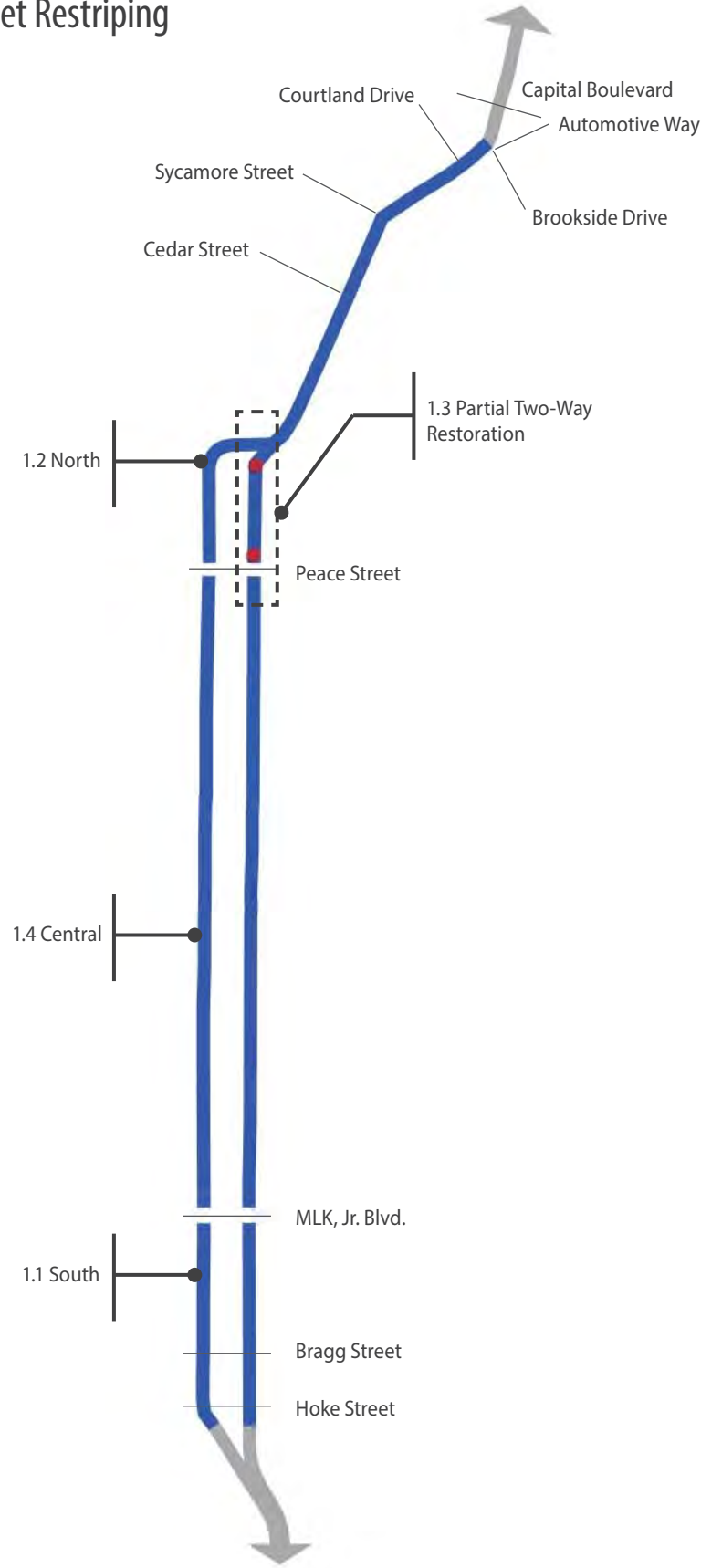
**Choice** – Requires final design, more detailed cost estimate and decision on timing and inclusion in capital budget.

**Cost** - \$1,350,000

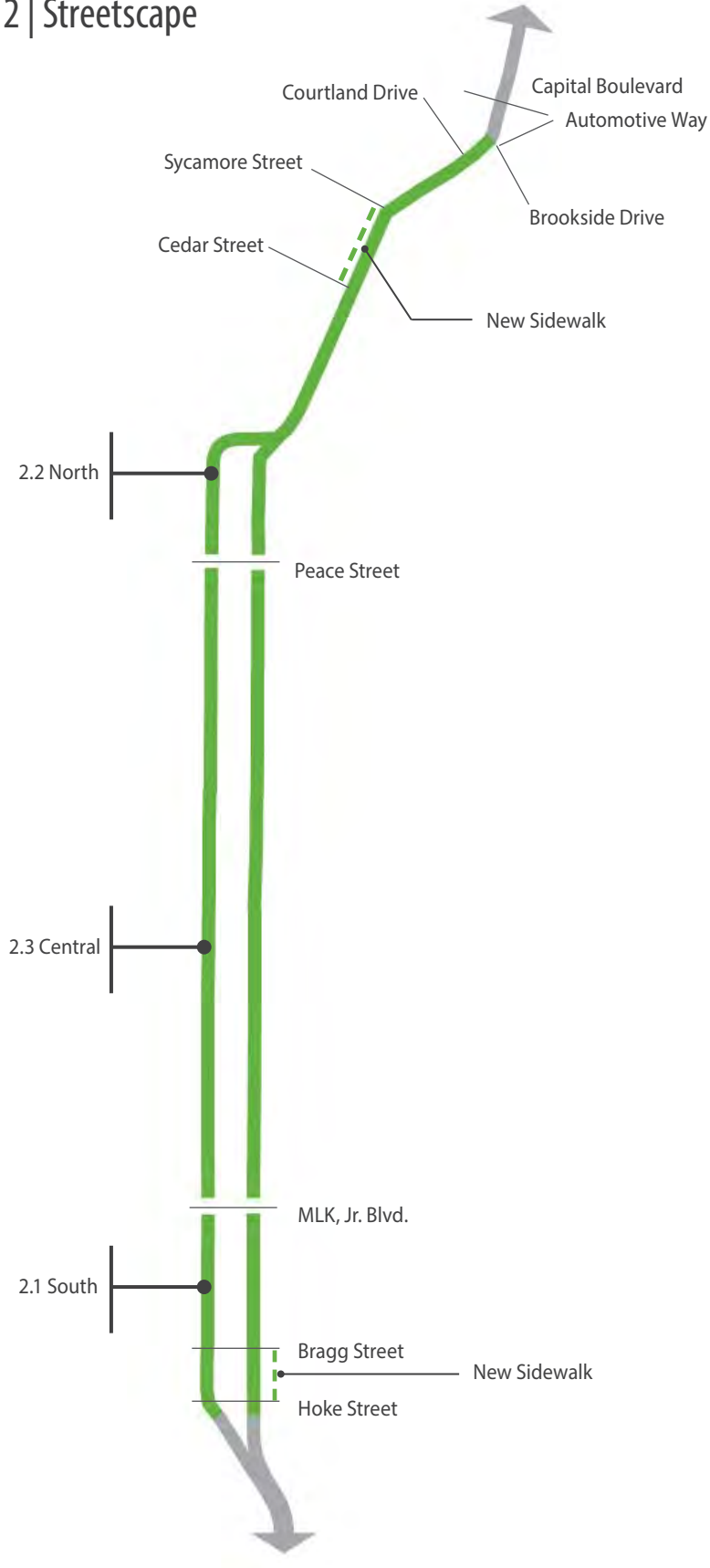


Phasing

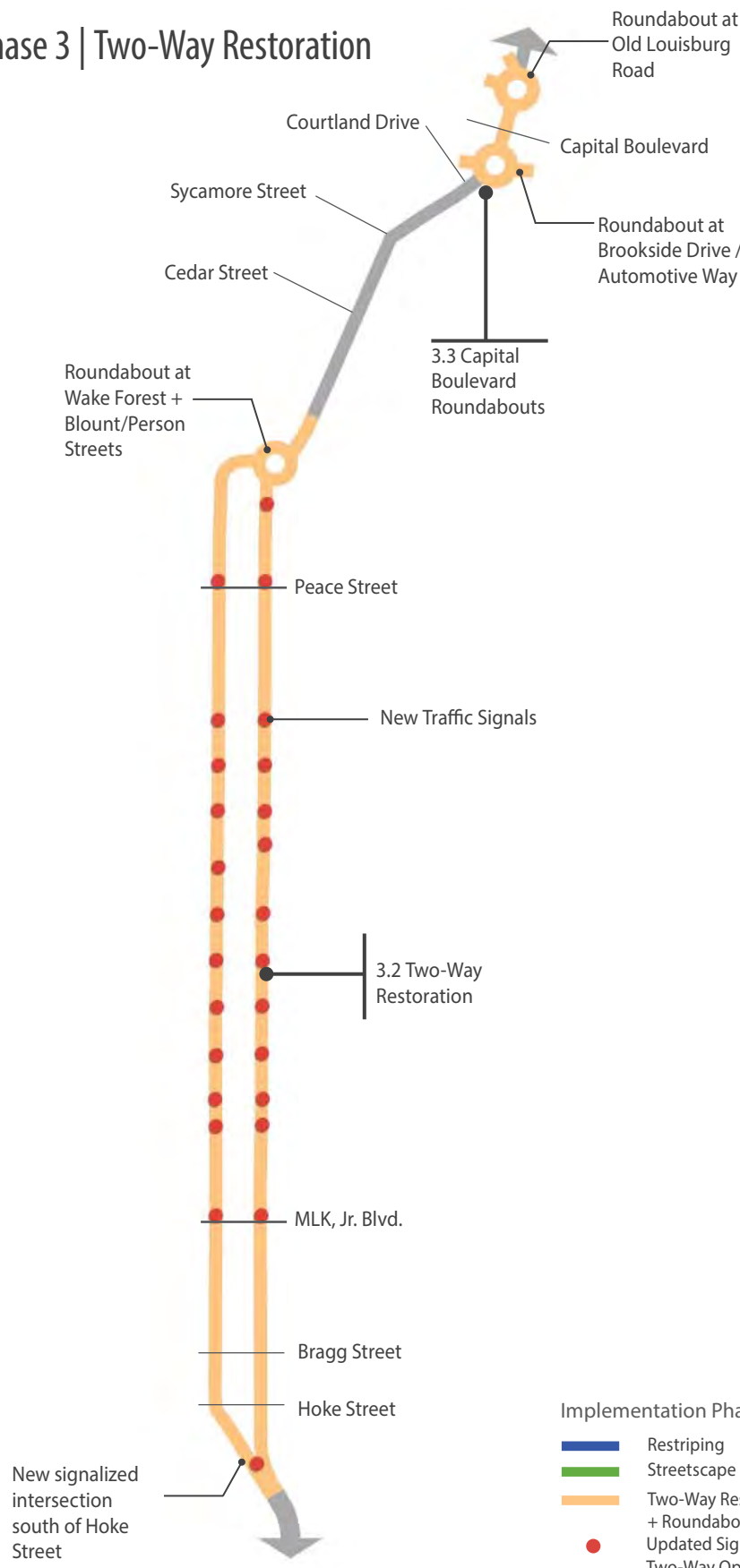
Phase 1 | Road Diet Restriping



Phase 2 | Streetscape



Phase 3 | Two-Way Restoration



- Implementation Phases
- Restriping
  - Streetscape
  - Two-Way Restoration + Roundabouts
  - Updated Signals for Two-Way Operation



**AECOM**





# Blount St · Person St Corridor Study

## Corridor Plan Report - 01 Issues + Opportunities









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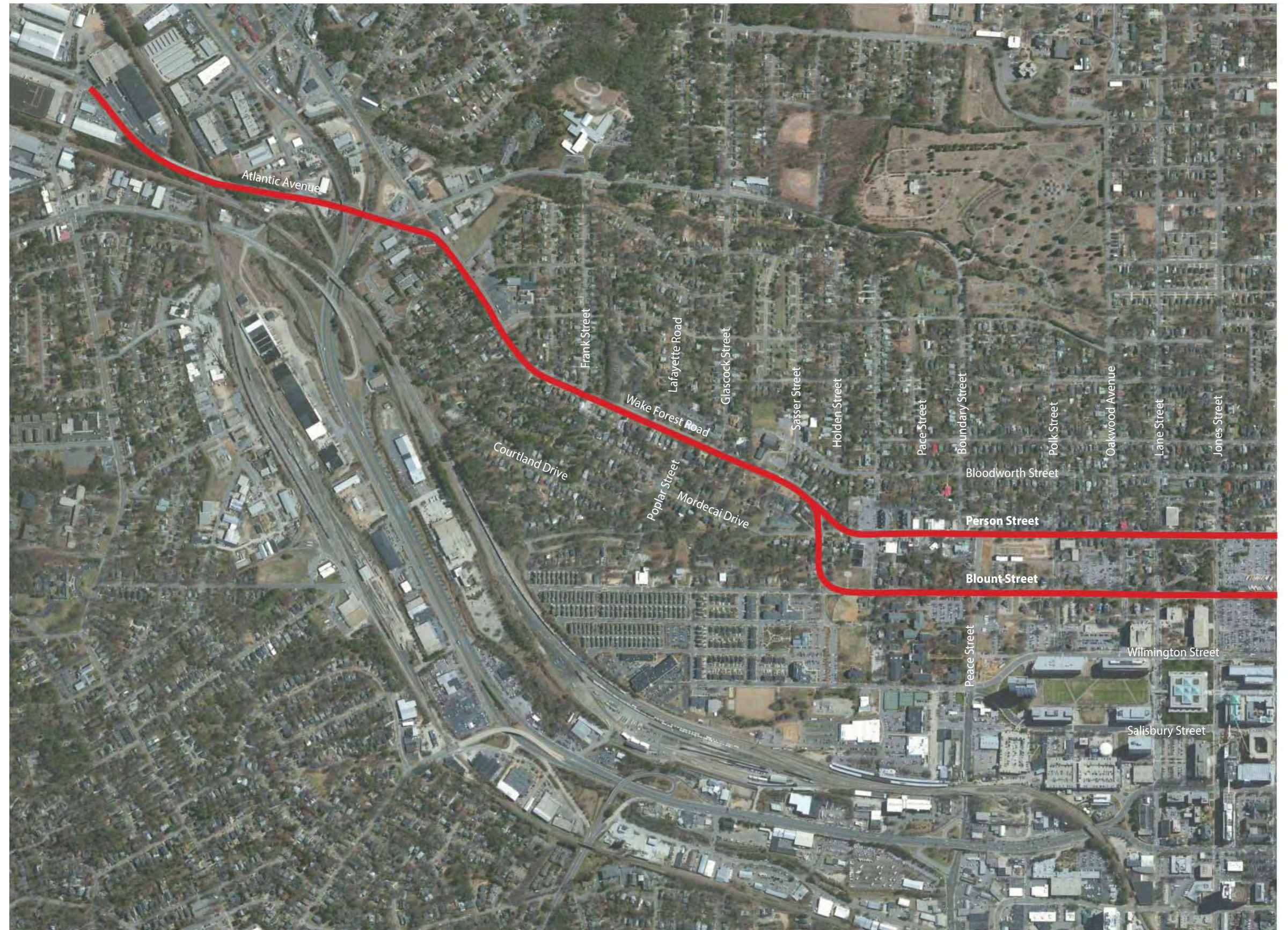
# 01 ISSUES + OPPORTUNITIES

## Introduction

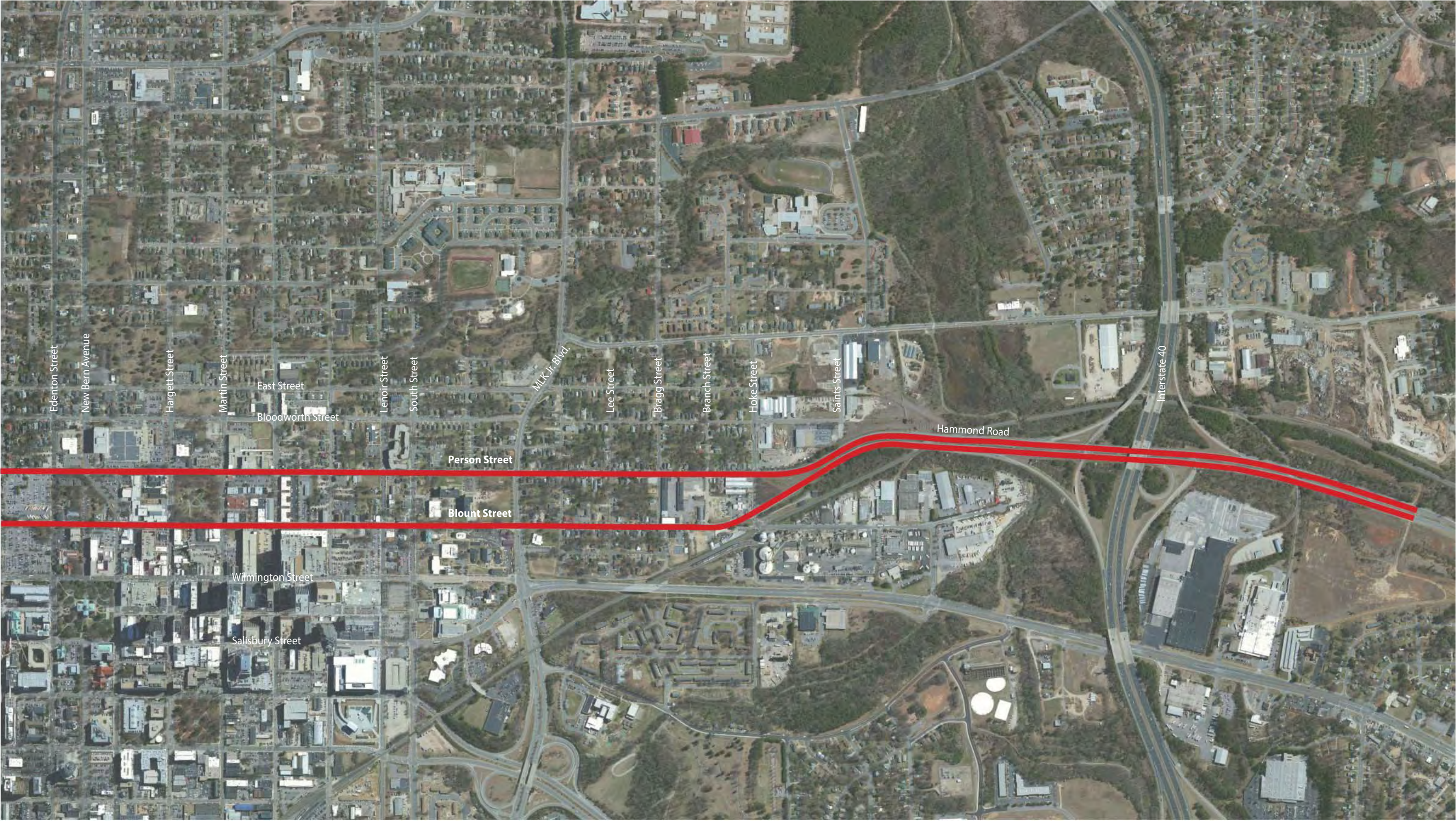
The Blount Street and Person Street corridors can be seen through multiple lenses: as major urban thoroughfares, commercial corridors and as neighborhood streets. The corridors extend over 5 miles from Capital Boulevard to Interstate 40, including Wake Forest Road, Blount Street, Person Street, and Hammond Road, with the core of the corridor being the one-way pair of Blount Street and Person Street. They pass through distinct communities with strong histories, different needs and priorities, yet they must function as a system, serving each of these communities in different capacities.

The Blount St-Person St Corridor Study will identify multi-modal transportation and streetscape design options and programmatic strategies to improve the corridors at all of these scales, with a particular focus on how transportation and streetscape strategies impact placemaking and economic development. The study will take into account the numerous previous studies and initiatives that impact the corridors, as well as the goals and priorities of the communities the corridors encompass.

This Issues and Opportunities Report is intended to document and summarize the range of conditions in the corridor including the community's goals and objectives, land use and urban form, traffic and multi-modal mobility, and street design. This document will serve as the foundation for the development and evaluation of design alternatives for the corridor.









## 1.1 What We Heard

On Monday, October 22, 2012, the City of Raleigh Urban Design Center held a Public Kick-Off Workshop for the Blount St-Person St Corridor Study. Over 125 residents and stakeholders attended the workshop to share their comments, ideas and visions for the corridor. During the workshop, attendees worked in small teams and were asked to answer four questions:

1. What do you value about the corridor?
2. What do you want to protect?
3. What do you want to change?
4. What is your 100 year vision?

### Themes

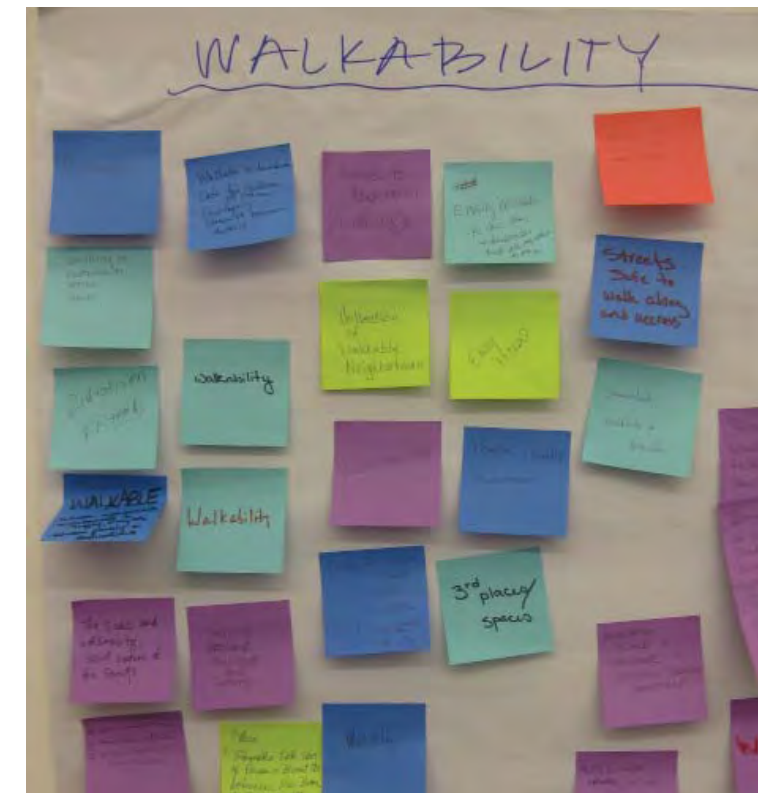
Hundreds of ideas and concepts were documented on maps, post-it notes, and table notes. For the purpose of summarizing the dialog, the comments obtained in the public workshop were organized into a set of reoccurring themes that emerged. These themes are critical to the process as they will guide the proposed street design for the Blount St-Person St corridor, serving as the touchstone for evaluating potential alternatives and design concepts. The following pages document all of the comments gathered for each question (values, protect, change, vision) organized by the following four themes:

- Business + Economic Development
- Neighborhood + Historic Character
- Traffic + Mobility
- Walkable + Multi-Modal



### Let's talk about Blount Street + Person Street...

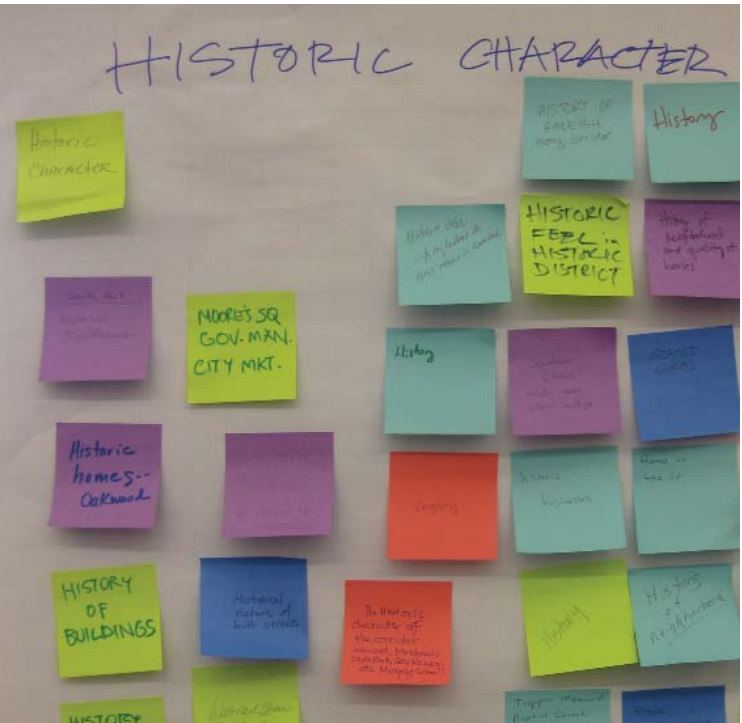
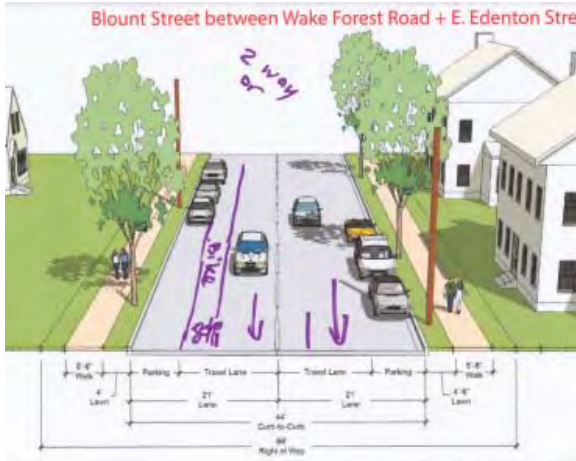
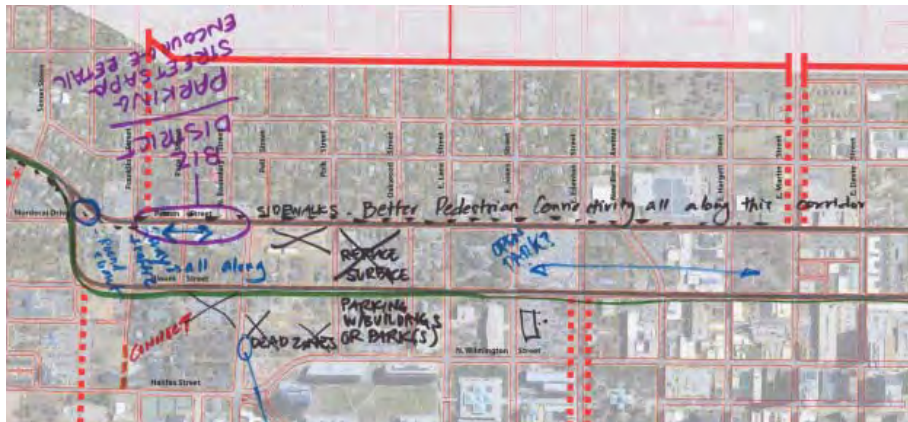
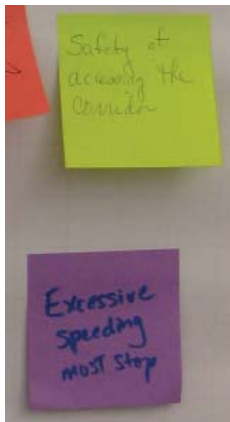
1. What do you want to **Protect**?  
 PLAYGROUNDS / KIDS / FAMILIES  
 HISTORY OF SOUTH PARK  
 RESIDENTIAL NEIGHBORHOOD  
 SMALL SCALE NEIGHBORHOOD BUSINESSES  
 VILLAGE SCALE  
 SLOW SPEEDS ON NEIGHBORHOOD STREETS  
 EXISTING WETLANDS / NATURAL FEATURES



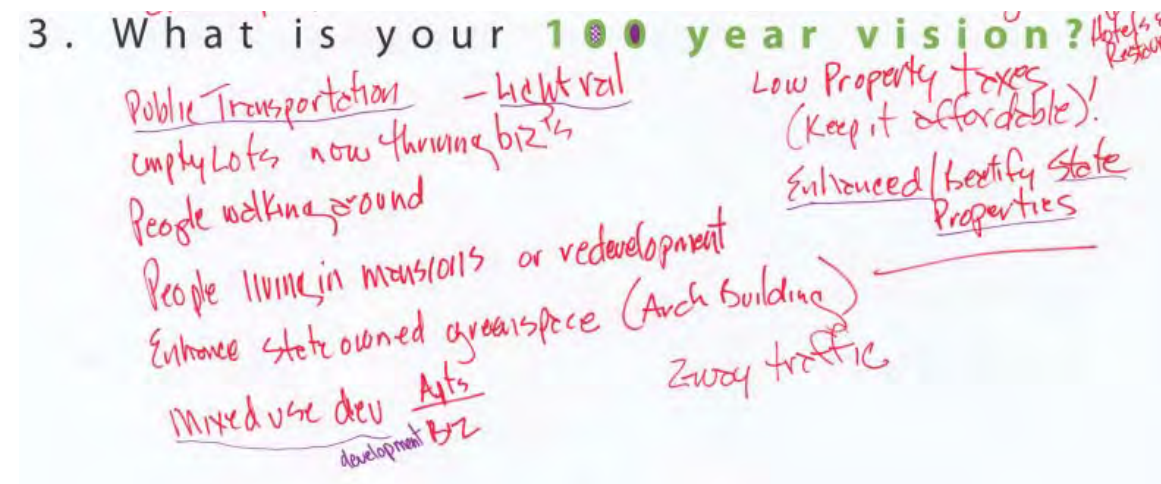














Values

Business & Economic Development

Local business opportunity  
Little restaurants  
Escuazu’s  
Closeness to downtown shops and restaurants  
Local food as an economic development and revitalization strategy  
Small Person Street and commercial note by Krispy Kreme  
The bike store, Oak City Cycling  
Retail business and neighborhood business  
Existing businesses (Pie Bird, Person Street Pharmacy, etc) and the potential for more  
Mordecai, better sidewalks  
Safe access to business  
Increasing value of property  
Excitement of downtown functions, festivals and appeal to many  
Property tax and redevelopment do not drive out lower income residents  
Urban environment, things to entertain  
Safety to business and neighborhood  
2 farm enterprises developing along corridor  
Mordecai business district  
Vibrant community business district  
Mixed use zoning  
Businesses incorporated into walkable community  
Access to business development and growth  
Increased new development  
Support growth of small neighborhood (walk to businesses)  
Varied land use, businesses, houses, governors mansion  
Location of both my family’s home and my business  
Access to grocery/farmers market  
Moore Square  
Local Independent businesses  
Range, residential business, demographic diversity, uses, value of property  
Accessibility to business, public walkways, safety  
Small shops  
City Market  
Person Street business parking  
Surrounding land around Tupper Memorial Church  
Diversity of corridor, types of businesses, mix of commercial, residential  
Livability of downtown (grocery store)  
Promoting Person Street Business  
Thriving businesses that are accessible by peds, bikes, and cars  
Local shopping resources  
Person business district shops, Krispy Kreme, Pharmacy  
Mixed uses and mixed income development  
Person Street business District  
Small biz development for neighborhood  
Small business growth, Small business feel  
Moore Square business district, can only get better, more livable  
Mix of uses, offices, retail, restaurants, residential  
Up and coming Mordecai Business District, City Farm, Oak City Cycling Project, Market Restaurant  
Get rid of light industry corridor on the North Side. Replace with consumer oriented, bus with safe entrances (leeway)

Neighborhood & Historic Character

Friendly neighbors who make it a point to know others in the area  
Friendly safe neighborhood with committed, invested residents  
Neighborhood feel of Downtown  
It’s familiar - Neighborhood Character  
Appeal of old Oak Trees  
Trees next to sidewalk  
Keeping the neighborhood friendly  
Mordecai neighborhood is delightful, Historic connected  
Responsible/sustainable uses  
Historic Character, Preservation, Original Houses  
Sense of community, Mordecai neighborhood  
Close to parks  
Historic architecture, Mansions on Blount Street and Person Street  
Inclusive of community neighbors  
Sense of Community, Community Interaction  
Diversity (people and neighborhood)  
Special quality of Oakwood  
Potential of Business District between Peace Street and Franklin  
Residential character, Neighborhood feel  
Historic residential district connected with a adjacent to the corridor  
Urbanism vs suburbanism  
Value charm, efficient way of getting from Peace Street to MLK and vice versa, it is not too commercial  
Cleanliness (no glass on the street)  
Neighborhood revitalization, safety  
How different each section is now  
South Park - Historical Significance  
Historic homes -Oakwood  
History of buildings, History of people  
Moore’s Square, Governors Mansion, City Market  
Historic Mordecai, love it  
Historical nature of both streets  
Historical scenes of parks  
Historical value to my husband. He was raised in South Park  
Oakwood, Mordecai, South Park, Governors Mansion, etc. Murphy School  
Historical Corridor  
History of Raleigh along the corridor  
Southern Charm, including Trees, historic buildings  
Tupper Memorial Baptist Church  
Preservation of Historic Elements and neighborhood, Homes on Lee Street  
History of neighborhood and quality of houses  
Granite curbs  
Rich history of the area, classic historic image  
Tree lined streets  
Trees, big old poetic ones  
Trees greening the City  
Old, large, trees along the route  
Children’s play area  
Aesthetically pleasing landscape, Visual unity  
Scale of buildings  
Number of neighborhood types and characters in such a short transect  
Proximity of street to building face  
Gateway in and out of downtown

Traffic Mobility

Low traffic noise  
Existing lane routes  
No roundabouts  
Convenience to suburbs  
Connection to downtown  
Easy way through downtown  
Improve east to west accessibility  
One way streets  
Easy access to downtown weather walking or driving  
South Park - Ease of access to I-40 and City Center  
Proximity to downtown  
Pace, Easy, not too fast, right speed for urban travel  
No obstructions like large bushes block entrance way  
Connection to downtown  
Accessibility to I-40  
Easy access  
Neighborhood connectivity to downtown  
Ease of traffic flow, rare “traffic jams”  
One way streets  
Easy access to BeltLine and I-40  
Accessibility to History and Government Building  
Easy from I-40 to downtown  
Ease of access from Mordecai to downtown, rail line especially  
The traffic speed off Hammond onto Person Street  
Slow traffic  
Slow traffic speeds  
Lower speeds for safety  
Lower speed limits in neighborhood access  
Increase safety for foot traffic both by police access and  
Streets that move traffic, not parking and parties and events  
Neighborhood safe feel  
Speed limit monitored by law enforcement  
Slow the traffic through neighborhood  
Make speed limit higher  
Alternative parking solutions  
Safe and desirable neighborhood streets  
Street lights  
Accessibility  
Safety of accessing the corridor  
Excessive speeding must stop  
Connection to Downtown  
Traffic flow to neighborhood businesses and homes  
Diversity, commercial residential  
Access to multiple services locally, stores entertainment, commerce  
Connection across the traffic flow  
Diversity of neighborhood, income, residential, business, race  
Ease of grid design between sections  
Neighborhood connectivity  
Proximity, ease of access between living, shopping, entertainment  
Connecting the community  
Person and Blount can get me across either north or south  
Cohesion from one end to another

Walkable & Multimodal

Walkable, livable  
Traffic Calming  
Walkable streets  
Pedestrian Bike Friendly environment  
Sidewalks (when they are there)  
Pedestrian friendly neighborhoods  
Pedestrian friendly  
Being able to jog, walk, neighbor visit, safely  
Create neighborhood friendly atmosphere  
Ability to safely walk to venues  
Walking to restaurants, stores, gym  
Pedestrian friendly  
Walkable between neighborhood, neighborhoods to shopping destinations, dinning, etc. between parking and destinations  
The scale and walkability, social nature of the street  
Less Commuter Traffic  
Walkable neighborhood  
2 way traffic - Blount and Person  
South Park Walkability  
Walkable to Downtown, safe for children to roam  
Developing Person Street Business District  
Improve Pedestrian/bike facilities and safety  
Wide sidewalks on both sides of the street  
Access to downtown, walking  
Collection of walkable neighborhoods  
Clarity of north - south circulation and connection  
Easy to create mental image of the city  
Easily accessible to the stores and businesses that are important to me  
Easy access  
People Friendly environment  
3rd place/spaces  
Walkability and business community around Person  
Streets safe to walk along and across  
Somewhat walkable and bikable  
Pedestrian scale sidewalk and building street frontage  
Ability to walk to local business, restaurants, and downtown  
Walkability , bike-friendly  
Parks, some are better then others, all could be improved  
Person and Blount should be two traffic lanes consistently  
Bicycle lanes on selected roadways to access greenways  
Safe friendly, access to pedestrians  
Safe cycle and walking  
Access, through travel by car and walkability  
Ability to cross street  
Public transit, appeal  
Connectivity to Transit Station  
Reduce traffic, increase bus service  
Non motorized transit, bicycle, foot, any non external energy source, transit access and support  
One way orientation does make it easier bicyclist and pedestrian at times  
Contiguous sidewalk through the varying, disparate neighborhoods  
Protect sidewalks  
Streetscapes where people want to come and spend time and live



# Protect

## Business & Economic Development

Small scale neighborhood businesses  
Village scale  
Local business  
Housing diversity  
Not having banners in our business district  
Young businesses  
Mixed income affordability for homes  
Value of property, South Park  
Mix of uses, houses, school, business, museum  
Person Street businesses taking off  
Access to business  
Small businesses  
Diversity - mixed use  
Mixed use, quirky, unique, funky  
Urban Farm  
Neighborhood Businesses  
Local businesses  
Raleigh City Farm  
Density as it is  
Funkiness, Variety  
Parking, cars on Person

## Neighborhood & Historic Character

Historic Buildings  
Character  
Playgrounds, kids, families  
History of South Park  
Residential neighborhood  
Oak Trees  
Historic house stock  
Character of Historic Neighborhoods  
Existing wetlands, natural features  
Trees canopy  
Historic structure  
Granite curb  
Neighborhood feel  
Lack of big parking lots  
Protect the houses, all  
Preserve historic character  
Protect existing trees and add  
Protect owners, less absentee owners  
Maintain residential, keep residents  
Rather give them to the University than “let to”  
Protect the old homes on Blount Street  
South Park Neighborhood History and Character  
Harris Barber College  
Old Churches  
Oakwood Neighborhood  
Mordecai  
Peace College  
Seaboard area character  
Cemetery  
Raleigh City Farm  
Mansions  
Creeks and Streams, Greenways  
Historic architecture  
Residential character, quiet  
Trees, canopy  
Historical land marks  
Protect Shaw University and historic sense  
Protect students at the University  
Front yards  
Single family neighborhoods  
Quite neighborhoods  
Quality of life  
Parks, Nice scenes in Moore Square  
Small open spaces  
Diversity, people and buildings  
Low rise scale  
Charm, Ambiance  
Civic development

## Traffic Mobility

Flow of traffic,  
Ease of traveling by car north to south and south to north  
Accessibility  
Traffic flow  
One- way streets  
Traffic flow, currently flows well with synchronized lights  
Keep traffic (auto) down

## Walkable & Multimodal

Slow speeds on neighborhood streets  
Sidewalks  
Street Parking  
Continuous sidewalk throughout  
Efficient connection to downtown (bike/pedestrian/transit)  
Bicycling thoroughfare on Hargett Street  
Fairly walkable  
Bus stop, no place to stand  
Walkability, access to problem areas

Change

Business & Economic Development

More development south of MLK to I-40  
Need grocery store (big)  
More urban farms, gardening  
Local health facilities  
More shopping  
More retail  
Better directional signage, especially for businesses  
More space at restaurant outside seating  
Grocery Store - by foot  
Smell of the plant coming off I-40 onto South Person  
Make areas urban chic  
Less surface parking  
R line to Krispy Kreme  
More retail groceries  
Grocery store access  
Bring night life to houses at Blount Street Commons  
More consumer oriented north and south of Downtown  
R line route down Person Street  
Easy access to parking garage north of downtown (Moore Square)  
Enhance Person Street Biz  
Mixed use apartments and retail  
Dog food plant  
Encourage businesses further north and south  
Turn bus garage into shopping center (South Park)  
Revitalize Moore square, outdoor dining  
Higher density  
Use/develop under used parcels (mixed use)  
Increase retail  
Redevelop industrial area to mixed-use  
North of gym, abandoned dilapidated buildings

Neighborhood & Historic Character

Improve appearance, beautification, signage  
More visible ‘Raleigh Pride’  
Enhance, fund historic houses, buildings  
Improvement in South Park area  
Street character, local destinations, borough identity  
Consistent curb appeal, distinct character by section/neighborhood  
Water, green space, Crabtree Creek  
Rain gardens in neighborhoods  
Fletcher Park example  
Start the project on the southside because the improvements seem to start in the north and the south continues to deteriorate  
More of a welcome to Raleigh sign at both ends of the corridor  
Bury utilities  
Break corridor into districts  
Lighting for safety  
Underground utilities  
Public art  
Improved way finding  
Public trash cans  
Buried utilities  
Too much surface parking  
More interaction and integration of neighborhoods  
Public art installation (Wake Forest fork)  
Clean up boarder of houses and business  
Beautification  
Renovate boarded up homes in South Park  
Change zoning to not allow as many boarding houses  
Encourage home ownership  
Change trees from Crepe Myrtle to other  
Consistent street lighting  
Design and appearance standards  
Make street more attractive

Traffic Mobility

Speed, raceways, speedways  
Transition freeway to neighborhood  
Lighting - South of Martin Street  
Transition from North to South  
Connectivity east & west  
Better traffic flow 800 - N, 900 Blount Street  
Name one street one name (Hammond, Person, Wake Forest, Atlantic)  
2 way on both Person and Blount  
Deal with corridor as a cross section to include side streets  
Slow traffic  
One-way streets to two-way streets  
East-west access  
Wake Forest Road lanes  
Slow traffic  
Two-way Traffic  
Advance notice signage  
Change traffic flow on Blount from E South to MLK to prevent bottleneck caused by on street parking  
Enforced speed limits north and south of downtown  
Capital to Wake Forest, make it easier , 3 lanes might be easier than 2  
Trucks unloading - Blount Street is too narrow  
Speed  
Change timing of lights on north bound E. Edenton  
Traffic calming south of Moore square, road diet, hotels and restaurants  
Turn lanes on MLK  
Focus on getting people to, instead of through  
Make street two-way (like Hillsborough with median)  
Two-way streets  
Speed/morning traffic between Sasser and Franklin  
3 lane all the way  
Two-way streets  
Trees now blocking signage  
Simplify Capital/Brookside/Atlantic Intersection)  
Fast dangerous traffic  
Two-way traffic/traffic circles at Hammond transition at Person Street/  
Wake Forest Road merge

Walkable & Multimodal

Pedestrian crossing - Wake Forest Road  
Sidewalk maintenance, bad condition  
Children warning signs  
More sidewalks, pedestrian sensitivity - neighborhoods  
Bike lanes – connectivity  
Improve bus facilities, benches, covers  
Safe crosswalks at intersections  
Path for bicycles, increased sidewalks, bike lanes, and green space  
Pedestrian needs to be celebrated  
Make it more foot traffic friendly  
Lack of continuity of sidewalks  
Lack of greenway connections  
Better street lighting  
Better pedestrian safety access  
Add sharrows on all major and minor roads  
Add bike lanes and facilities  
Add lights in tunnel in greenway  
More crosswalks  
Lack of connections to neighborhoods  
Traffic calming, continuous sidewalk  
ADA sidewalks enforcement (e.g. Jones and Person)  
All business and apartments should be ADA accessible  
Better lighting  
Peace to Edenton  
Traffic calming measures  
Continuous sidewalks on Wake Forest  
Crosswalks north to Edenton  
More bike lanes  
More pedestrian friendly  
Bike paths, connectivity to east-west and north-south  
Greenway and bike lanes  
Make buses come through Oakwood and other neighborhoods  
Repairing sidewalks, improving walkability for strollers, wheel chairs, ADA Universal design  
Increased ability to cross Wake Forest (walking)  
Move bus station  
Complete streets  
Wider sidewalks  
Better wayfinding  
Two sided sidewalks all the way  
Increase transit  
Connect northend to greenway nearby  
Better bus stops at north end  
Add street car  
Range of transportation  
Improve crossing W. Forest Road at north end  
Person/Franklin corner: needs sidewalk protection parking problem)  
Unsafe traffic speeds (bike/pedestrians)  
Add bike lanes (entire stretch)  
More lighting north of Peace Street



# Vision

## Business & Economic Development

Riverwalk  
Energy independent  
Robust local food system  
Another City Market  
Total mix use  
Grocery store  
Grow food locally  
Reestablish Franklin Street Corridor  
Charging stations  
Neighborhood wi-fi  
Agriculture projects throughout  
Haven for small businesses  
Empty lots now thriving businesses  
People living in mansions or redevelopment  
Mixed use development  
Low property taxes, keep it affordable  
Denser  
More Tourism  
Downtown sports stadium (soccer, baseball, basketball, football, rugby)  
University collaboration  
Water - river walk and beach bars (Open up pigeon creek)  
Everything you need within walking distances  
Major retail, mixed use  
State will have sold all underutilized properties including parking lots to be developed  
Local businesses

## Neighborhood & Historic Character

Preserve history  
Distinct names of neighborhoods  
Lighting for safety  
Series of healthy compact neighborhoods  
Include greenspace  
More trees  
Everyone outside, vibrancy  
No utility wires  
Keep area so we would know them  
Keep historic integrity  
Family/living friendly  
Buried utilities  
Lots of greenspace and landscaping  
Zoned landscaping to vary by area, e.g. Shaw; Downtown, Historic Neighborhoods  
Lots of big old trees  
Enhance state owned greenspace (architecture building)  
Enhance and beautify state properties  
More parks and pocket parks  
Whole corridor has Historic Neighborhood designation  
Healthy neighborhoods  
Trees  
Restore the parks (4 quadrants around the Capital Building, Moore, Nash)

## Traffic Mobility

Not another Capital Boulevard  
Remove intersections where cars and people interact  
No exhaust  
No cars, public people movers  
Great flow through the corridor that supports neighborhoods

## Walkable & Multimodal

Train  
Real mass transit  
Rail system  
Jetson's  
Segways  
Public transportation  
Sidewalks everywhere  
Moving sidewalks  
Rail system  
Trolley, something new after the old  
Walkable neighborhoods  
Signs to help people move (walk) more safely  
Street cars or George Jetson mobiles  
Public transportation, light rail  
People walking around  
High speed rail access  
Greenways  
Floating cars, no cars  
Ride public transit to downtown sports stadium/area  
Elevated trains, subways, streetcar  
Better mass transit  
Connection to West Street (bike/pedestrian/transit) north off Peace Street  
Strong neighborhood nodes with BRT/Light Rail connection

## 1.2 Land Use + Urban Form

### Christmas Plan

In 1792, William Christmas was hired by the North Carolina State Legislature to develop a plan for the 1,000 acre tract of land that would later become the Capital City of North Carolina. Christmas designed and surveyed a one-square mile, orthogonal city with one-acre lots and perpendicular streets reminiscent of Roman castra. In the center, Christmas located Union Square, the future home of the State House. Equidistant from the State House, now known as Capital Square, he established four squares that would serve as greenspace for the young city. Today, these squares are home to the Governor's Mansion, Moore Square, Nash Square, and a collection of municipal buildings in what used to be Caswell Square.

William Christmas might have a hard time recognizing Downtown Raleigh today; while his grand and elegant plan has remains largely intact, it has been transformed in ways unimaginable from his 1792 perspective. The City's role and function has changed socially, economically and technologically. One way this transformation is evident is in our city streets. Christmas could not have anticipated the growth and expansion of Raleigh, nor the advent of the automobile. His Plan for Raleigh simply organized the city into a series of platted lots, public spaces, and streets. Blount and Person were among these first streets, platted 66 feet wide.

The Blount-Person Corridor is located on the eastern edge of the originally planned city. Both Blount and Person Street straddle the west and east side respectively of two of the four squares; Burke Square (location of the Executive Mansion) to the north and Moore Square to the south. The location of these corridors in relation to the City's historic plan and squares are an important consideration moving forward.





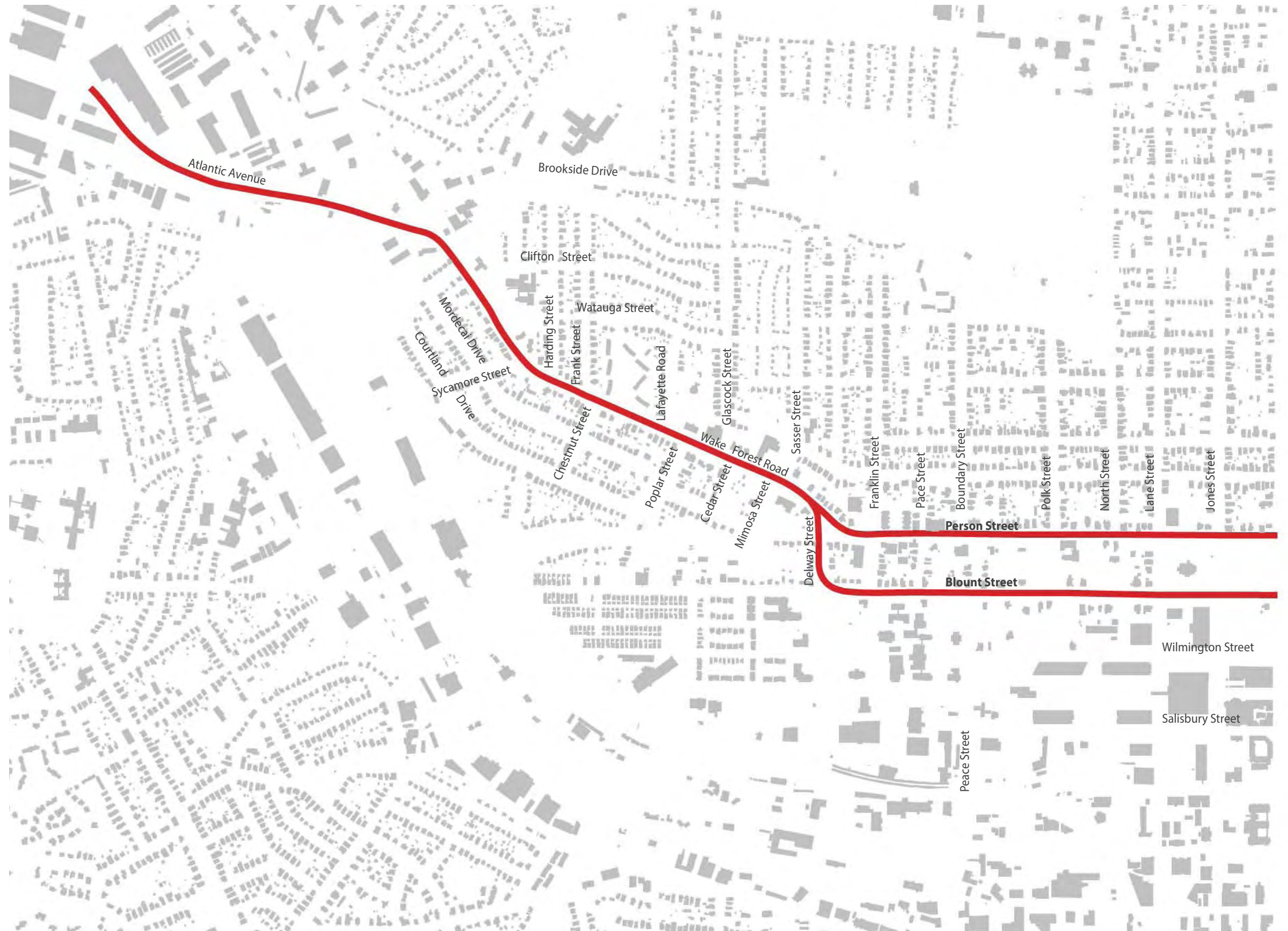




## Urban Form

This diagram maps the pattern of buildings and homes in the corridor with several distinct patterns emerging:

- The historic neighborhood pattern is clearly evident on the north and south with an established and consistent pattern of residential building setback framing the corridor.
- The downtown urban pattern of buildings built to the street is evident around Moore Square and along the North Person Street commercial district where active street-level uses framing the corridor is important.
- The open pattern from Peace Street to New Bern Avenue consisting mainly of surface parking lots for the State offices, creating a void of street-oriented development. Some of this area is changing with projects like the Blount Street Commons redevelopment.
- The Blount St-Person St Corridor effectively stitches these development patterns together while functioning as a transition point between the downtown to the west and single-family neighborhoods to the east.





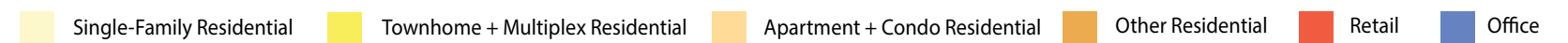




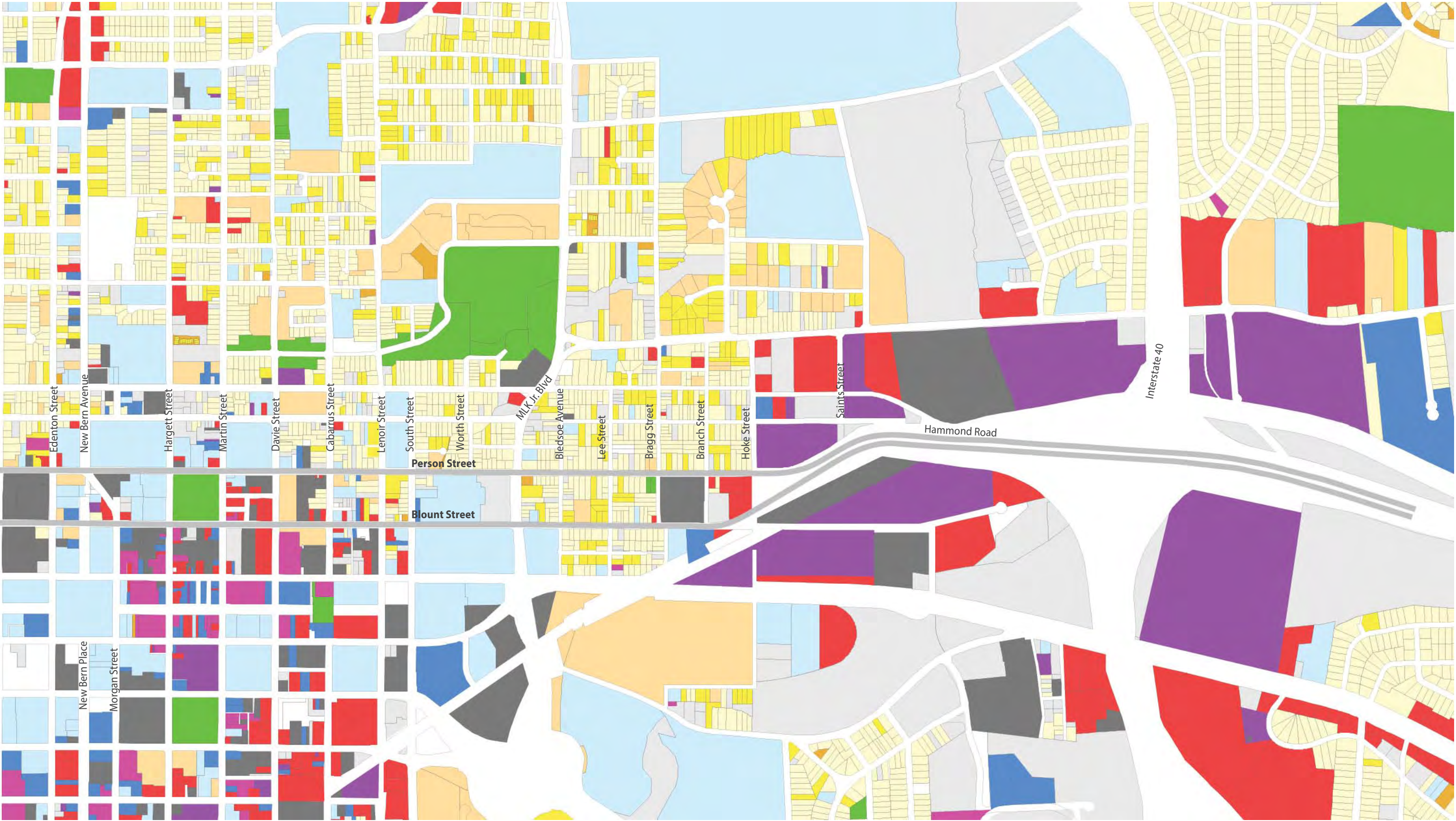
## Existing Land Use

The Blount St-Person St Corridor is framed by a variety of land uses that transition through the corridor.

- On the north and south ends of the corridor, existing land uses are predominantly industrial and auto-oriented retail. These two land uses effectively serve as the “gateways” into Downtown Raleigh and unfortunately set a tone that is inconsistent with the rest of the corridor.
- As you get closer to Downtown, the land uses transition into single-family residential inter-mixed with neighborhood retail, office, and commercial.
- The center of the corridor is characterized by institutional land uses intermixed with retail, commercial, and mixed residential.
- The corridor also functions as the eastern transition of Downtown Raleigh. Land uses to the east of the corridor are predominately single-family residential while land uses along the west edge of the corridor are institutional intermixed with retail, commercial, and mixed residential.





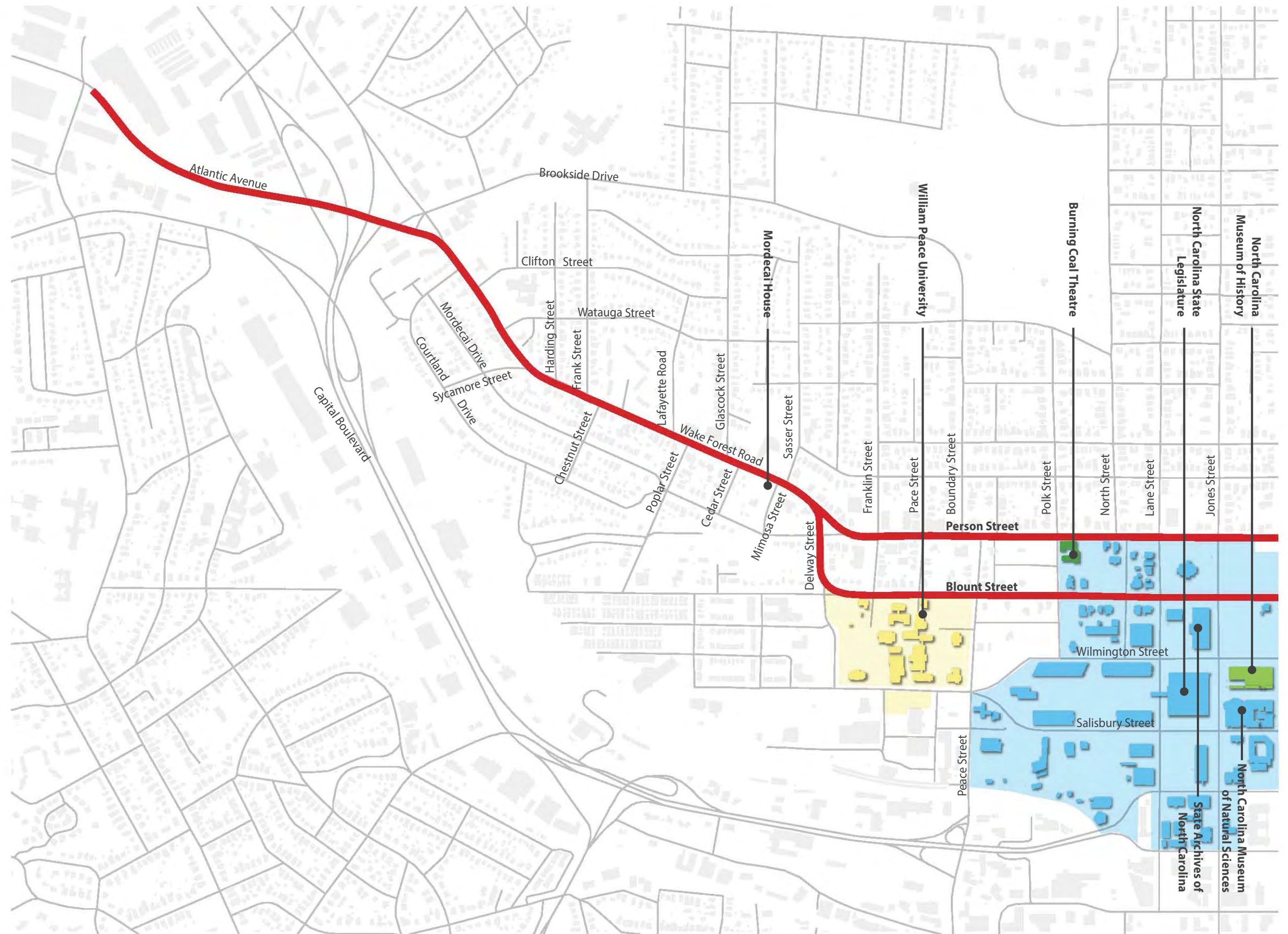




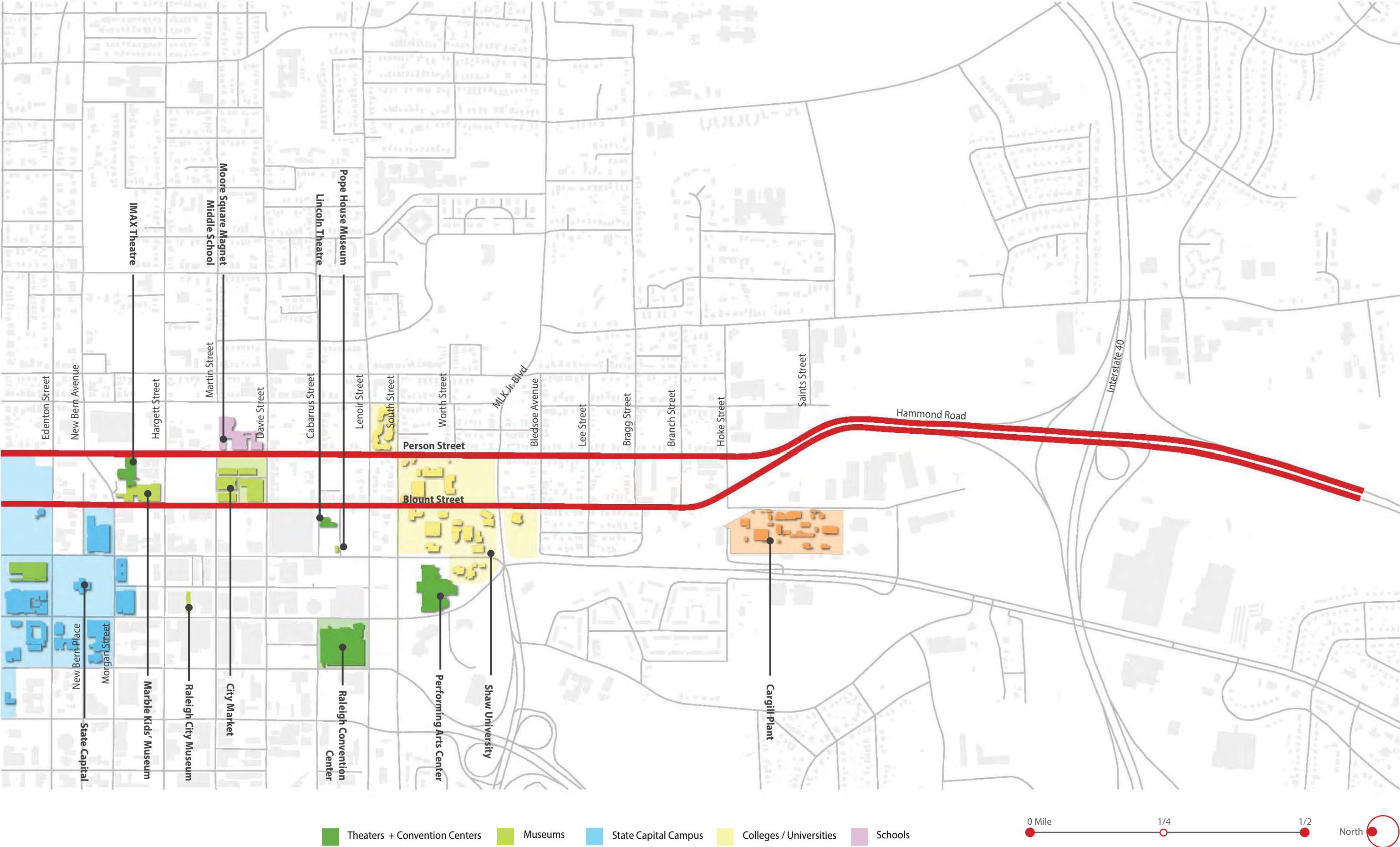
## Destinations

The Blount St-Person St Corridor facilitates access to a variety of civic, institutional, and cultural/entertainment destinations.

- The most significant of these destinations are the offices and museums of the State of North Carolina. This collection of buildings identified in the adjacent map as the State Capital Campus employs between 10,000 and 11,000 people downtown. Additionally, these buildings attract thousands of North Carolinians to the area. Many of these employees and visitors use Blount and Person Streets to get to and from these destinations.
- Additionally, the campus is home to the North Carolina State Legislature which, during legislative session, increases the number of visitors frequenting downtown.
- The Cargill Plant located on the southern end of the corridor is also a major industrial use that relies on truck access via I-40 and Hammond Road.
- Local college/university campuses include William Peace University on the north end of the corridor and Shaw University on the southern end of the corridor.
- A variety of cultural/entertainment venues include the IMAX Theater, Lincoln Theater, Pope House Museum, Burning Coal Theater, Artspace and the Marble Kids' Museum.





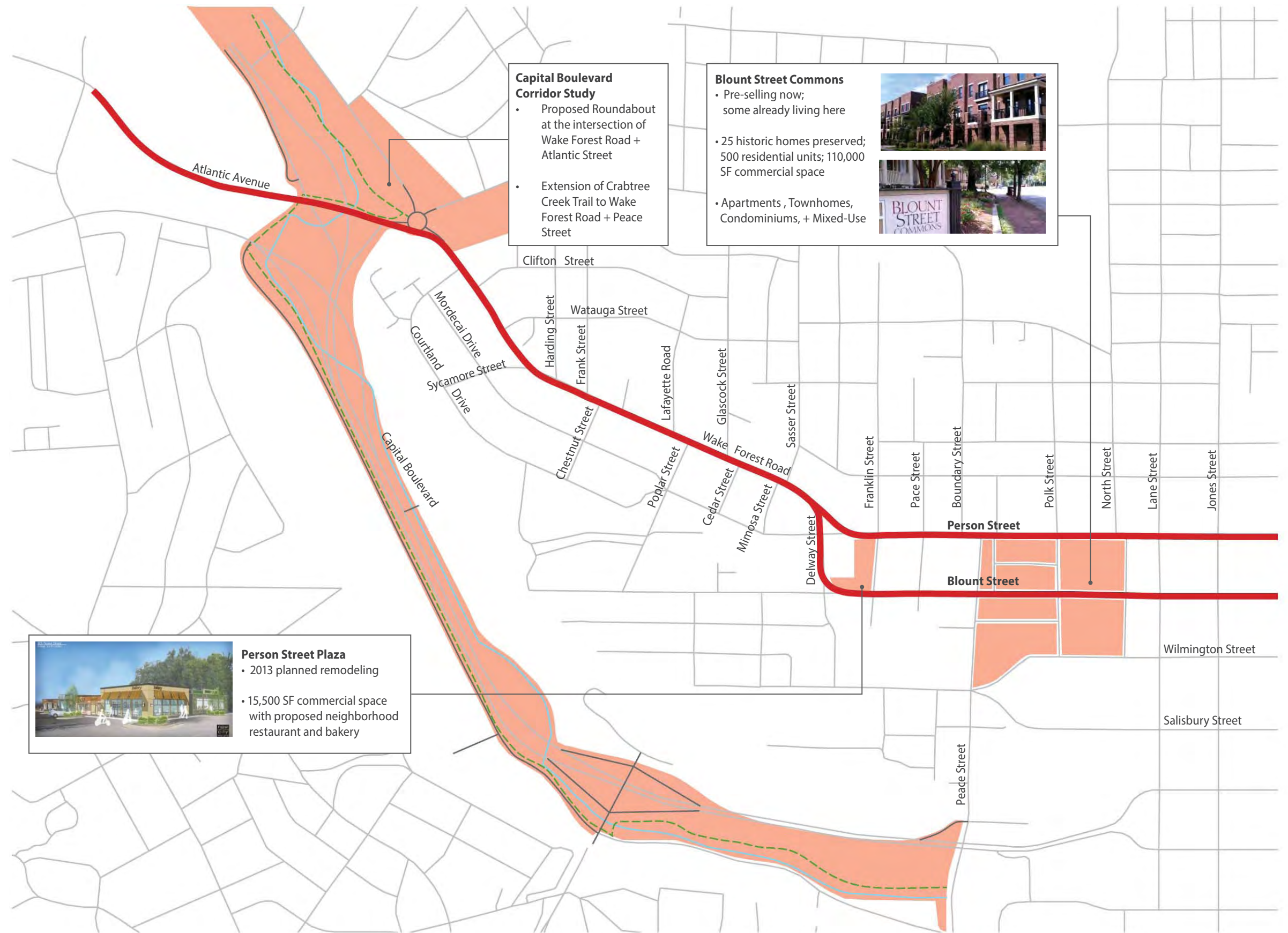




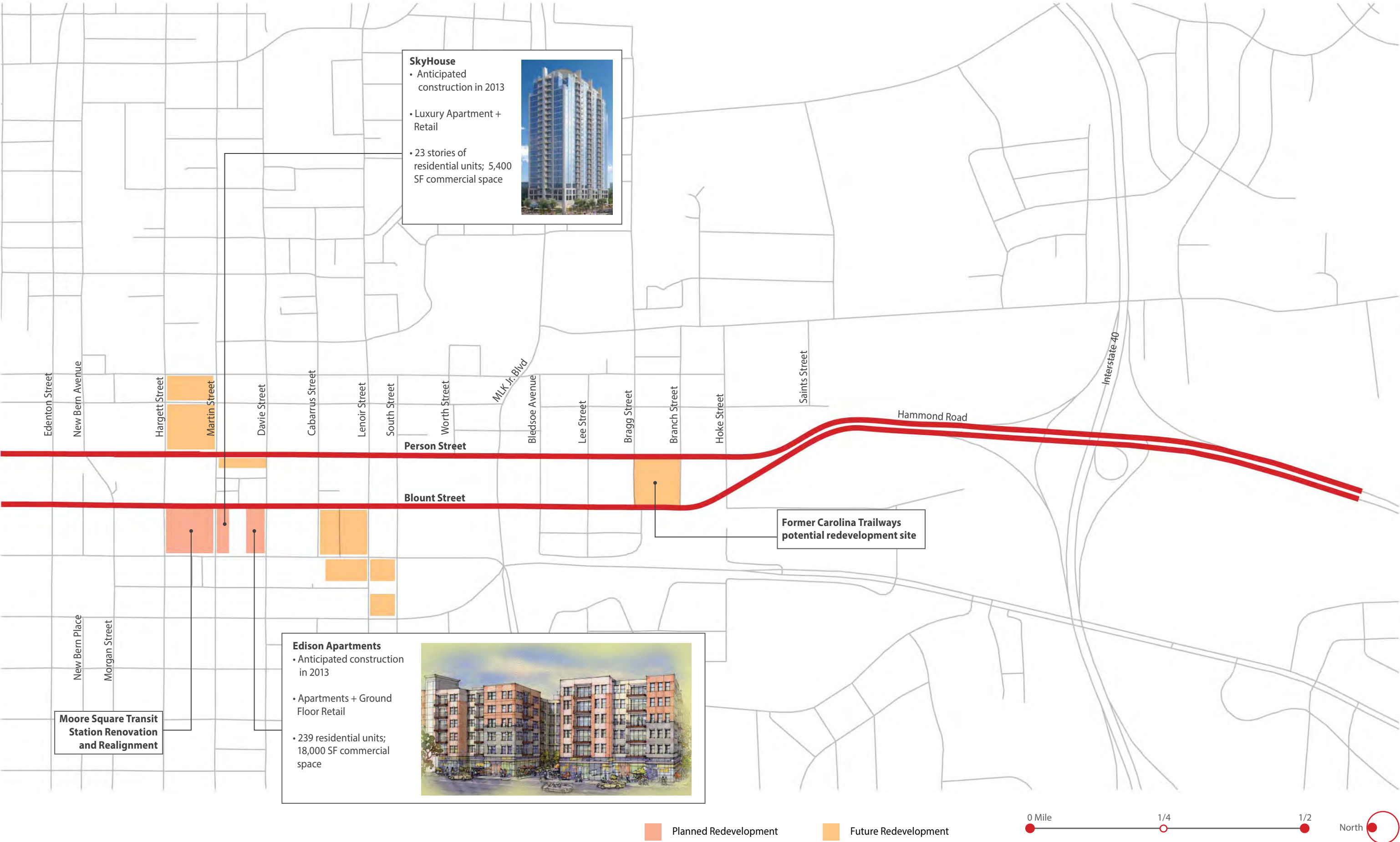
## Redevelopment

The Blount St-Person St Corridor includes a variety of redevelopment projects that are either planned or identified as potential future redevelopment opportunities.

- Two significant approved redevelopment projects include the development of the SkyHouse Luxury Apartment building and the Edison Apartments. Both of these will be built on the west side of Blount Street in the coming years and will bring over 550 residential units and over 22,000 square feet of commercial space to the corridor.
- Blount Street Commons and Person Street Plaza located on the north end of the corridor collectively plan to develop an additional 525 residential units and 125,000 square feet of commercial space. This increased development in the coming years will increase the demands of the corridor.
- The City of Raleigh's planned renovation of the Moore Square Transit Station will also have a substantial impact along the corridor. The project will potentially rearrange the circulation of bus traffic around Moore Square and provide an opportunity for additional redevelopment along the corridor that may or may not include mixed-use residential and commercial development.
- The former Carolina Trailways bus depot between Bragg Street and Branch Street has been identified by the community for potential mixed-use and residential development.
- The Capital Boulevard Corridor Study – this corridor project proposes a traffic circle on the northern end of the corridor at the intersection of Wake Forest Road, Atlantic Street, Brookside Drive, and Automotive Way. Additionally, the project proposes the extension of the Crabtree Creek Greenway Trail to Wake Forest Road, providing a future greenway connection on the north end of the Blount-Person Corridor and identifies potential redevelopment sites.





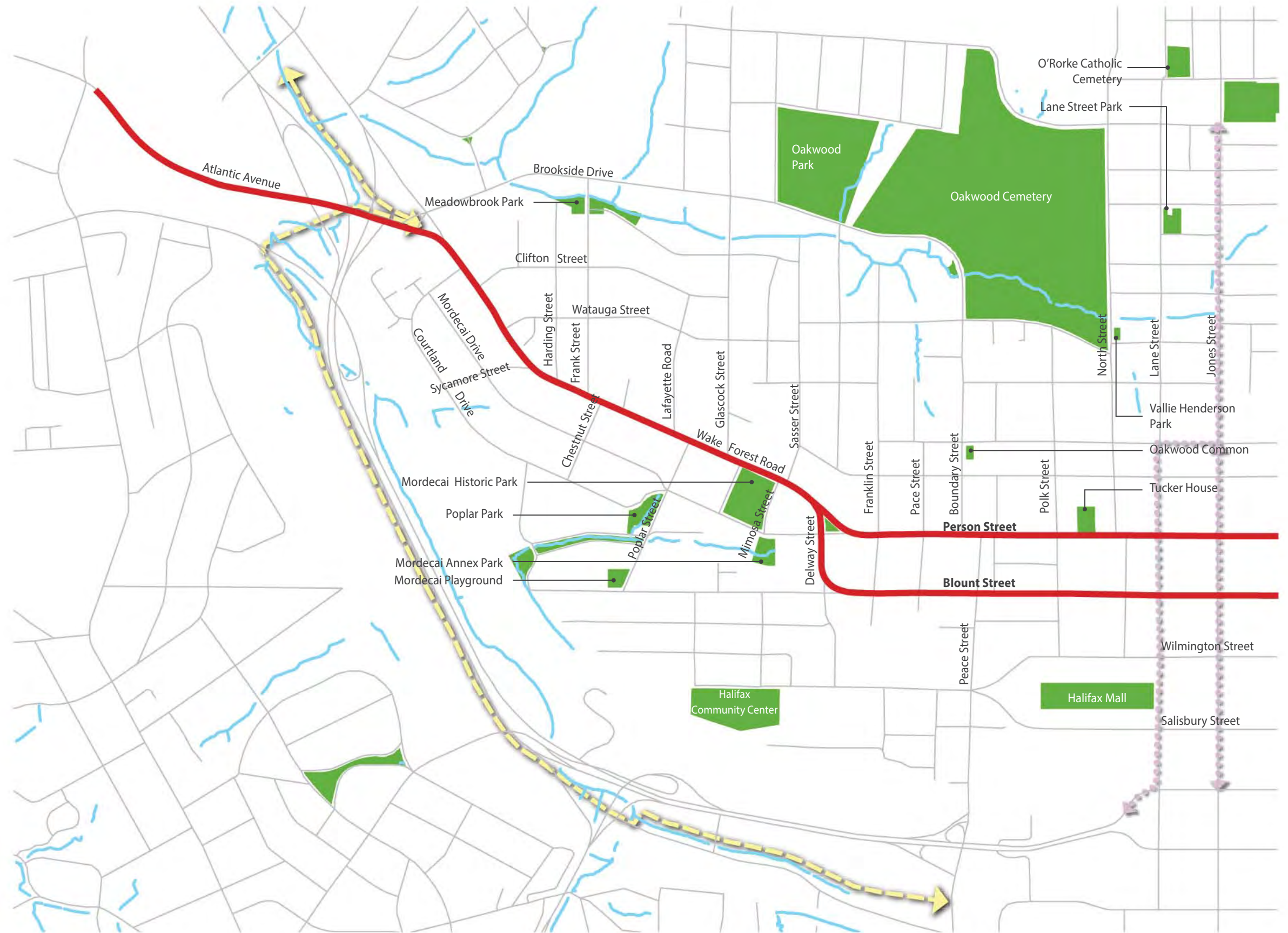




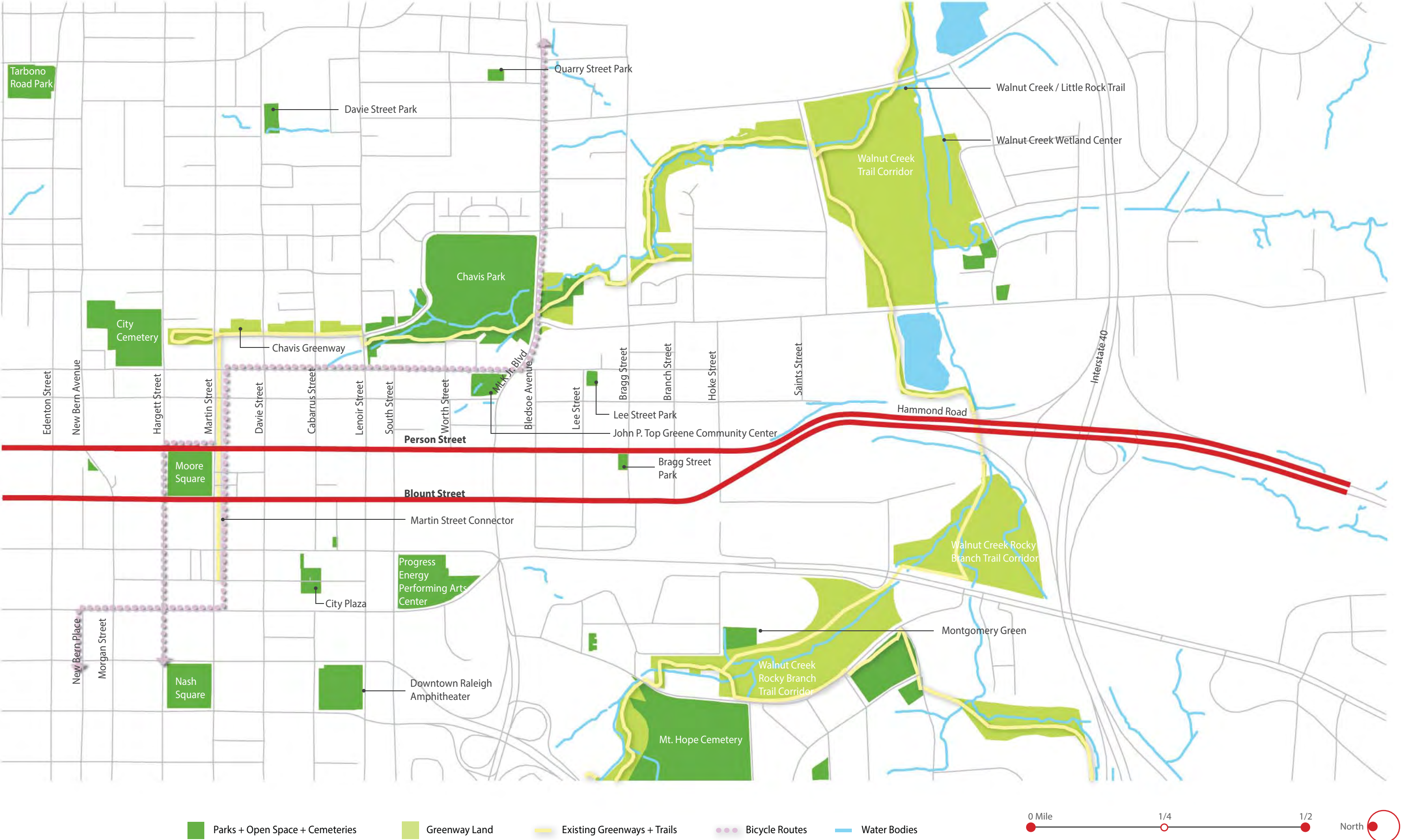
## Open Space, Parks + Trails

The Blount St-Person St Corridor has an extensive greenspace + trails system that surrounds and connects through the corridor. This greenspace system provides a variety of functions including local and regional social and recreation functions as well as gateway, memorial and environmental functions.

- One of the most significant greenspaces in the corridor is Moore Square. Moore Square functions as one of the major central gathering spaces in downtown and as such hosts a variety of festivals and programs throughout the year. In addition to attracting visitors to the downtown, these festivals sometimes also require the temporary closing of the streets surrounding the park. While infrequent, these closures can disrupt circulation patterns which have an impact on Blount and Person Streets.
- Mordecai Historic Park is another greenspace that provides a regional draw due to its unique historical and cultural facilities and programs.
- Another important greenspace is Bragg Street Park. Located in the South Park Neighborhood, this small neighborhood park is an important recreational and social amenity for the neighborhood that is located off Person Street.
- With the proposed connection to the Crabtree Trail along the Pigeon House Branch, the Blount St-Person St Corridor will become an important corridor to connect the Crabtree Trail with the Walnut Creek/Little Rock Trail located on the southern end of the corridor and to Chavis Park.
- The Blount-Person Corridor is an important north-south connection for bicycle connectivity with the potential to connect various east-west bicycle routes on Lane Street, Jones Street, Hargett Street, and Martin Street.





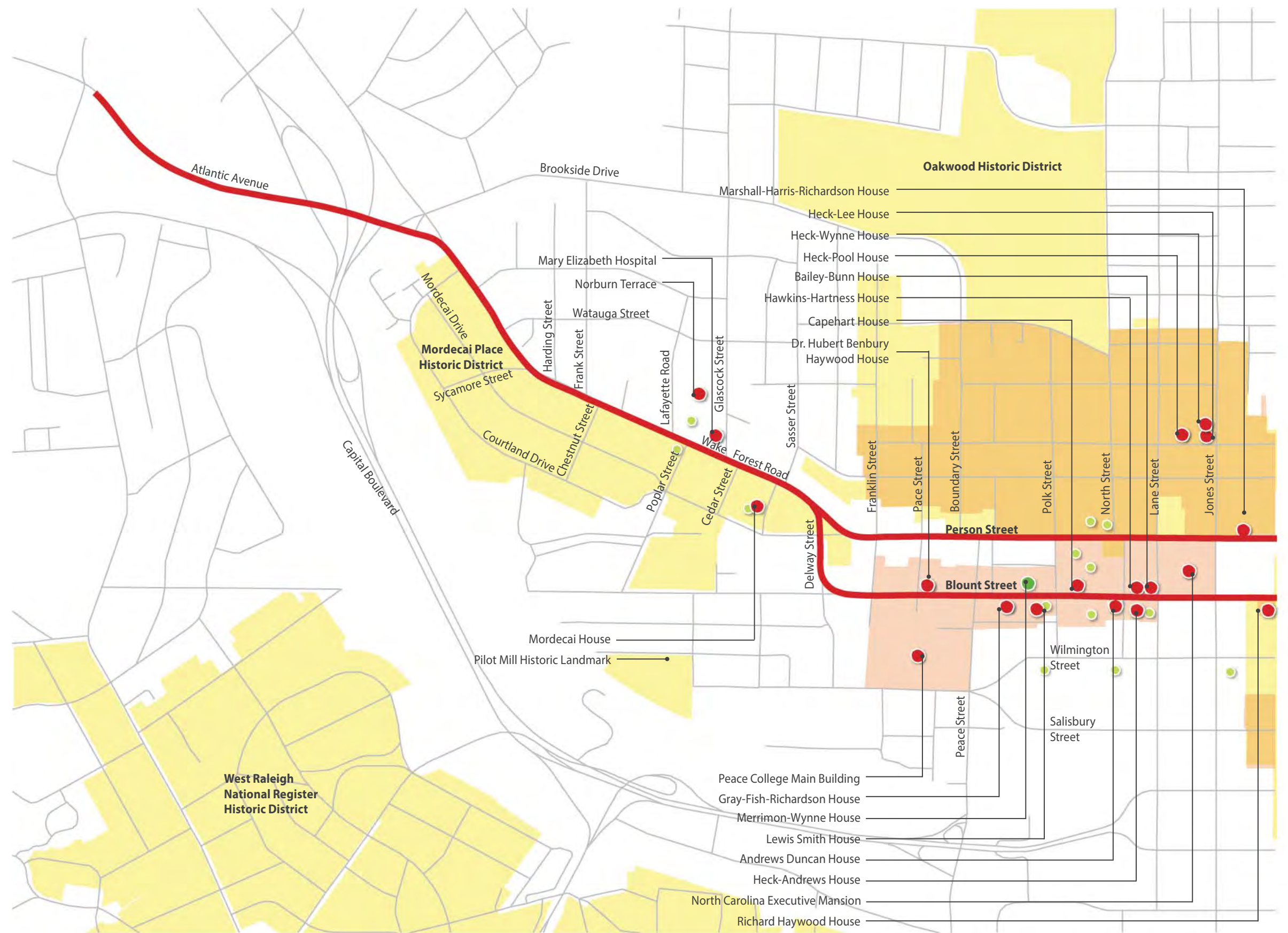




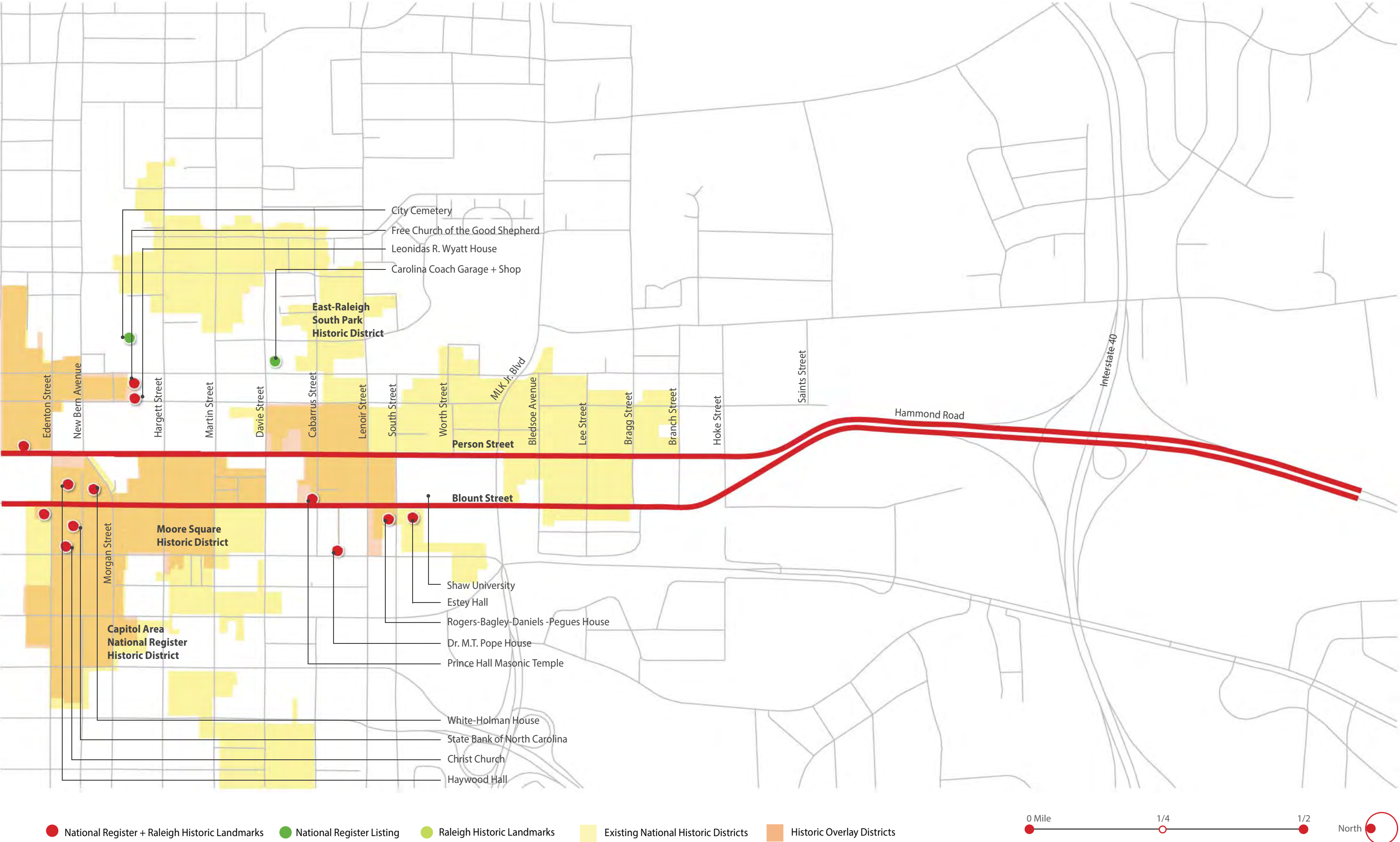
## Historic Resources

The Blount St-Person St Corridor is home to over 50 identified historical resources. These resources range from historic mansions that boast unique and historically significant architectural styles to the burial and birth places of important United States and North Carolina figures.

Additionally, the corridor traverses through five local historic districts. These districts are significant because they are governed by a set of design guidelines that preserve and protect the special character of each district. These guidelines call for the preservation and maintenance of any features that contribute to the overall historic character of the district. These features may include topography, patterns, features, materials and dimensions of streets, sidewalks, alleys, and street plantings as well as buildings and grounds. Specific features include granite curbing, brick gutters, street plantings, pavers, and street furnishings.







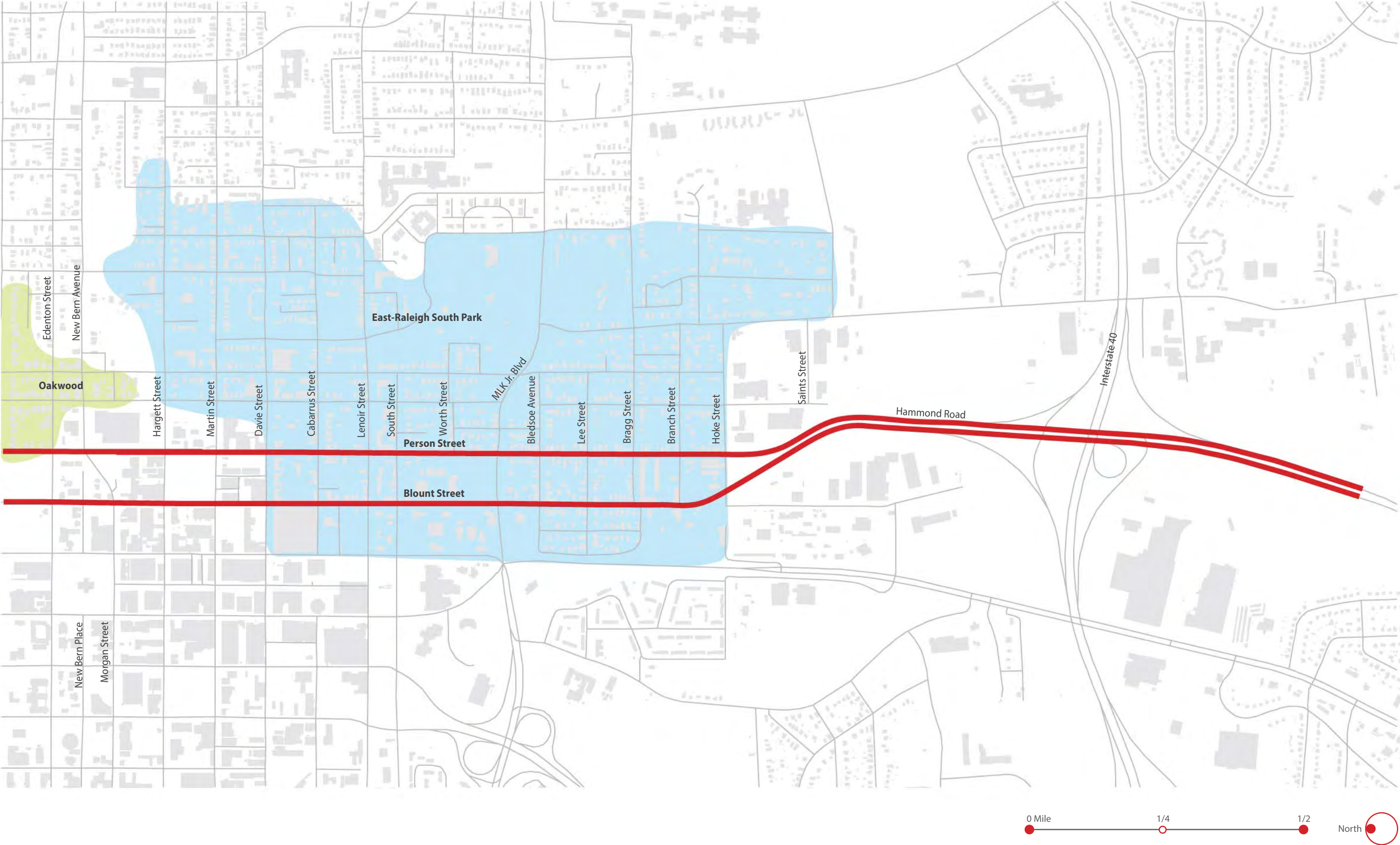


## Neighborhoods

The Blount St-Person St Corridor is bordered on the east by three significant historic neighborhoods. These include Mordecai, Oakwood, and East Raleigh-South Park. In addition to their historical significance and the physical design implications of their historic designation, they are also home to families of all races, ages, and socio-economic backgrounds. One of the most important values that emerged from the public engagement process was the desire from these families to preserve the neighborhood social and historic character of these neighborhoods. The proposed street designs for the corridor will need to balance this value with needs associated with traffic mobility and business and economic development opportunities.





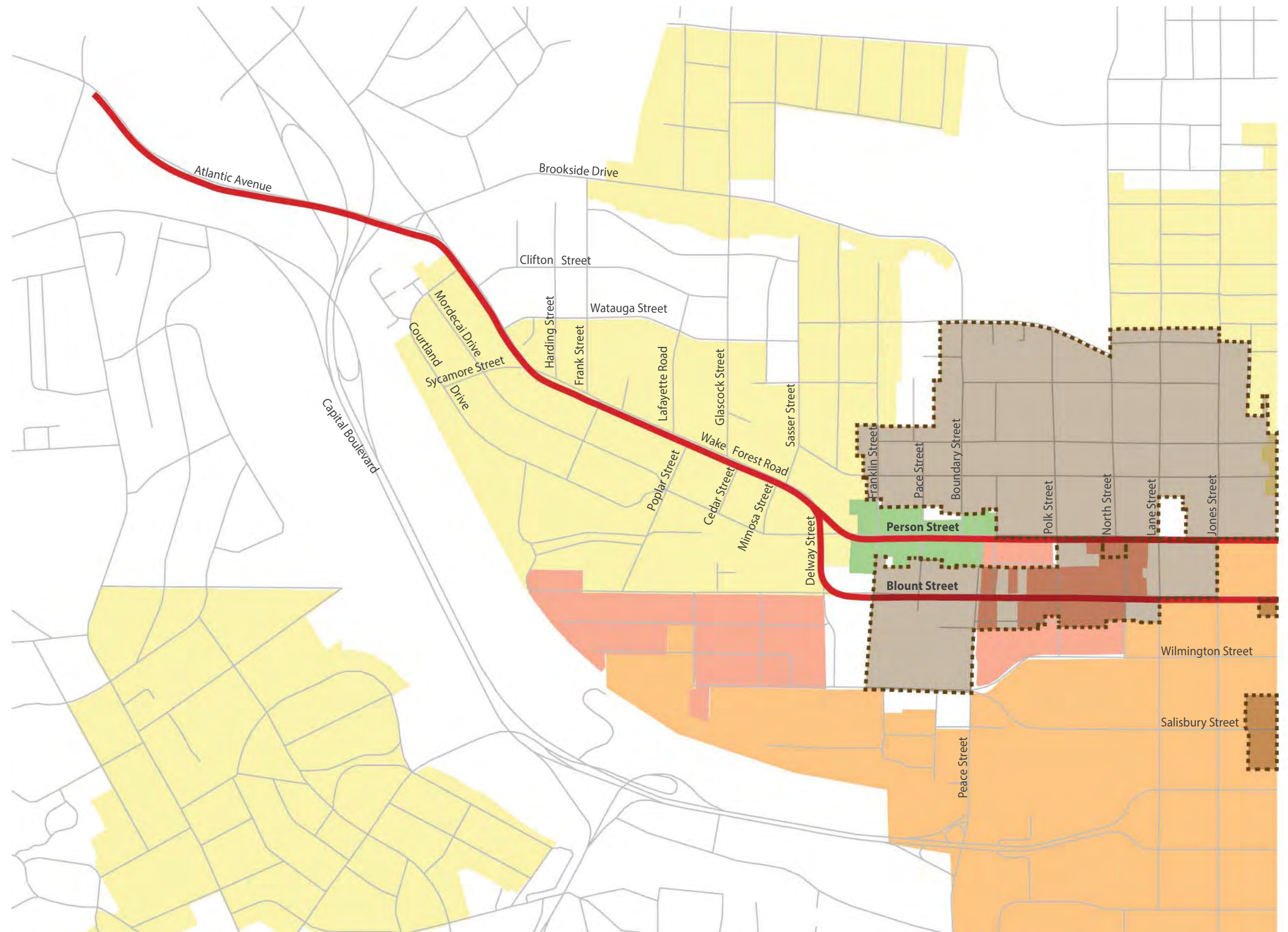




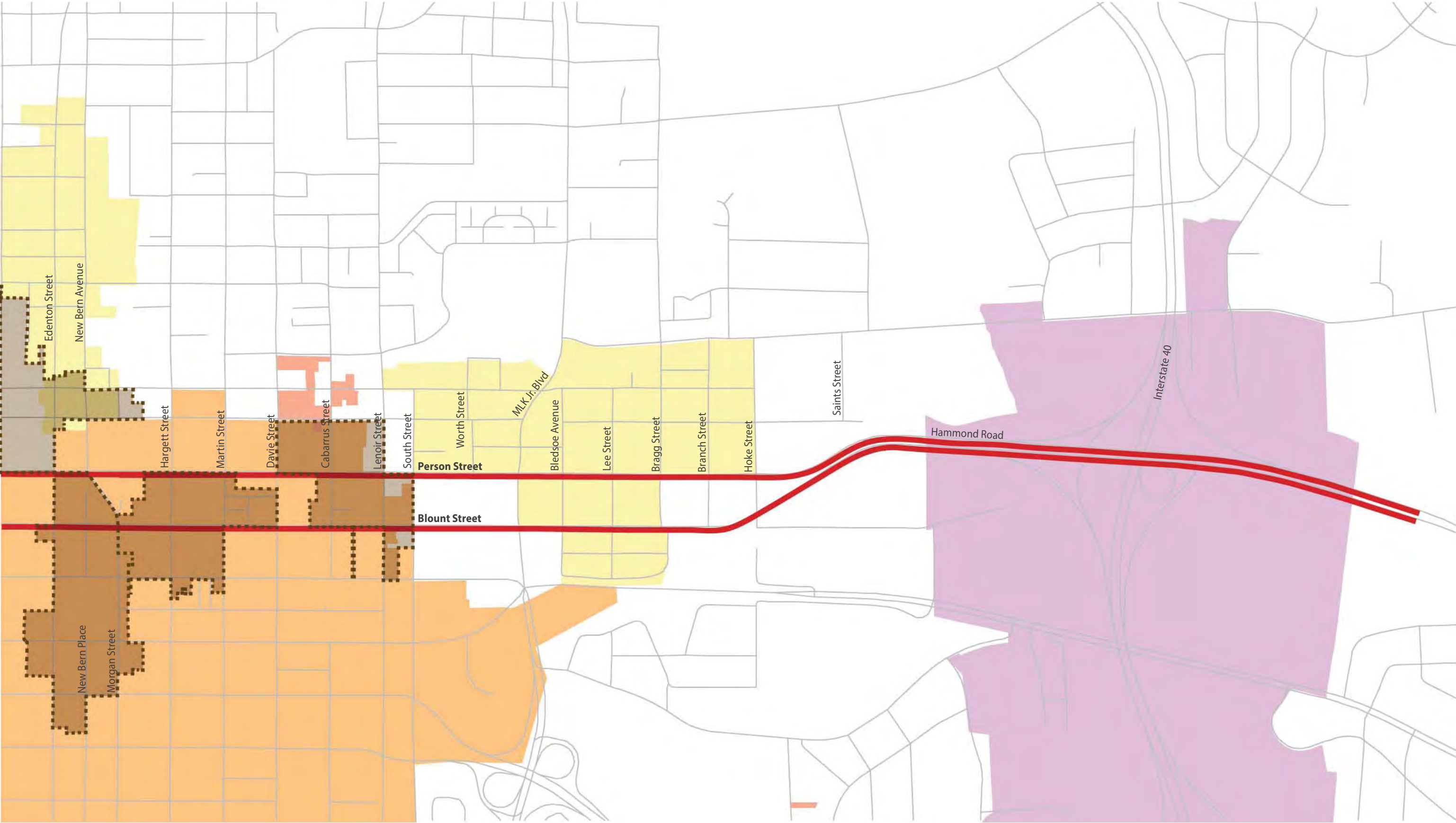
## Zoning Overlay Districts

The Blount St-Person St Corridor traverses through six different Zoning Overlay Districts. Each overlay district has a unique function that the proposed street designs will have to respond to. Following is a list and brief description of the function of each of the overlays found along the corridor.

- **Neighborhood Conservation Overlay District** – Preserves and enhances the general quality, appearance, and character of older neighborhoods through the regulation of built environmental characteristics.
- **Pedestrian Business Overlay District** – Improves and protects the economic viability of the area by preserving and enhancing the pedestrian-oriented retail character of the district and allowing increased residential density. Design standards that encourage pedestrian activity are required within this district.
- **Planned Development Conditional Use** – Promotes the development of environmentally, socially, and economically sustainable development through the incorporation of alternative mixed-use designs on contiguous tracts of property.
- **Downtown Overlay District** – Promotes the development of intensive residential and nonresidential uses within the downtown area to encourage live-work opportunities.
- **Historic Overlay District** – Protects areas, structures, buildings, and objects within the City's zoning jurisdiction that are historically significant.
- **Special Highway Overlay District -2** – Protects and preserves the natural scenic beauty, free flow of traffic, hazards arising from unnecessary points of ingress and egress along designated major access corridors and principal arterials.







Planned Development  
Conditional Use

Downtown Overlay District

Neighborhood Conservation  
Overlay District

Pedestrian Business  
Overlay District

Special Highway  
Overlay District

Historic District  
Overlay District

0 Mile

1/4

1/2

North



## 1.3 Traffic + Multi-Modal Mobility

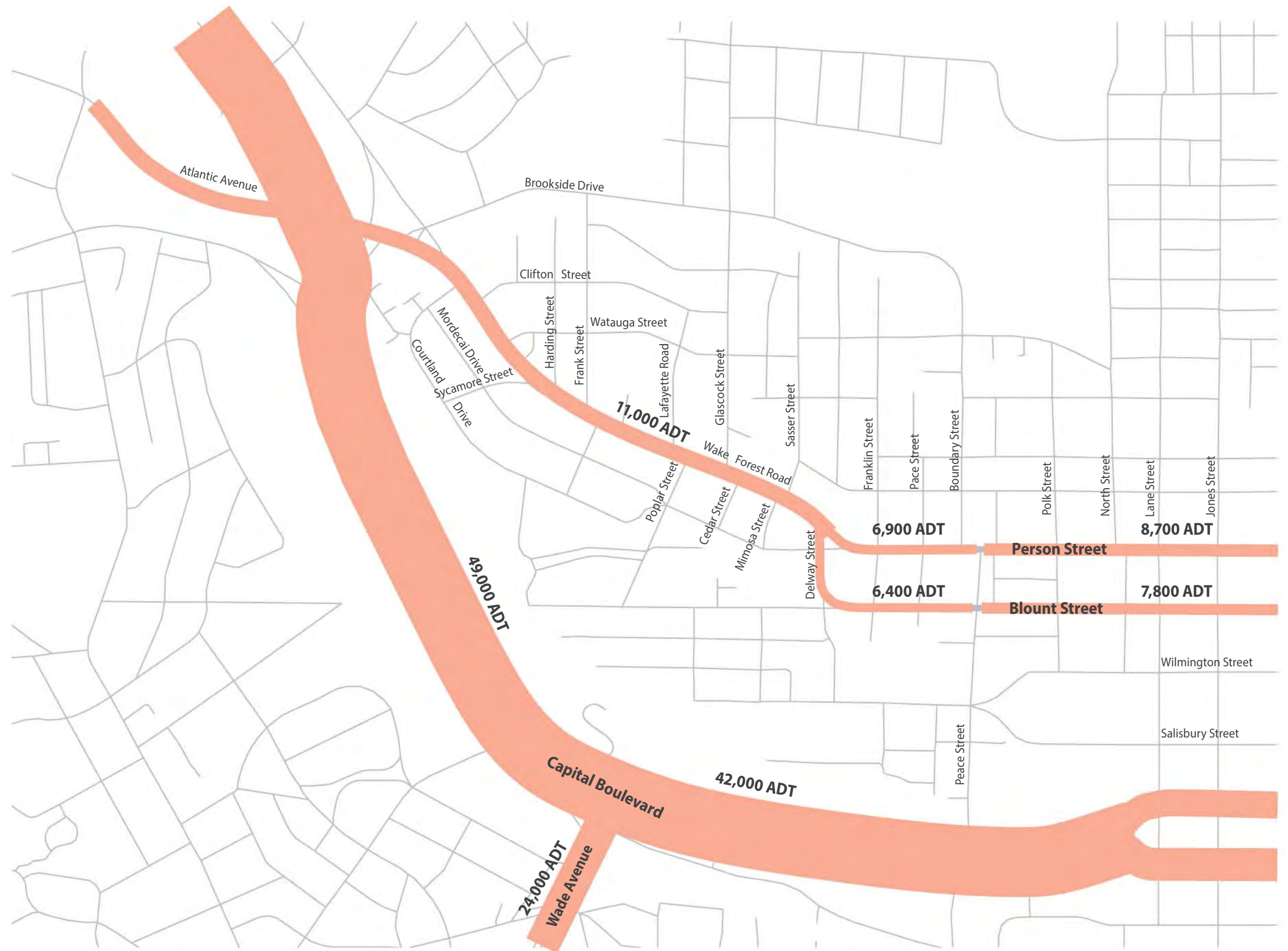
### Corridor Traffic Volumes (2011)

The Blount St-Person St Corridor is a significant north-south thoroughfare that carries traffic to and through Downtown Raleigh. It is part of a network of important corridors that provide access to Downtown Raleigh that include:

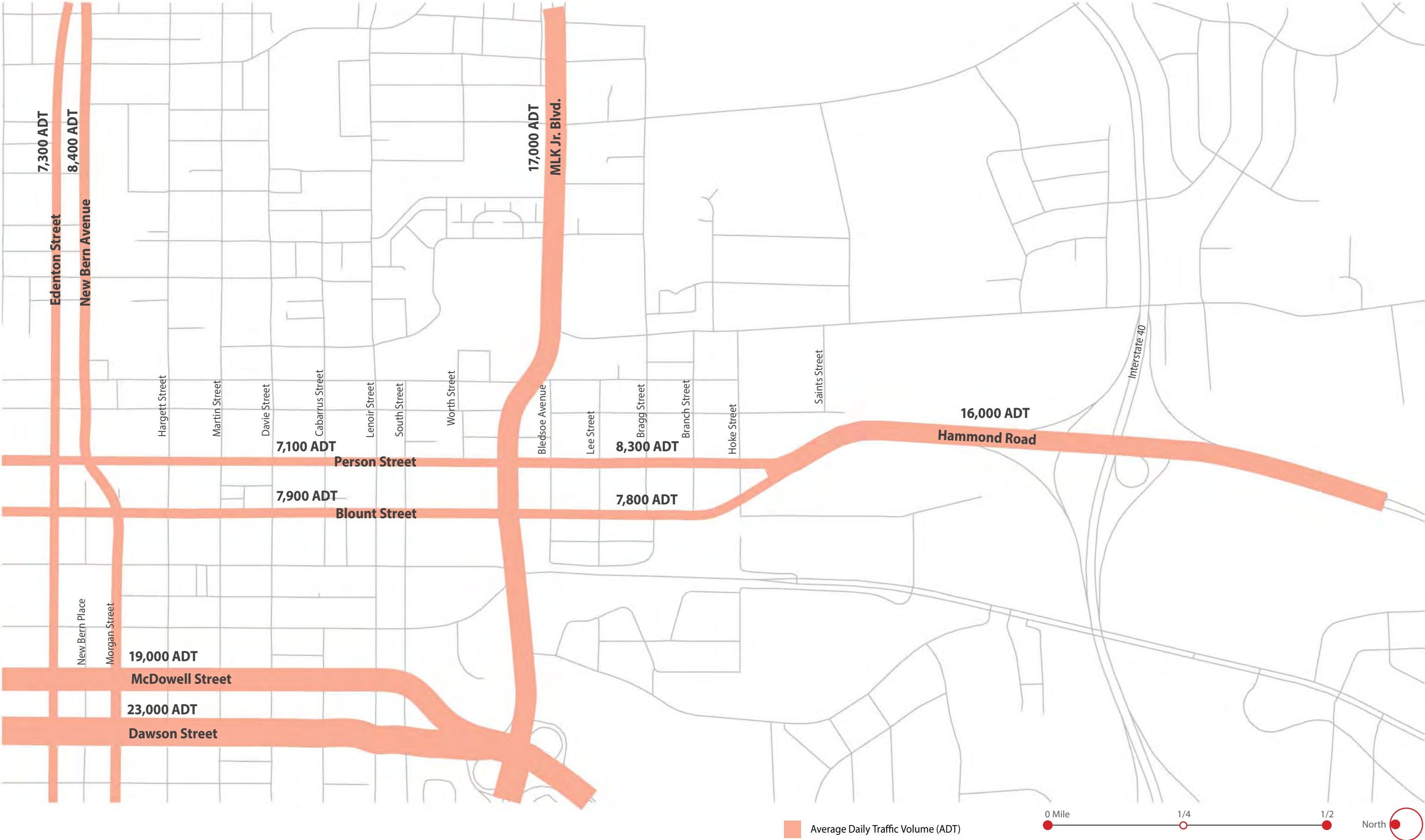
- The Capital Blvd. – McDowell St. – Dawson St. corridor (north-south)
- Wade Avenue (east-west)
- Hillsborough St. – Edenton St. – New Bern St. corridor (east-west)
- Western Blvd. – Martin Luther King Jr. Blvd. corridor (east-west)
- Peace St. (east-west)

The Blount St-Person St Corridor itself consists of four distinct roadways, with different traffic patterns and traffic volumes.

- Wake Forest Road is a four-lane undivided roadway with a 2011 average annual daily traffic count (AADT) of 11,000 vehicles per day (vpd).
- Person Street and Blount Street form a one-way pair of streets from Hoke Street to Delway Street. They vary from two to three lanes with 2011 AADT's ranging from 8,700 vpd to 6,400 vpd.
- Hammond Road is a six-lane median divided roadway providing a connection from I-40, with a 2011 AADT of 16,000 vpd.









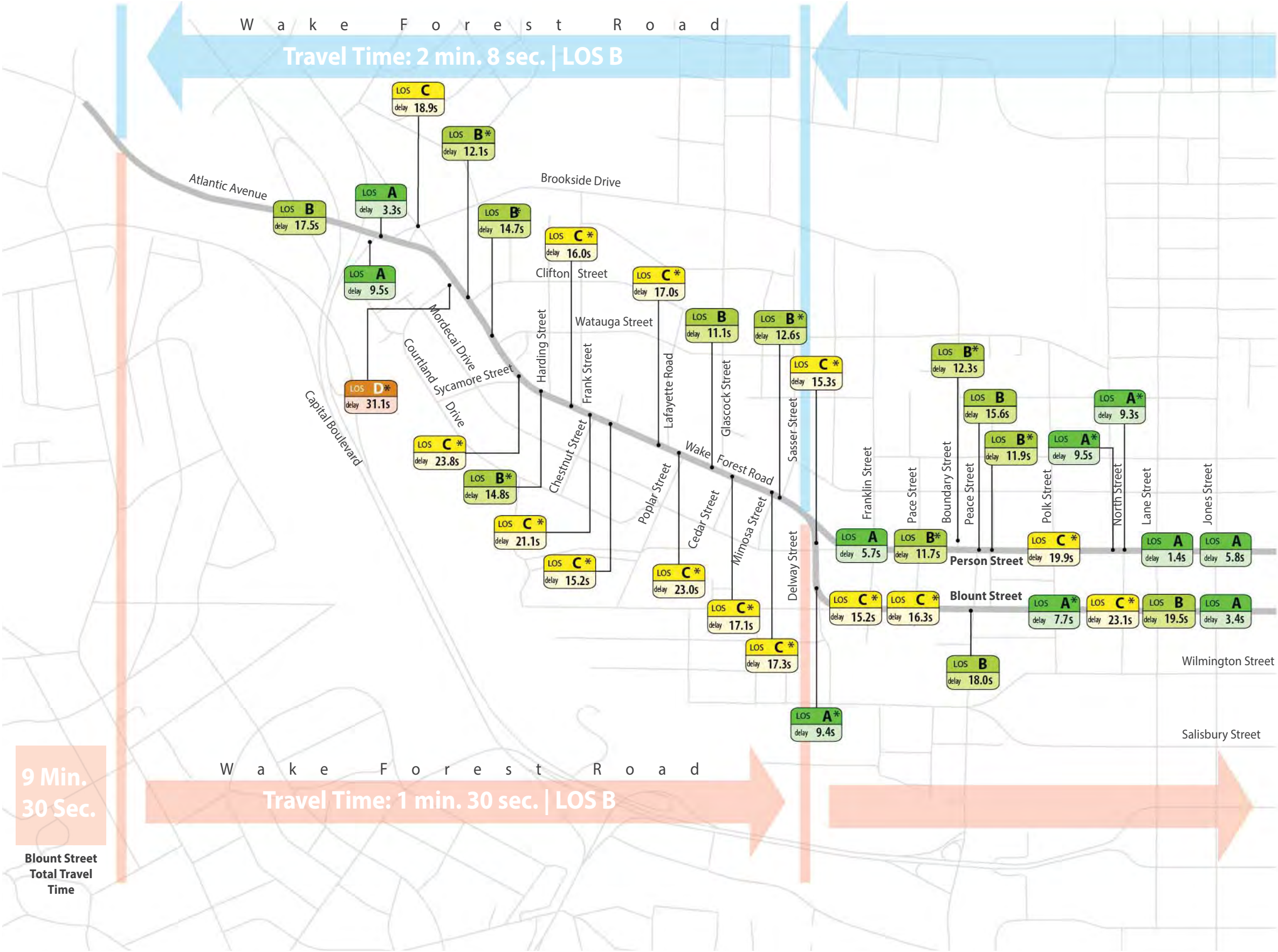
### Capacity Analysis: Level of Service AM + Travel Time

A traffic conditions analysis was conducted for the corridor's intersections using 2012 traffic volume data during the AM and PM peak hours and included 71 study intersections (34 signalized and 37 unsignalized). This analysis produced existing conditions (2012) intersection and corridor-wide delay and level-of-service measures and incorporates existing traffic and pedestrian counts, bus operations, and on-street parking operations.

The traffic carrying ability of an intersection and road segment is measured in time of delay. A Level of Service (LOS) Index summarizes delay into ranges from LOS A to LOS F.

- LOS A represents unrestricted maneuverability and operating speeds.
- LOS B represents reduced maneuverability and operating speeds.
- LOS C represents restricted maneuverability and operating speeds closer to the speed limit.
- LOS D represents restricted maneuverability and low operating speeds (typically considered acceptable in developed urban areas).
- LOS E represents operating conditions at or near the capacity level.
- LOS F represents breakdown conditions characterized by stop and go travel.

LOS	Traffic Flow Conditions	Delay (seconds) Signalized Intersections	Delay (seconds) Unsignalized Intersections
A	Represents unrestricted maneuverability and operating speeds and most vehicles do not stop at all.	0-10	0-10
B	Represents reduced maneuverability and operating speeds	10-20	10-15
C	Represents restricted maneuverability and operating speeds closer to the speed limit	20-35	15-25
D	Represents restricted maneuverability and low operating speeds (typically considered acceptable in developed urban areas)	35-55	25-35
E	Represents operating conditions at or near the capacity level	55-80	35-50
F	Represents breakdown conditions characterized by stop and go travel	>80	>50







\* Unsignalized Intersection





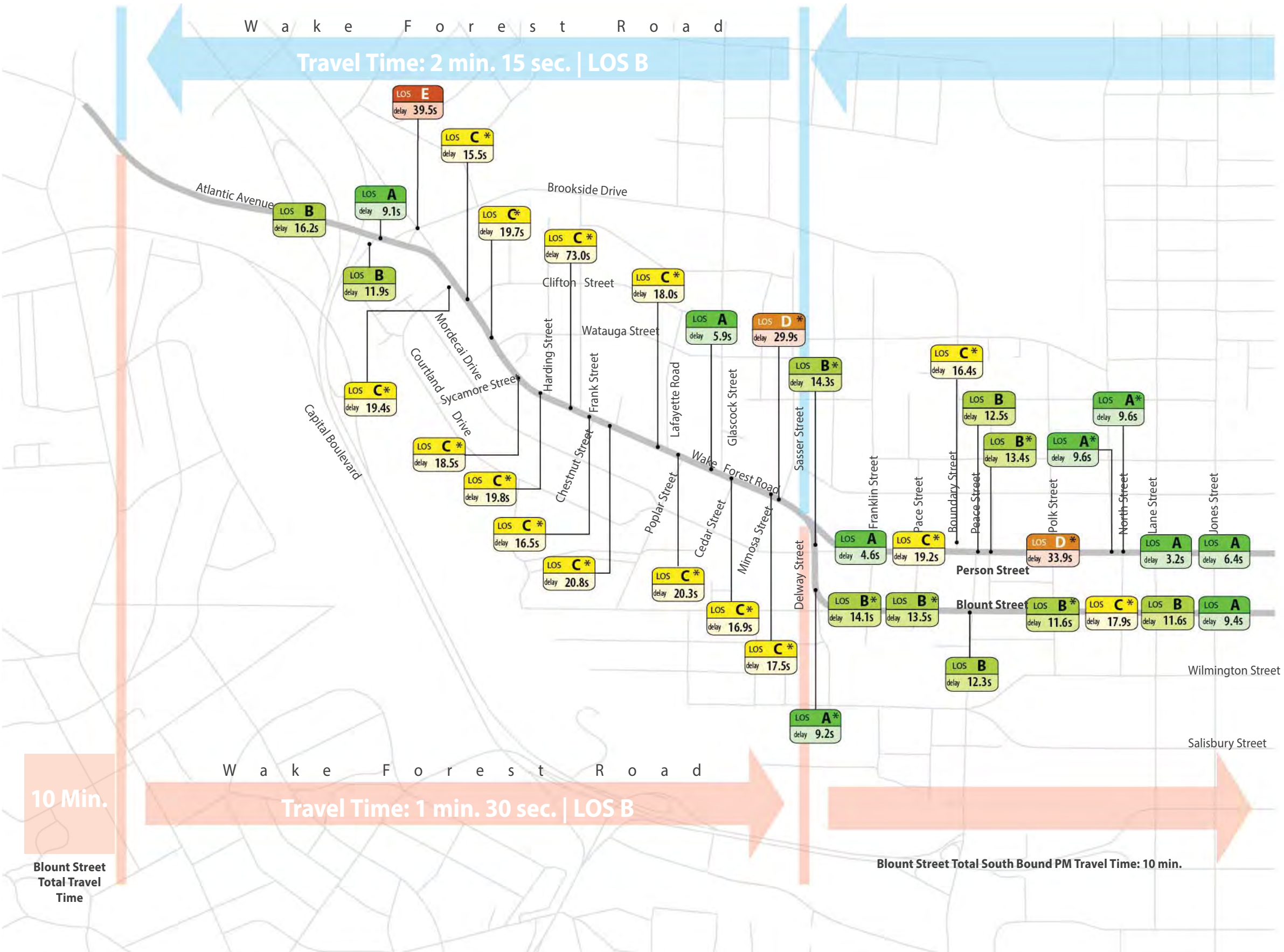
### Capacity Analysis: Level of Service PM + Travel Time

A traffic conditions analysis was conducted for the corridor’s intersections using 2012 traffic volume data during the AM and PM peak hours and included 71 study intersections (34 signalized and 37 unsignalized). This analysis produced existing conditions (2012) intersection and corridor-wide delay and level-of-service measures and incorporates existing traffic and pedestrian counts, bus operations, and on-street parking operations.

The traffic carrying ability of an intersection and road segment is measured in time of delay. A Level of Service (LOS) Index summarizes delay into ranges from LOS A to LOS F.

- LOS A represents unrestricted maneuverability and operating speeds.
- LOS B represents reduced maneuverability and operating speeds.
- LOS C represents restricted maneuverability and operating speeds closer to the speed limit.
- LOS D represents restricted maneuverability and low operating speeds (typically considered acceptable in developed urban areas).
- LOS E represents operating conditions at or near the capacity level.
- LOS F represents breakdown conditions characterized by stop and go travel.

LOS	Traffic Flow Conditions	Delay (seconds) Signalized Intersections	Delay (seconds) Unsignalized Intersections
A	Represents unrestricted maneuverability and operating speeds and most vehicles do not stop at all.	0-10	0-10
B	Represents reduced maneuverability and operating speeds	10-20	10-15
C	Represents restricted maneuverability and operating speeds closer to the speed limit	20-35	15-25
D	Represents restricted maneuverability and low operating speeds (typically considered acceptable in developed urban areas)	35-55	25-35
E	Represents operating conditions at or near the capacity level	55-80	35-50
F	Represents breakdown conditions characterized by stop and go travel	>80	>50







\* Unsignalized Intersection





# Crash Analysis

Using the Traffic Engineering Accident Analysis System (TEAAS) reports (provided by NCDOT) between August 1, 2009 and July 31, 2012 four separate strip analyses were performed in the study area. The segments analyzed were Hammond Road, Person Street, Blount Street, and Wake Forest Road. The crash segment analyses were conducted to determine if there is a significant crash rate or crash severity index along any of the corridors in comparison to other North Carolina or Wake County secondary roadways. The crash rate is a measure of total crashes per 100 million vehicle miles traveled (MVMT). A severity index of a crash is equal to the total equivalent property damage only (EPDO) divided by the number of crashes.

- Key Observations:**
- Person St has a crash rate four (4) times the North Carolina average, 67% are a result of angle and sideswipe crashes resulting from turning movements and lane conflicts.
  - Blount St has a crash rate five (5) times the North Carolina average, 59% are a result of angle and sideswipe crashes resulting from turning movements and lane conflicts.

**North Carolina Average:**

- Crash Rate: 404 / 100 MVMT
- Severity Index: 4.11

**Wake County Average**

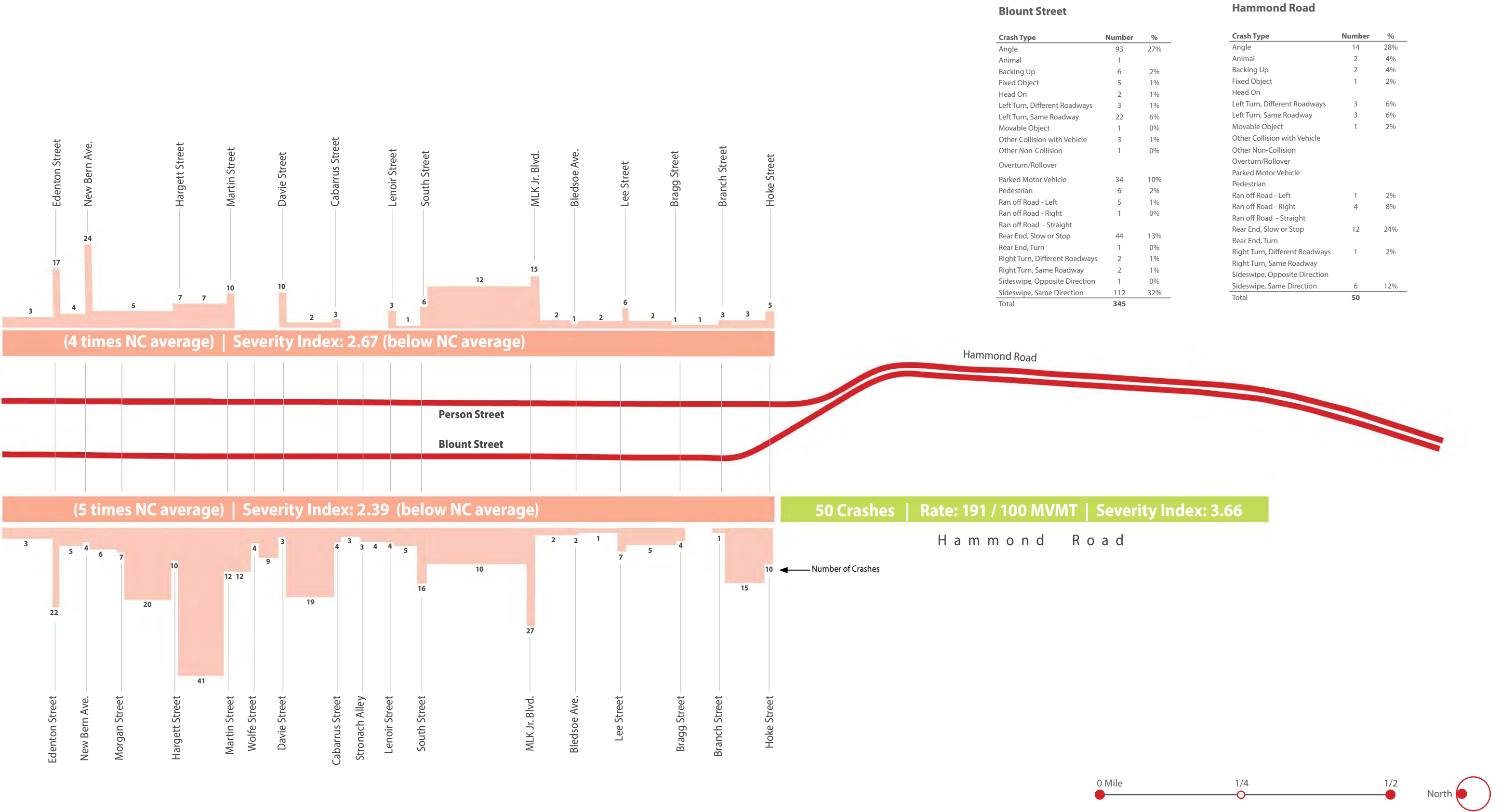
- Crash Rate: 328 / 100 MVMT
- Severity Index: 3.00

MVMT = Million Vehicle Miles Traveled

\* Additional crash analysis is provided in the Traffic Capacity Analysis Report



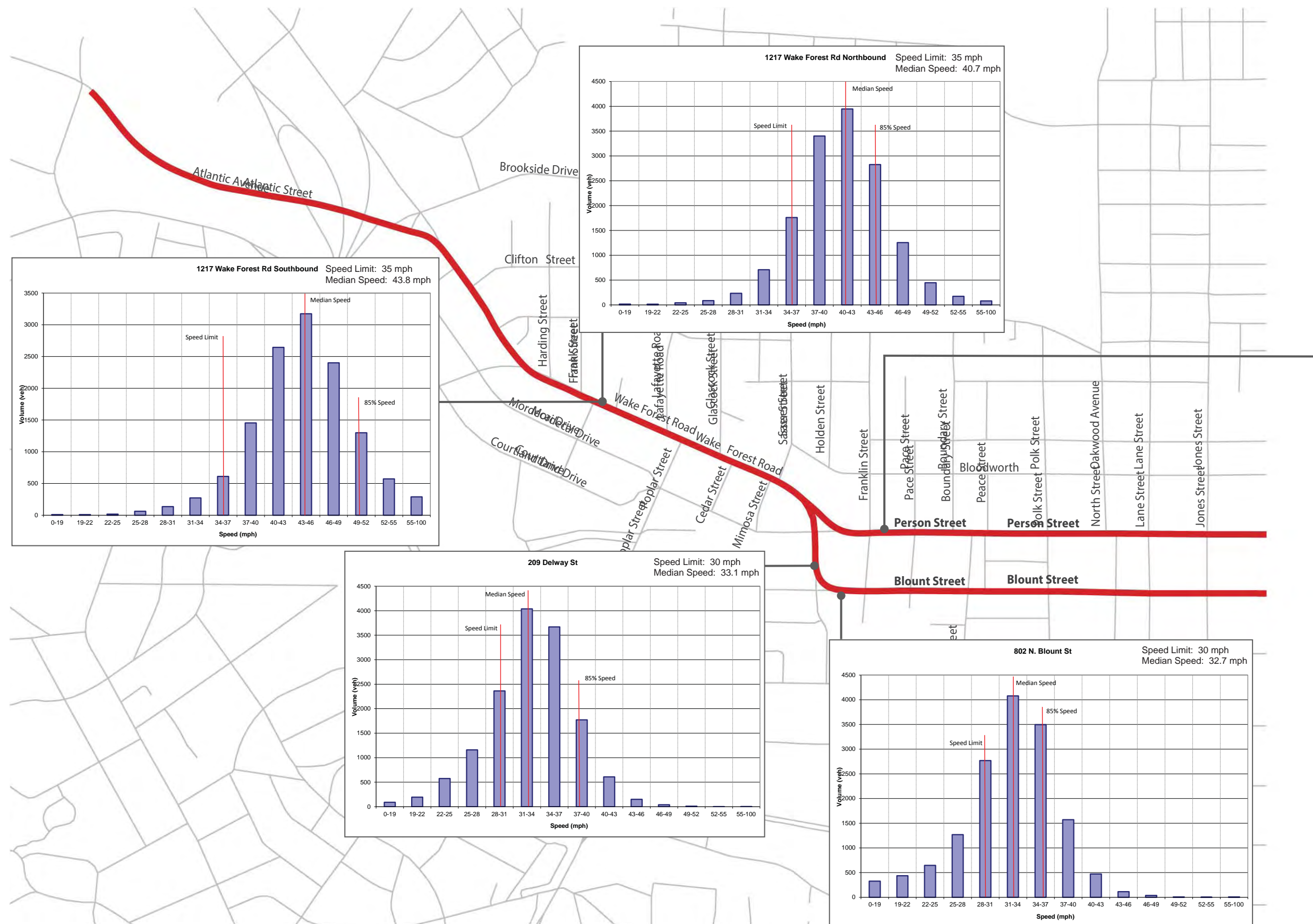






During November 2012, speed data was collected at selected locations along the Blount St-Person St Corridor. The data collection involved 24-hour tube counts collected over two days in nine locations. This diagram summarizes the relative speed characteristics at each location and highlights where the median speed is greater than the posted speed limit.

The speed graphs represent the cumulative volume and speed characteristics at each location over a two-day period. Note that speeds represented at the extreme high and low ends do not necessarily represent accurate speeds and are skewed by vehicle type and other factors. The Median Speed represents the speed at which half (50%) of the vehicles are operating below and half are operating above. The 85% Speed represents the speed at which 85% of vehicles are operating at or below.









## On-Street Parking

On-street parking is a vital component of the corridor, providing needed parking for businesses and residential neighborhoods. The Blount St-Person St Corridor has eight different regulatory on-street parking designations that vary from no on-street parking to parking during non-peak hour times. This diagram maps the location and regulation of on-street parking in the corridor.

The design and location of on-street parking will need to be considered in potential street designs and balanced with business and economic development as well as street and residential livability values identified by residents and stakeholders.



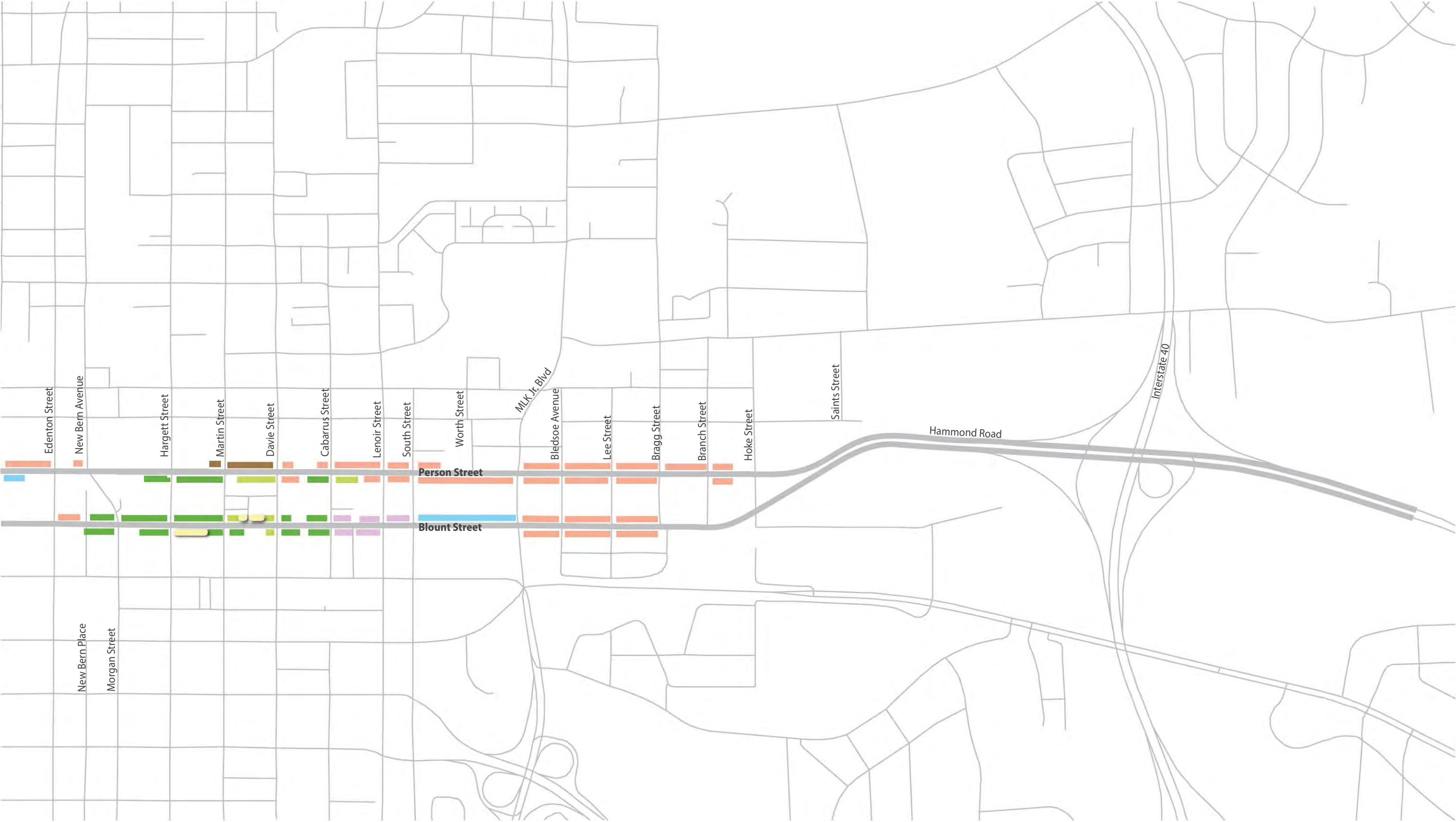
— No Parking Anytime

— Parking Anytime

— Metered 1 Hour Parking | 8am - 5pm | Mon-Fri

— Metered 2 Hour Parking | 8am - 5pm | Mon-Fri





- Non-Metered 1-2 Hour Parking
- No Parking | 7am - 9am | 4pm - 6pm | Mon- Fri
- No Parking | 7am - 4pm | Mon- Fri
- No Parking | 7am - 4pm | Mon- Fri



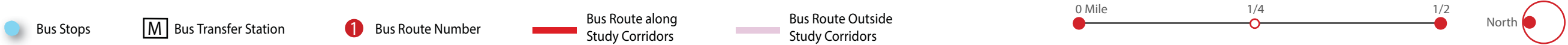
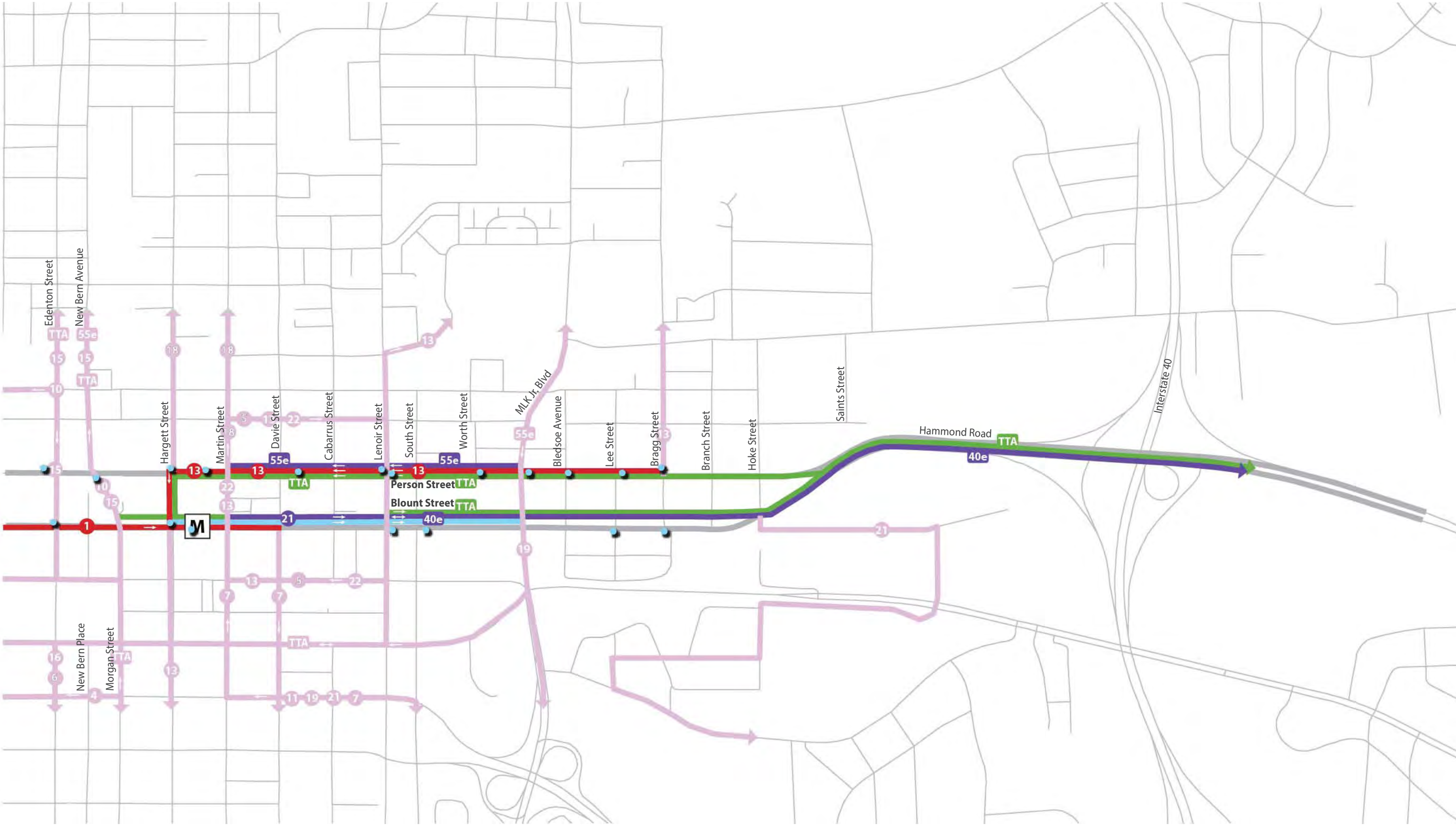


## Bus + Transit

The Blount St-Person St Corridor is a major transit hub and corridor for the City of Raleigh. With the Moore Square Transit Station located off of Blount Street, the corridor contains seven different bus routes and thirty-seven bus stops. Additionally, the corridor is traversed by thirteen bus routes on ten different cross streets along the corridor. The proposed street designs will have to balance vehicular mobility with transit stop and circulation needs within the context of the values identified by residents and stakeholders.



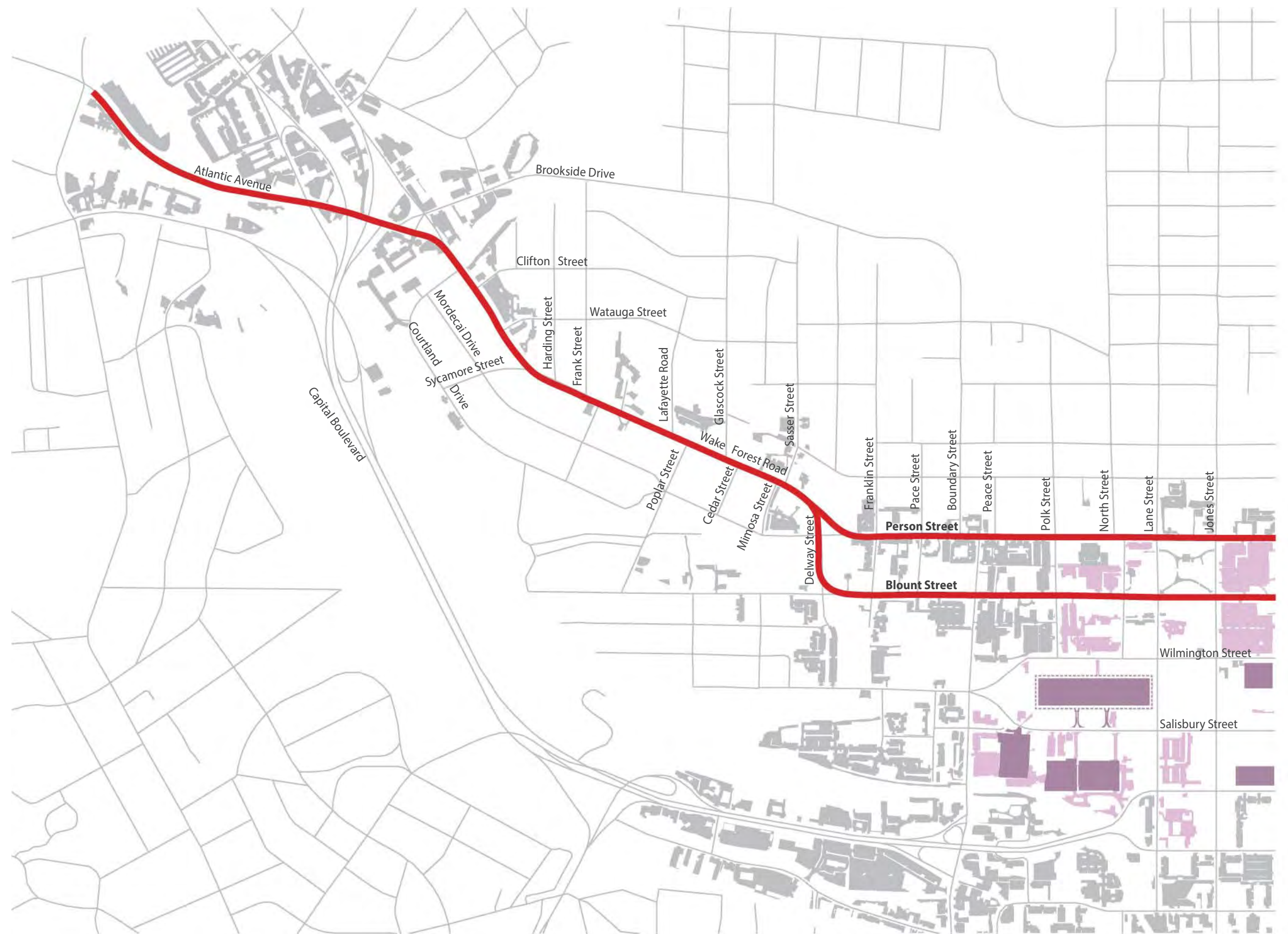




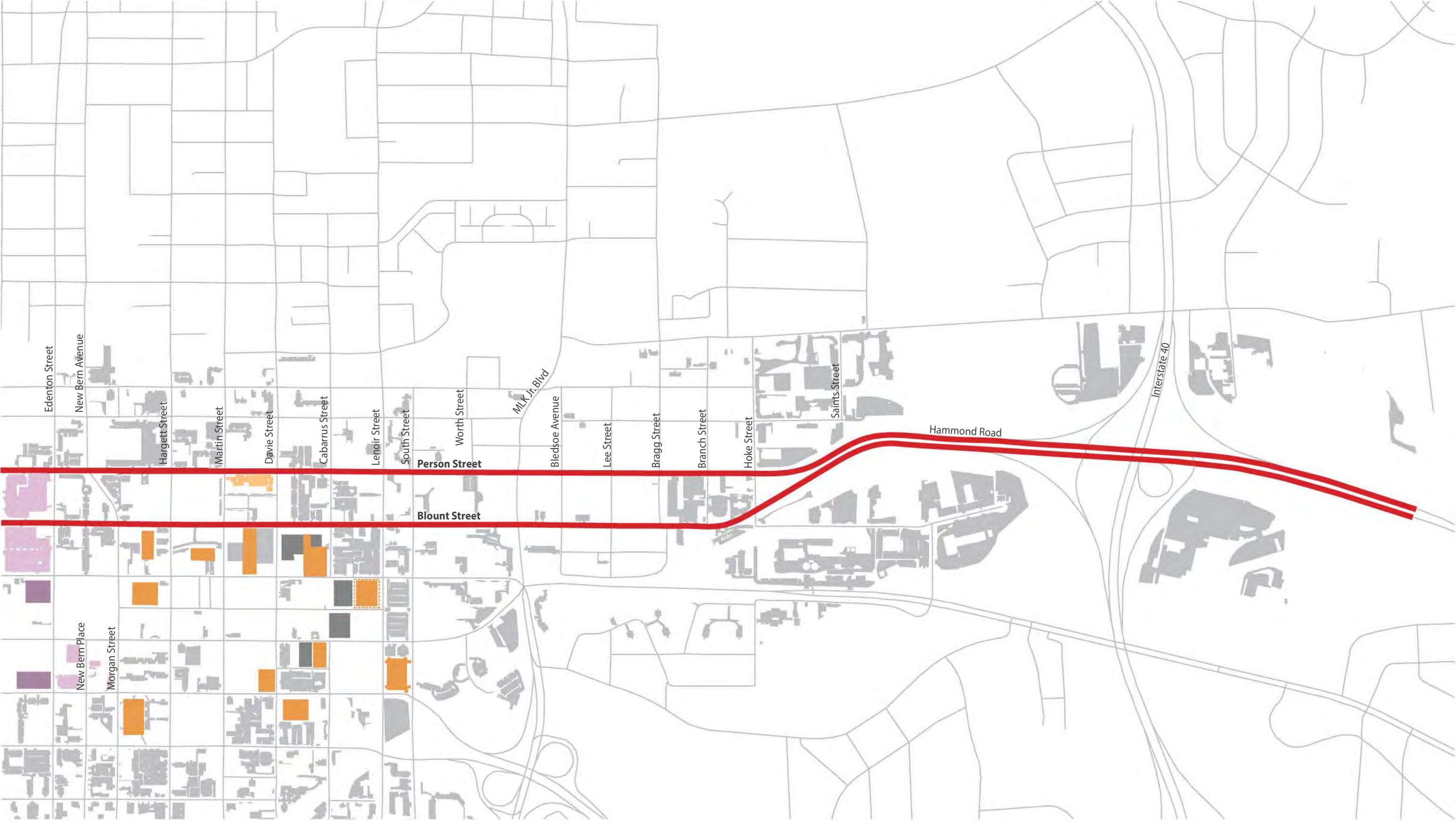


## Parking Off-Street

The Blount St-Person St Corridor provides access to a range of downtown parking locations that are managed by different entities. These entities include the State, the City and County, and private owners as illustrated on the adjacent map. These parking spaces are found in surface parking lots, parking decks, or underground parking decks. The most significant collection of parking facilities is controlled through the City which manages nearly 9,000 parking spaces downtown. Additionally, the State controls over 7,000 parking spaces for their employees and visitors. The proposed street designs for the corridor will have to balance parking access with vehicular flow and neighborhood walkability and livability.









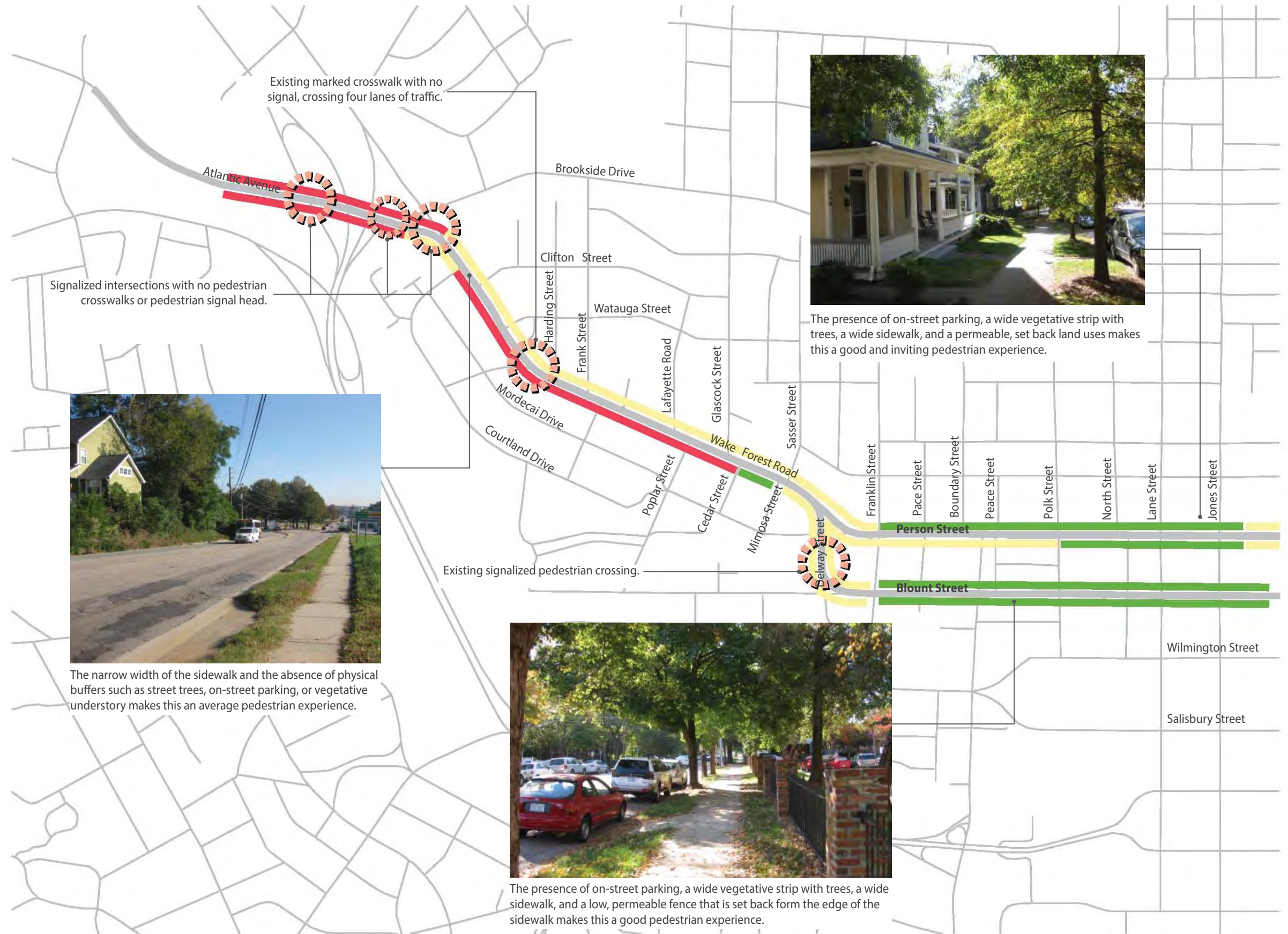
## 1.4 Existing Street Design

### Pedestrian Realm

The quality of the pedestrian experience is influenced by the three primary edges of the pedestrian realm. These include the public edge, the horizontal plane, and the land use edge.

- The public edge includes the design of the street and can enhance the pedestrian experience by providing a physical and psychological barrier between pedestrians and moving traffic through the presence of on-street parking, bikes lanes and streetscape.
- The horizontal plane includes the space between the curb and the street right-of-way. The width and design of this space greatly effects pedestrian comfort and use.
- The land use edge includes the built form edge and helps to activate, frame, and/or shelter pedestrians.

Taking these elements into consideration, the following diagram provides an analysis of the relative quality of the pedestrian realm along the Blount-Person Corridor, highlighting areas in need of enhancement.



Pedestrian Crossing Concern





A wide and open sidewalk with street trees, attractive signage/ wayfinding, and permeable land use edges makes this an inviting and good pedestrian experience.



The presence of a tall, chain-link fence placed close to the sidewalk makes this a poor pedestrian experience.



This segment of Person Street does not have sidewalks.



While relatively narrow, the tree canopy, light fixtures, furnishings, and land use edge do a great job of enhancing and activating this space to create a good pedestrian experience.



A narrow sidewalk, the presence of a tall, chain-link fence placed very close to the sidewalk makes this a poor pedestrian experience.

Quality of Pedestrian Environment

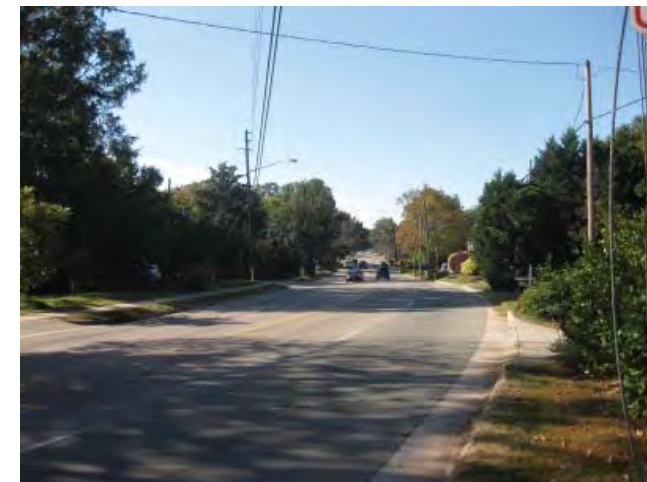
- Good - Continuous sidewalk, consistent street trees, active building edge with limited curb cuts.
- Fair - Continuous sidewalk, limited street trees, inconsistent building edge with regular curb cuts.
- Poor - No sidewalk.



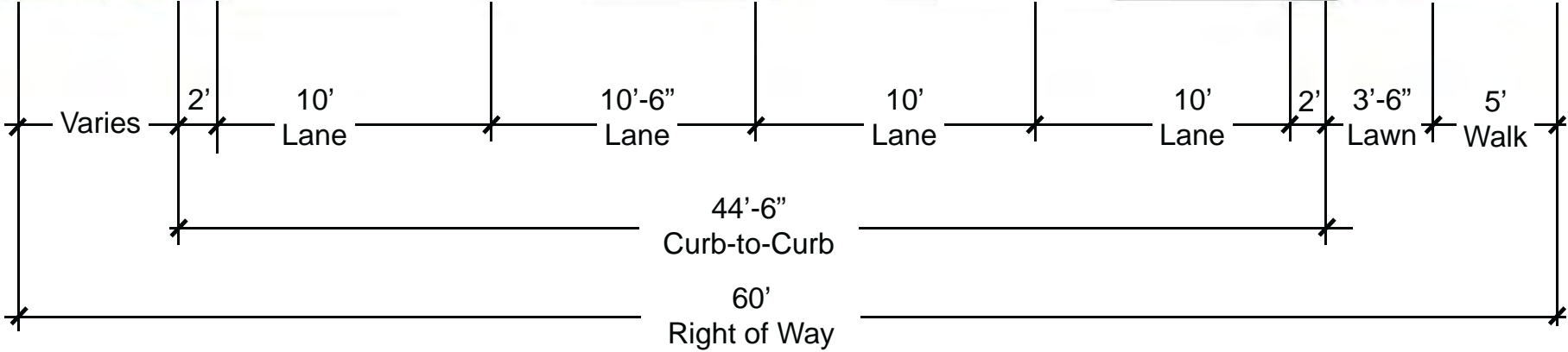
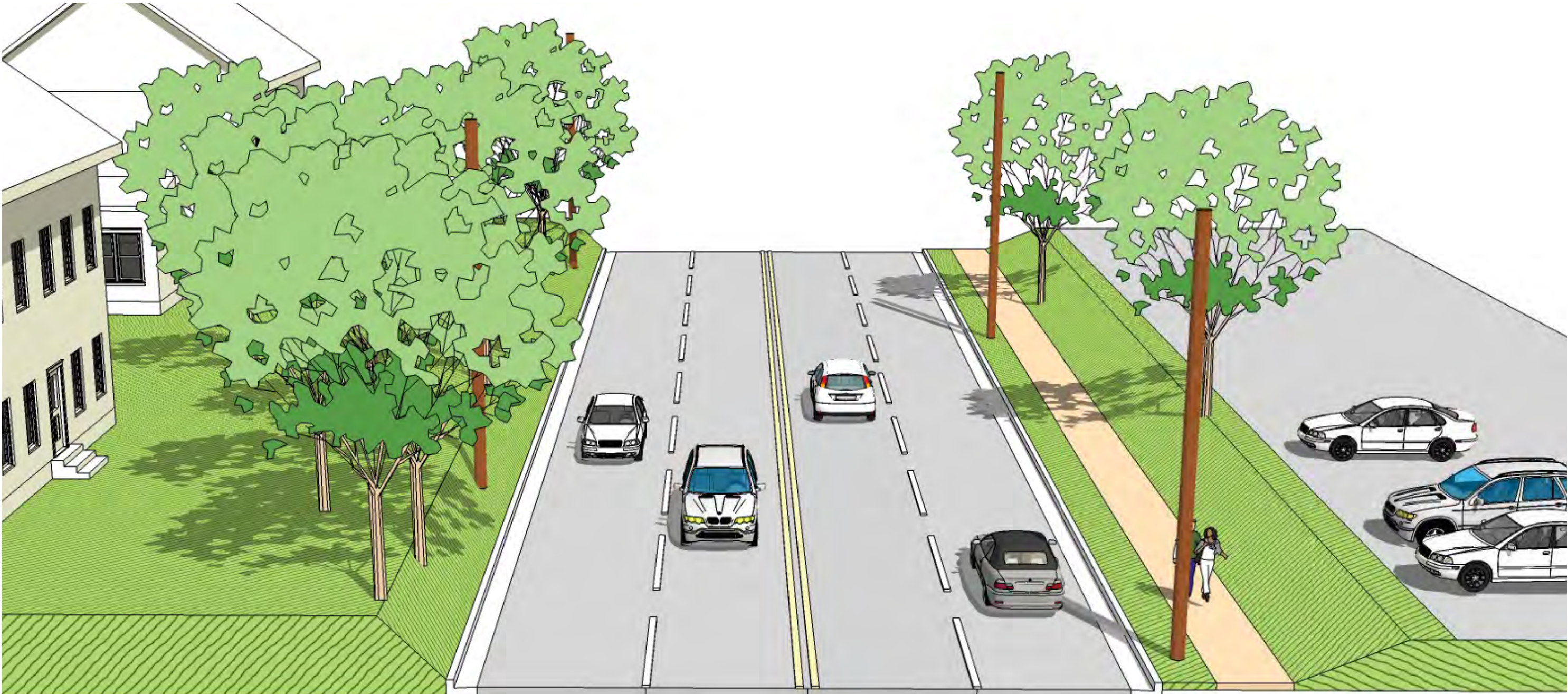
## Wake Forest Road Capital Boulevard to Sasser Street

### Key Characteristics:

- Four-lane, undivided street cross-section.
- No on-street parking.
- Sidewalk only on the east side of the road and is generally narrow with very little separation between the pedestrian and the travel lane.
- Overhead power lines limit the potential for significant street trees.
- Adjacent land uses include historic single-family homes, places of worship, apartment complexes, and civic and institutional uses. Generally suburban in character with generous residential setbacks and surface parking lots.









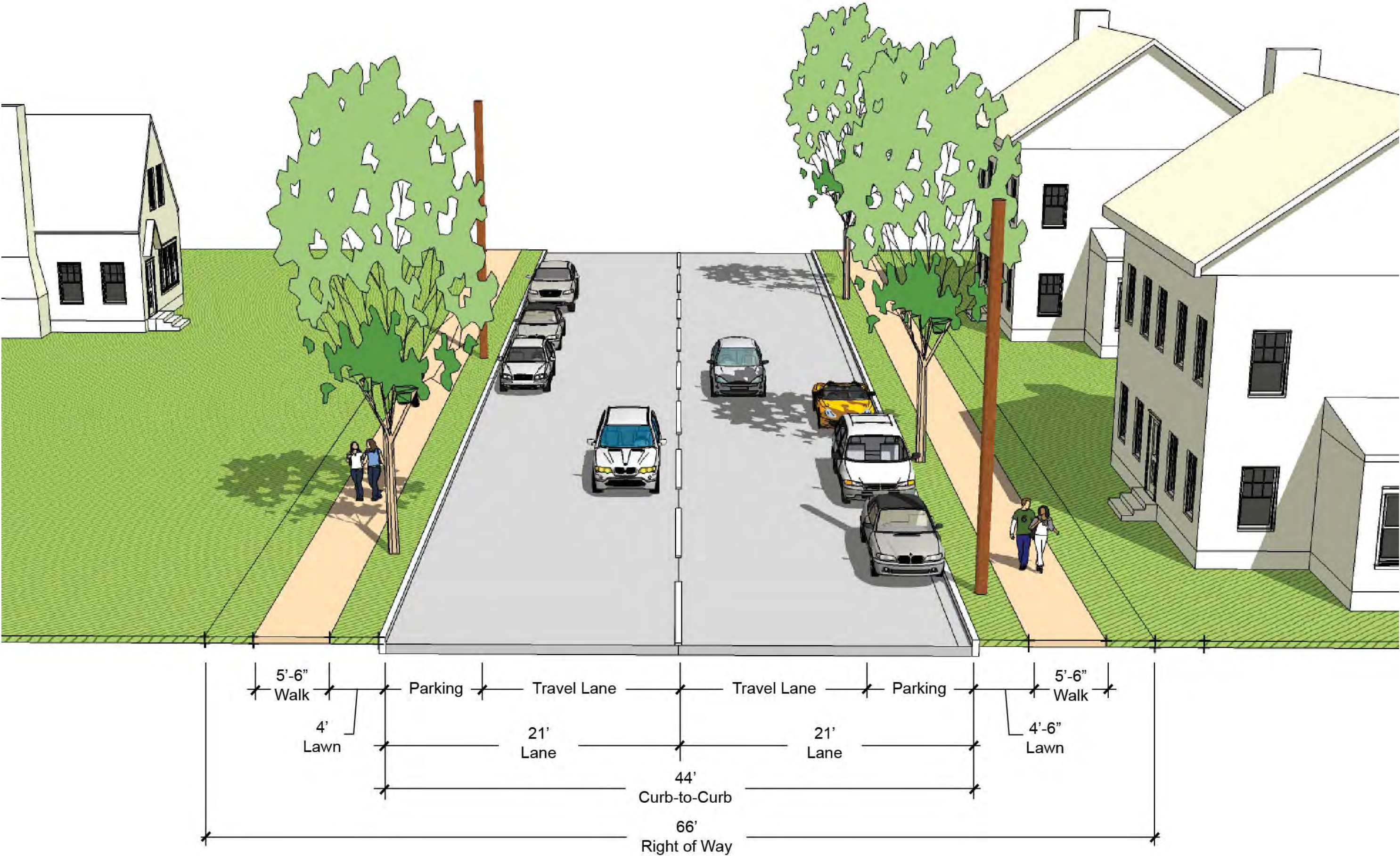
## Blount Street Delway Street to Edenton Street

### Key Characteristics:

- Two-lane, one-way south bound.
- On-street parking is located on both sides of the road, some of which is regulated and limited to 2-hour parking.
- Sidewalks are found on both sides of the street with tree lawns, and street trees located along the corridor.
- While overhead power lines are present along the corridor, mature trees located throughout this segment provide visual screening.
- Adjacent land uses include historic single-family homes, historic homes converted into commercial uses, and institutional uses.
- The most significant land owner along this segment is William Peace University.
- This segment of the corridor has a mix of character between in-town neighborhood character and suburban character. Some of the buildings are generously set back while others are located within close proximity to the sidewalk.









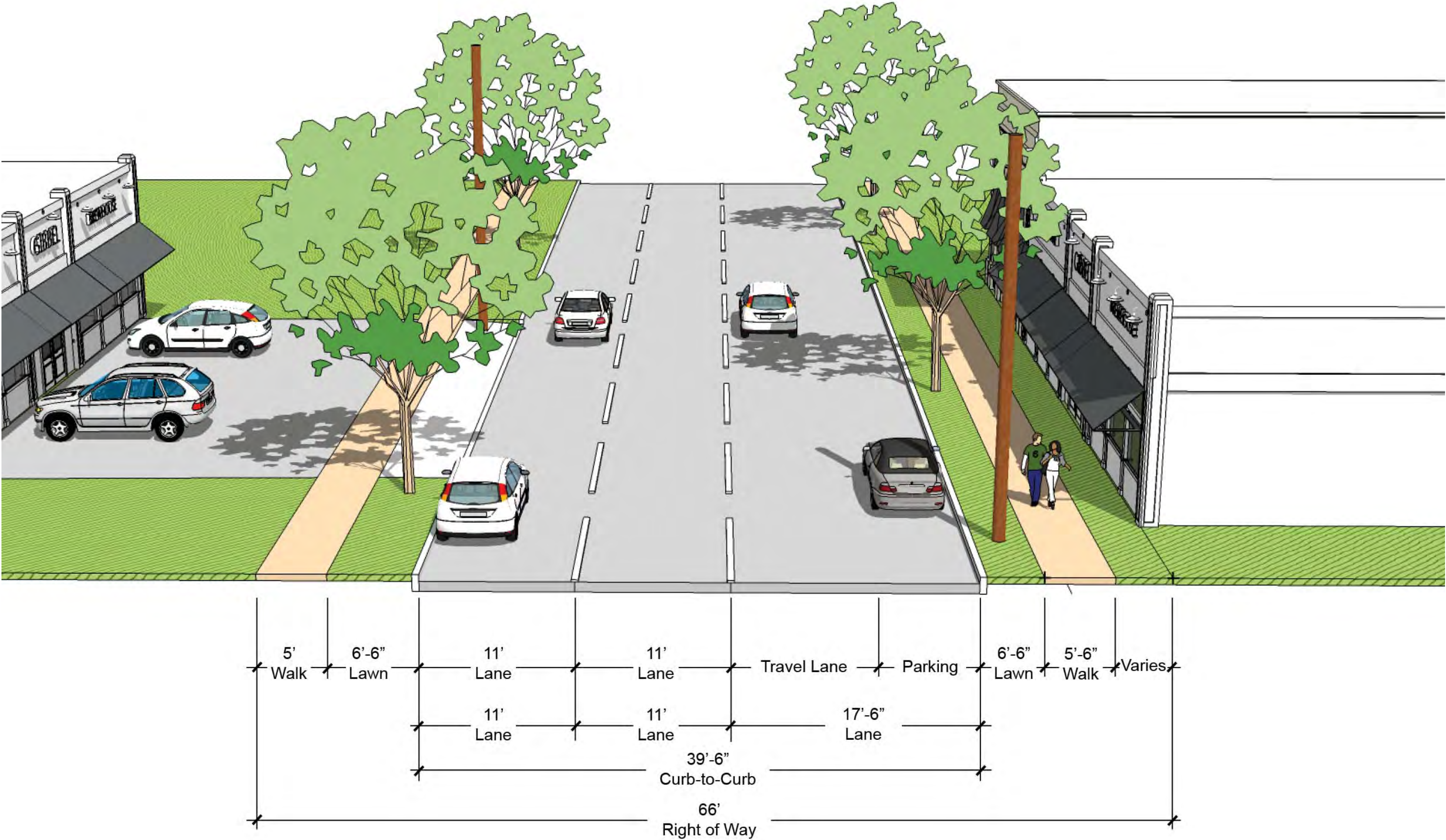
## Person Street Delway Street to E. Martin Street

### Key Characteristics:

- Three-lane, one-way north bound.
- On-street parking is located on both sides of the road, some of which is regulated and limited to 2-hour parking and off-peak.
- Sidewalks are generally found on both sides of the street with street trees in tree lawns in most areas along the corridor.
- Over-head utility lines are located throughout the corridor.
- Adjacent land uses include a mix of historic homes, surface parking lots, commercial uses, and institutional uses.
- The corridor has a character mix between in-town neighborhood character and suburban character. Some of the buildings are generously set back while others are located within close proximity to the sidewalk.





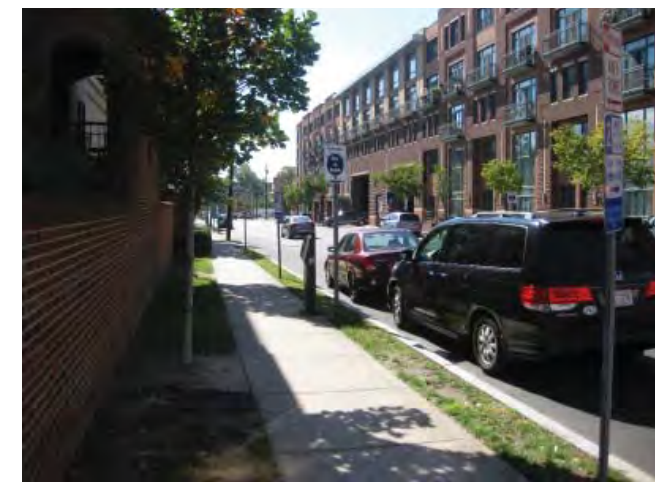
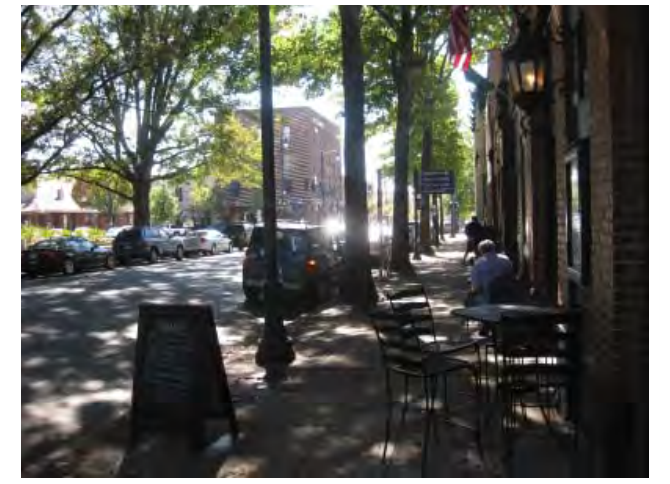
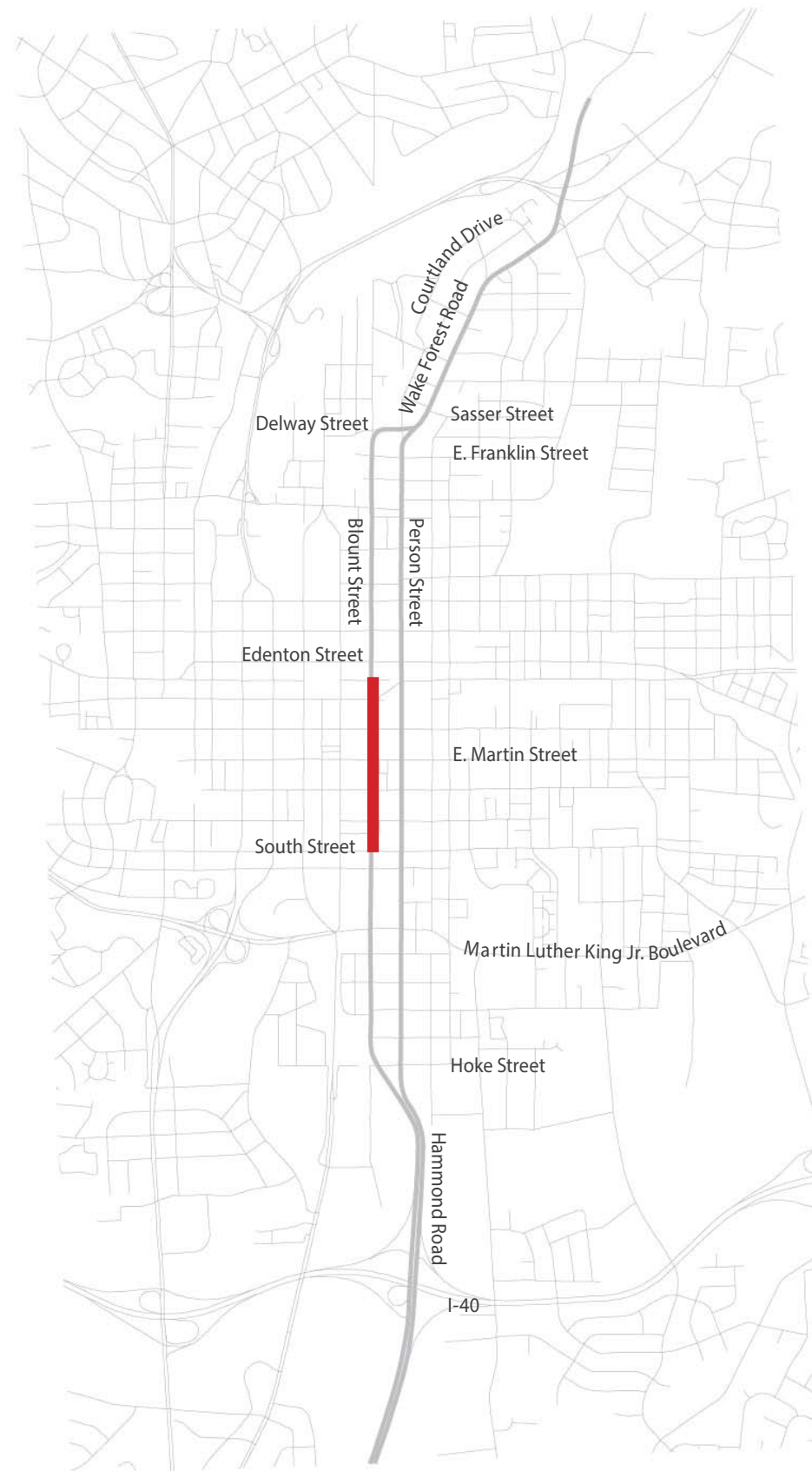




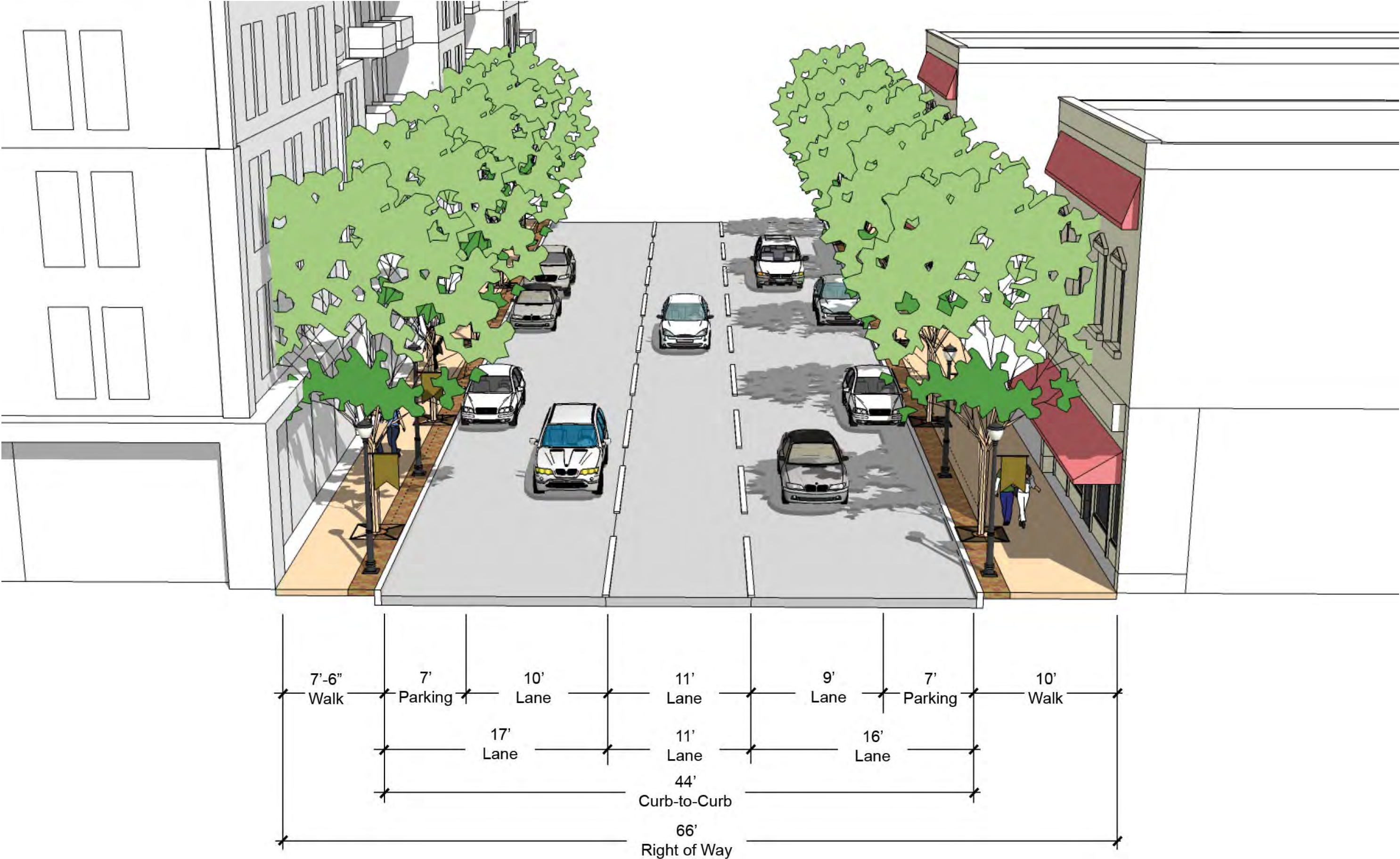
## Blount Street Edenton Street to South Street

### Key Characteristics:

- Three-lane, one-way south bound.
- On-street parking is located on both sides of the road, most of which is regulated and metered two-hour parking.
- Sidewalks are found on both sides of the street with street trees planted in tree lawns and tree grates in most areas.
- Utility lines are located underground.
- Adjacent land uses include commercial, civic uses, and mix-use commercial/residential uses. The segment represents the most urban condition of the corridor with buildings built to the edge of the right-of-way.





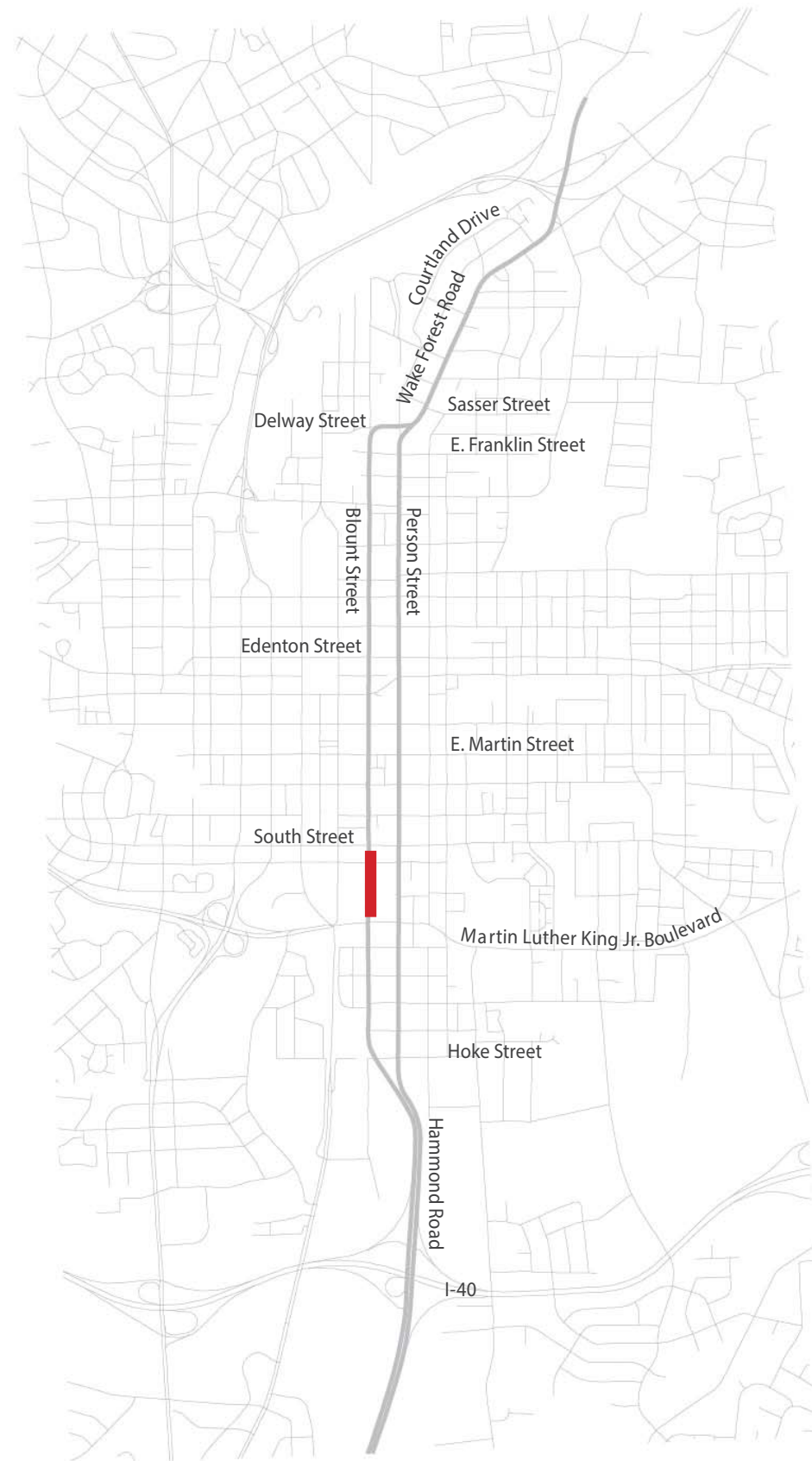




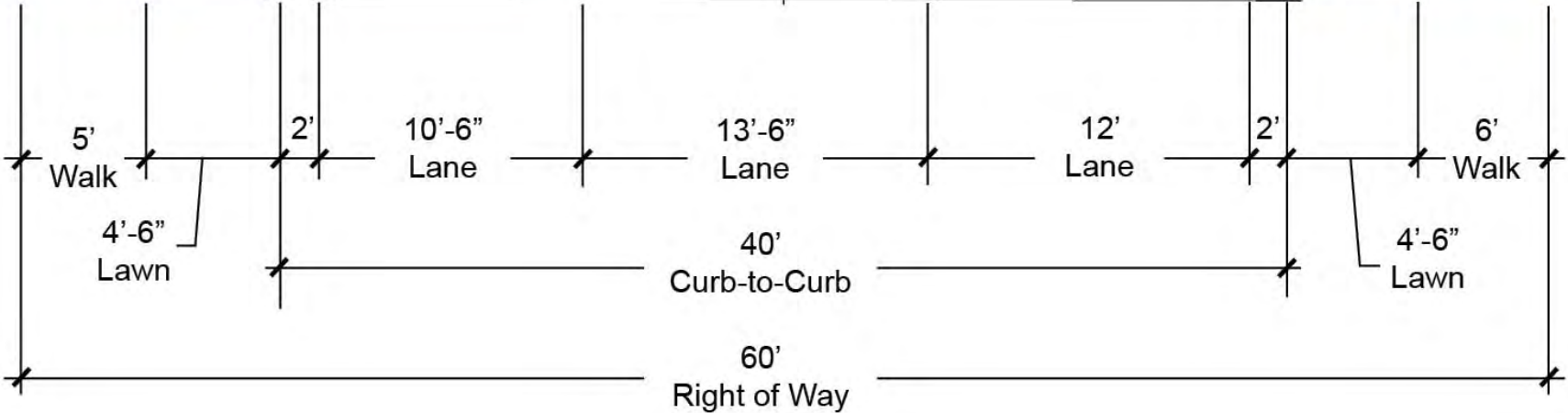
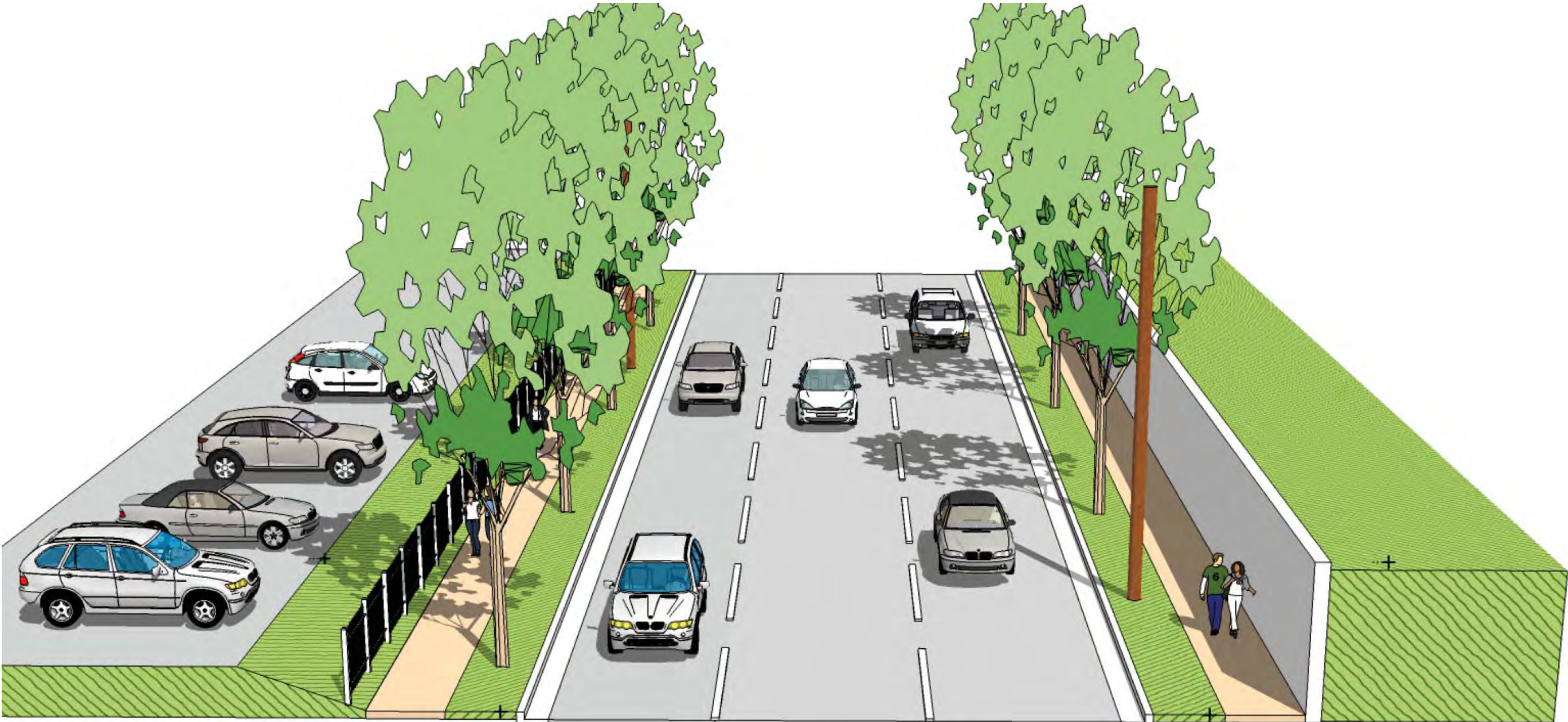
## Blount Street South Street to Martin Luther King Jr. Boulevard

### Key Characteristics:

- Three-lane, one-way south bound.
- On-street parking is located on both sides of the road, some of which is regulated and limited to one-hour and two-hour parking metered and non-metered parking. A portion of the segment before Martin Luther King Jr. Boulevard only permits parking during non-peak hours.
- Sidewalks are found on both sides of the street with street trees in tree lawns and tree grates in certain areas and no trees or tree lawns in other areas.
- Over-head utility lines are located throughout the corridor.
- Adjacent land uses include surface parking lots, commercial uses, and institutional uses.
- The most significant land owner along this segment is Shaw University.
- The corridor is has a character mix between in-town neighborhood character and suburban character. Some of the buildings are generously set back while others are located within close proximity to the sidewalk.





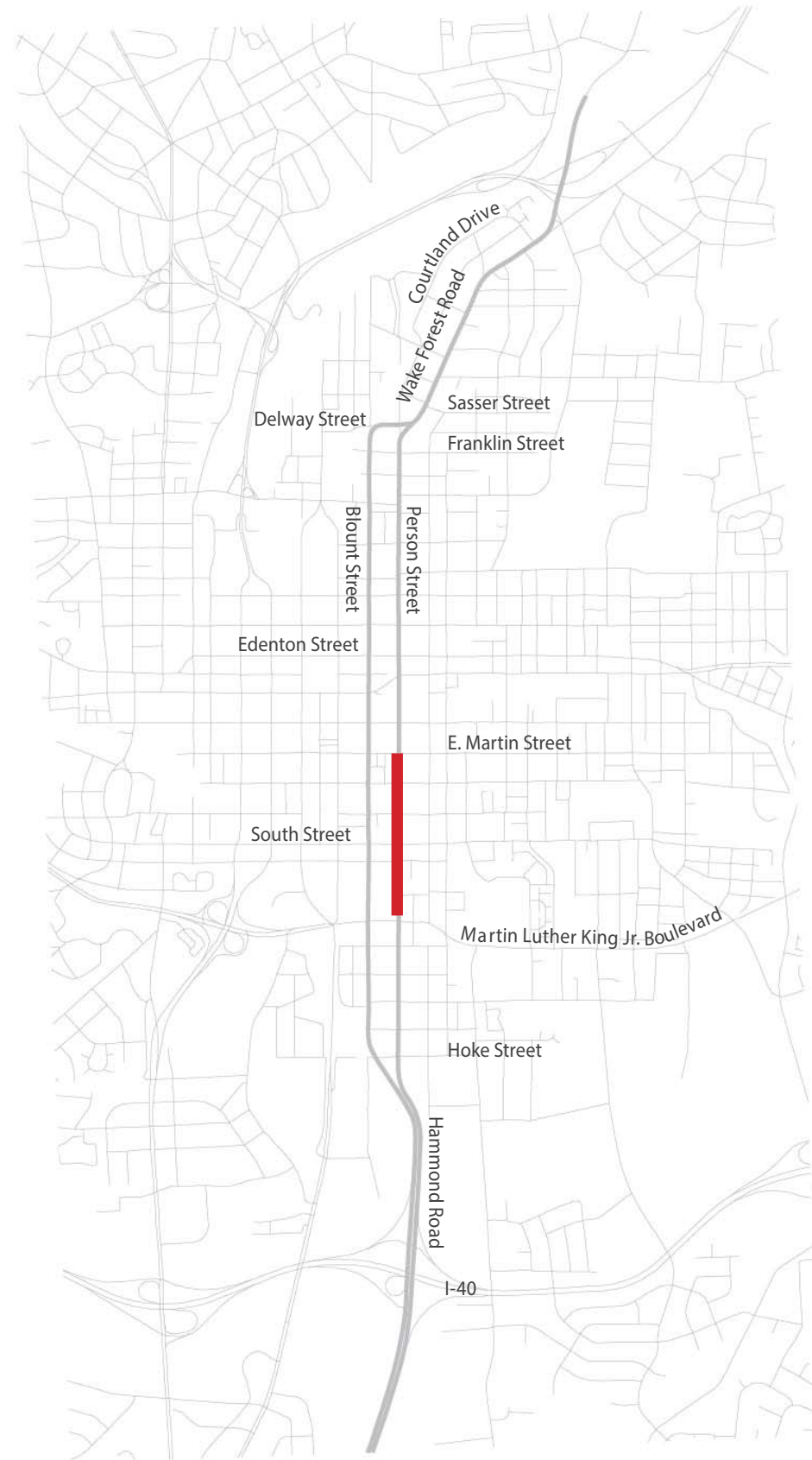




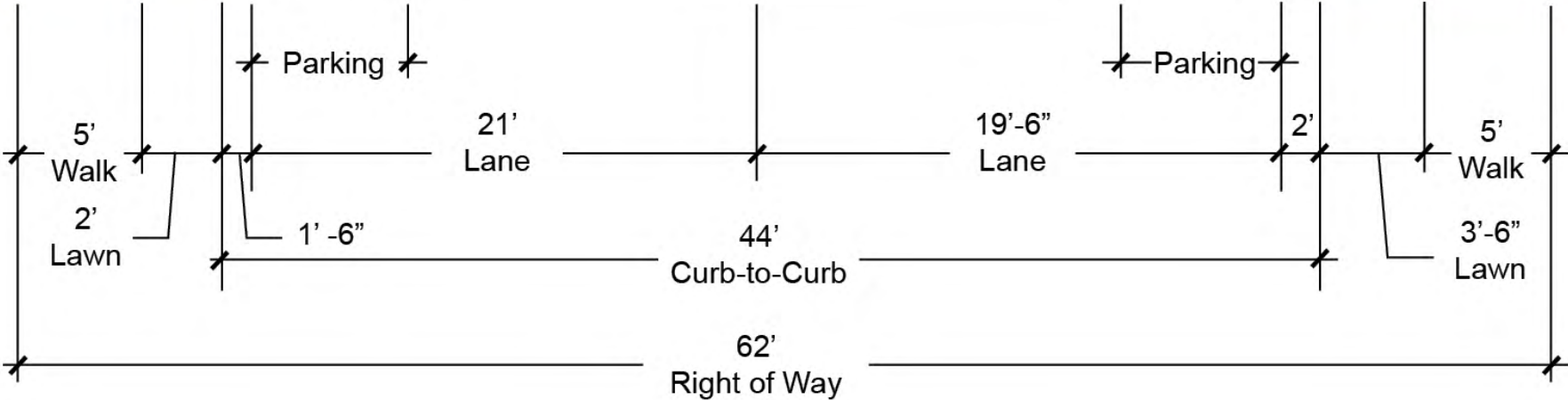
## Person Street E. Martin Street to Martin Luther King Jr. Boulevard

### Key Characteristics:

- Two-lane, one-way north bound.
- On-street parking is located on both sides of the road but is not regulated.
- Sidewalks are generally found on both sides of the street with street trees in tree lawns in most areas along the corridor. Sidewalks do not exist from Hoke Street to Bragg Street.
- Over-head utility lines are located throughout the corridor with mature street trees located throughout.
- Adjacent land uses include Shaw University, condominiums, and historic single family homes. The corridor has an in-town neighborhood character with many of the homes located within close proximity to the sidewalk.





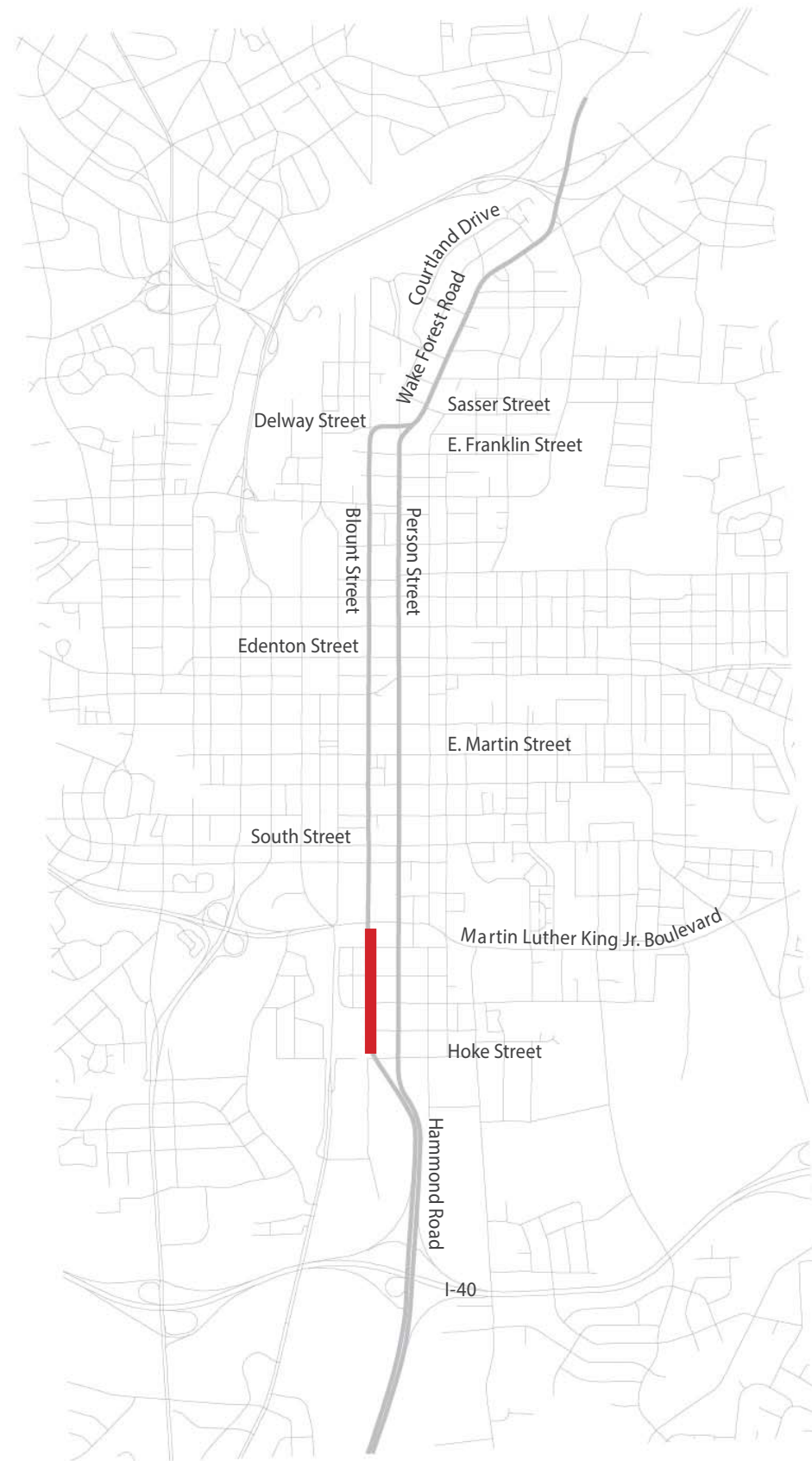




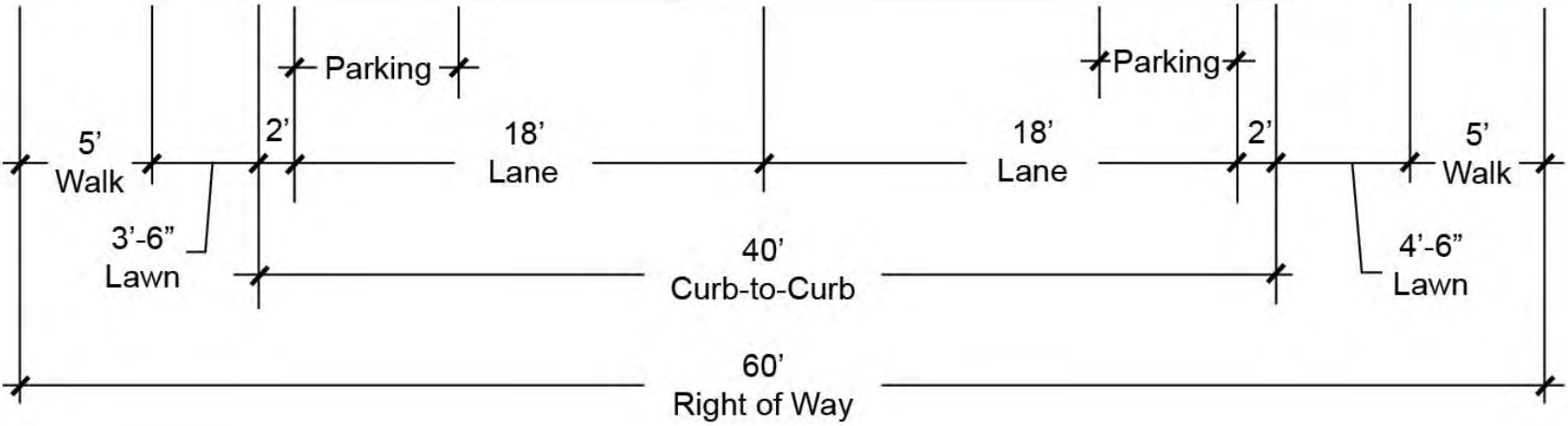
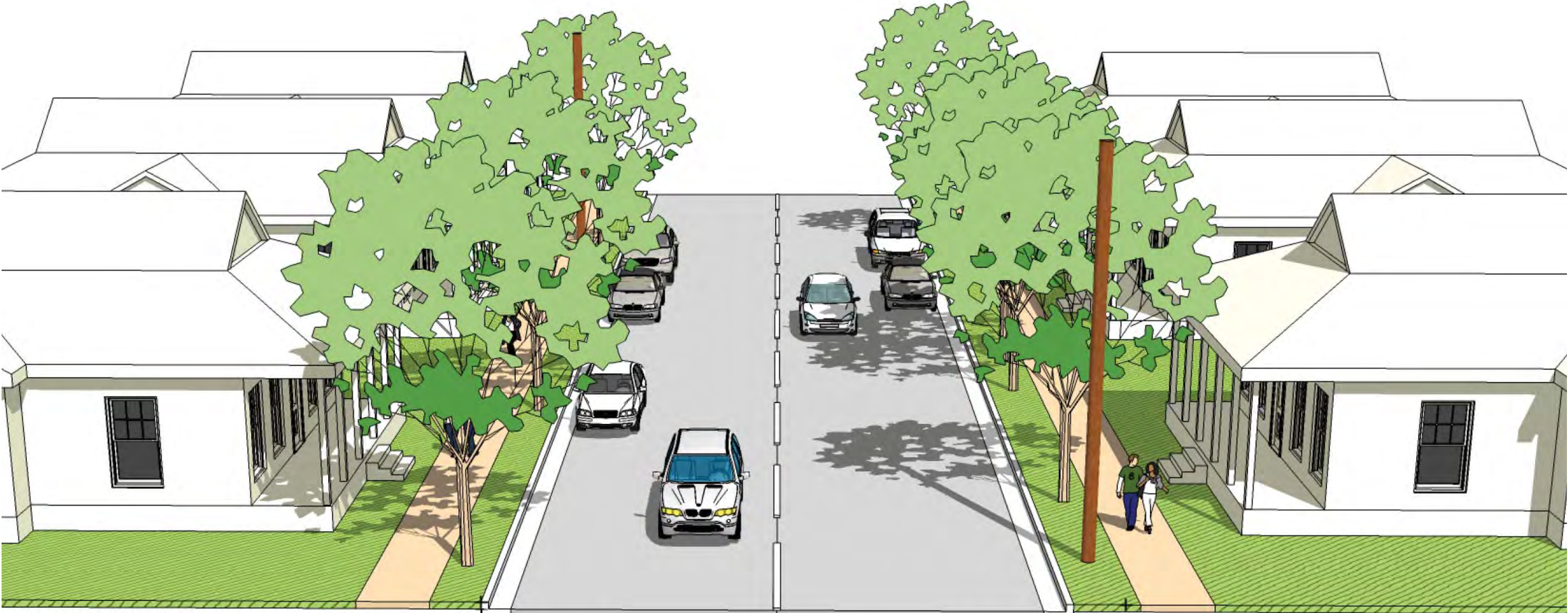
## Blount Street Martin Luther King Jr. Boulevard to Hoke Street

### Key Characteristics:

- Two-lane, one-way south bound.
- On-street parking is located on both sides of the road but is not regulated.
- Sidewalks are found on both sides of the street with street trees in tree lawns in most areas along the corridor.
- Over-head utility lines are located throughout the corridor with mature street trees located throughout.
- Adjacent land uses include historic single family homes. The corridor has an in-town neighborhood character with many of the homes located within close proximity to the sidewalk





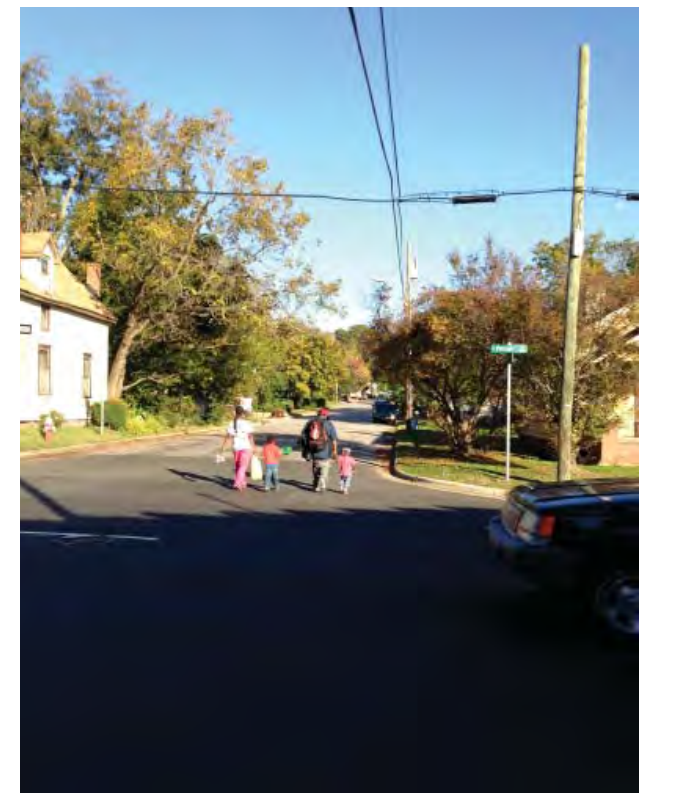
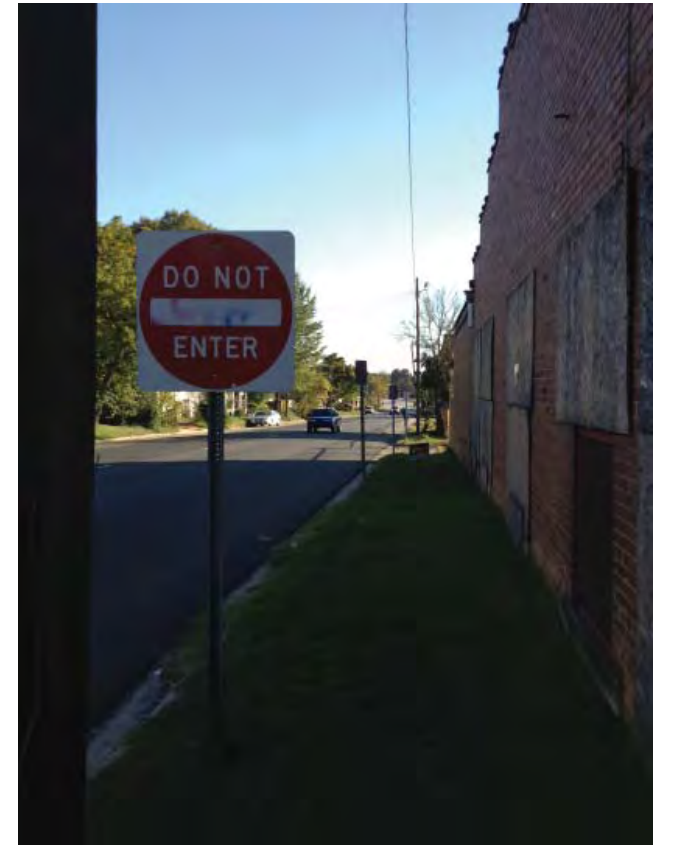
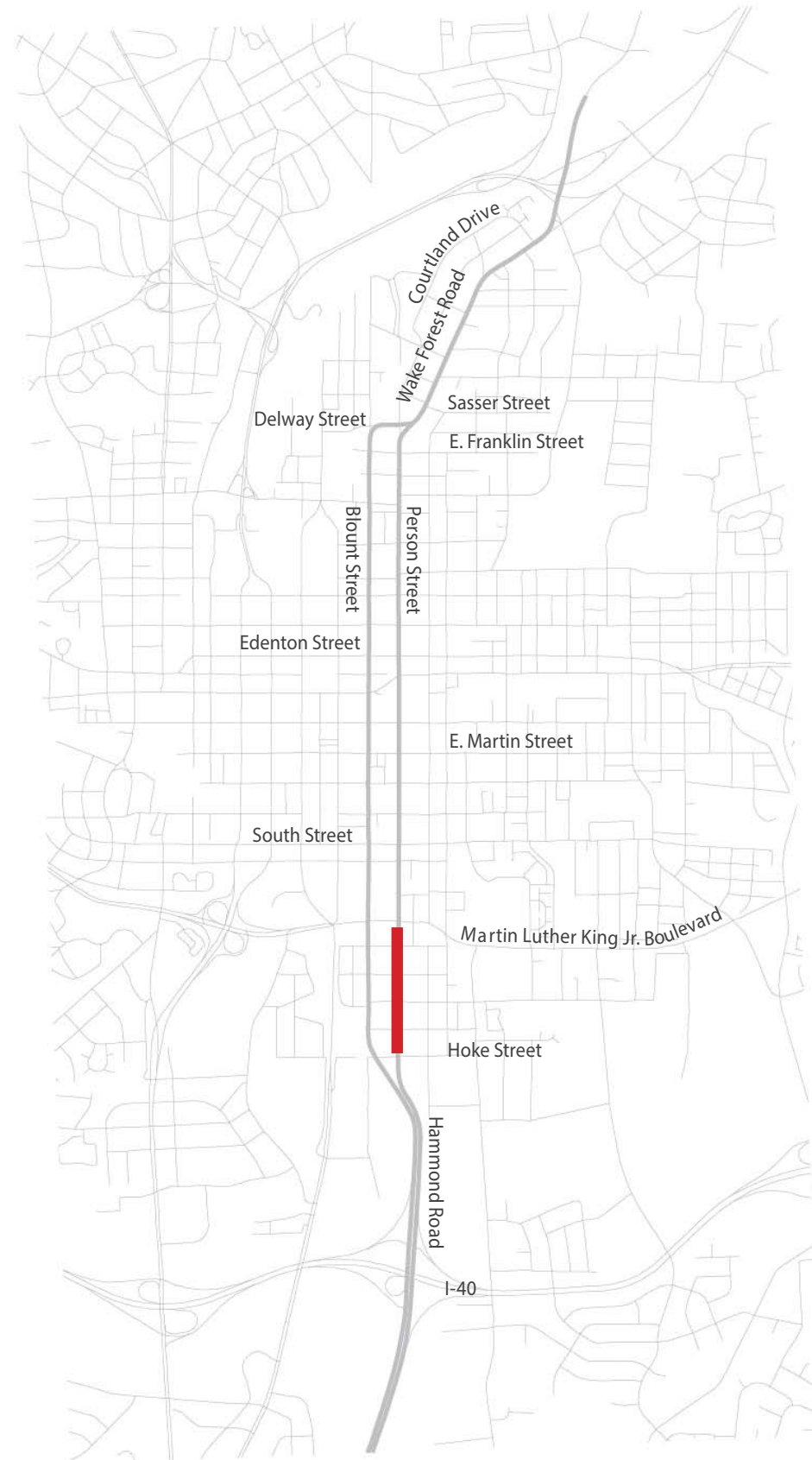




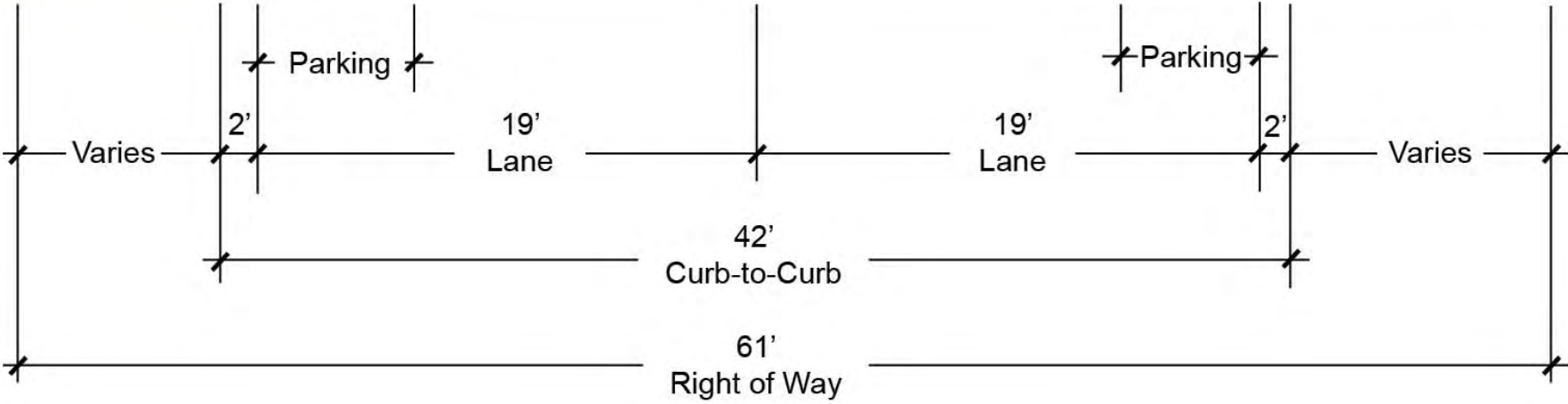
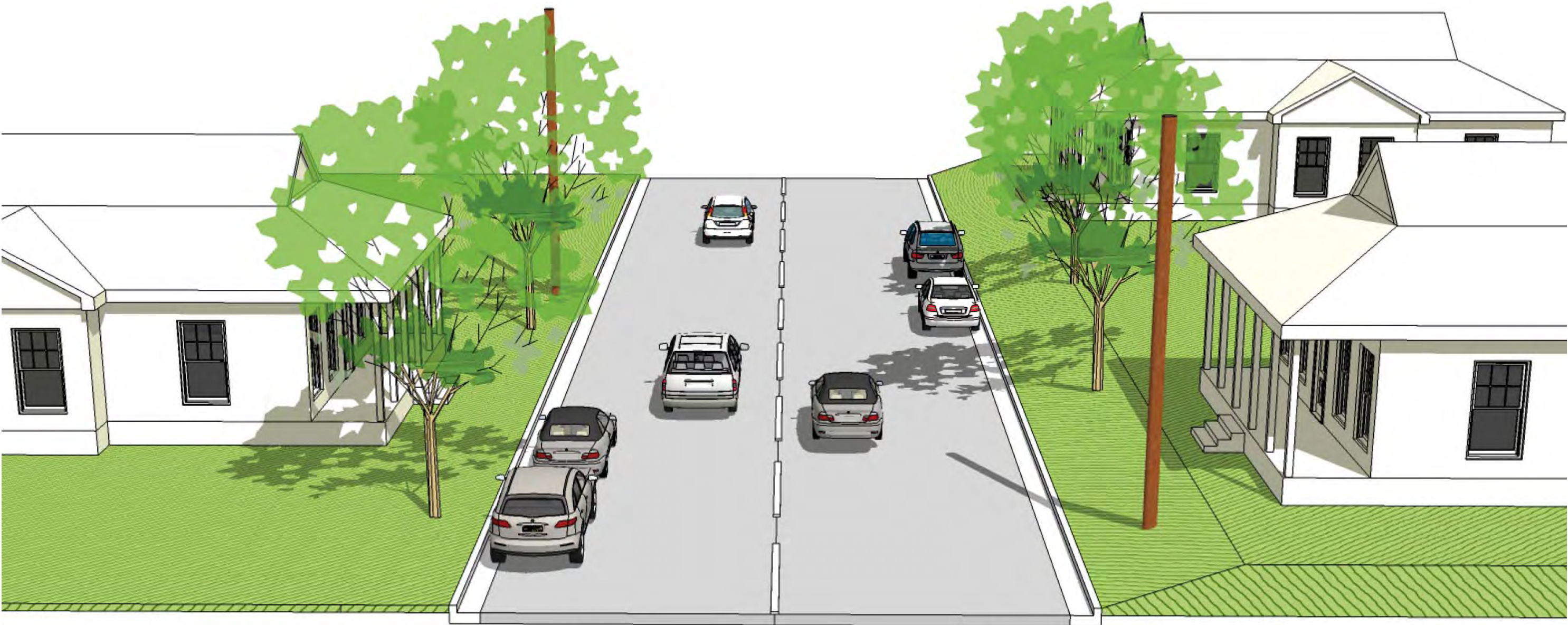
## Person Street Martin Luther King Jr. Boulevard to Hoke Street

### Key Characteristics:

- Two-lane, one-way north bound.
- On-street parking is located on both sides of the road but is not regulated.
- Sidewalks are generally found on both sides of the street with street trees in tree lawns in most areas along the corridor. Sidewalks do not exist from Hoke Street to Bragg Street.
- Over-head utility lines are located throughout the corridor with mature street trees located throughout.
- Adjacent land uses include historic single family homes. The corridor has an in-town neighborhood character with many of the homes located within close proximity to the sidewalk.





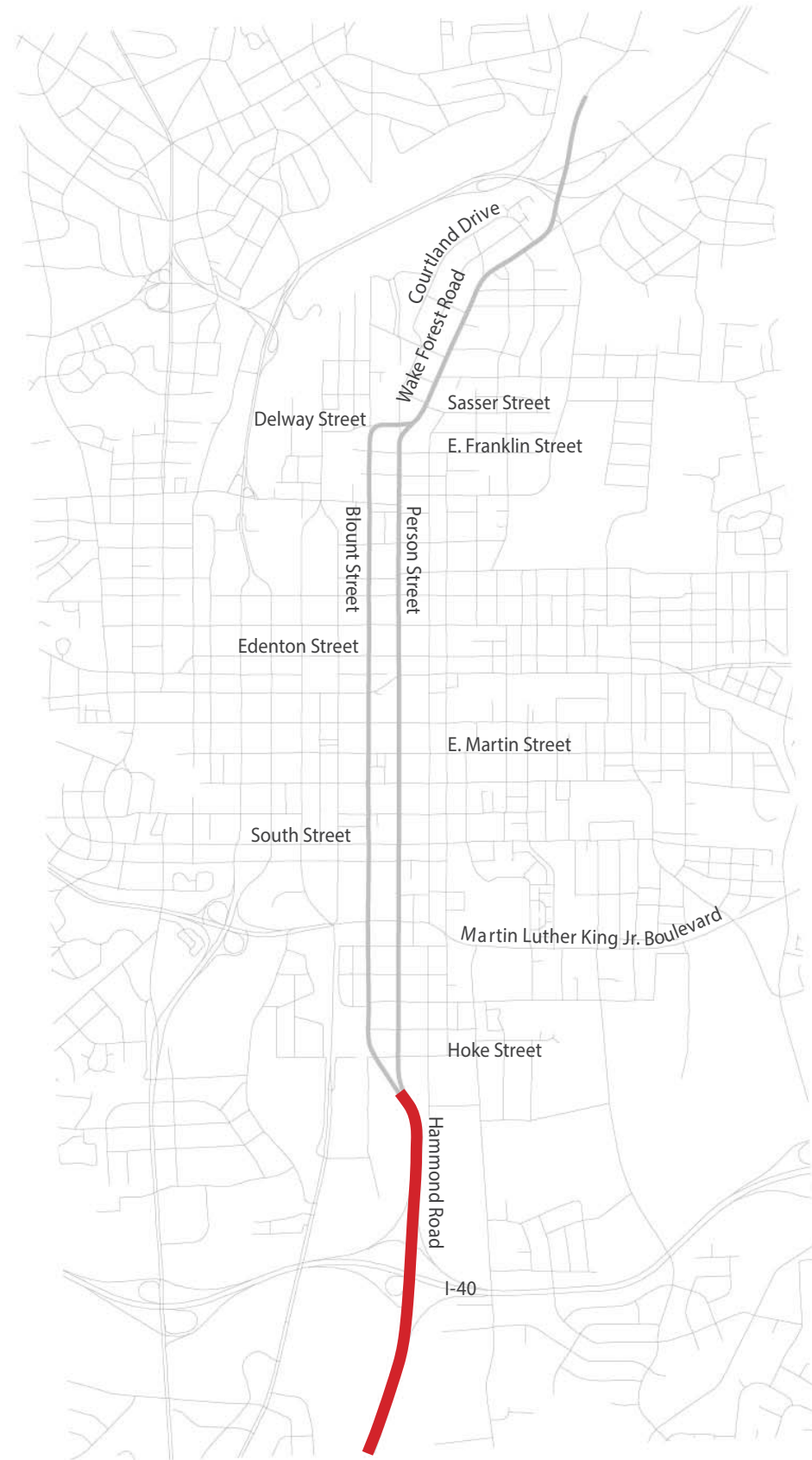




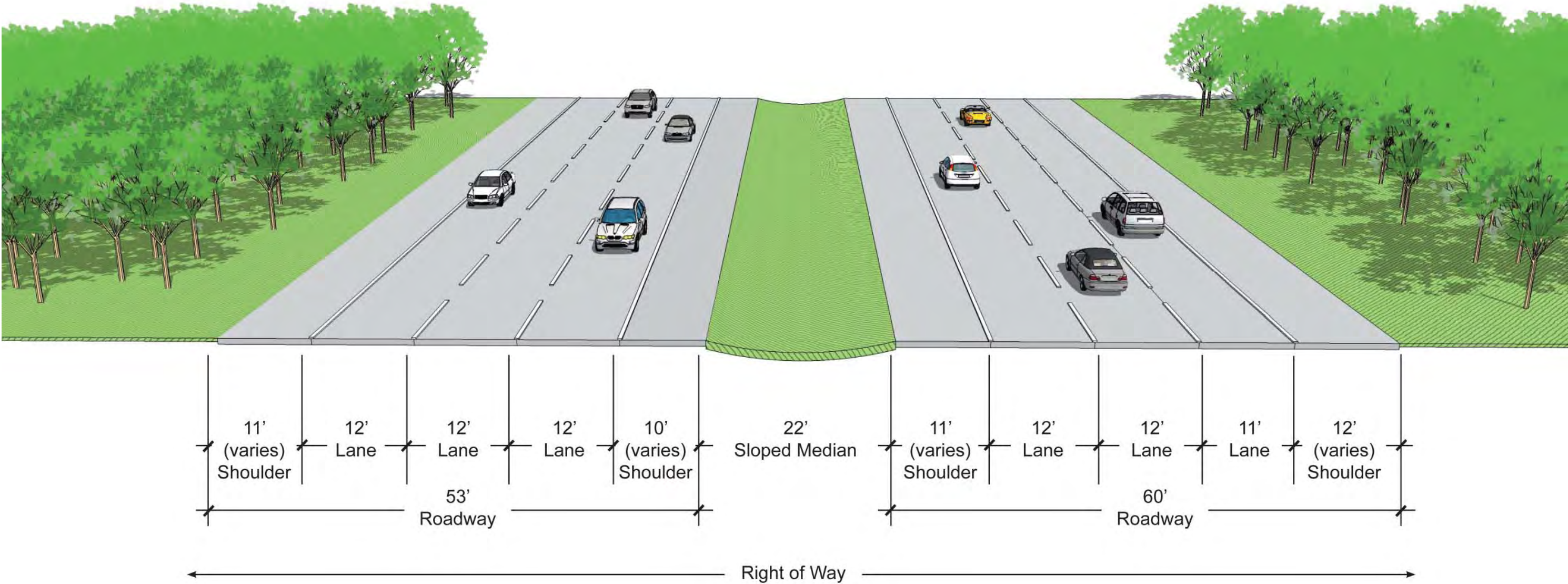
## Hammond Road I-40 to Hoke Street

### Key Characteristics:

- Six-lane, divided road.
- No on-street parking.
- No sidewalks.
- Adjacent land uses include industrial and commercial, with the Cargill facility being a significant industrial destination.











**AECOM**





# Blount St · Person St Corridor Study

## Corridor Plan Report - 02 Street Design











# Table of Contents

## Acknowledgements

**Prepared for:**  
City of Raleigh, North Carolina  
Raleigh Urban Design Center

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**Raleigh City Council**  
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**Prepared by:**  
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Alta/Greenways  
Susan Hatchell Landscape Architecture, PLLC

**Adopted:**  
July 16, 2013

**ORGANIZATION OF THE REPORT**  
*This report is organized into the following sections that document the process, design development and technical analysis of the corridor study. Each section functions as a stand-alone document and as part of the overall report.*

**EXECUTIVE SUMMARY -**  
*Provides an overview of the vision, design, evaluation, and implementation*

The Vision  
The Choice  
How Do We Get There?

**01 ISSUES + OPPORTUNITIES -**  
*Highlights the corridor's unique conditions and context*

1.1 What We Heard  
1.2 Land Use + Urban Form  
1.3 Traffic + Multimodal Mobility  
1.4 Existing Street Design

**02 STREET DESIGN -**  
*Details the streetscape design alternatives*

2.1 What Makes a Great Street?  
2.2 Purpose of the Design Guidelines  
2.3 Components of a Streetscape  
2.4 Sidewalk Spatial Standards  
2.5 Green Street Design  
2.6 Bulb-Outs  
2.7 Street Furnishings + Materials  
2.8 Vehicular Roadway  
2.9 Intersections + Roundabouts

**03 ALTERNATIVES DEVELOPMENT + DESIGN -**  
*Illustrates the translation of the vision to design alternatives*

3.1 Design Vision  
3.2 What Change is Possible?  
3.3 Design Alternatives Summary  
3.4 Road Diet  
3.5 Two-Way Restoration

**04 ALTERNATIVES TRAFFIC EVALUATION -**  
*Summarizes the traffic analysis and conclusions*

4.1 Methodology + Assumptions  
4.2 Summary Conclusions  
4.3 No Build (2020) - Intersection / Corridor LOS + Delay  
4.4 Road Diet (2020) - Intersection / Corridor LOS + Delay  
4.5 Two-Way Restoration (2020) - Intersection Corridor LOS + Delay  
4.6 Blount / Person Alternatives Comparison  
4.7 Partial Two-Way Evaluation  
4.8 Roundabout Analysis

**SUPPORT DOCUMENTS -**  
  
Blount St-Person St Corridor Study - Traffic Capacity Analysis Report  
Blount St-Person St Corridor Study - Road Diet Conceptual Design Plan  
Blount St-Person St Corridor Study - Opinion of Probable Cost



## 02 STREET DESIGN GUIDELINES

### 2.1 What Makes a Great Street?

“Great streets” are difficult to define yet you know when you experience one. Great streets emotionally move people through their subtle and pleasing combination of social exchange, comfort, engagement, use, and aesthetics; leaving a lasting experience, memory, and connection. They are the result of a designed balance between the physical design of the street and the function and activity of its surroundings. Great streets are not simply about the street itself, but the space from building face to building face, including surrounding parks and open spaces, that enclose a public realm and houses a diverse range of uses and needs.

Great streets do not happen by accident. They require a thoughtful and negotiated balance of sometimes competing uses and functional desires. The American Planning Association defines the characteristics and balance of great streets to include:

- Providing orientation to its users, and connecting well to the larger pattern of ways;
- Balancing the competing needs of the street – driving, transit, walking, cycling, servicing, parking, drop-offs, etc;
- Fitting the topography and capitalizing on natural features;
- Being lined with a variety of interesting activities and uses that create a varied streetscape;
- Having urban design and architectural features that are exemplary in design;
- Relating well to its bordering uses by allowing continuous activity that doesn't displace pedestrians;
- Encouraging human contact and social activities;
- Employing hardscape and landscape design to great effect;
- Promoting safety of pedestrians and vehicles and promoting use over the 24-hour day;
- Supporting sustainability through minimizing runoff, reusing water, ensuring groundwater quality, minimizing heat islands, and responding to climatic demands;
- Being well-maintained without excessive costs; and
- Having a memorable character.

#### Purpose of the Design Guidelines & Palette

This chapter proposes streetscape guidelines and a design palette intended to transform the Blount St. – Person St. Corridor into a great street. This transformation will not happen all at once but, over time in small steps requiring continued design and engineering. These guidelines simply establish the foundational design intent for the long-term transformation of the Blount St. – Person St. Corridor. The guidelines are informed by the design alternatives developed as part of this study and by related studies and guidelines including:

- Raleigh Downtown Streetscape Improvement Master Plan;
- North Carolina Department of Transportation Complete Streets Planning and Design Guidelines;
- Green Streets City of Raleigh Pilot Project;
- Design Guidelines for Raleigh Historic Districts.





## 2.2 Components of a Streetscape

Understanding and providing space for the various components that make-up a streetscape is essential in creating a successful street. These components can be simply divided into two categories; 1) the pedestrian realm, and 2) the multi-modal vehicular realm.

The pedestrian realm is the space between the vehicular roadway and adjacent building frontage. Depending on the land use, this space should be designed to accommodate a range of activity including, walking, dining and commerce, sitting, and socializing. The physical components of the pedestrian realm include:

- Sidewalks;
- Building frontage;
- Street trees;
- Bulb-outs;
- Furnishings;
- Signage, wayfinding and public art;
- Lighting; and
- Landscape materials.

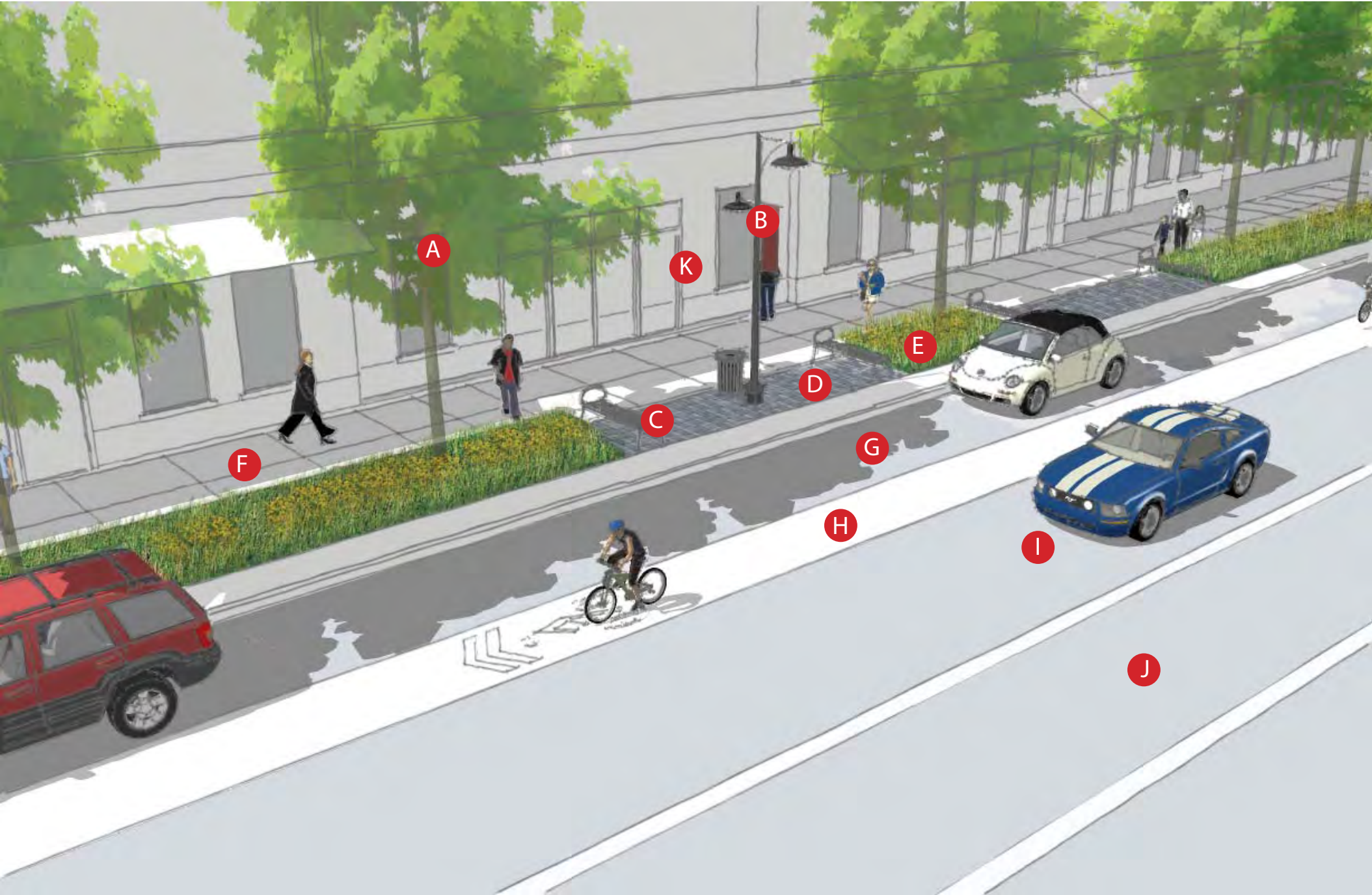
The multi-modal vehicular realm is the space designed for a range of transportation modes including cars, trucks and service vehicles, on-street parking, cycling, and transit. The physical components of the multi-modal vehicular realm include:

- Travel lanes and medians;
- Bicycle facilities;
- Transit stops;
- On-street parking; and
- Intersections.

### Organization of the Design Guidelines & Palette

These guidelines are focused on key streetscape components designed and tailored to the unique characteristics of the Blount St. – Person St. Corridor. The guidelines are organized into the following areas:

- **Sidewalk Spatial Standards** – defining basic dimensional standards in order to accommodate a range of use and activity.
- **Green Street Design** – establishing the design intent and opportunity for sustainable stormwater practices to be integrated into future streetscape design.
- **Bulb-outs** – illustrating a range of design treatments that can be employed to increase pedestrian space, incorporate additional street trees and landscape materials, implement green street practices, and traffic calm the corridor.
- **Street Furnishings & Materials** – identifying a basic palette of furnishings and materials to serve as the starting point for future streetscape designs.
- **Vehicular Roadway** – identifying a range of treatments for median and pedestrian islands, bicycle facilities, and on-street parking.
- **Intersections & Roundabouts** – outlining potential design treatments for intersection and roundabout design.



### Components of a Street

- |  |   |   |
|--|---|---|
| <b>A</b> Street Trees                    | <b>E</b> Landscape Materials + Planters | <b>I</b> Travel Lanes + Intersections   |
| <b>B</b> Lighting   Signage + Wayfinding | <b>F</b> Broad Sidewalks                | <b>J</b> Median + Turn Lanes            |
| <b>C</b> Furnishings                     | <b>G</b> On-Street Parking              | <b>K</b> Street Presence from Buildings |
| <b>D</b> Materials and Finishes          | <b>H</b> Bicycle Facilities             |   |



## 2.3 Sidewalk Spatial Standards

Depending on the adjacent land use the sidewalk space can serve a wide range of functions. The Blount St. – Person St. Corridor includes mixed-use commercial districts and residential neighborhoods, each with different needs and associated standards.

The spatial configuration of the sidewalk needs to provide a comfortable organization and delineation of space to serve a range of uses. These uses can include walking, dining and retail commerce, sitting, socializing, and access to on-street parking. The following sidewalk spatial standards identify the organization and minimum space needed for a variety of sidewalk design scenarios for both commercial and residential areas. These standards serve as a guideline for future detailed design tailored to the unique right-of-way dimensions of the corridor which can vary block-by-block.

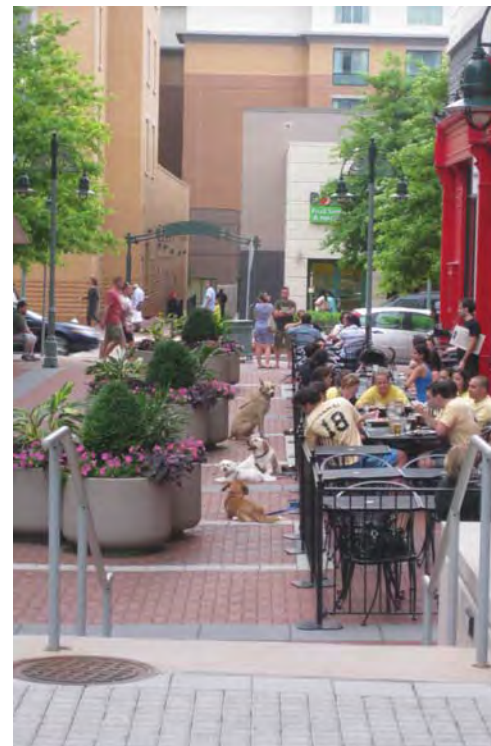
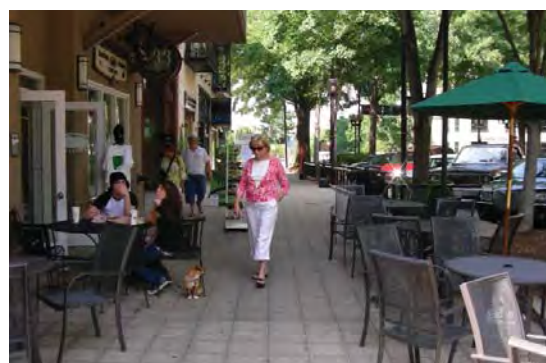
The sidewalk space can be organized into basic functional zones including:

- **Building Zone** – the space adjacent to building frontages to allow for door swings, dining, outdoor retailing, and window shopping.
- **Walkway Zone** – the space for pedestrian access and mobility.
- **Planting/Furniture Zone** – the space for streetscape furnishings and materials such as street trees, lighting, signage, parking meters, benches, landscaping, etc.
- **Step Zone** – the space for door swings and pedestrian access to on-street parked cars.



### Components of a Great Sidewalk

<span style="display:inline-block; width:15px; height:15px; background-color:orange; border:1px solid black;"></span>	Building/Dining Zone
<span style="display:inline-block; width:15px; height:15px; background-color:purple; border:1px solid black;"></span>	Walking Zone
<span style="display:inline-block; width:15px; height:15px; background-color:blue; border:1px solid black;"></span>	Furnishing/Planting Zone
<span style="display:inline-block; width:15px; height:15px; background-color:green; border:1px solid black;"></span>	Step Zone







## Sidewalk Spatial Standards | UDO Mixed Use Streetscape Type

### Sidewalk Spatial Standards – Typical Commercial Area

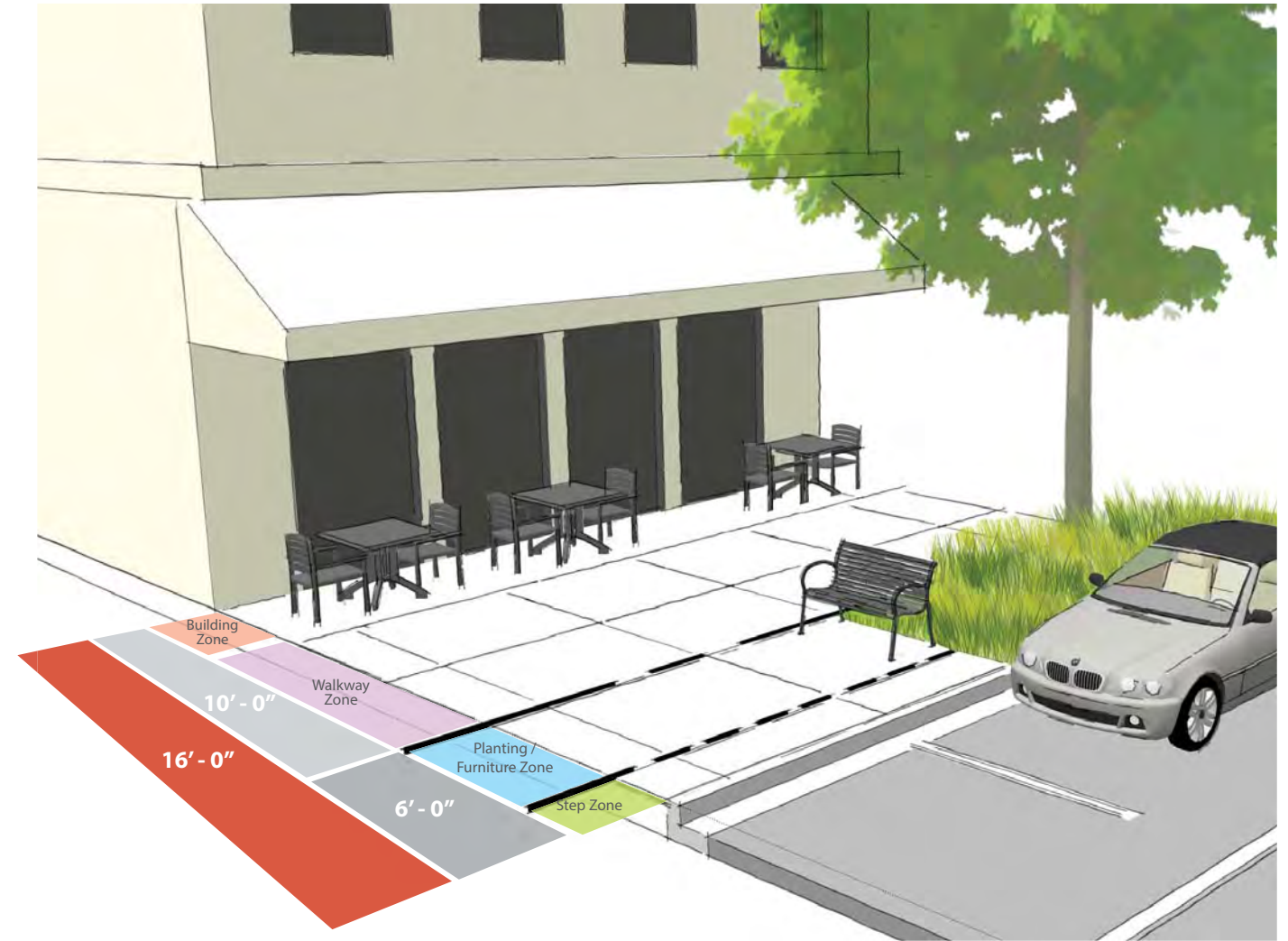
- The City of Raleigh Downtown Overlay District (DOD) requires a 14-foot minimum sidewalk for new development.
- Building Zone (4 feet minimum) – provides space for dining activity and building access.
- Walkway Zone (4 feet minimum) – provides a clear space for pedestrians.
- Planting/Furniture Zone (6 feet minimum) – provides minimum space for street tree planting, area for benches, lighting and potential additional dining space.
- Step Zone (1-2 feet) – may vary based on available space and co-located within the planting/furnishing zone.
- Standards consistent with the Unified Development Ordinance (UDO) requirements for Mixed Use Streetscape Types.

### NCCOT Clear Zone Requirements

#### Typical Commercial Area (without on-street parking)

NCDOT requires a clear zone along roadways in an attempt to furnish a “forgiving” roadside for motorists by reducing the effects of striking a fixed object within a certain distance from the roadway. The recommended width (measured from the edge of the through travel lane) is typically influenced by vehicle speed, traffic volume, and context. For a urban street with curb and gutter posted at 25 mph to 35 mph (such as Blount St. and Person St.) the clear zone is defined as 8-10 feet. Where on-street parking exists, the 8-10 foot clear zone is accounted for in the parking aisle which separates the vehicular travel lane from the sidewalk.

In areas without on-street parking this clear zone requirement limits vertical elements including street trees, lighting, benches, etc., for most of the 14-foot sidewalk space. The NCDOT Complete Streets Planning and Design Guidelines (2012) recognize the need for context-based modifications of the clear zone requirements. Given the intended pedestrian character and urban context of this corridor it is recommended that discussions occur with NCDOT to minimize clear zone requirements to allow for street trees and other streetscape furnishings.



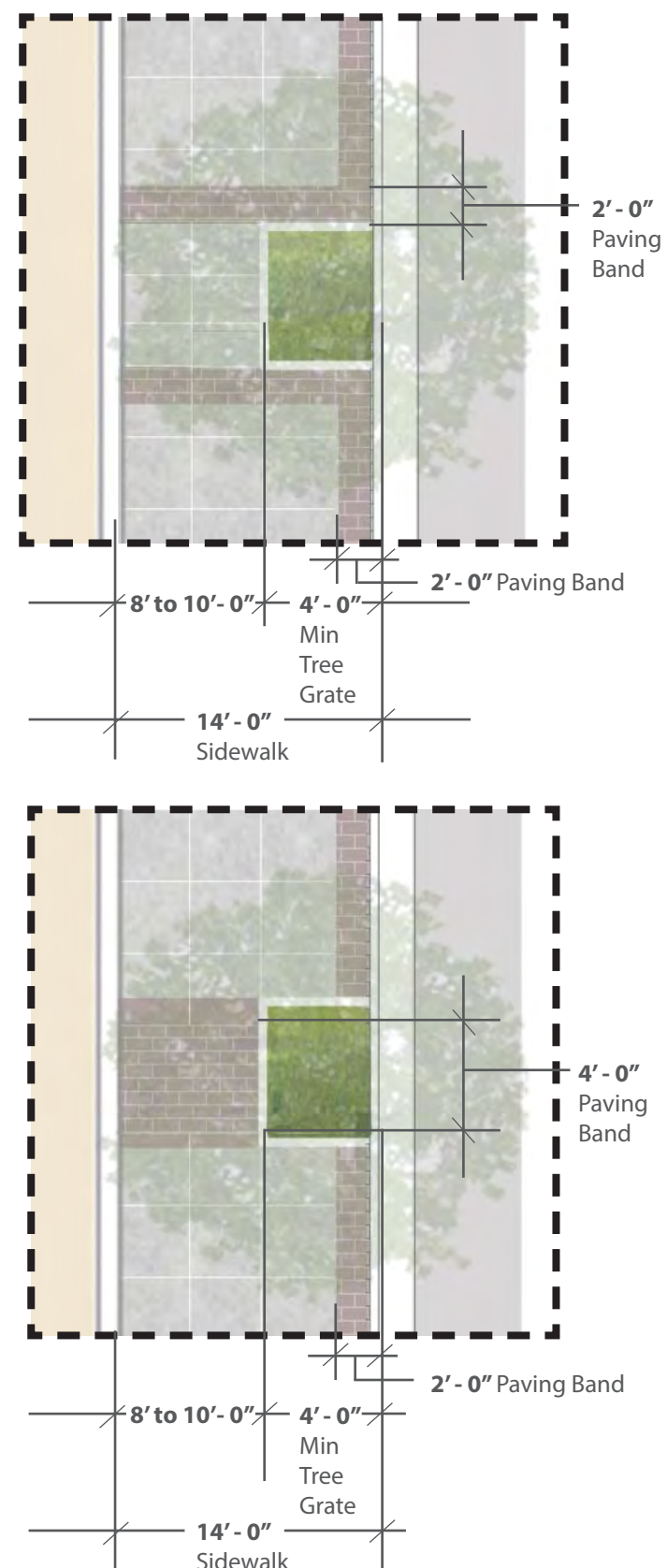
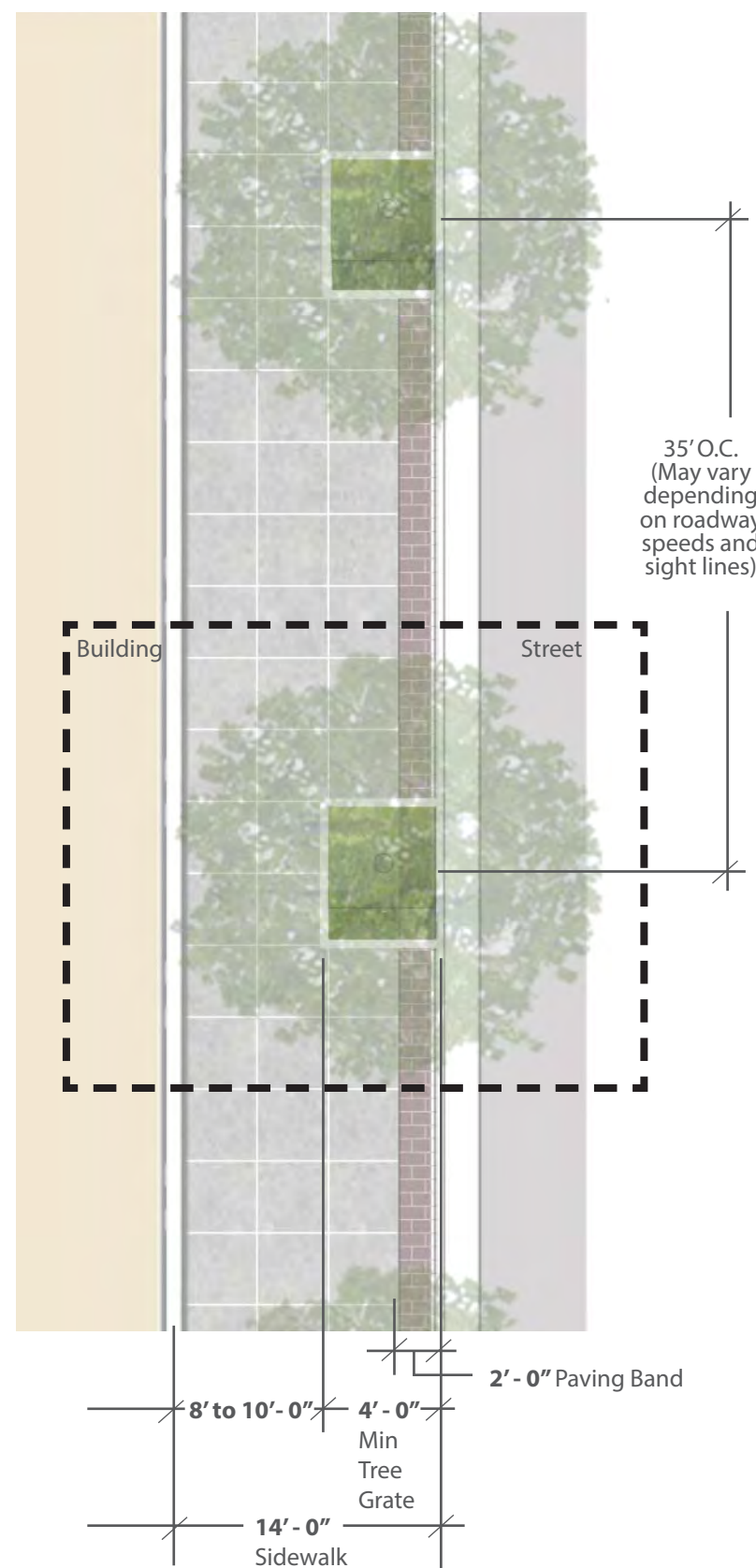
## Sidewalk Spatial Standards | UDO Main Street Streetscape Type

In areas with a high level of commercial and pedestrian activity the 14-foot sidewalk is a constrained dimension. A recommended option is to apply the UDO Main Street Streetscape Type.

- Building Zone (varies) - provides space for dining activity and building access
- Walkway Zone (10 feet minimum) – expanded to provide a wider clear space for pedestrians.
- Planting/Furniture Zone (6 feet minimum) – provides minimum space for street tree planting, area for benches, lighting and potential additional dining space.
- Step Zone (1-2 feet) – may vary based on available space and co-located within the planting/furnishing zone.
- Standards consistent with the Unified Development Ordinance (UDO) requirements for Main Street Streetscape Type.





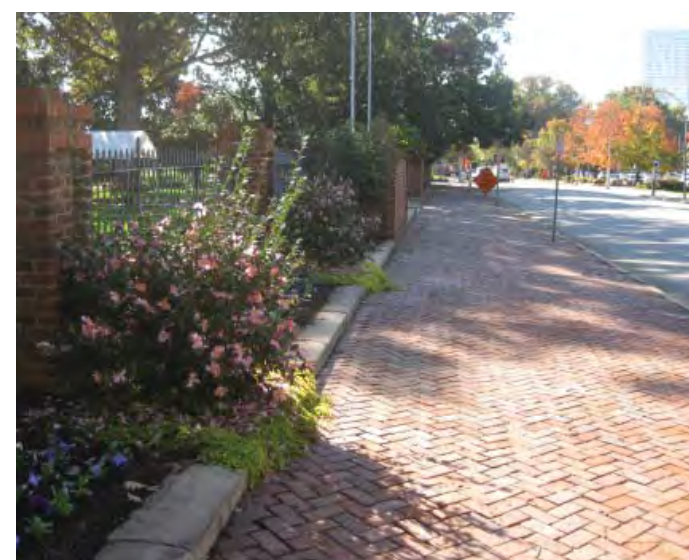
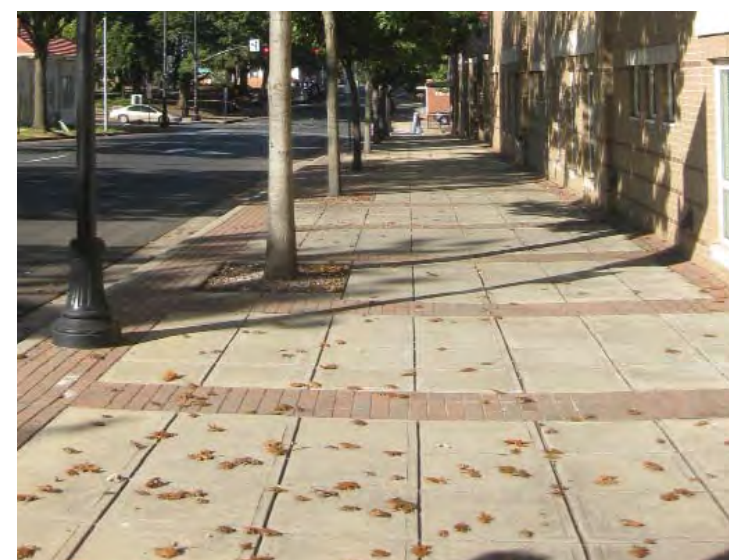


## Commercial Areas

(Raleigh Downtown Streetscape Master Plan Level 2 Sidewalk Development)

## Commercial Area Streetscape Variations

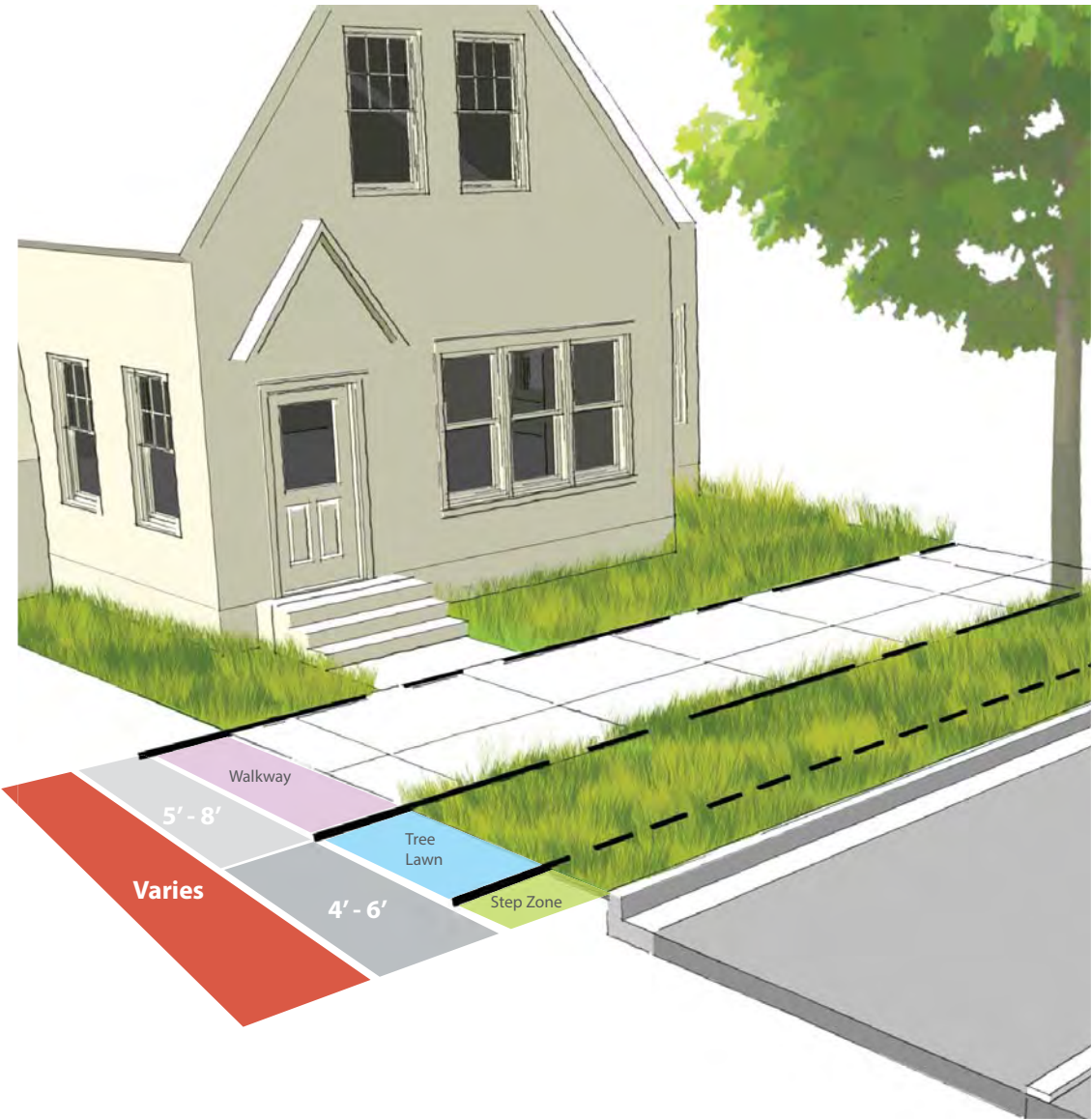
(Raleigh Downtown Streetscape Master Plan Level 3 Sidewalk Development)



## Historic Squares

(Raleigh Downtown Streetscape Master Plan Level 4 Sidewalk Development)

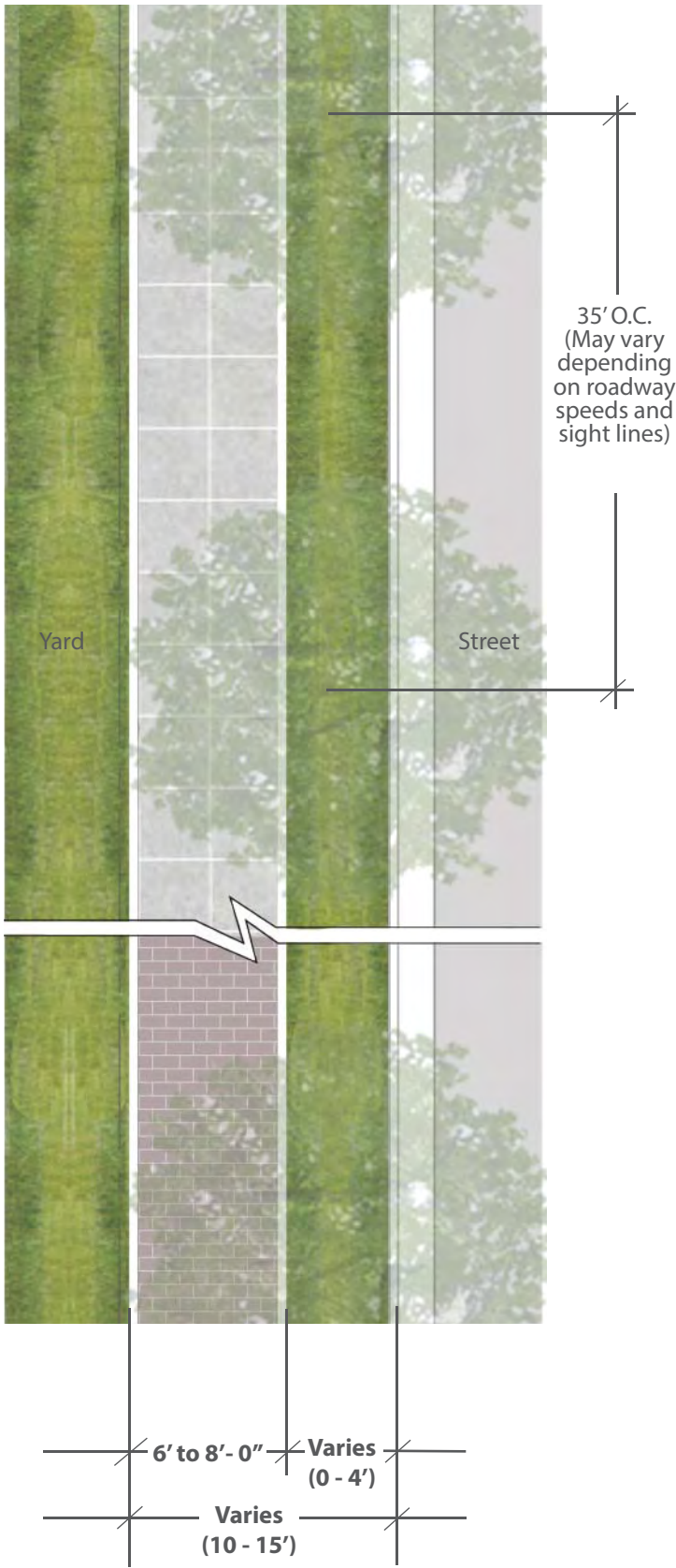




Sidewalk Spatial Standards | Residential Areas

In residential areas the sidewalk space varies depending on available right-of-way, typically 10-15 feet and sometimes constrained by steep, sloping residential yards. Basic standards include:

- Walkway Zone (5-8 feet) – sidewalk, concrete and/or brick pavers (in historic districts).
- Planting Zone (4-6 feet) – provides minimum space for street tree planting, lighting, parking meters, and grass planting strip.
- Step Zone – included in planting zone, accommodated in grass planting strip and/or walkways between the curb and sidewalk.



Residential Areas  
(Raleigh Downtown Streetscape Master Plan Level 1 & 6 Sidewalk Development)



## 2.4 Green Streets

Conventional urban street stormwater systems collect rain water runoff from the roadway and public right-of-way, directing it into underground pipes that discharge into adjacent rivers and streams and/or the sewer treatment system. The resulting stormwater collects a range of pollutants that can impact natural waterways and groundwater. The long-term collective impact can burden the sewer system and pollute rivers and streams.

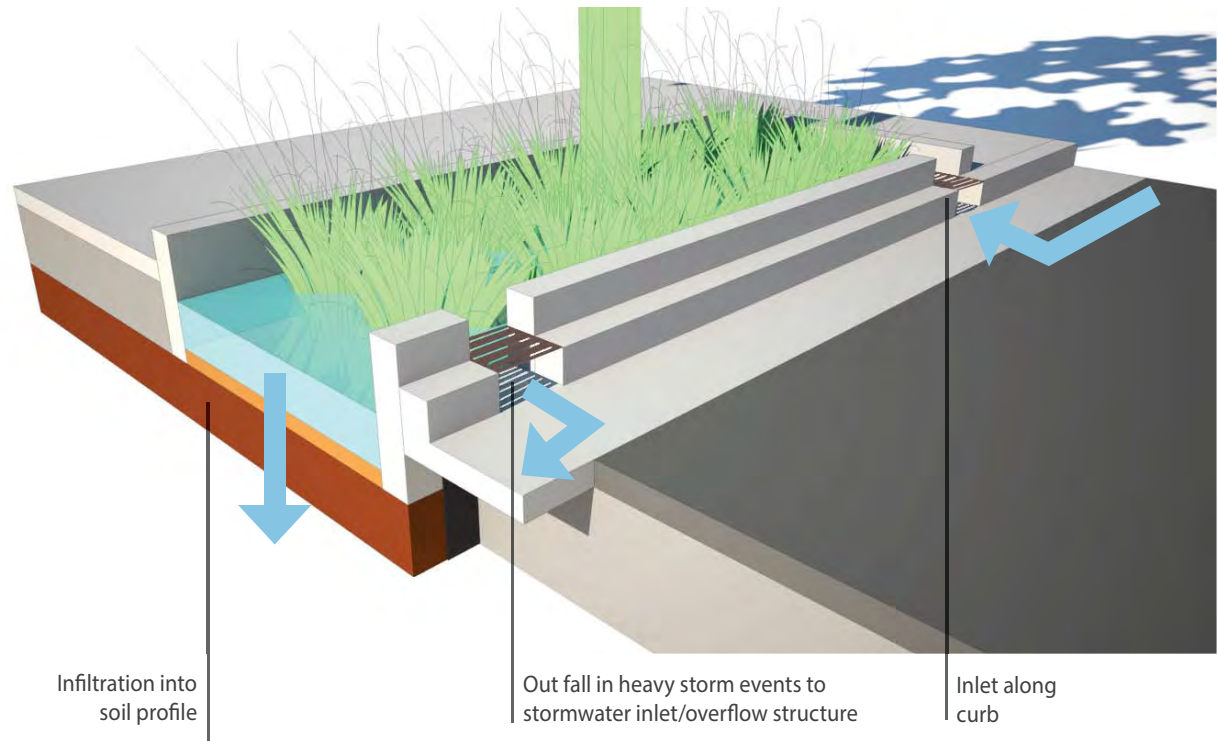
Green Streets is a term associated with range of new stormwater management techniques that seek to transform impervious street surfaces into landscaped green spaces that capture stormwater runoff and let water soak into the ground as plants and soil filter pollutants. This process converts stormwater from a waste directed into a pipe, to a resource that replenishes groundwater supplies. Their design and implementation can be used to create attractive streetscapes and urban green spaces, and provide natural habitat.

The benefits of Green Street techniques include:

- Reduces stormwater runoff volume, flow rate, and temperature;
- Increases groundwater infiltration and recharge;
- Removes pollutants and filters runoff, improving the local waterways;
- Improves aesthetic appeal of streets and neighborhoods;
- Provides wildlife habitat; and
- Requires limited space and can be constructed incrementally.







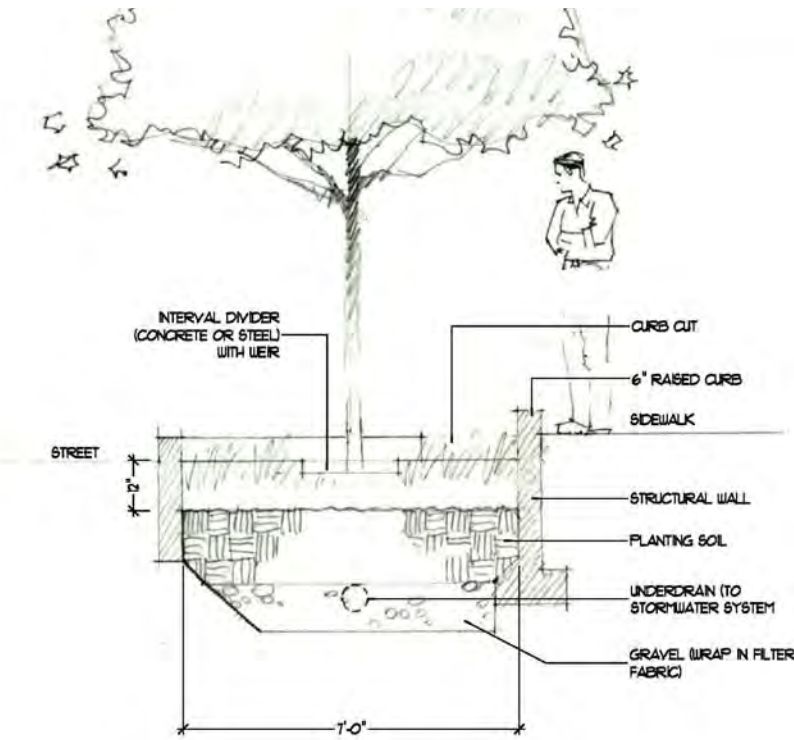
## Typical Conceptual Detail of Stormwater Treatment Planter

Stormwater treatment planter design can be incorporated into a range of potential bulb-out and streetscape planting areas throughout the corridor. A stormwater treatment planter is a small and contained vegetated area that collects and treats stormwater using bio-retention. These planters collect and filter stormwater through layers of mulch, soil, aggregate, and plant root systems, where pollutants such as bacteria, nitrogen, phosphorous, heavy metals, oil, and grease are retained, degraded, and absorbed. Treated stormwater is then infiltrated into the ground as groundwater (infiltration planter) and/or discharged into the conventional stormwater system (flow-through planter). Stormwater treatment planters should be planned and designed as a connected system along the street, collecting runoff along the street at various inlets into a range of planters connected together.

Source: City of Portland

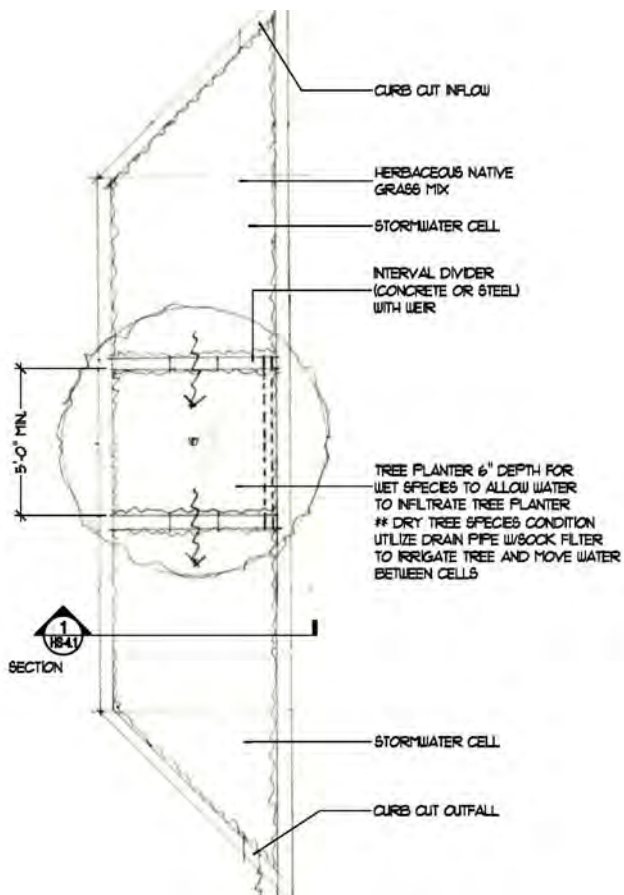


## Conceptual Multi-Cell Stormwater Treatment Details



## Design and Maintenance

In order for stormwater treatment planters to continue filtering stormwater effectively, the mulch, soil, aggregate, and plant root systems have to be removed and replaced with a fresh layer of bio-retention materials every several years. Removing and replacing this material repeatedly through the years can have adverse affects on street tree growth. In order to minimize disruption to any planted tree in the stormwater treatment planter, street trees can be planted in separate "cells" in order to focus the filtration of stormwater away from the trees and protect the tree from any disturbance caused by replacing the bio-retention material.





## 2.5 Bulb-Outs

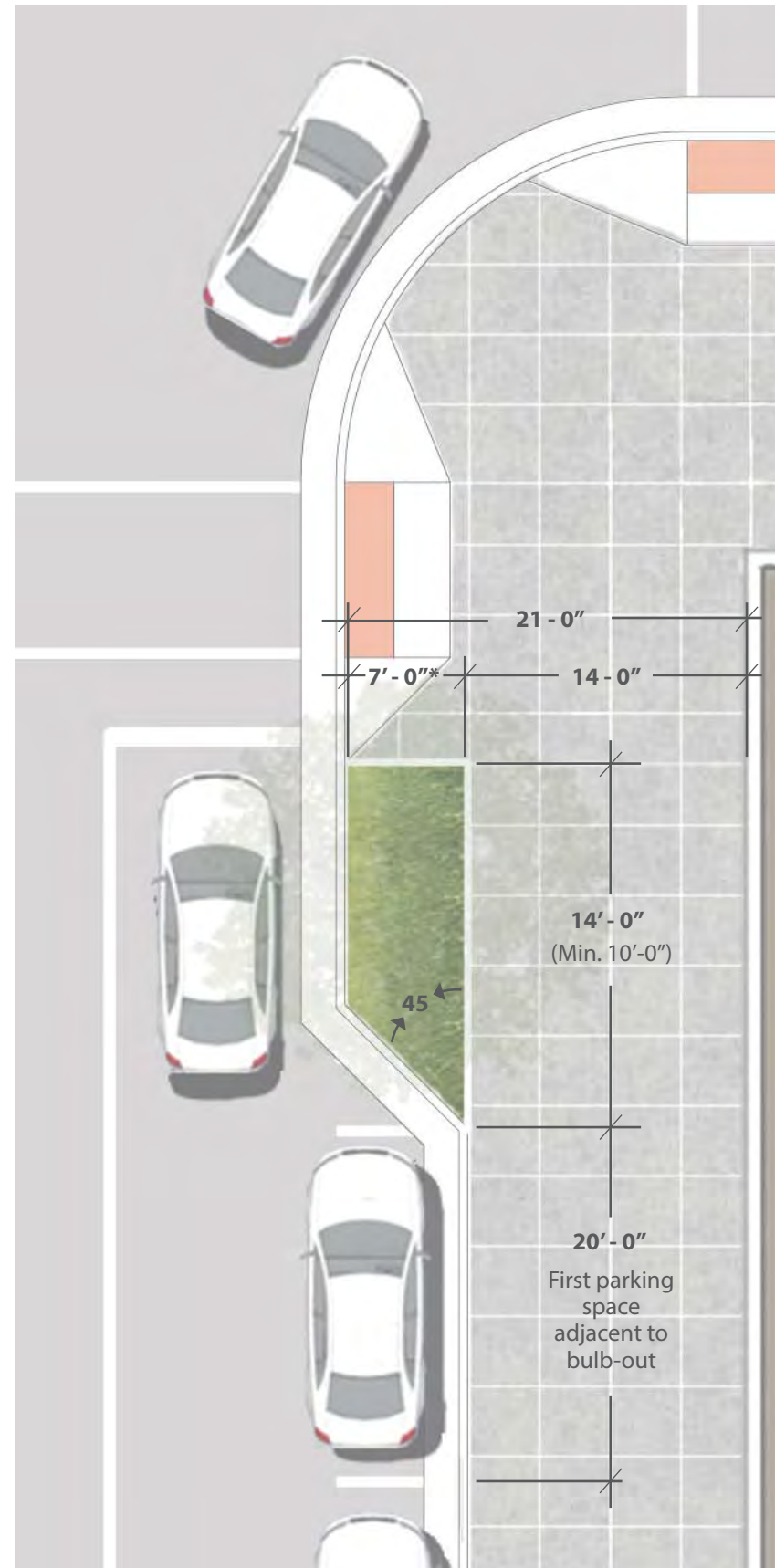
Along the Blount St. – Person St. Corridor, bulb-outs can be employed utilizing the on-street parking aisles at intersections and mid-block, to increase pedestrian and streetscape space, and physically and visually narrow the street width. These bulb-outs can serve multiple functions including:

- Visually narrowing the vehicular roadway and causing a traffic-calming effect as drivers will intuitively drive slower;
- Decreasing the pedestrian crossing distance at intersections and mid-block crossings, and increasing their visibility to drivers;
- Providing space for transit stops, small parklets, and outdoor dining; and
- Providing space for Green Street design techniques such as stormwater treatment planters.

The Blount St. – Person St. Corridor includes a range of bulb-out design opportunities that can be implemented and tailored on a block-by-block basis. This section describes the range of potential bulb-out design treatments.

### Corner Bulb-Out:

- Designed and coordinated as intersection narrowing solutions.
- 7' minimum depth (not including curb and gutter) will vary depending on adjacent on-street parking depth and curb type.
- Typical 10' minimum length in order to provide ample space for street tree and/or stormwater treatment planters.
- 45 degree angle as lead-in to on-street parking space enables the size of the of the adjacent on-street parking spaces to be reduced to 20', subsequent on-street parking spaces to be 21'.



\*Note: Width will vary depending on parallel parking depth and curb type.

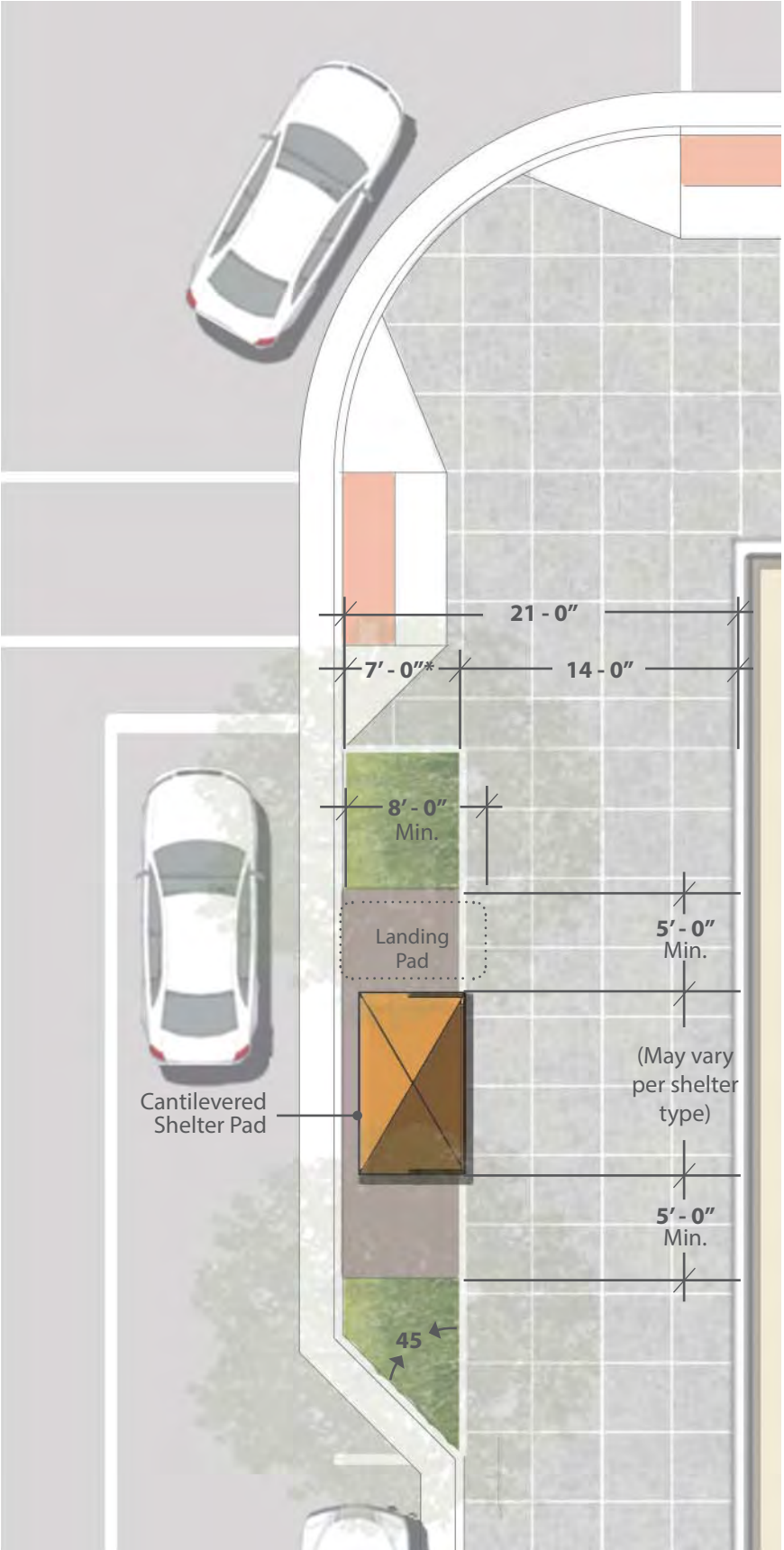
### Typical Corner Bulb-Out





# Corner Transit-Stop Bulb-Out:

- Designed to provide space for transit shelters for bus loading.
- 7' minimum depth (not including curb and gutter) will vary depending on adjacent on-street parking depth and curb type.
- Size of bus shelter may vary depending on available depth/ space for bulb-out.
- 8' minimum depth required for ADA compliant pedestrian landing pad, can include adjacent sidewalk.
- 5' minimum ADA accessible space around transit shelter.
- 4' minimum length of landscape/street tree planter to provide adequate tree planting area.
- Overall length will vary depending on shelter size.
- 45 degree angle as lead-in to on-street parking space enables the size of the of the adjacent on-street parking spaces to be reduced to 20', subsequent on-street parking spaces to be 21'.



\*Note: Width will vary depending on parallel parking depth and curb type.

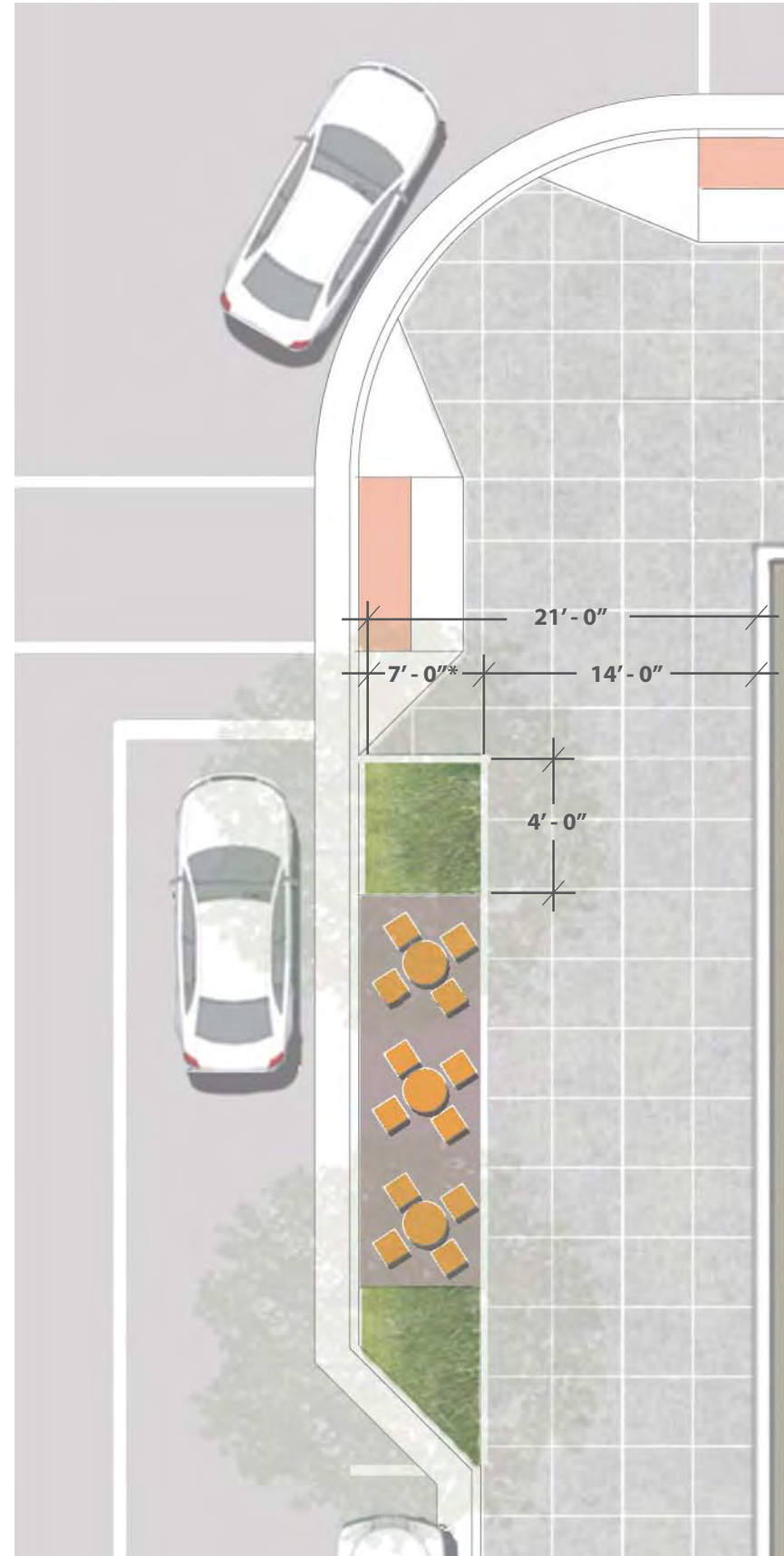
## Corner Transit Stop Bulb-Out





## Corner Parklet Bulb-Out:

- Designed to provide functional open space for outdoor dining, community gardens, and/or small public open spaces.
- 7' minimum depth (not including curb and gutter) will vary depending on adjacent on-street parking depth and curb type.
- 4' minimum length of landscape/street tree planter to provide adequate tree planting area.
- Overall length will vary depending on site design.
- 45 degree angle as lead-in to on-street parking space enables the size of the of the adjacent on-street parking spaces to be reduced to 20', subsequent on-street parking spaces to be 21'.



\*Note: Width will vary depending on parallel parking depth and curb type.

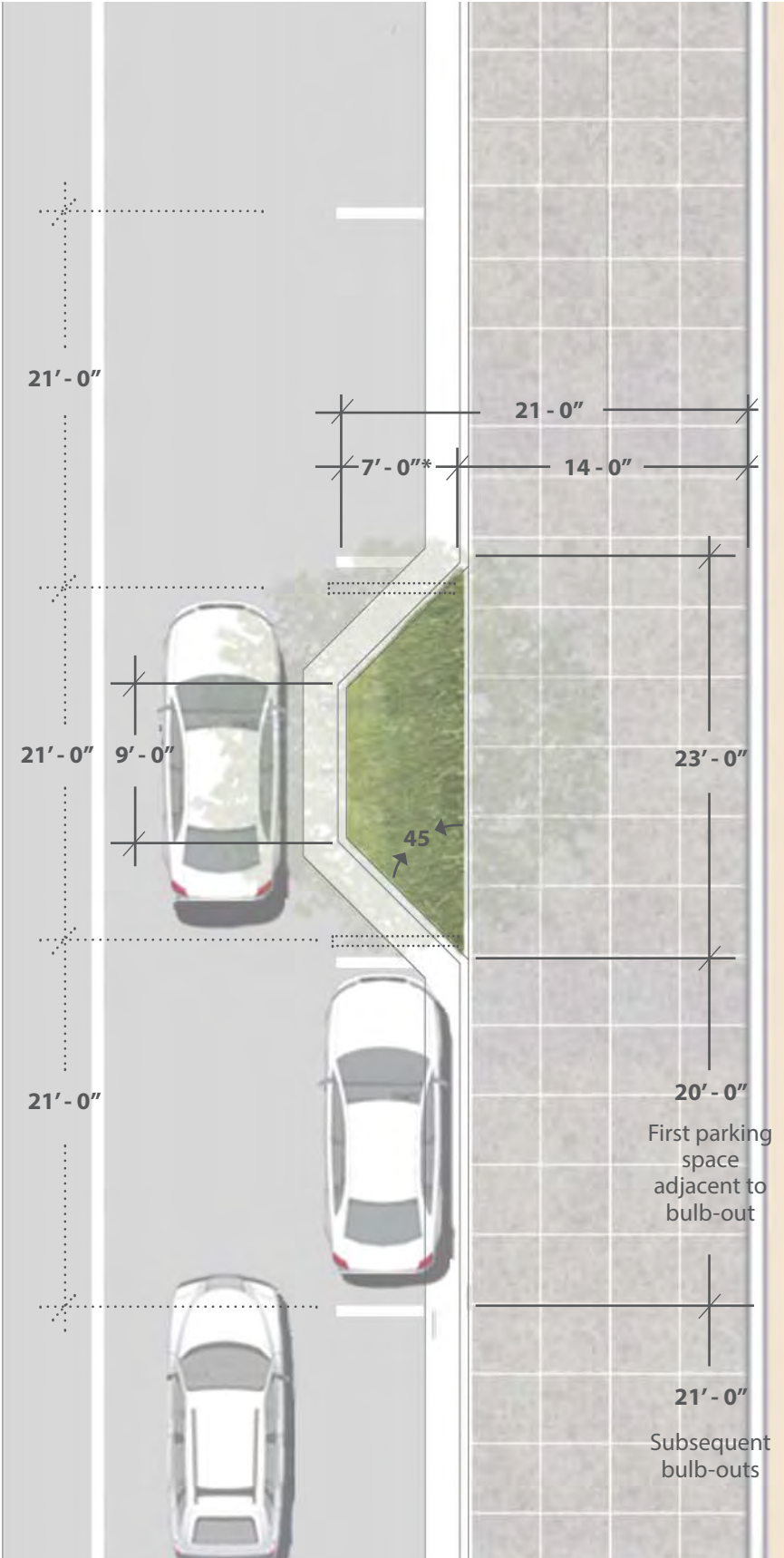
## Corner Parklet Bulb-Out





Mid-Block Bulb-Out:

- Designed to provide mid-block road narrowing and space for street trees.
- 7' minimum depth (not including curb and gutter) will vary depending on adjacent on-street parking depth and curb type.
- 45 degree angle as lead-in to on-street parking space enables the size of the of the adjacent on-street parking spaces to be reduced to 20', subsequent on-street parking spaces to be 21'.
- Mid-block bulb-out implementation converts three (3) 21'-long parking spaces to two (2) 20'-long parking spaces with a 23'-long bulb-out between them. This design maximizes the length of a bulb-out while eliminating only one parking space, and allows flexible bulb-out placement while minimizing impact to existing on-street parking.



\*Note: Width will vary depending on parallel parking depth and curb type.

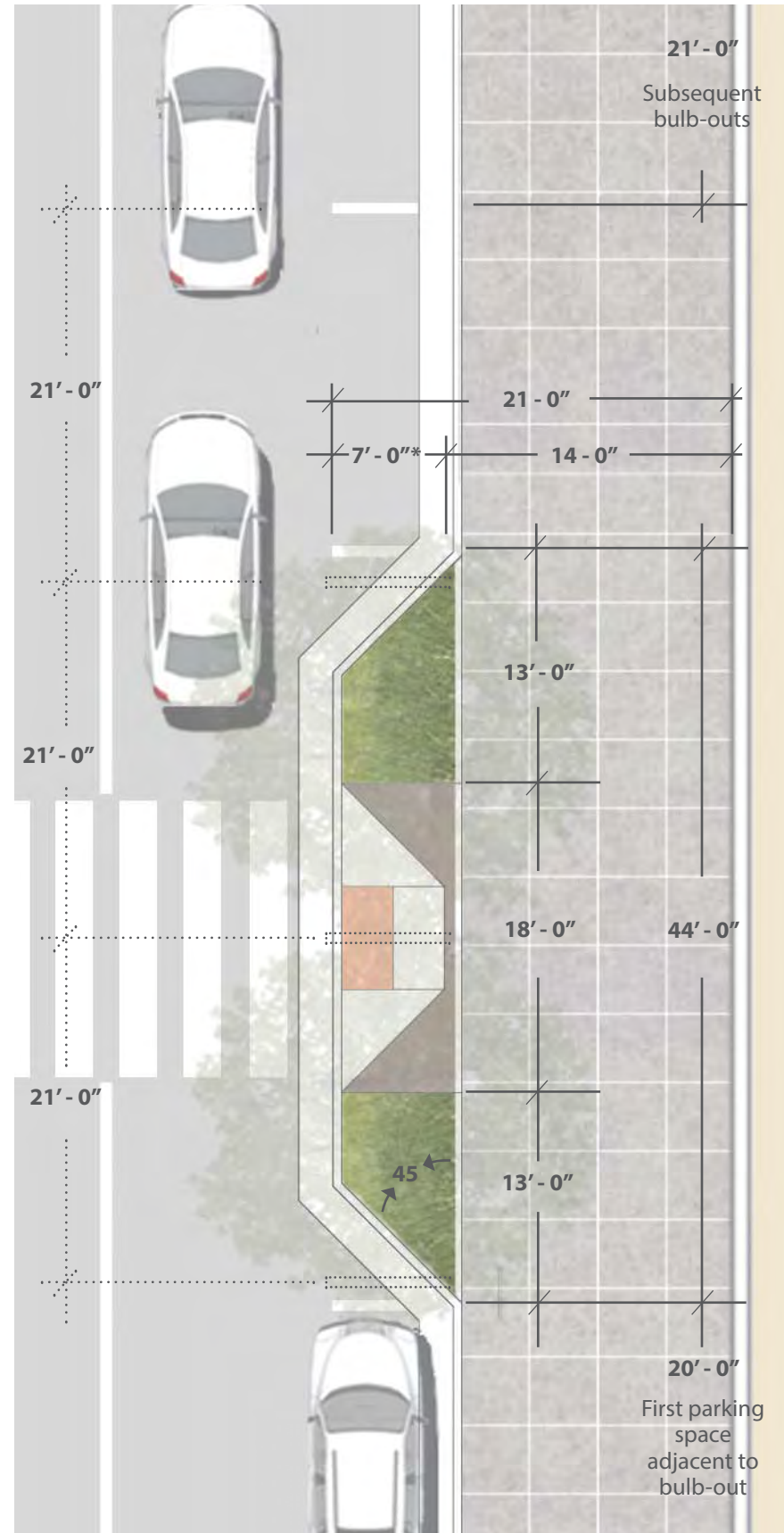
Typical Bulb-Out





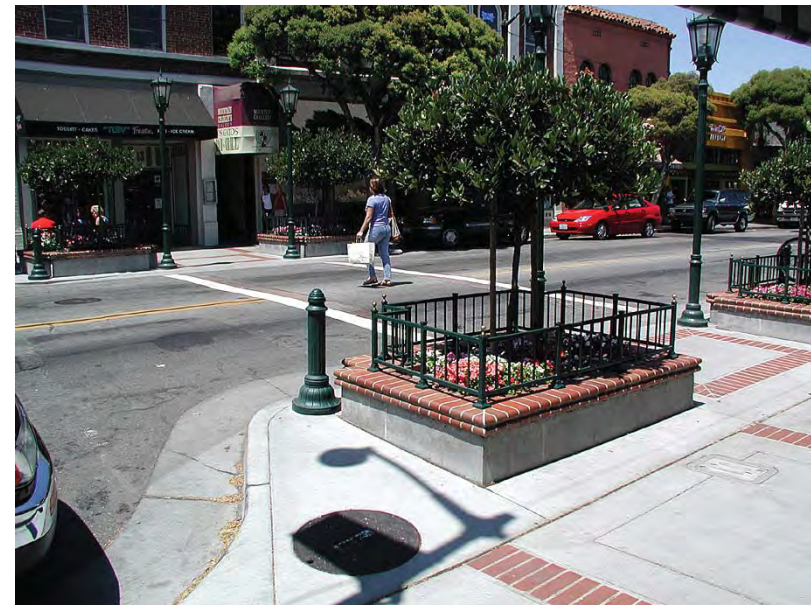
### Mid-Block Crossing Bulb-Out:

- Designed to provide mid-block pedestrian crossings.
- 7' minimum depth (not including curb and gutter) will vary depending on adjacent on-street parking depth and curb type.
- 45 degree angle as lead-in to on-street parking space enables the size of the of the adjacent on-street parking spaces to be reduced to 20'; subsequent on-street parking spaces to be 21'.
- Overall 44' length replaces two (2) 21'-long on-street parking spaces and reduces the adjacent on-street parking spaces to 20'. This design provides ample space for street tree planting/landscape design planters.



\*Note: Width will vary depending on parallel parking depth and curb type.

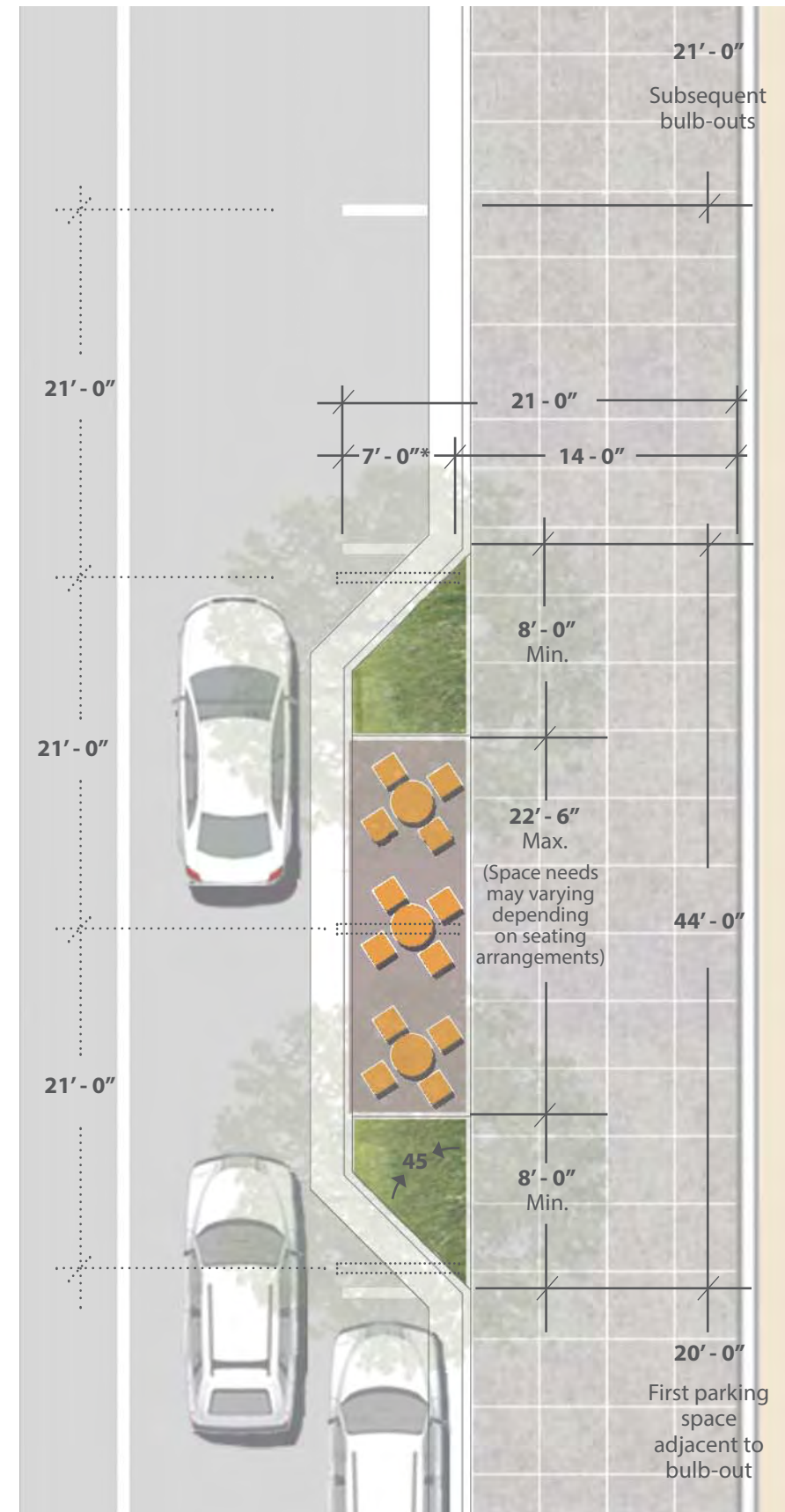
## Mid-Block Crossing Bulb-Out





### Mid-Block Parklet Bulb-Out:

- Designed to provide additional outdoor dining areas, community gardens, and/or open space in mid-block locations as needed.
- 7' minimum depth (not including curb and gutter) will vary depending on adjacent on-street parking depth and curb type.
- 45 degree angle as lead-in to on-street parking space enables the size of the of the adjacent on-street parking spaces to be reduced to 20', subsequent on-street parking spaces to be 21'.
- Overall 44' length replaces two (2) 21'-long on-street parking spaces and reduces the adjacent on-street parking spaces to 20'.
- Overall length of seating/park area will vary depending on seating needs from adjacent land uses and seating arrangements.



\*Note: Width will vary depending on parallel parking depth and curb type.

## Mid-Block Parklet Bulb-Out





2.6 Street Furnishings + Materials

Street Trees

The City of Raleigh uses a specific palette of native trees and plants along streets to provide attractive color and contribute to the overall sense of place of the corridor while reducing maintenance demands. Street trees are carefully located to maintain sight distances at intersections, allow street lighting to permeate, limit impact on utilities, and provide a visual canopy and shade. The landscape palette outlined here defines a consistent pedestrian environment, enhances the sense of place, and establishes a comfortable micro-climate for pedestrians.

Lighting

A coordinated package of pedestrian-scaled lighting, street lighting, and traffic signals should be established to create a consistent character along the corridor. In addition to increasing safety for pedestrians, cyclists, and automobiles, street lighting fixtures can also accommodate wayfinding signs and banners.

Materials & Finishes

There are a range of materials and finishes appropriate throughout the corridor depending on historic character and adjacent land use.

Site Furnishings

Site furnishings are critical components of a socially and economically vibrant streetscape, accommodating a wide range of needs and activities. Benches provide locations for pedestrians to sit and enjoy public space along the sidewalks, bike racks accommodate cyclists traveling to their destinations, trash cans maintain cleanliness and maintenance, and landscape pots provide additional aesthetic appeal. Movable tables and chairs increase the opportunity for social and cultural interaction by allowing users to create their own spaces matching their needs.

Signage & Wayfinding

There are a wide range of signage and wayfinding opportunities. Banners attached to light fixtures add color, design, and a way to announce events. Directional signage conveys basic guidance leading to city landmarks and attractions. Historical markers and interpretive signage can express the city's history and future, such as how green stormwater infrastructure systems function. Wayfinding maps facilitate district navigation and awareness. Digital media platforms allow users to utilize their smart phones to take a picture of the QR codes, which can lead them to a map, application, or historical information.

Public Art

Public art, integrated through a wide range of streetscape opportunities, can be a powerful way to attach social and historical meaning to the corridor.

Street Trees

Large Trees



*Quercus shumardii* 'Panache'  
Shumard Oak



*Quercus saccharum* 'Green Mountain'  
Sugar Maple



*Quercus lyrata* 'Highbeam'  
Overcup Oak



*Acer rubrum* 'October Glory'  
Red Maple

Small Trees



*Acer truncatum*  
Shantung or Purpleblow Maple



*Pistachia chinensis*  
Chinese Pistache



*Cercis canadensis* 'Oklahoma'  
Eastern Redbud

Plant Material

Groundcovers



*Echinacea purpurea* 'Magnus'  
Purple Coneflower



*Hemerocallis* spp.  
Daylily



*Liriope muscari*  
Liriope

Grasses



*Schizachyrium scoparium*  
Little Bluestem



*Pennisetum alopecuroides*  
Fountain Grass

Lighting



**Duke Energy Deluxe Acorn**  
For pedestrian and small scale roadway lighting applications



**Duke Energy Teardrop Davit**  
For pedestrian lighting applications



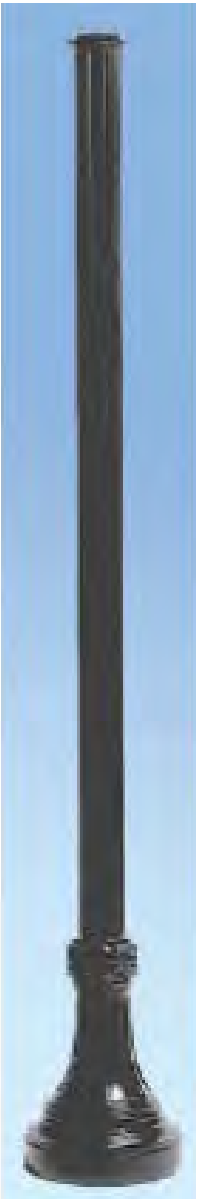
**Duke Energy Boston Harbor**  
For roadway and pedestrian lighting applications



**Deluxe Acorn**  
(pedestrian) 12'-0" Pole 'E'



**Teardrop David**  
(pedestrian) 15'-0" Pole 'C'



**Teardrop Boston Harbor**  
(vehicular) 25'-0" Pole 'C'



Materials + Finishes



Pavers



Historic Pavers



Granite Curb



Metal Plaques



Engraved Stone



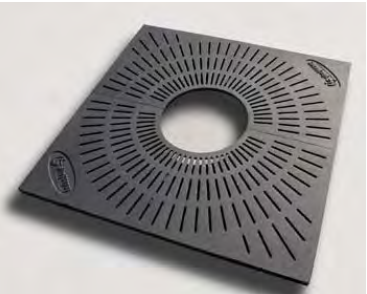
Scored Concrete



Site Furnishings



Benches



Tree Grate



Trash Receptacle



Landscape Pots



Bicycle Rack



Kiosks

Signage + Wayfinding



Banners



Directional Signage



Historical Markers



Historic Neighborhood Signage



Street Signage



Wayfinding Maps



Interpretive Signage



Digital Media Platform / QR Code

Public Art



Sculptures



Mosaics



Paving



Fire Hydrants



Lighting



Bike Racks



Benches



Murals



2.7 Vehicular Corridor Components

**Vehicular Roadway**  
The vehicular roadway includes a range of treatments for median and pedestrian islands, bicycle facilities, and on-street parking. The spatial standards vary depending on the curb-to-curb dimension of the street. Key design components include:

**Center Turn Lanes**  
Turn lanes are typically marked with simple striping based on their relatively low installation costs and durability. In addition, turn lanes can also be marked using decorative concrete pavers or stamped asphalt treatments that appear to be pavers. These treatments can enhance the aesthetic appearance of the street and serve to reduce a driver’s perception of street width, providing a level of traffic calming. Pavers or other decorative treatments come at additional cost of installation and long-term maintenance, and may only be appropriate in very select locations.

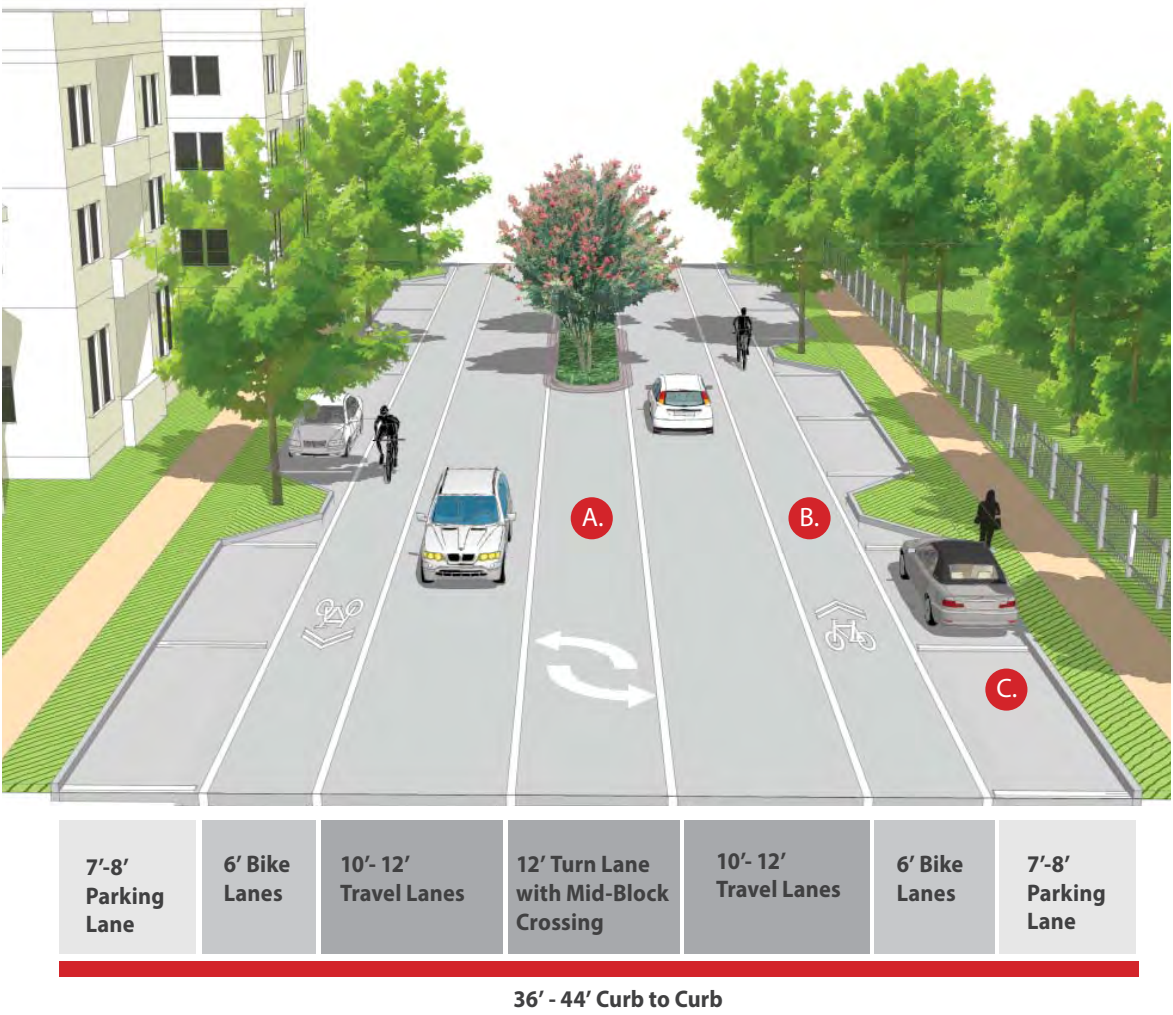
**Medians & Pedestrian Islands**  
Short segments of landscaped median islands can be incorporated into the 3-lane roadway design at locations that do not interfere with driveways. These Islands can be designed to provide safe pedestrain crossings and could incorporate stormwater treatment techniques.

**Bicycle Lanes**  
Bike lanes are typically marked with simple striping based on their relatively low installation costs and durability. In addition, bike lanes can also be marked using paint or colored pavements. These treatments can increase visibility, bicycle usage, and driver awareness (NACTO, 2011). Bike lane colors typically include green, red, and blue paints.

**Sharrows**  
According to the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide, Shared Lane Markings (SLMs) or “Sharrows” are road markings used to indicate a shared lane environment for bicycles and automobiles. Sharrows are typically used where the speed differential between bicyclist and motorist travel speeds is very low; as a reasonable alternative to a bike lane; to strengthen connections in a bikeway network; and to clarify bicyclist movement and positioning in challenging environments. Generally, sharrows are not appropriate on streets that have a speed limit above 35 mph.

Shared Lane Markings, or Sharrows, are typically marked using white water-based traffic marking paints or liquid thermoplastic paint. Color can also be used to supplement sharrow markings for added visibility and awareness.

**On-Street Parking**  
On-street parking is typically marked with simple striping based on their relatively low installation costs and durability. In addition, on-street parking can also be demarcated using decorative concrete pavers or decorative-stamped asphalt treatments that appear to be pavers. Like their use in center turn lanes or medians, these treatments can enhance the aesthetic appearance of the street and serve to reduce a driver’s perception of street width, providing a level of traffic calming. Pavers or other decorative treatments come at additional cost of installation and long-term maintenance, and may only be appropriate in select locations.

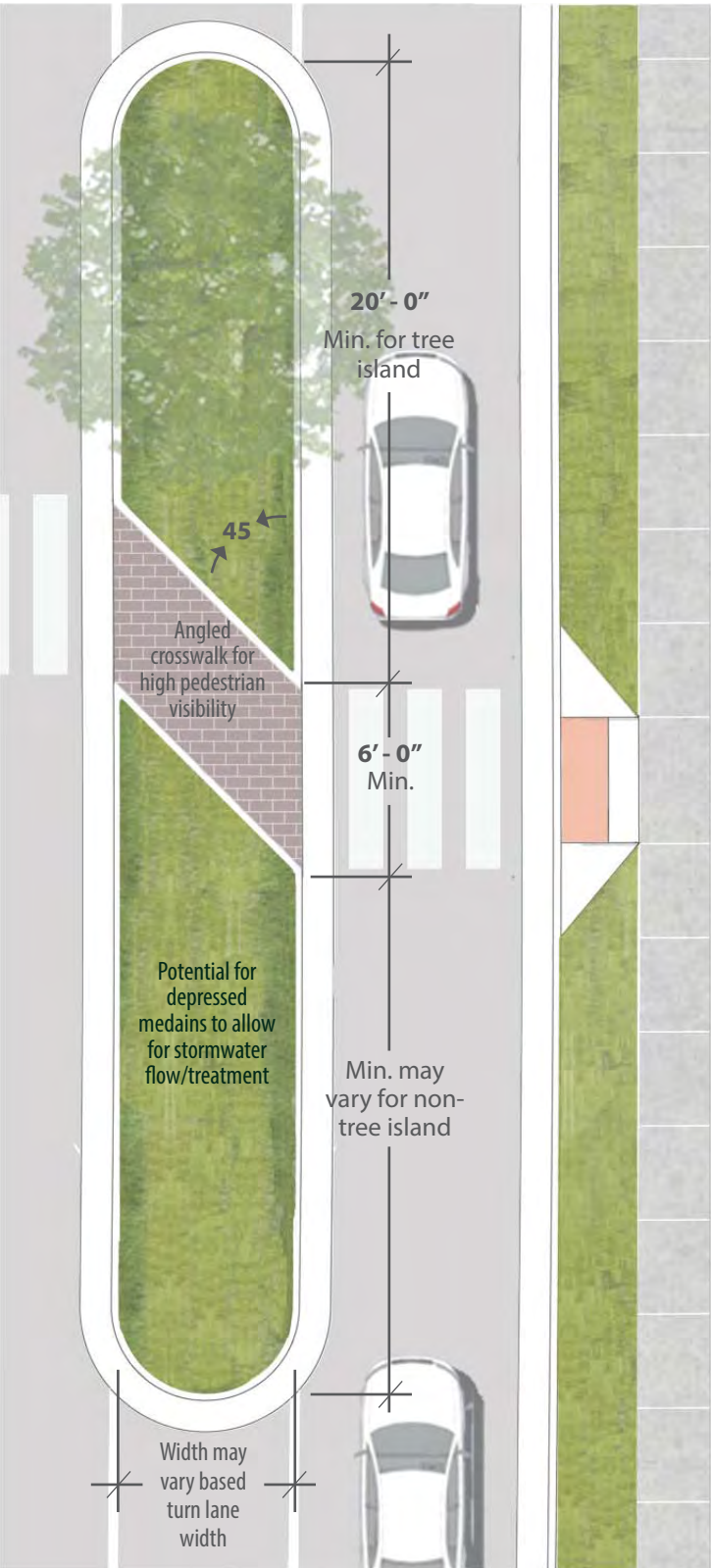


Components of the Vehicular Corridor

The figure above illustrates the various components of a vehicular corridor and the range of spatial standards proposed for each of these spaces within the Blount-Person Corridor. The spatial standards vary depending on the curb-to-curb dimension of the street. Key components that have the potential to be aesthetically enhanced include:

- A. Median Island + Turning Lane
- B. Bicycle Lane + Sharrows
- C. On-Street Parking

Median Island + Pedestrian Island





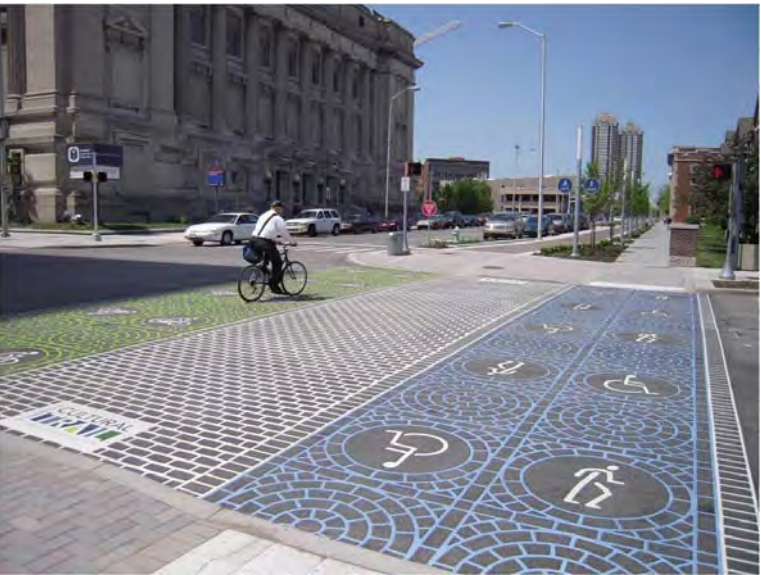
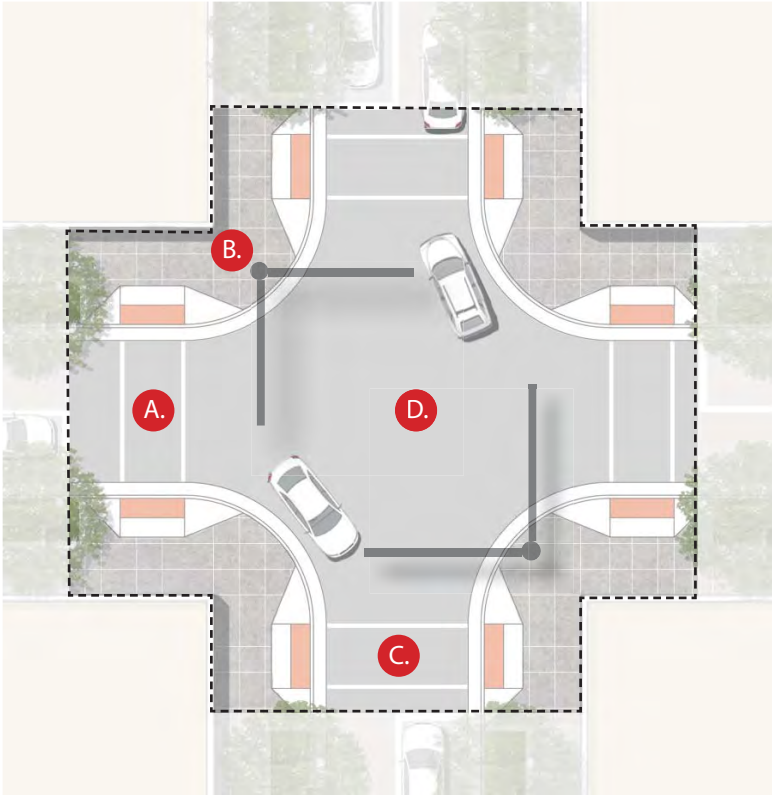
## 2.8 Intersections

### Components

Intersections are a critical component of the overall streetscape. It is here where the vehicles, bicycles, and pedestrians cross paths. Special attention should be paid to the design and material treatments to provide comfortable and safe bicycle and pedestrian crossings. Intersection components include:

- A. Crosswalk
- B. Utility + Signal Locations
- C. Bike Box Locations
- D. Vehicular Corridor Intersection

This section provides examples of different aesthetic and functional treatments that should be considered.



#### Thermoplastic Markings

Thermoplastic markings can be used in a variety of ways to create unique design treatments at intersections and crosswalks. NCDOT is currently testing the use of thermoplastic markings to replicated brick and paver textures in crosswalks on corridors with urban and pedestrian-oriented contexts like the Blount St-Person St Corridor.

#### Bike Box

According to the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide, a bike box is a designated area at the head of a traffic lane at a signalized intersection that provides bicyclist with a safe and visible way to get ahead of queuing traffic during the red signal phase.

Typical Bike Box applications include:

- Signalized intersections with high volumes of bicycles and/or motor vehicles, especially those with frequent bicyclist left-turns and/or more motorist right-turns.
- Where there may be right or left-turning conflicts between bicyclist and motorists.
- Where there is a desire to better accommodate left-turning bicycle traffic.
- Where a left turn is required to follow a designated bike route, access a shared-use path, or when the bicycle lane moves to the left side of the street
- When the dominant motor vehicle traffic flows right and bicycle traffic continues through.

Located between the crosswalk and the vehicle stop bar, a bike box is typically 10'-16' deep and the width of the vehicle lane and bicycle lane. The last 25' to 50' of the bike lane should serve as an ingress lane to the bike box and can be colored for improved visibility and encourage compliance by motorist.



## 2.9 Intersections - Roundabout

A modern roundabout is a circular intersection that uses “horizontal deflection” on entry and exit to bring vehicle speeds down to a safe 15-20 mph and accommodates through and turning vehicles without the need for a traffic signal. Motorists entering the roundabout yield to vehicles already in the roundabout. Because traffic moves continuously through a roundabout, it is more efficient at moving traffic than a typical signalized intersection. Furthermore, roundabouts are safer than signalized intersections (i.e., fewer collisions and far fewer injuries and fatalities). Roundabouts slow driving speeds, allow pedestrians to safely cross the street, correct intersection configurations, and improve aesthetics.

### Pedestrian and Bicycle Friendly

Roundabouts are pedestrian and bicycle-friendly and safe. A “splitter island” on each approach to the roundabout provides a refuge for pedestrians as they cross the street. This greatly simplifies crossings by allowing pedestrians to deal with traffic approaching from one direction at a time. The slow speeds make roundabouts bicycle-friendly as well.

### Vehicle Accommodation

Roundabouts are designed to accommodate emergency vehicles, school buses, and delivery vehicles. The center island in the roundabout employs a “mountable ring” around its circumference that is designed to accept the rear, left, wheels of very large vehicles in order to eliminate any damage to the island’s landscaping.

### The benefits of roundabouts over signalized intersections include:

#### Safety:

- Lower vehicle speeds: At typical signalized intersections motorists are usually speeding up, especially if they expect the signal to change. As motorists approach roundabouts, they are forced to slow down.
- Fewer points of conflict: At a typical two-lane, four-approach intersection there are 32 vehicle-to-vehicle and 24 vehicle-to-pedestrian points of conflict; at a roundabout, points of conflict are reduced to eight for both vehicles and pedestrians.
- Simplified operation: Left-turning movements are eliminated. Every turn in and out of a roundabout is a right turn.

#### Traffic Capacity and Efficiency:

- 20% increase in traffic capacity over signalized intersections due to the elimination of stopped movements, all traffic moves continuously, yielding only at entry (Kansas State University Study).

#### Sustainable & Cost Effective:

- After initial construction, no signal equipment to install, repair, or operate.
- Reduced vehicle emissions and fuel consumption due to reduced intersection delay and idling.

#### Urban Design:

- Reduced amount of pavement dedicated to vehicles (eliminates left-turn and right-turn lanes) can be repurposed to landscaping or pedestrian space.
- Center island creates a prominent civic landscape design opportunity that can include landscaping and/or civic art.

## The Basic Anatomy of a Roundabout

While all roundabouts are specifically designed for individual intersections, there are a number of basic components that all roundabouts include.

### Mountable Ring

Part of the center island design is a mountable ring which serves as the extension of the center island and narrows the circulating travel lane. This ring is specifically designed to be mountable so that the “swept path” of a large vehicle or truck turning through the roundabout can easily maneuver.

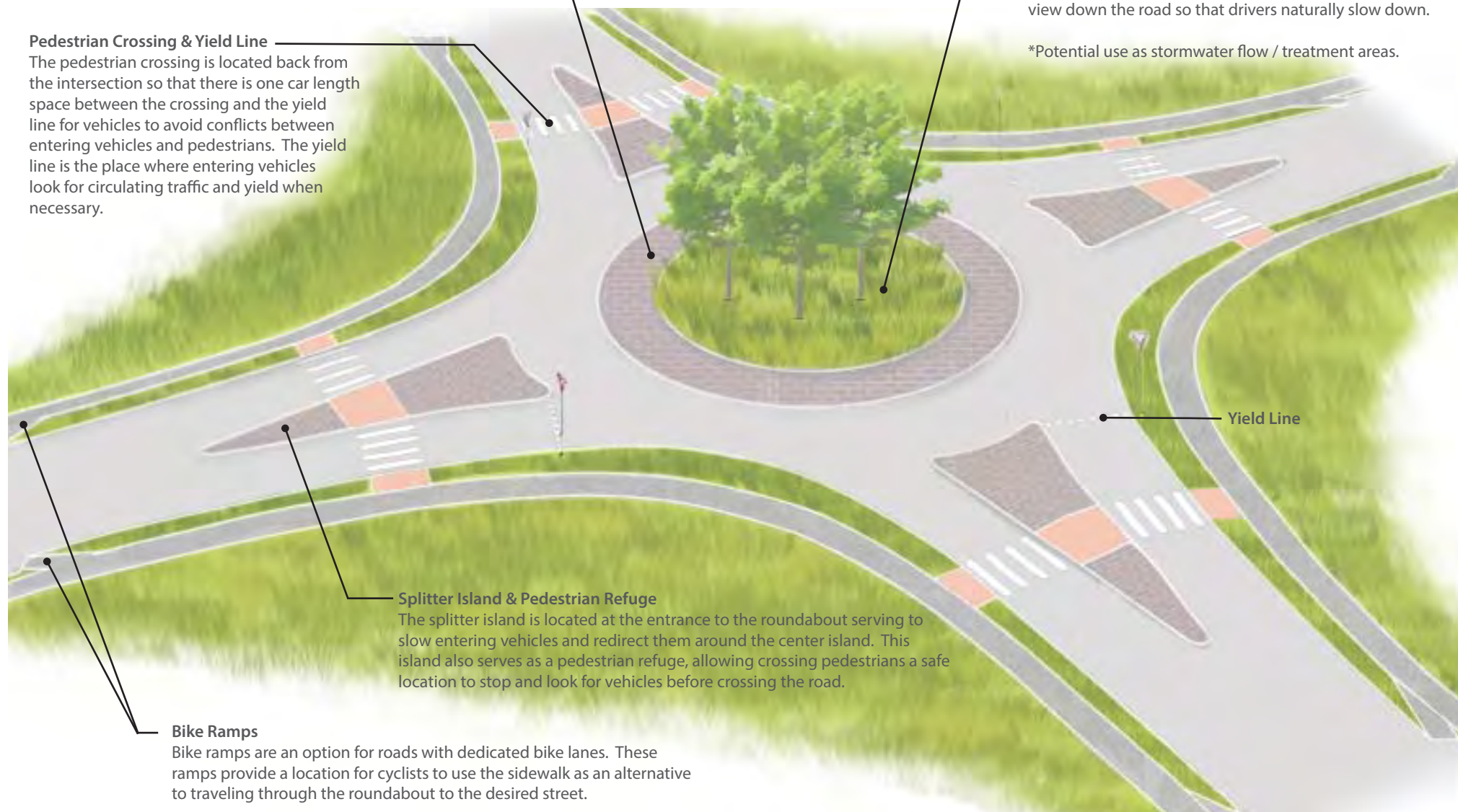
### Pedestrian Crossing & Yield Line

The pedestrian crossing is located back from the intersection so that there is one car length space between the crossing and the yield line for vehicles to avoid conflicts between entering vehicles and pedestrians. The yield line is the place where entering vehicles look for circulating traffic and yield when necessary.

### Center Island

The center island is the key component, defining the center feature which all traffic circulates around. This island includes a curb and can include a wide range of design features including landscaping, architectural monuments, fountains, etc. One of its functions is to break the field of view down the road so that drivers naturally slow down.

\*Potential use as stormwater flow / treatment areas.







Mountable Ring



Splitter + Pedestrian Refuge



Yield Line



Center Island





**AECOM**





## Blount St · Person St Corridor Study

# Corridor Plan Report - 03 Alternatives Development + Design











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## Acknowledgements

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**Adopted:**  
July 16, 2013

**ORGANIZATION OF THE REPORT**  
*This report is organized into the following sections that document the process, design development and technical analysis of the corridor study. Each section functions as a stand-alone document and as part of the overall report.*

**EXECUTIVE SUMMARY -**  
*Provides an overview of the vision, design, evaluation, and implementation*

The Vision  
The Choice  
How Do We Get There?

**01 ISSUES + OPPORTUNITIES -**  
*Highlights the corridor's unique conditions and context*

1.1 What We Heard  
1.2 Land Use + Urban Form  
1.3 Traffic + Multimodal Mobility  
1.4 Existing Street Design

**02 STREET DESIGN -**  
*Details the streetscape design alternatives*

2.1 What Makes a Great Street?  
2.2 Purpose of the Design Guidelines  
2.3 Components of a Streetscape  
2.4 Sidewalk Spatial Standards  
2.5 Green Street Design  
2.6 Bulb-Outs  
2.7 Street Furnishings + Materials  
2.8 Vehicular Roadway  
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**03 ALTERNATIVES DEVELOPMENT + DESIGN -**  
*Illustrates the translation of the vision to design alternatives*

3.1 Design Vision  
3.2 What Change is Possible?  
3.3 Design Alternatives Summary  
3.4 Road Diet  
3.5 Two-Way Restoration

**04 ALTERNATIVES TRAFFIC EVALUATION -**  
*Summarizes the traffic analysis and conclusions*

4.1 Methodology + Assumptions  
4.2 Summary Conclusions  
4.3 No Build (2020) - Intersection / Corridor LOS + Delay  
4.4 Road Diet (2020) - Intersection / Corridor LOS + Delay  
4.5 Two-Way Restoration (2020) - Intersection Corridor LOS + Delay  
4.6 Blount / Person Alternatives Comparison  
4.7 Partial Two-Way Evaluation  
4.8 Roundabout Analysis

**SUPPORT DOCUMENTS -**  
  
Blount St-Person St Corridor Study - Traffic Capacity Analysis Report  
Blount St-Person St Corridor Study - Road Diet Conceptual Design Plan  
Blount St-Person St Corridor Study - Opinion of Probable Cost



# 03 ALTERNATIVES DEVELOPMENT + DESIGN

## 3.1 Design Vision

Through the public process hundreds of ideas were collected about the community's values, vision, and desired change for the Blount St.-Person St. Corridor. This collective “voice” has been sorted into a set of themes and converted into a vision for the corridor as a vibrant, beautiful, functional, and complete street.



### THEMES

#### Walkable + Multimodal

- Walkable, livable
- Traffic Calming
- Walkable streets
- Pedestrian Bike Friendly environment
- Sidewalks (when they are there)
- Pedestrian friendly neighborhoods
- Pedestrian friendly
- Being able to jog, walk, neighbor visit, safely
- Create neighborhood friendly atmosphere
- Ability to safely walk to venues
- Walking to restaurants, stores, gym
- Pedestrian friendly
- Walkable between neighborhood, neighborhoods to shopping destinations, dining, etc. between parking and destinations
- The scale and walkability, social nature of the street
- Less Commuter Traffic
- Walkable neighborhood
- 2 way traffic - Blount and Person
- South Park Walkability
- Walkable to Downtown, safe for children to roam
- Developing Person Street Business District
- Improve Pedestrian/bike facilities and safety
- Wide sidewalks on both sides of the street
- Access to downtown, walking
- Collection of walkable neighborhoods
- Clarity of north - south circulation and connection
- Easy to create mental image of the city
- Easily accessible to the stores and businesses that are important to me
- Easy access
- People Friendly environment
- 3rd place/spaces
- Walkability and business community around Person
- Streets safe to walk along and across
- Parks, some are better than others, all could be improved
- Person and Blount should be two traffic lanes consistently
- Bicycle lanes on selected roadways to access greenways
- Safe friendly, access to pedestrians
- Safe cycle and walking
- Access, through travel by car and walkability
- Ability to cross street
- Public transit, appeal
- Connectivity to Transit Station
- Reduce traffic, increase bus service
- Non motorized transit, bicycle, foot, any non external energy source, transit access and support
- One way orientation does make it easier bicyclist and pedestrian at times
- Contiguous sidewalk through the varying, disparate neighborhoods
- Protect sidewalks
- Streetscapes where people want to come and

#### Traffic Mobility

- Low traffic noise
- Existing lane routes
- No roundabouts
- Convenience to suburbs
- Connection to downtown
- Easy way through downtown
- Improve east to west accessibility
- One way streets
- Easy access to downtown weather walking or driving
- South Park - Ease of access to I-40 and City Center
- Proximity to downtown
- Pace, Easy, not too fast, right speed for urban travel
- No obstructions like large bushes block entrance way
- Connection to downtown
- Accessibility to I-40
- Easy access
- Neighborhood connectivity to downtown
- Ease of traffic flow, rare “traffic jams”
- One way streets
- Easy access to BeltLine and I-40
- Accessibility to History and Government Building
- Easy from I-40 to downtown
- Ease of access from Mordecai to downtown, rail line especially
- The traffic speed off Hammond onto Person Street
- Slow traffic
- Slow traffic speeds
- Lower speeds for safety
- Lower speed limits in neighborhood access
- Increase safety for foot traffic both by police access and
- Streets that move traffic, not parking and parties and events
- Neighborhood safe feel
- Speed limit monitored by law enforcement
- Slow the traffic through neighborhood
- Make speed limit higher
- Alternative parking solutions
- Safe and desirable neighborhood streets
- Street lights
- Accessibility
- Safety of accessing the corridor
- Excessive speeding must stop
- Connection to Downtown
- Traffic flow to neighborhood businesses and homes
- Diversity, commercial residential
- Access to multiple services locally, stores entertainment, commerce
- Connection across the traffic flow
- Diversity of neighborhood, income, residential, business, race
- Ease of grid design between sections
- Neighborhood connectivity
- Proximity, ease of access between living, shopping, entertainment
- Connecting the community
- Person and Blount can get me across either north or south
- Cohesion from one end to another
- Flow of traffic,

#### Neighborhood + Historic Character

- Friendly neighbors who make it a point to know others in the area
- Friendly safe neighborhood with committed, invested residents
- Neighborhood feel of Downtown
- It's familiar - Neighborhood Character
- Appeal of old Oak Trees
- Trees next to sidewalk
- Keeping the neighborhood friendly
- Mordecai neighborhood is delightful, Historic connected
- Responsible/sustainable uses
- Historic Character, Preservation, Original Houses
- Sense of community, Mordecai neighborhood
- Close to parks
- Historic architecture, Mansions on Blount Street and Person Street
- Inclusive of community neighbors
- Sense of Community, Community Interaction
- Diversity (people and neighborhood)
- Special quality of Oakwood
- Potential of Business District between Peace Street and Franklin
- Residential character, Neighborhood feel
- Historic residential district connected with a adjacent to the corridor
- Urbanism vs suburbanism
- Value charm, efficient way of getting from Peace Street to MLK and vice versa, it is not too commercial
- Cleanliness (no glass on the street)
- Neighborhood revitalization, safety
- How different each section is now
- South Park - Historical Significance
- Historic homes - Oakwood
- History of buildings, History of people
- Moore's Square, Governors Mansion, City Market
- Historic Mordecai, love it
- Historical nature of both streets
- Historical scenes of parks
- Historical value to my husband. He was raised in South Park
- Oakwood, Mordecai, South Park, Governors Mansion, etc. Murphy School
- Historical Corridor
- History of Raleigh along the corridor
- Southern Charm, including Trees, historic buildings
- Tupper Memorial Baptist Church
- Preservation of Historic Elements and neighborhood, Homes on Lee Street
- History of neighborhood and quality of houses
- Granite curbs
- Rich history of the area, classic historic image
- Tree lined streets
- Trees, big old poetic ones
- Trees greening the City
- Old, large, trees along the route
- Children's play area
- Aesthetically pleasing landscape, Visual unity
- Scale of buildings
- Number of neighborhood types and characters in such a short transect
- Proximity of street to building face

#### Business + Economic Development

- Local business opportunity
- Little restaurants
- Escuazu's
- Closeness to downtown shops and restaurants
- Local food as an economic development and revitalization strategy
- Small Person Street and commercial note by Krispy Kreme
- The bike store, Oak City Cycling
- Retail business and neighborhood business
- Existing businesses (Pie Bird, Person Street Pharmacy, etc) and the potential for more
- Mordecai, better sidewalks
- Safe access to business
- Increasing value of property
- Excitement of downtown functions, festivals and appeal to many
- Property tax and redevelopment do not drive out lower income residents
- Urban environment, things to entertain
- Safety to business and neighborhood
- 2 farm enterprises developing along corridor
- Mordecai business district
- Vibrant community business district
- Mixed use zoning
- Businesses incorporated into walkable community
- Access to business development and growth
- Increased new development
- Support growth of small neighborhood (walk to businesses)
- Varied land use, businesses, houses, governors mansion
- Location of both my family's home and my business
- Access to grocery/farmers market
- Moore Square
- Local Independent businesses
- Range, residential business, demographic diversity, uses, value of property
- Accessibility to business, public walkways, safety
- Small shops
- City Market
- Person Street business parking
- Surrounding land around Tupper Memorial Church
- Diversity of corridor, types of businesses, mix of commercial, residential
- Livability of downtown (grocery store)
- Promoting Person Street Business
- Thriving businesses that are accessible by peds, bikes, and cars
- Local shopping resources
- Person business district shops, Krispy Kreme, Pharmacy
- Mixed uses and mixed income

### Values



spend time and live  
Slow speeds on neighborhood streets  
Sidewalks  
Street Parking  
Continuous sidewalk throughout  
Efficient connection to downtown (bike/ pedestrian/transit)  
Pedestrian crossing - Wake Forest Road  
Sidewalk maintenance, bad condition  
Children warning signs  
More sidewalks, pedestrian sensitivity - neighborhoods  
Bike lanes – connectivity  
Improve bus facilities, benches, covers  
Safe crosswalks at intersections  
Path for bicycles, increased sidewalks, bike lanes, and green space  
Pedestrian needs to be celebrated  
Make it more foot traffic friendly  
Lack of continuity of sidewalks  
Lack of greenway connections  
Better street lighting  
Better pedestrian safety access  
Add sharrows on all major and minor roads  
Add bike lanes and facilities  
Add lights in tunnel in greenway  
More crosswalks  
Lack of connections to neighborhoods  
Traffic calming, continuous sidewalk  
ADA sidewalks enforcement (e.g. Jones and Person)  
All business and apartments should be ADA accessible  
Better lighting  
Peace to Edenton  
Traffic calming measures  
Continuous sidewalks on Wake Forest  
Crosswalks north to Edenton  
More bike lanes  
More pedestrian friendly  
Bike paths, connectivity to east-west and north-south  
Greenway and bike lanes  
Make buses come through Oakwood and other neighborhoods  
Repairing sidewalks, improving walkability for strollers, wheel chairs, ADA Universal design  
Increased ability to cross Wake Forest (walking)  
Move bus station  
Complete streets  
Wider sidewalks  
Better wayfinding  
Two sided sidewalks all the way  
Increase transit  
Connect northend to greenway nearby  
Better bus stops at north end  
Add street car  
Range of transportation  
Improve crossing W. Forest Road at north end  
Person/Franklin corner: needs sidewalk protection parking problem)  
Unsafe traffic speeds (bike/pedestrians)  
Add bike lanes (entire stretch)  
More lighting north of Peace Street

Ease of traveling by car north to south and south to north  
Accessibility  
Traffic flow  
One- way streets  
Traffic flow, currently flows well with synchronized lights  
Keep traffic (auto) down  
Speed, raceways, speedways  
Transition freeway to neighborhood  
Lighting - South of Martin Street  
Transition from North to South  
Connectivity east & west  
Better traffic flow 800 - N, 900 Blount Street  
Name one street one name (Hammond, Person, Wake Forest, Atlantic)  
2 way on both Person and Blount  
Deal with corridor as a cross section to include side streets  
Slow traffic  
One-way streets to two-way streets  
East-west access  
Wake Forest Road lanes  
Slow traffic  
Two-way Traffic  
Advance notice signage  
Change traffic flow on Blount from E South to MLK to prevent bottleneck caused by on street parking  
Enforced speed limits north and south of downtown  
Capital to Wake Forest, make it easier , 3 lanes might be easier than 2  
Trucks unloading - Blount Street is too narrow  
Speed  
Change timing of lights on north bound E. Edenton  
Traffic calming south of Moore square, road diet, hotels and restaurants  
Turn lanes on MLK  
Focus on getting people to, instead of through  
Make street two-way (like Hillsborough with median)  
Two-way streets  
Speed/morning traffic between Sasser and Franklin  
3 lane all the way  
Two-way streets  
Trees now blocking signage  
Simplify Capital/Brookside/Atlantic Intersection)  
Fast dangerous traffic  
Two-way traffic/traffic circles at Hammond transition at Person Street/Wake Forest Road merge

Gateway in and out of downtown  
Historic Buildings  
Character  
Playgrounds, kids, families  
History of South Park  
Residential neighborhood  
Oak Trees  
Historic house stock  
Character of Historic Neighborhoods  
Existing wetlands, natural features  
Trees canopy  
Historic structure  
Granite curb  
Neighborhood feel  
Lack of big parking lots  
Protect the houses, all  
Preserve historic character  
Protect existing trees and add  
Protect owners, less absentee owners  
Maintain residential, keep residents  
Rather give them to the University than “let to”  
Protect the old homes on Blount Street  
South Park Neighborhood History and Character  
Harris Barber College  
Old Churches  
Oakwood Neighborhood  
Improve appearance, beautification, signage  
More visible ‘Raleigh Pride’  
Enhance, fund historic houses, buildings  
Improvement in South Park area  
Street character, local destinations, borough identity  
Consistent curb appeal, distinct character by section/neighborhood  
Water, green space, Crabtree Creek  
Rain gardens in neighborhoods  
Fletcher Park example  
Start the project on the southside because the improvements seem to start in the north and the south continues to deteriorate  
More of a welcome to Raleigh sign at both ends of the corridor  
Bury utilities  
Break corridor into districts  
Lighting for safety  
Underground utilities  
Public art  
Improved way finding  
Public trash cans  
Buried utilities  
Too much surface parking  
More interaction and integration of neighborhoods  
Public art installation (Wake Forest fork)  
Clean up boarder of houses and business  
Beautification  
Renovate boarded up homes in South Park  
Change zoning to not allow as many boarding houses  
Encourage home ownership  
Change trees from Crepe Myrtle to other  
Consistent street lighting  
Design and appearance standards  
Make street more attractive

development  
Person Street business District  
Small biz development for neighborhood  
Small business growth, Small business feel  
Moore Square business district, can only get better, more livable  
Mix of uses, offices, retail, restaurants, residential  
Up and coming Mordecal Business District, City Farm, Oak City Cycling Project, Market Restaurant  
Get rid of light industry corridor on the North Side. Replace with consumer oriented, bus with safe entrances (leeway)  
Small scale neighborhood businesses  
Village scale  
Local business  
Housing diversity  
More development south of MLK to I-40  
Need grocery store (big)  
More urban farms, gardening  
Local health facilities  
More shopping  
More retail  
Better directional signage, especially for businesses  
More space at restaurant outside seating  
Grocery Store - by foot  
Smell of the plant coming off I-40 onto South Person  
Make areas urban chic  
Less surface parking  
R line to Krispy Kreme  
More retail groceries  
Grocery store access  
Bring night life to houses at Blount Street Commons  
More consumer oriented north and south of Downtown  
R line route down Person Street  
Easy access to parking garage north of downtown (Moore Square)  
Enhance Person Street Biz  
Mixed use apartments and retail  
Dog food plant  
Encourage businesses further north and south  
Turn bus garage into shopping center (South Park)  
Revitalize Moore square, outdoor dining  
Higher density  
Use/develop under used parcels (mixed use)  
Increase retail  
Redevelop industrial area to mixed-use  
North of gym, abandoned dilapidated buildings

Change

A Complete Street

The corridor has the potential to encourage and serve a wide range of users, accommodating motor vehicles is just one. The community sees a future corridor that is safe and highly attractive to pedestrians, cyclists, and transit users. A complete street balances the range of mobility needs by providing a place for all users.

A Functional Street

The corridor provides valuable and needed access to Downtown Raleigh, adjacent neighborhoods, and major regional destinations such as the State Capital. Providing this important access is a fundamental role of the corridor yet, the speed and behavior of vehicle traffic can be adjusted without significantly reducing accessibility or capacity. A functional street provides increased access and calms traffic.

A Beautiful Street

The corridor is a unique link to Raleigh's rich history and urban character, and is home to many historic and neighborhood resources. Strengthening and protecting this character is a primary goal of the community. A beautiful street is the result of continued investment in streetscape, tree planning, and street character.

A Vibrant Street

The corridor connects existing neighborhoods, retail districts, downtown offices, and a growing number of new mixed-use and residential places. The community envisions a thriving corridor with a wide range of housing, shopping and working opportunities. A vibrant street attracts a range of users and development as a place to go “to” and not “through”.



## 3.2 What Change is Possible?

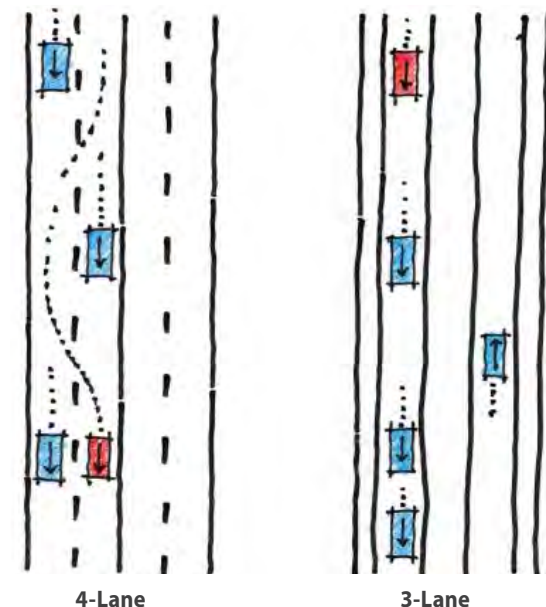
The community vision dictates change in the corridor. Real change will require rethinking and repurposing the role of the roadway. The corridor's issues and opportunities and public input have uncovered two design alternatives; 1) a road diet and/or 2) two-way restoration.

### Opportunities & Benefits – Road Diet

A “road diet” is a design approach for arterial roads that involves narrowing and/or eliminating travel lanes. The most typical road diet involves reconfiguring a four-lane roadway (such as Wake Forest Road) to three lanes, creating a dedicated center turn lane and one travel lane in each direction. The reclaimed space is then used for other purposes such as landscaping, wider sidewalks, bicycle lanes, and on-street parking. The intent of a road diet is to match the role of the street to its existing or desired context and are used in urban and suburban contexts on retail, residential, and mixed-use streets.

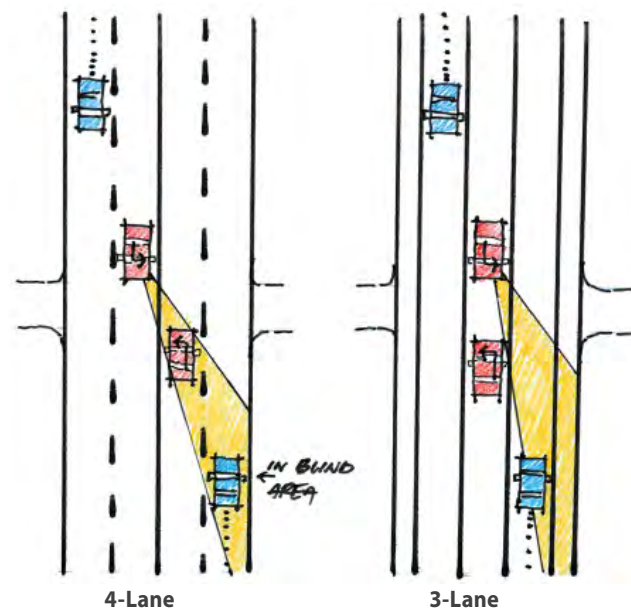
Four-lane to three-lane road diets can be accomplished with limited impact on roadway capacity and have been implemented on roadways carrying as much as 25,000 AADT. The reason stems from the limited vehicle capacity of the inside travel lanes of a four-lane section which really function as left-turn lanes, making a four-lane section sometimes operate with a capacity closer to a two-lane section.

Road diets that convert four lanes to three lanes have a number of benefits:



#### Speeding

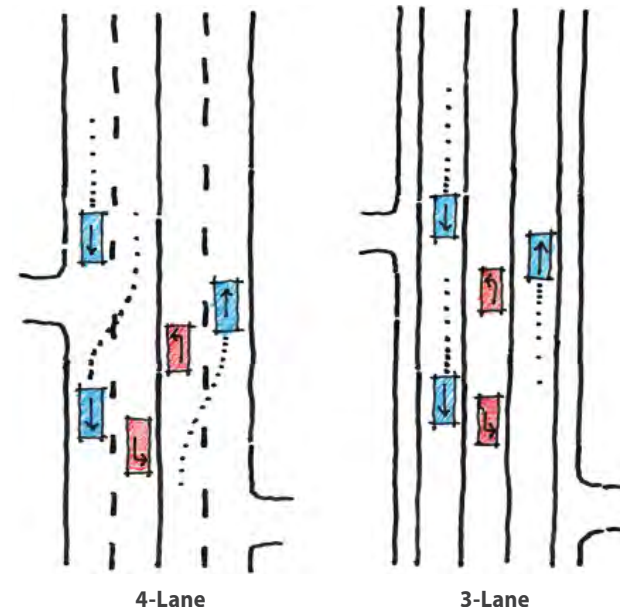
The four lane section promotes lane changing behavior and speeding as more aggressive drivers utilize the second travel lane to pass slower moving vehicles and travel through the corridor faster. The three lane section eliminates the second lane and regulates overall vehicle speed to the slowest moving vehicle.



#### Left Turn Visibility

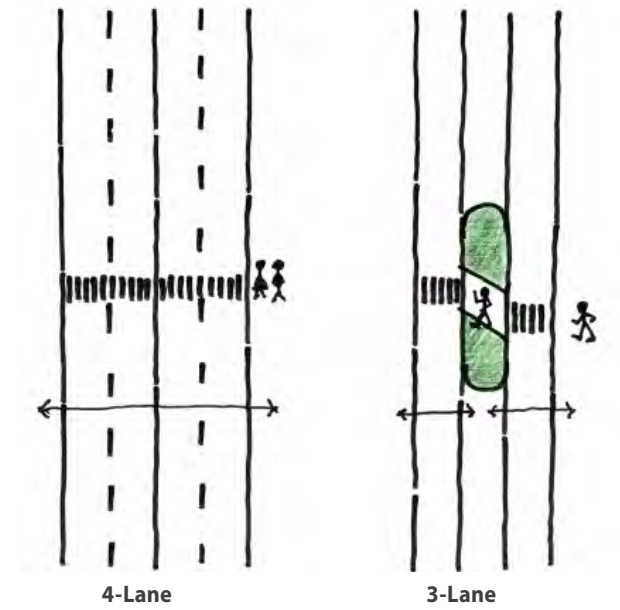
In a four-lane section, the visibility of vehicles waiting to turn left is blocked by oncoming vehicles or left turning vehicles in the adjacent opposite lane. This creates a blind spot preventing the driver turning left from seeing oncoming traffic and safely turning across traffic. The center turn lane eliminates this blind spot and allows the driver to directly see the oncoming traffic.

### Opportunities + Benefits | Road Diet



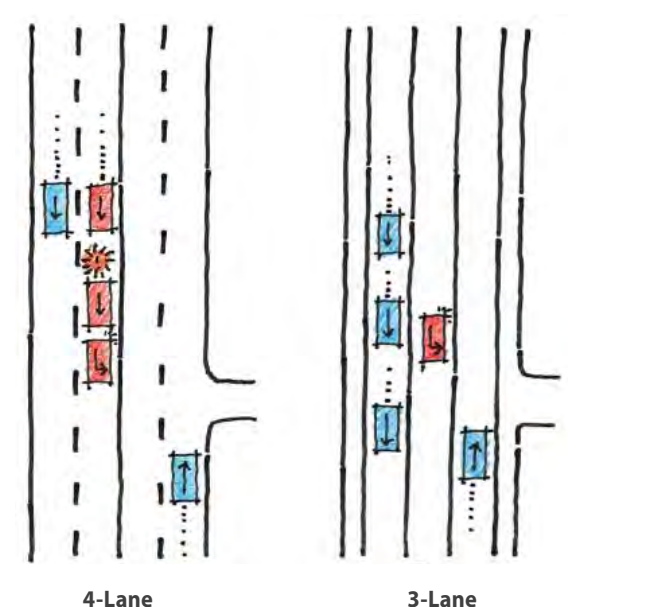
#### Left Turn Weaving

In a four lane section, vehicles waiting to turn left cause approaching vehicles to spontaneously and unpredictably weave and change lanes, increasing the potential for sideswipe crashes. Providing a dedicated center turn lanes removes the left turning vehicle from the traffic flow and eliminates lane changing.



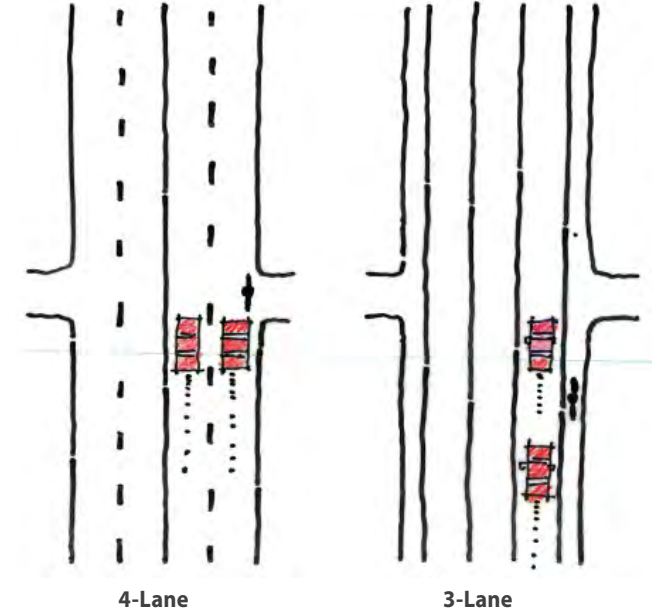
#### Pedestrian Integration

Four lanes of free flowing traffic require a crossing pedestrian to search for a gap in all four travel lanes (traveling in two directions) to safely cross. The center turn lane provides a safe refuge that can be specifically designed as a pedestrian island, allowing the pedestrian to cross looking for a safe gap in traffic, one lane at a time.



#### Left Turn Queue

Stopped vehicles in the center lane waiting to turn left create vehicle queues in a travel lane at unpredictable times and places. Vehicles approaching this queue do not always anticipate the stopped traffic resulting in rear-end crashes. A separated left turn lane removes this situation.



#### Cycling Integration

In four-lane sections without dedicated bicycle lanes, such as Wake Forest Road, cyclists share the outside travel lane with vehicles creating an uncomfortable accommodation that is typically utilized by only the most experienced and confident cyclist. In a three-lane section, the extra roadway space can be reclaimed for dedicated bicycle lanes to create a clearer, comfortable and safer bicycle facility that encourages broader use.



## Opportunities + Benefits | Two-Way Restoration

### Opportunities + Benefits Two-Way Restoration

One-way streets are a relatively recent invention intended to increase throughput and speed for motor vehicles. During the 1950s to 1970s, many two-way streets, particularly in downtowns, were converted to one-way to facilitate higher volumes of motor vehicles to, from, and through the city as well as to encourage faster access. The unintended consequences on retail success, pedestrians, and quality of life were not well understood at the time. Many cities have restored two-way operations on some of their one-way streets in order to help revitalize street-level activity, promote business access and visibility, and calm traffic in commercial districts and neighborhoods, as the City of Raleigh has recently done on Lenoir Street and South Street.

The decision to restore two-way traffic operation is a function of the context and corridor priorities. Restoring two-way traffic operation requires a rebalancing of priorities between motor vehicles and urban quality-of-life. From a design perspective, the priority assigned to access and safety rises while the priority assigned to motor vehicle speed decreases. From a motor vehicle-carrying capacity perspective, the emphasis is placed on network connectivity, not on speed. From a policy perspective, cities are increasingly open to reprioritizing what is important in their downtowns; lower levels of service for motorists has become palatable in some cities in order to support other aspects of downtown life.

Many of the benefits of two-way restoration are difficult to precisely measure while the effects on motor vehicles (level of service, travel time) are more easily estimated.

#### Quality-of-life Benefits of Two-way Streets:

**Routing & Vehicle Miles Travel** - Two-way streets allow for more routing options resulting in more direct and shorter trips compared to one-way streets. This affects regular travelers as well as deliveries (i.e., goods movement), emergency services, and transit routing.

**Way-finding & Accessibility** - Two-way street networks are easier to navigate than one-way street networks when finding a destination or for giving directions. On two-way streets a traveler does not have to go out of direction or use a circuitous route.

**Redundancy** - During emergencies, maintenance, parades, special events, or other times when a street is completely closed, the temporary loss of a one-way street can have a significant effect on an area. Two-way streets allow traffic to continue to move in both directions.

**Traffic Calming** - Calming aggressive driving and lowering motor vehicle speeds is easier with one lane going in each direction as opposed to two lanes going in the same direction, where speeding drivers are able to change lanes and overtake other drivers.

**Safety** - Slower speeds result in shorter stopping distances and lower probabilities of injuries and death.

**Economy** – Street-oriented merchants are more successful on two-way streets where motorists have visibility and direct access to their businesses.

**Livability & Placemaking** – Downtown Raleigh is increasingly becoming an attractive place to live, work, and recreate. Lower speeds and increased accessibility brought on by two-way streets, with an emphasis on walking, cycling, transit, sidewalk dining, and vibrancy, will help support the long-term livability of downtown.

#### Traffic Benefits of One-way Streets:

**Motorist Throughput** - One-way streets can process more motor vehicles than two-way streets with an equivalent number of lanes.

**Motorist Speed** - Due to the lower number of turning opportunities at intersections, one-way streets lend themselves to higher operating speeds compared to two-way streets. If desired, this characteristic can be tempered somewhat by timing traffic signals for slower progression.

**Signal Timing** - Somewhat related to throughput and speed for motorists, it is easier to time and coordinate traffic signals on one-way streets compared to two-way streets.

### West Palm Beach Case Study

By the early 1990s, downtown West Palm Beach served as the main employment center and downtown for a metro area of over a million people. In the 1950s and 1960s, many of the streets were converted to one-way streets to move larger volumes of motorists through the city. In the early 1990s, the circuitous routing for short trips and high motor vehicle speeds fostered by the one-way operations were identified as contributing factors in limiting the revitalization of the downtown. Between 1994 and 2004 several miles of streets in downtown were restored to two-way operation.

The City's first restoration project was Clematis Street, the historic main retail street. In the year following the conversion, occupancies changed from 80% vacant and \$6/sq. ft. rent to 10% vacant and \$25+/sq. ft. In addition, the City restored two-way operation on several more downtown streets as well as two main state route arterial streets, Olive Avenue and Dixie Highway. The concern over decreased vehicle capacity and increased travel time limiting growth and redevelopment proved unfounded. Over the same period of time (1996-2001) the downtown revitalized with over a billion dollars of private investment.



### 3.3 Design Alternatives Summary

Based on the identified public vision and the corridor's issues and opportunities, a series of design alternatives have been developed. These alternatives include; 1) Existing Conditions (the corridor as it operates today), 2) One-way Road Diet, 3) Two-way Restoration. The diagrams of the alternatives summarize the basic cross section (curb-to-curb dimension, travel lanes, parking, & bicycle facilities) and total lane configuration.

This section provides a detailed design description of the One-way Road Diet and Two-way Restoration alternatives in order to illustrate potential design opportunities and trade-offs for evaluation and consideration. The alternatives are not necessarily mutually exclusive, it is envisioned that a long-term strategy for the corridor may include components of each and will certainly be implemented in smaller steps and phases.

#### Existing Conditions (No Build)

- The existing corridor as it operates today is diagrammed as

### Cross Section Diagram

a "No Build" alternative. This is intended primarily as a base condition from which to compare and contrast potential design alternatives.

- The Issues and Opportunities section of this report provides a detailed description of the existing corridor's conditions, operation, and the community's desires for the future.

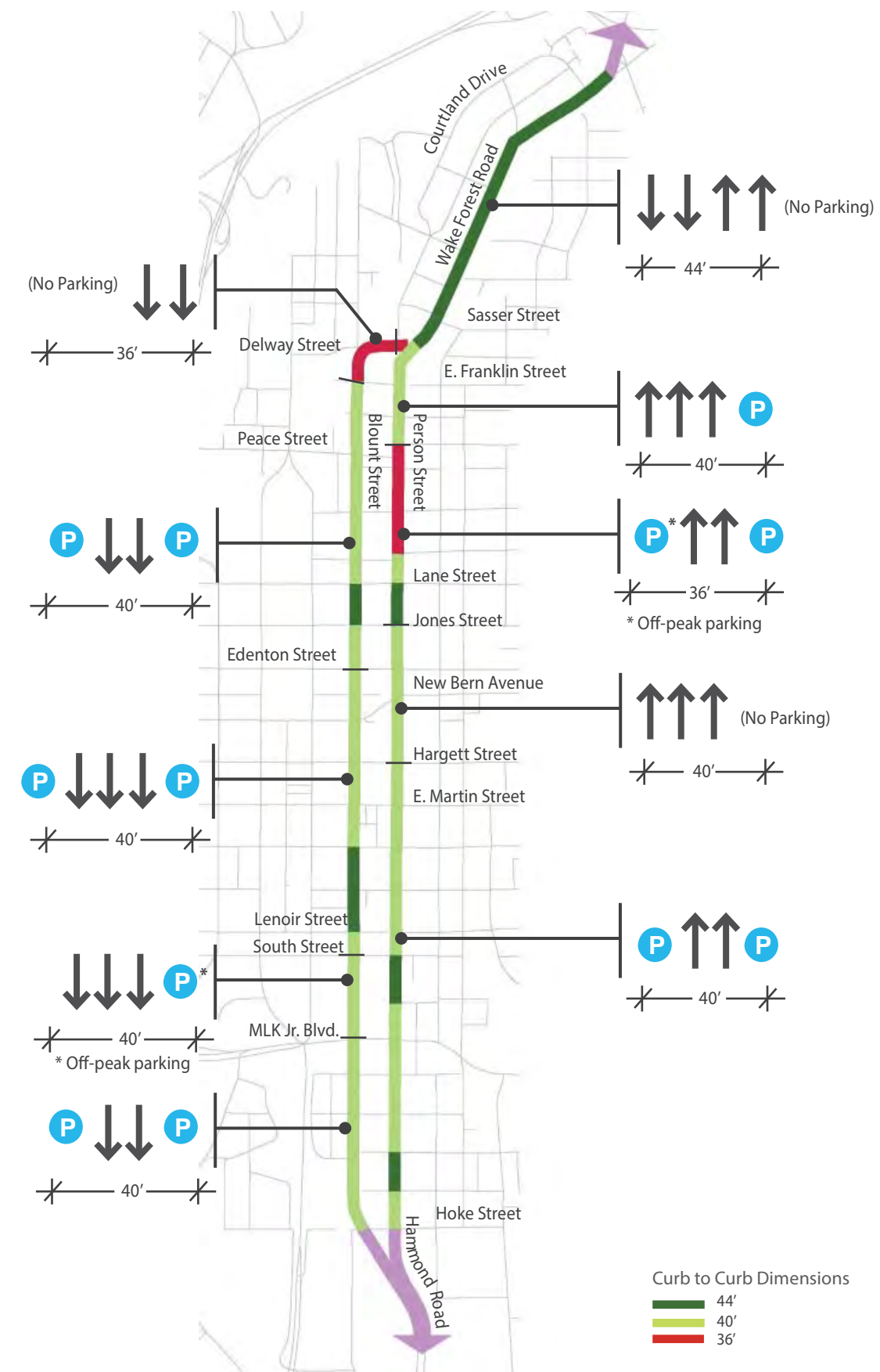
#### One-way Road Diet

- Wake Forest Road** – Proposes road diet from four lanes to

#### Cross Section Legend



### Existing Conditions (No Build)



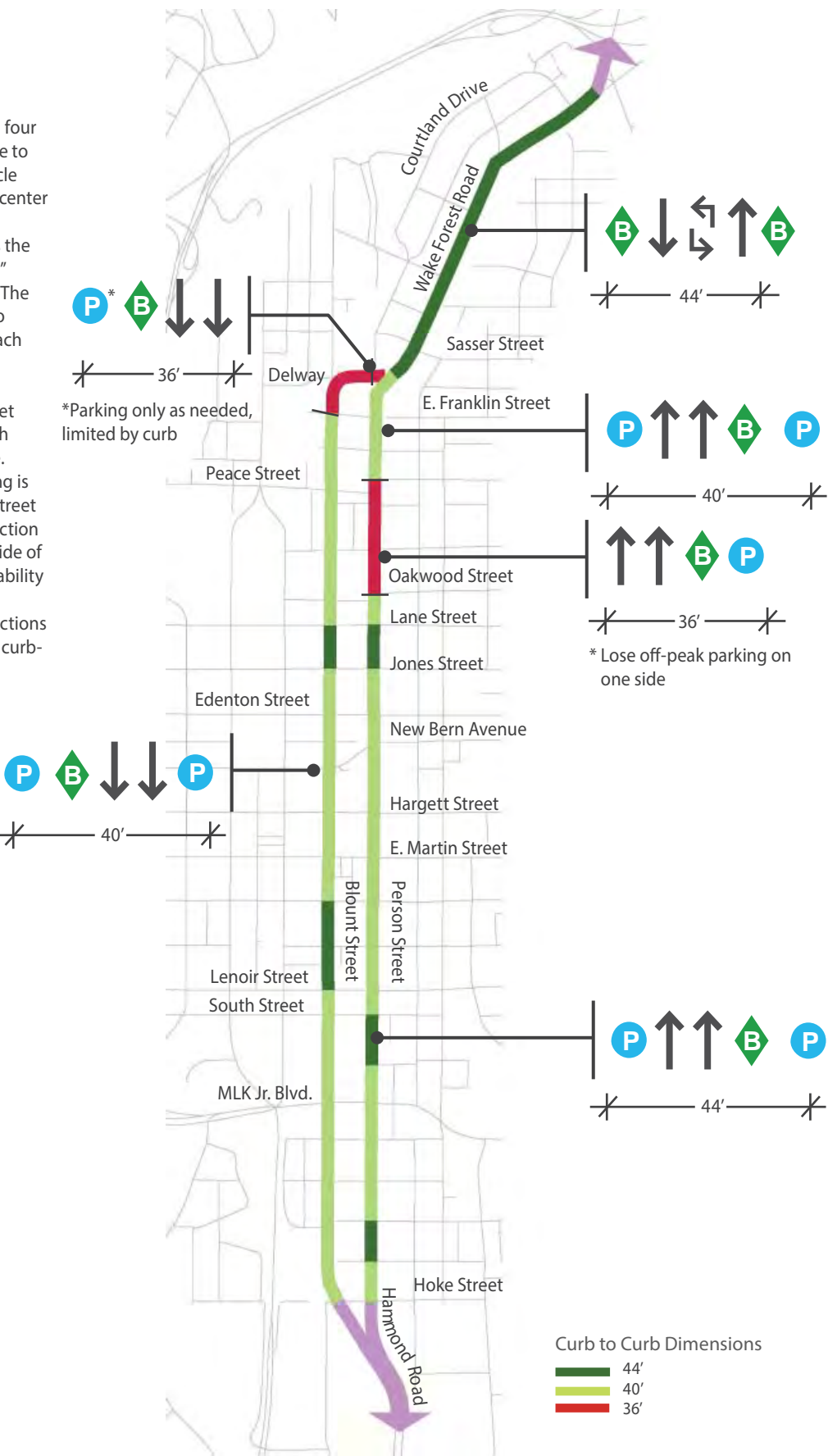


One-Way Road Diet

Cross Section Diagram

One-way Road Diet

- **Wake Forest Road** – Proposes road diet from four lanes to three lanes. Eliminates one travel lane to create a three-lane section that includes bicycle lanes, one travel lane in each direction, and a center turn lane.
- **Blount Street and Person Street** - Maintains the one-way operation and proposes a “road diet” eliminating one travel lane in each direction. The elimination of a travel lane allows the street to be reconfigured to include a bicycle lane in each direction (northbound on Person Street and southbound on Blount Street).
- **Bicycle Facilities** – The corridor-wide road diet allows space for a continuous bike lane in each direction from Hoke Street to Atlantic Avenue.
- **On-Street Parking** - Existing on-street parking is maintained except for the section of Person Street from Oakwood Street to Peace Street. This section currently provides off-peak parking on west side of street, 36-foot curb-to-curb dimension limits ability to maintain parking on both sides of street.
- **Cross Sections** – A variety of specific cross sections have been developed, tailored to the varying curb-to-curb dimensions of the corridor.



Cross Section Legend

- ↑ Travel Lane
- ⬅️ On-Street Parking
- ↩️ Center Turn Lane
- 🚲 Bike Lane
- ➡️ Sharrows

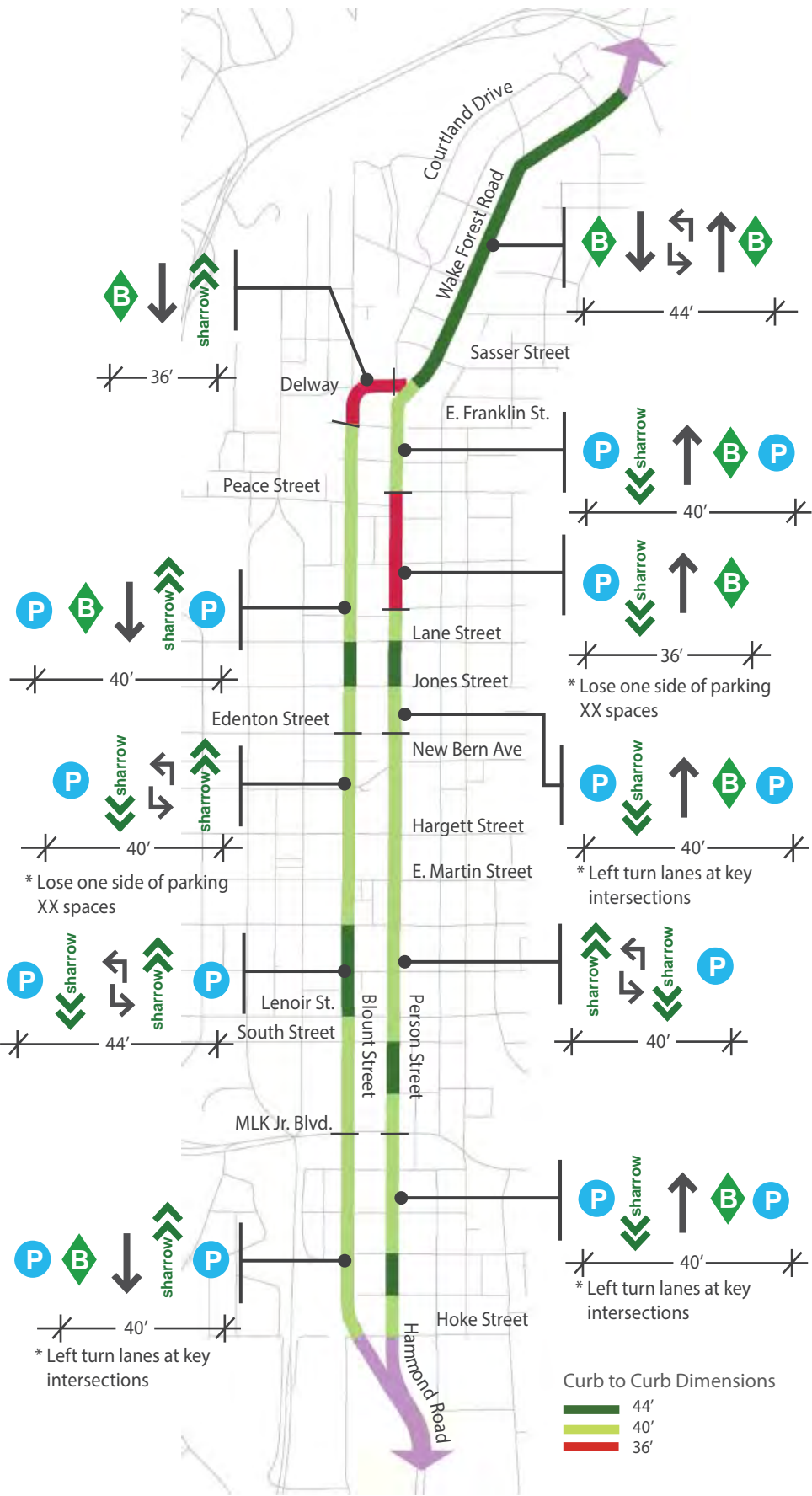
- Curb to Curb Dimensions
- 44'
  - 40'
  - 36'

Two-Way Restoration

Cross Section Diagram

Two-way Restoration

- **Wake Forest Road** – Proposes road diet from four lanes to three lanes. Eliminates one travel lane to create a three-lane section that includes bicycle lanes, one travel lane in each direction, and a center turn lane.
- **Blount Street and Person Street** - Proposes the restoration of two-way traffic operation on Blount Street and Person Street with a combination of two-lane and three-lane configurations.
- **Blount Street** - Includes two-travel lanes (one in each direction) with a southbound bicycle lane and northbound sharrows (lane shared with bicycles). Center turn lane is incorporated between Edenton Street and MLK Jr. Boulevard, resulting in a loss of on-street parking on one side and the conversion of the southbound bicycle lane into a sharrows.
- **Person Street** - Includes two-travel lanes (one in each direction) with a northbound bicycle lane and southbound sharrows (lane shared with bicycles). Center turn lane is incorporated between Edenton Street and MLK Jr. Boulevard, resulting in a loss of on-street parking on one side and the conversion of the southbound bicycle lane into a sharrows.
- **Bicycle Facilities** – Allows space for a continuous bike lane in each direction (northbound on Person Street, southbound on Blount Street) except for the downtown section between MLK Jr. Boulevard and Edenton Street where a center left turn lane is necessary and sharrows are provided.
- **On-Street Parking** - Existing on-street parking is maintained except for the sections of Blount Street and Person Street from MLK Jr. Boulevard to Edenton Street where a center left turn lane is necessary and on-street parking is lost on one side. In addition, on-street parking is eliminated on one side of Person Street from Oakwood Street to Peace where the 36-foot curb-to-curb dimension limits ability to maintain parking on both sides of street.
- **Cross Sections** – A variety of specific cross sections have been developed, tailored to the varying curb-to-curb dimensions of the corridor.



Cross Section Legend

- ↑ Travel Lane
- ⬅️ On-Street Parking
- ↩️ Center Turn Lane
- 🚲 Bike Lane
- ➡️ Sharrows

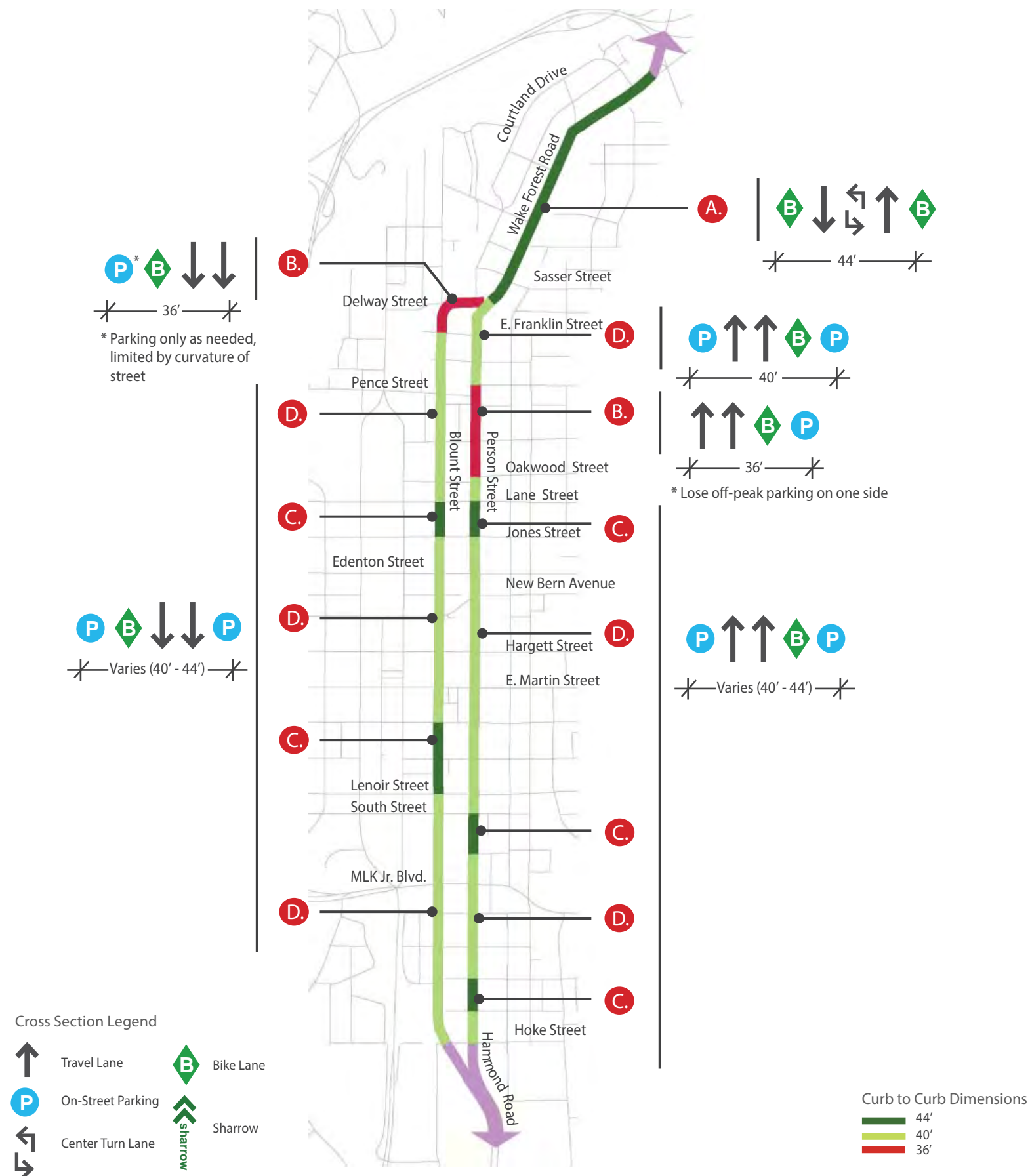
- Curb to Curb Dimensions
- 44'
  - 40'
  - 36'



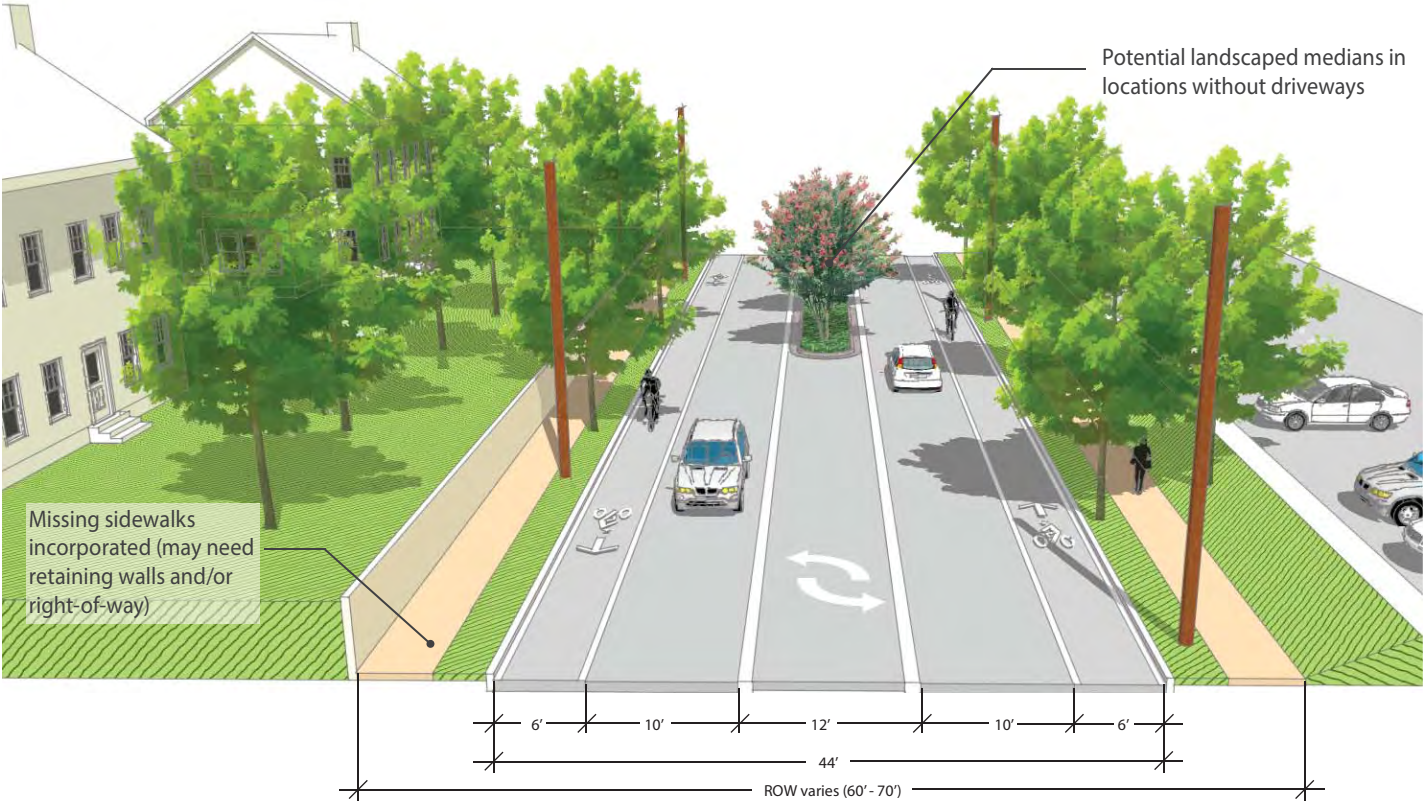
### 3.4 Road Diet - Cross Section Summary

This alternative maintains the one-way operation of Blount Street and Person Street but proposes to eliminate a lane in each direction in order to calm traffic, incorporate bicycle facilities, and insert streetscape elements such as bulb-outs.

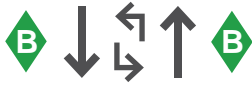
- **Wake Forest Road** – Proposes road diet from four-lanes to three-lanes. Eliminates one travel lane to create a three-lane section that includes bicycle lanes, one travel lane in each direction, and a center turn lane.
- **Blount Street and Person Street** - Maintains the one-way operation and proposes a “road diet” eliminating one travel lane in each direction. The elimination of a travel lane allows the street to be reconfigured to include a bicycle lane in each direction (northbound on Person Street and southbound on Blount Street).
- **Bicycle Facilities** – The corridor-wide road diet integrates space for a continuous bike lane in each direction from Hoke Street to Atlantic Avenue.
- **On-Street Parking** - Existing on-street parking is maintained except for the section of Person Street from Oakwood Street to Peace Street. This section currently provides off-peak parking on west side of street, 36-foot curb-to-curb dimension limits ability to maintain parking on both sides of street.
- **Cross Sections** – A variety of specific cross sections have been developed, tailored to the varying curb-to-curb dimensions of the corridor.



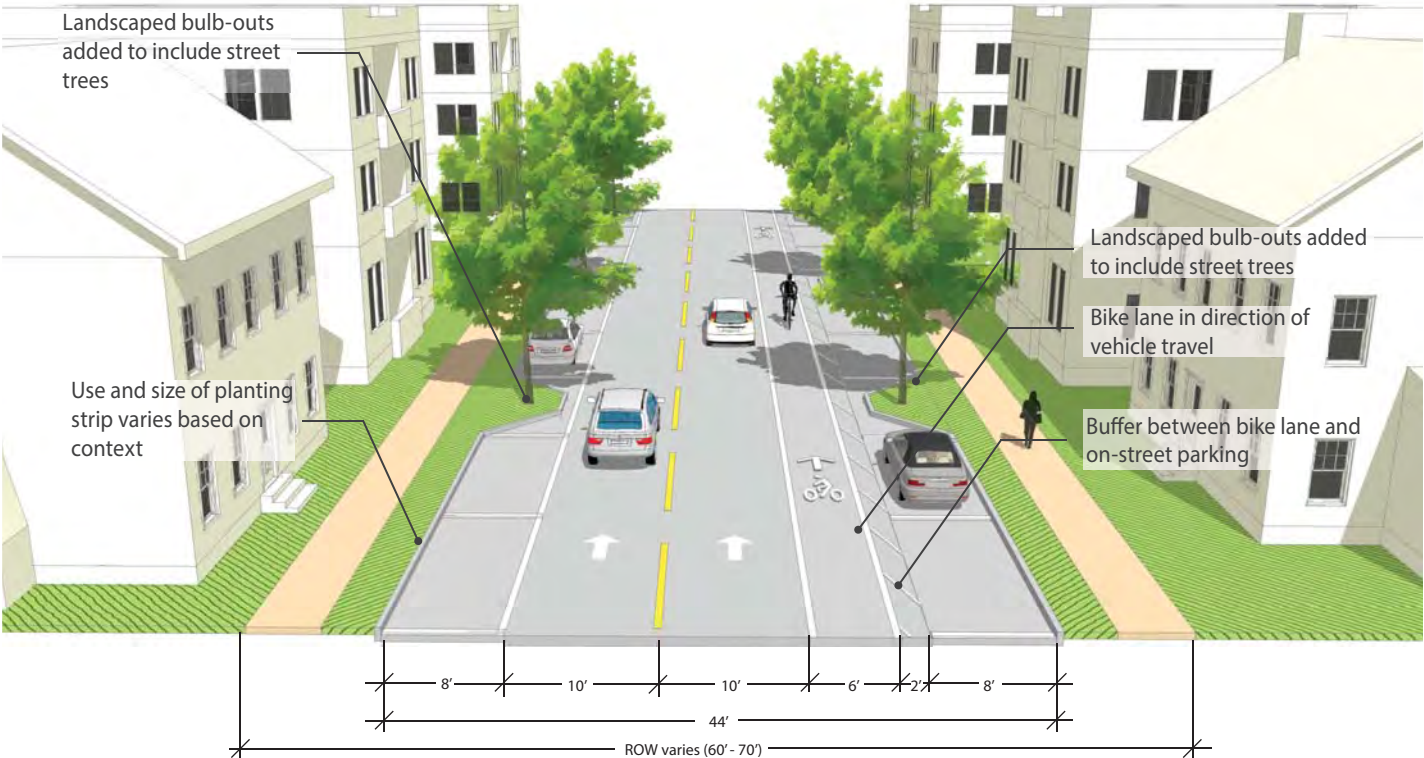




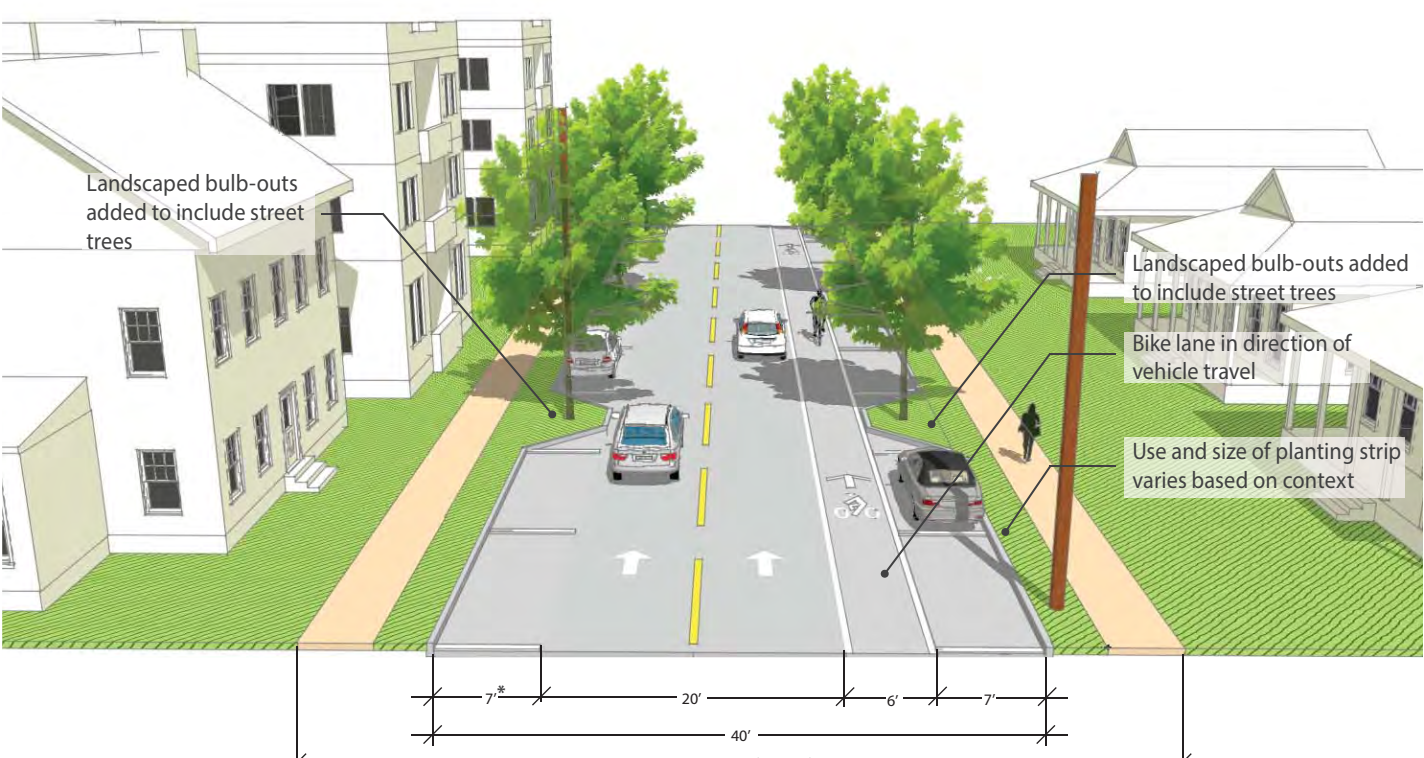
**A.** Wake Forest Road Diet  
44' Curb-to-curb



**B.** Blount and Person One-Way Road Diet  
36' Curb-to-curb



**C.** Blount and Person One-Way Road Diet  
44' Curb-to-curb



**D.** Blount and Person One-Way Road Diet  
40' Curb-to-curb



**\*Note:** 7-foot wide parking aisle adjacent to a 10-foot travel lane will require approval from NCDOT. An alternative solution in this condition would be to provide sharrows instead of a bike lane.



### 3.4 Road Diet - Transition Design

The one-way road diet alternative requires designed transitions in several key locations.

#### Wake Forest Road at Capital Boulevard - Option 1: Lane Transition

- **Southbound** - Heading south from the Capital Boulevard off ramp, the two southbound lanes of Atlantic Avenue merge to one with the outside lane ending at Courtland Drive in a right-turn lane.
- **Northbound** - Heading north, transition from one lane to two lanes at the Automotive Way intersection.

#### Wake Forest Road at Capital Boulevard - Option 2: Roundabout

Building on the Capital Boulevard Corridor Study, this concept proposes a pair of roundabouts north and south of Capital Boulevard, bookending the planned future greenway.

- **Roundabout (Wake Forest Road/Brookside/Automotive)** - As proposed in the Capital Boulevard Corridor Study, Potential two-lane roundabout (to be further analyzed) connects five legs (Wake Forest Road, Brookside Drive, Automotive Way, Atlantic Avenue, and commercial driveway).
- **Roundabout (Atlantic Avenue/Old Louisburg Road/Capital Boulevard on-ramp)** - Potential two-lane roundabout (to be further analyzed) connects Atlantic Avenue, Old Louisburg Road, and the Capital Boulevard on-ramp.
- These roundabouts can be implemented independent of each other and independent of changes to Wake Forest Road.



A. Wake Forest Road at Capital Boulevard







**B.** Wake Forest Road at Blount and Person Street

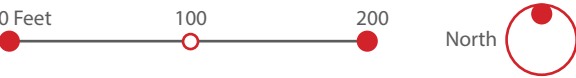
**Note:**  
An alternate design to the Blount/Delway intersection would be to “tee” them together. This alternative would require southbound traffic on Blount St. to make a left turn (likely signalized) effecting the flow and distribution of traffic between Blount St. and Person St.

- Wake Forest at Blount and Person Street**
- **Southbound** – Single southbound travel lane on Wake Forest Road transitions to two lanes at Mordecai Drive, continuing southbound on Delway Street to Blount Street.
  - **North Blount Street & Delway Street intersection** – Realigns North Blount Street to Blount/Delway Street to calm and clarify traffic movement into neighborhood and Peace University. Creates two green spaces on each corner that could be neighborhood gateways and/or “green” stormwater treatment planters.
  - **Northbound** – Two travel lanes northbound split north of Franklin Street, one heading north to Wake Forest Road and one heading north to Mordecai Drive.



**C.** Hammond Road at Blount and Person Street

- Hammond Road at Blount and Person Street**
- **Blount/Hoke/Hammond intersection** – Intersection narrowed with two southbound lanes traveling through to Hammond Road. Right lane southbound from South Blount Street to Hammond Road provided to accommodate and separate truck traffic from intersection.
  - **Person/Hoke/Hammond intersection** – Hammond Road narrowed to three lanes approaching intersection, two continuing north on Person Street and one left turn onto Hoke Street.
  - **Bike Lanes & Trail Connection** – Potential trail connection south to Rocky Branch Trail along east side of Hammond Road. Trail connects to Person Street at Hoke Street intersection, transitioning to a bike lane northbound on Person Street. From southbound bike lane on Blount Street, trail connects along south side of Hoke Street.

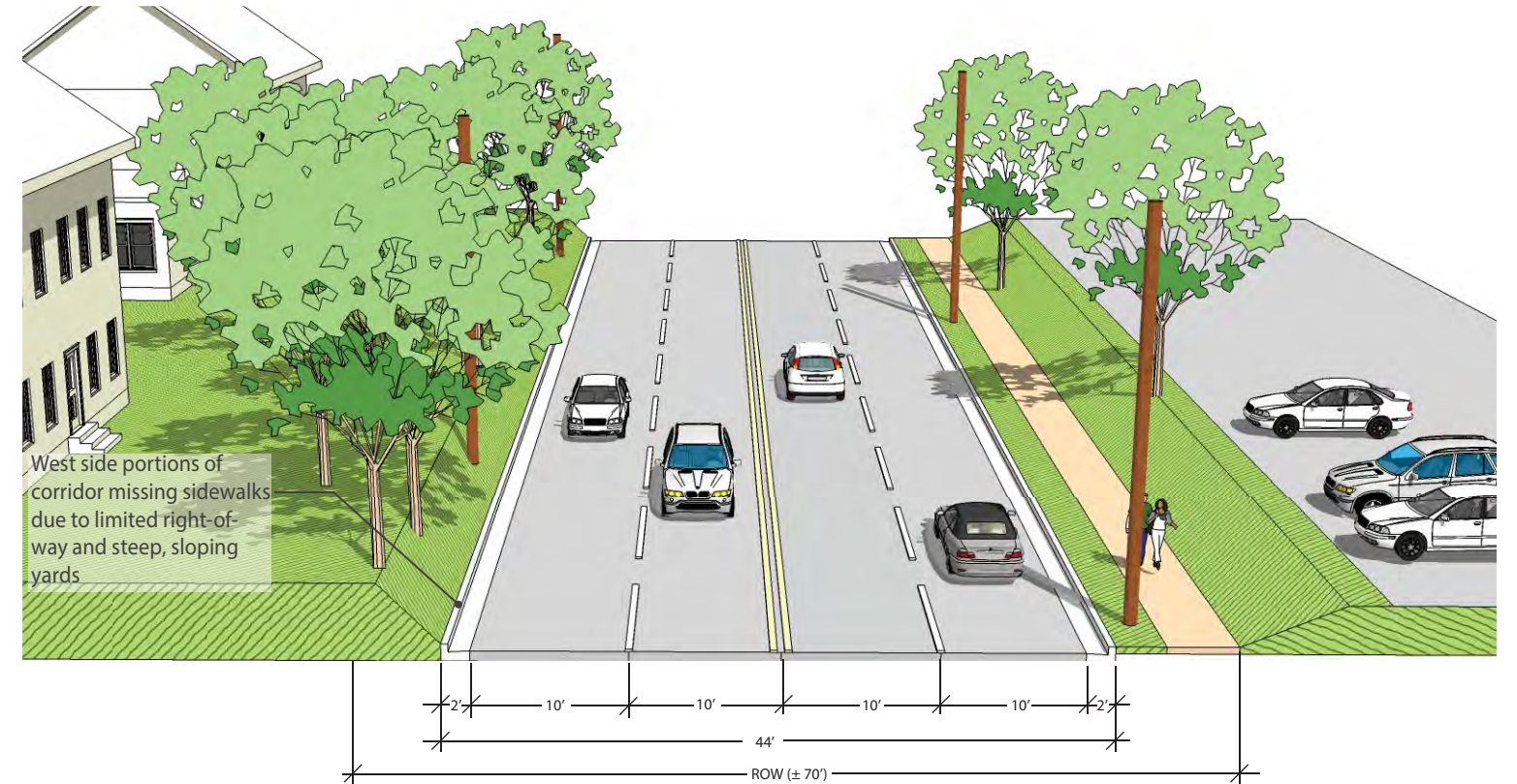
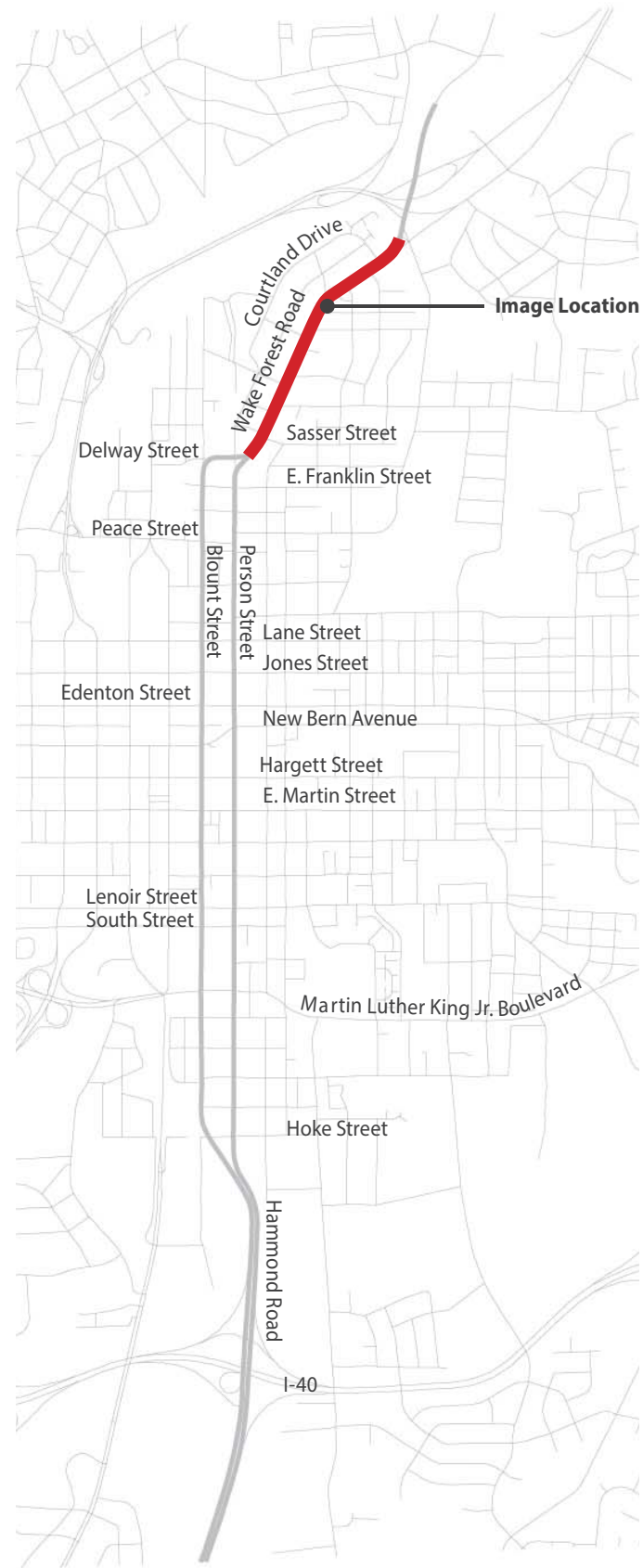




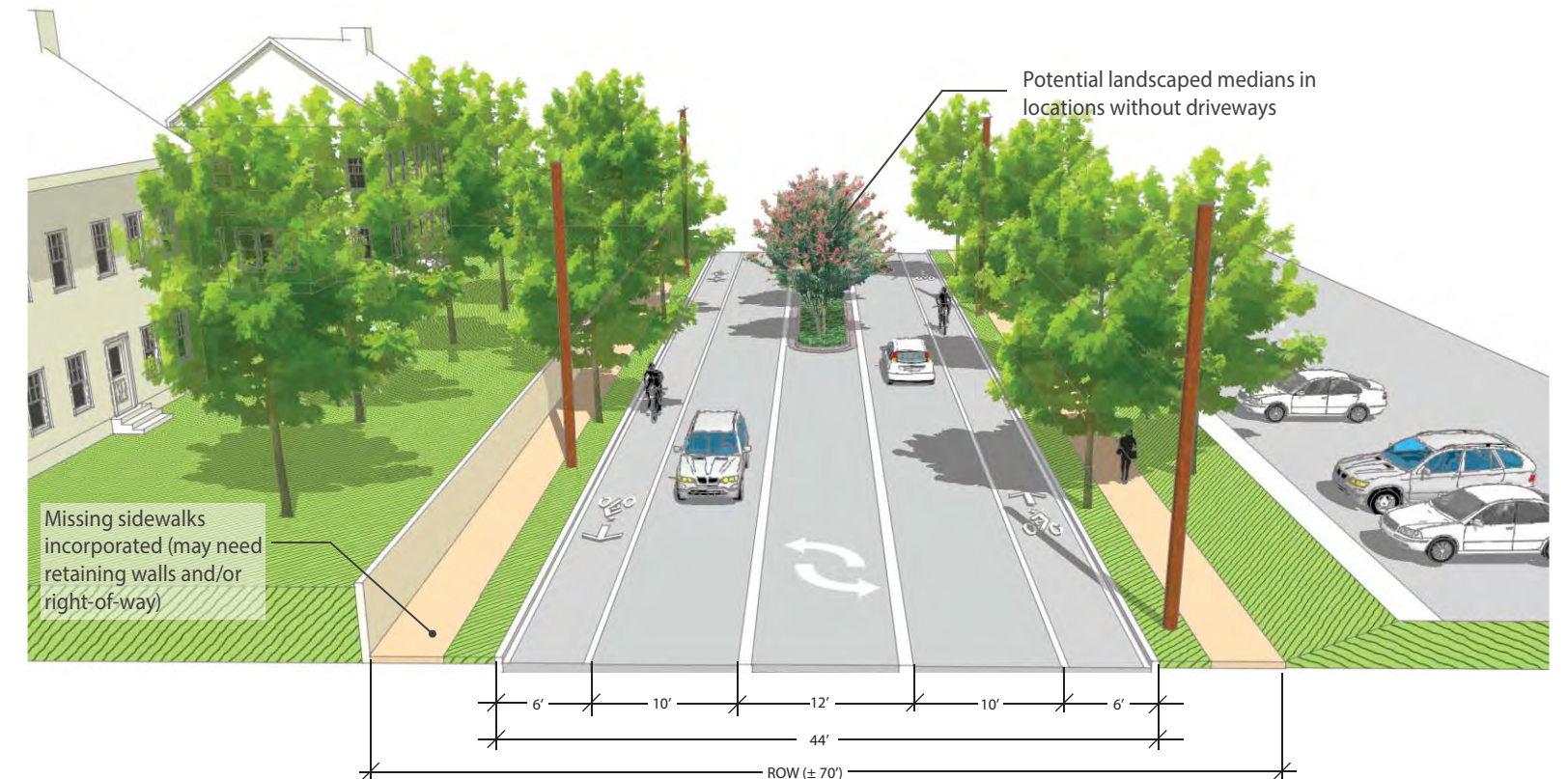
### 3.4 Road Diet - Wake Forest Before / After

#### Key Characteristics:

- Four lane to three lane road diet utilizes the space of one travel lane for bicycle lanes. The resulting three lane configuration has one travel lane in each direction with a center left turn lane.
- The center left turn lane provides a designated lane for turn movements and can include landscaped medians in locations that do not block driveways.
- Landscaped medians can be designed for pedestrian crossings in appropriate locations, creating an attractive and conspicuous crossing treatment and providing a safe pedestrian refuge.



Wake Forest Road: Before



Wake Forest Road Diet: After





Wake Forest Road

Before

**Before:**

- Existing pedestrian crossing requires crossing four lanes of traffic, creating a pedestrian barrier that divides the neighborhood.
- Speeding analysis suggests that vehicle speeds are increased in this portion of the corridor in part due to the four-lane configuration.
- Lack of bicycle facilities and speed of vehicle traffic discourages cycling.
- Some portions of the west side of Wake Forest Road are without sidewalk, further limiting pedestrian accessibility.



Wake Forest Road

After

**After:**

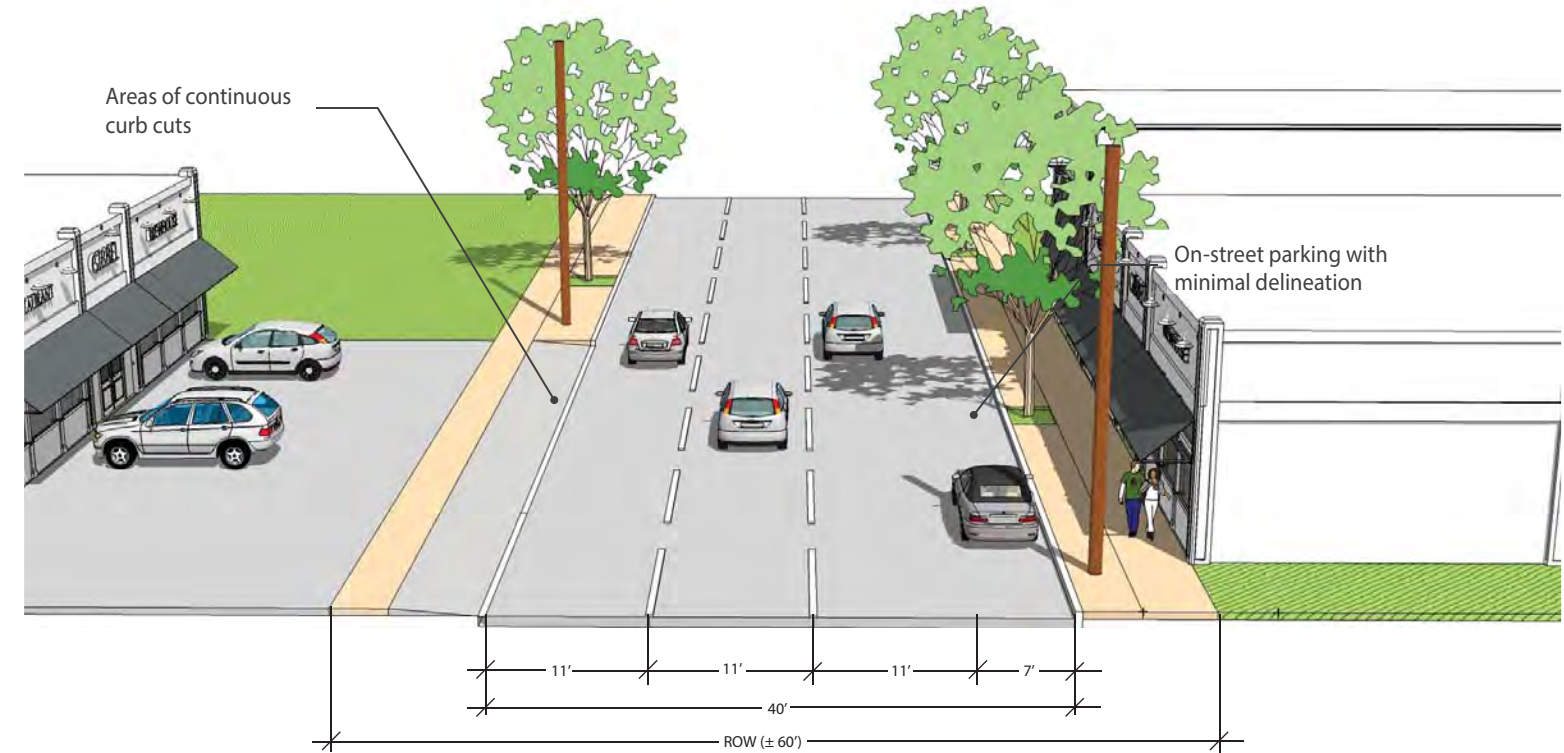
- Landscaped pedestrian crossing island creates easier crossing of one lane of travel in each direction with a safe refuge in the middle.
- One travel lane in each direction helps to calm traffic and narrow the pedestrian crossing.
- Bicycle lanes provide a clear and safe place for cyclists.
- Where feasible, new sidewalks can be included on west side. May require retaining walls and/or right-of-way where space and slope dictate.



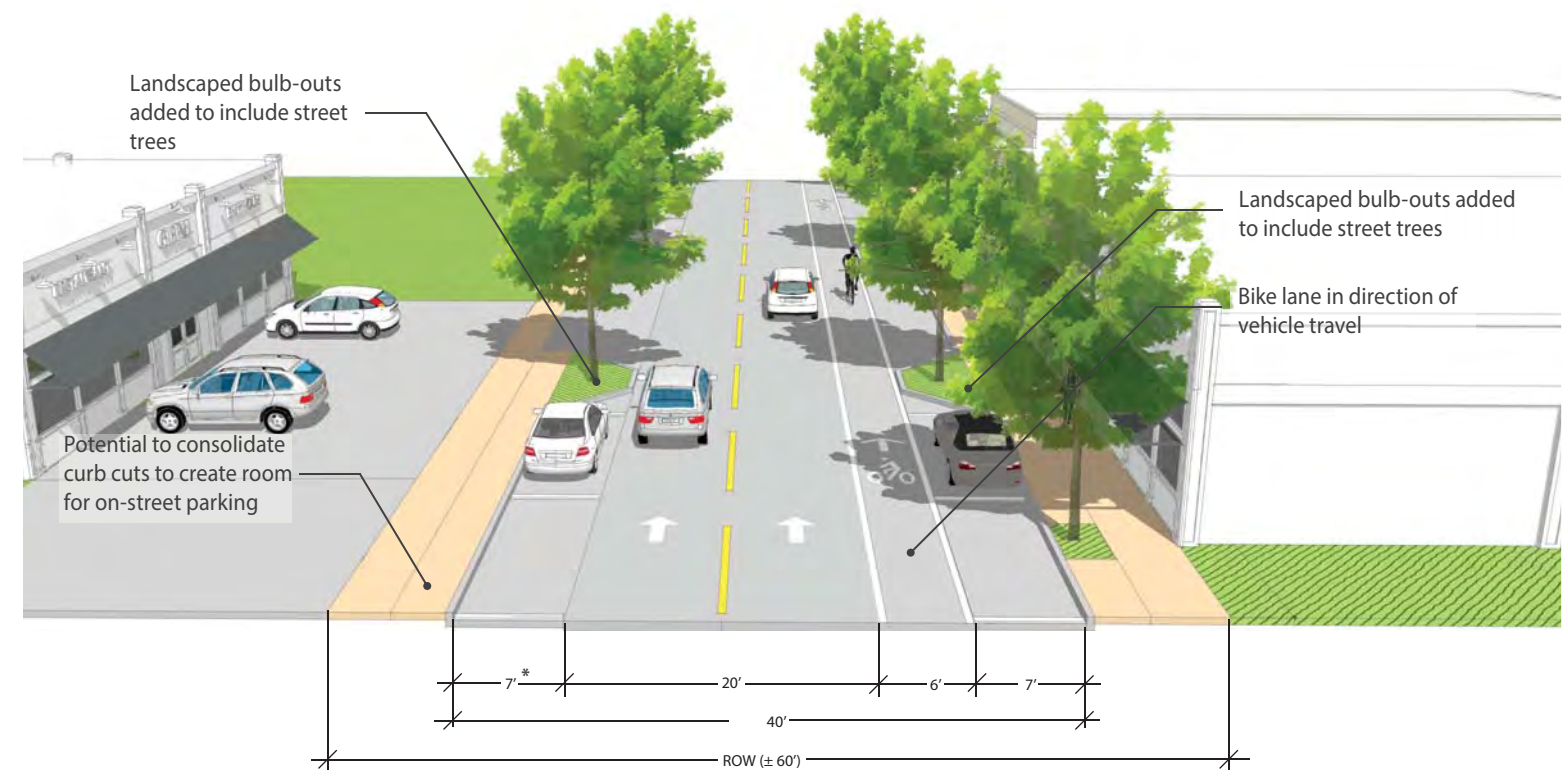
### 3.4 Road Diet - Person Street (Business District) Before / After

#### Key Characteristics:

- Three-lane to two-lane road diet allows for a northbound bicycle lane and additional on-street parking aisle (on west side of road).
- Roadway visually narrowed through the use of mid-block and corner bulb-outs that better define on-street parking aisle and can include street trees, landscaping, and/or outdoor dining.
- Evaluate opportunities to consolidate continuous and multiple curb cuts in order to create more uninterrupted pedestrian sidewalk space and areas for additional on-street parking.



Person Street: Before



Person Street Road Diet: After

**\*Note:** 7-foot wide parking aisle adjacent to a 10-foot travel lane will require approval from NCDOT. An alternative in this condition would be to provide sharrows instead of a bike lane.





Person Street (View North of Peace Street)

Before

**Before:**

- Lack of defined on-street parking aisle (striping or bulb-out) creates visual impression of wide travel lane, potentially inducing higher motor vehicle speeds.
- Lack of bicycle facilities discourages cycling.
- Wide and sometimes continuous curb cuts limit on-street parking and/or streetscape opportunities.



Person Street (View North of Peace Street)

After

**After:**

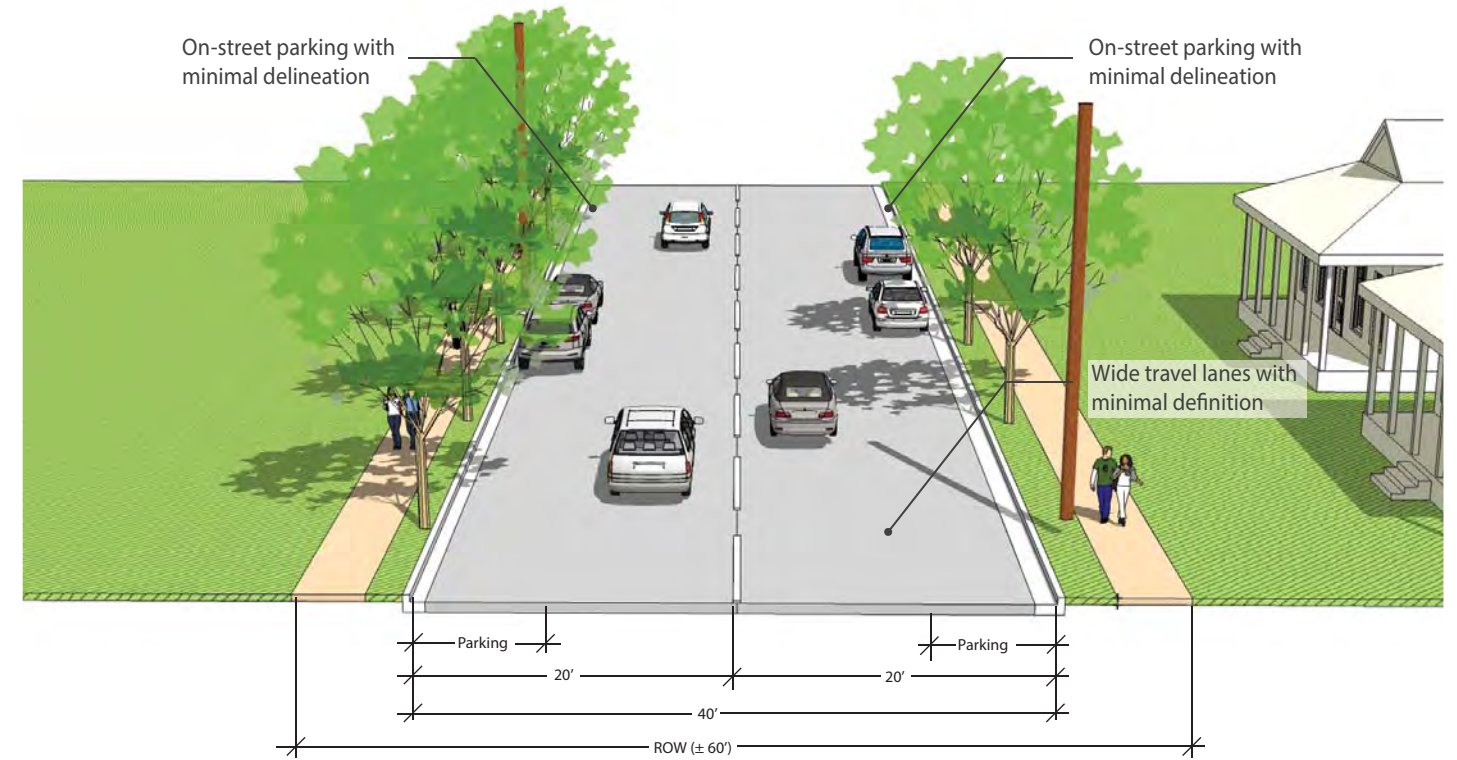
- On-street parking defined by landscaped bulb-outs with street trees. The result is a visually narrowed roadway that will calm traffic and provide a shaded/landscaped pedestrian sidewalk space.
- Northbound bicycle lane connects to Wake Forest Road and is paired with a southbound bicycle lane on Blount Street.
- Where it can be negotiated, consolidation of curb cuts will create stronger pedestrian environment, calm and control traffic movement from parking lots and provide opportunities for additional on-street parking.



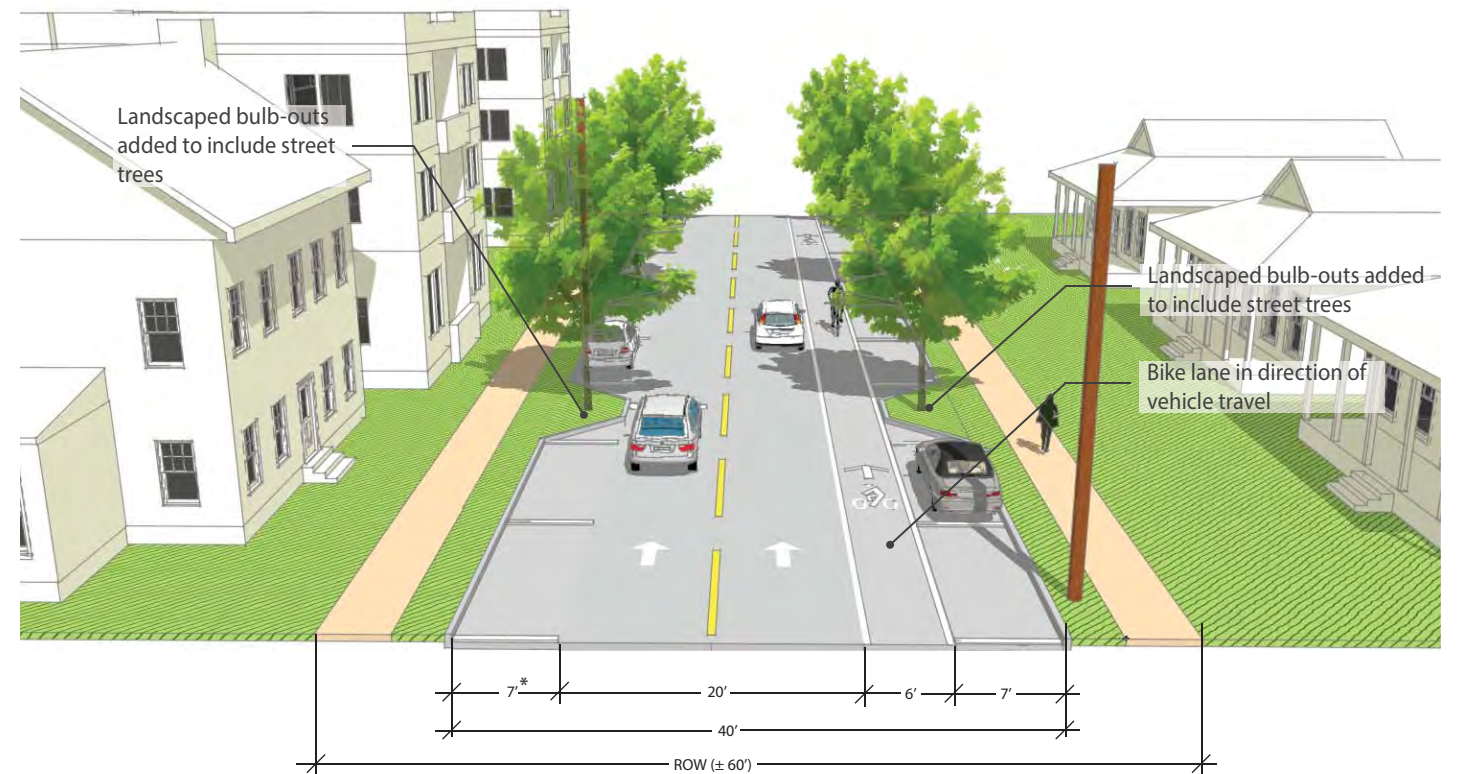
### 3.4 Road Diet - Person Street (South Park) Before / After

#### Key Characteristics:

- Redefines wide two-lane street with narrowed travel lanes, a northbound bicycle lane, and a better defined on-street parking aisle.
- Roadway visually narrowed through the use of mid-block and corner bulb-outs that better define on-street parking aisle and can include street trees and landscaping.



Person Street: Before



Person Street Road Diet : After

**\*Note:** 7-foot wide parking aisle adjacent to a 10-foot travel lane will require approval from NCDOT. An alternative in this condition would be to provide sharrows instead of a bike lane.





Person Street (View North of Hoke Street)

Before

**Before:**

- Lack of defined on-street parking aisle (striping or bulb-out) creates visual impression of wide two lane roadway (total curb-to-curb distance of is 40 feet).
- Speeding analysis suggests that vehicle speeds are increased in this portion of the corridor in part due to the wide, two lane configuration.
- Some areas lack consistently defined sidewalks and street trees, creating unattractive gaps in the neighborhood sidewalk network.



Person Street (View North of Hoke Street)

After

**After:**

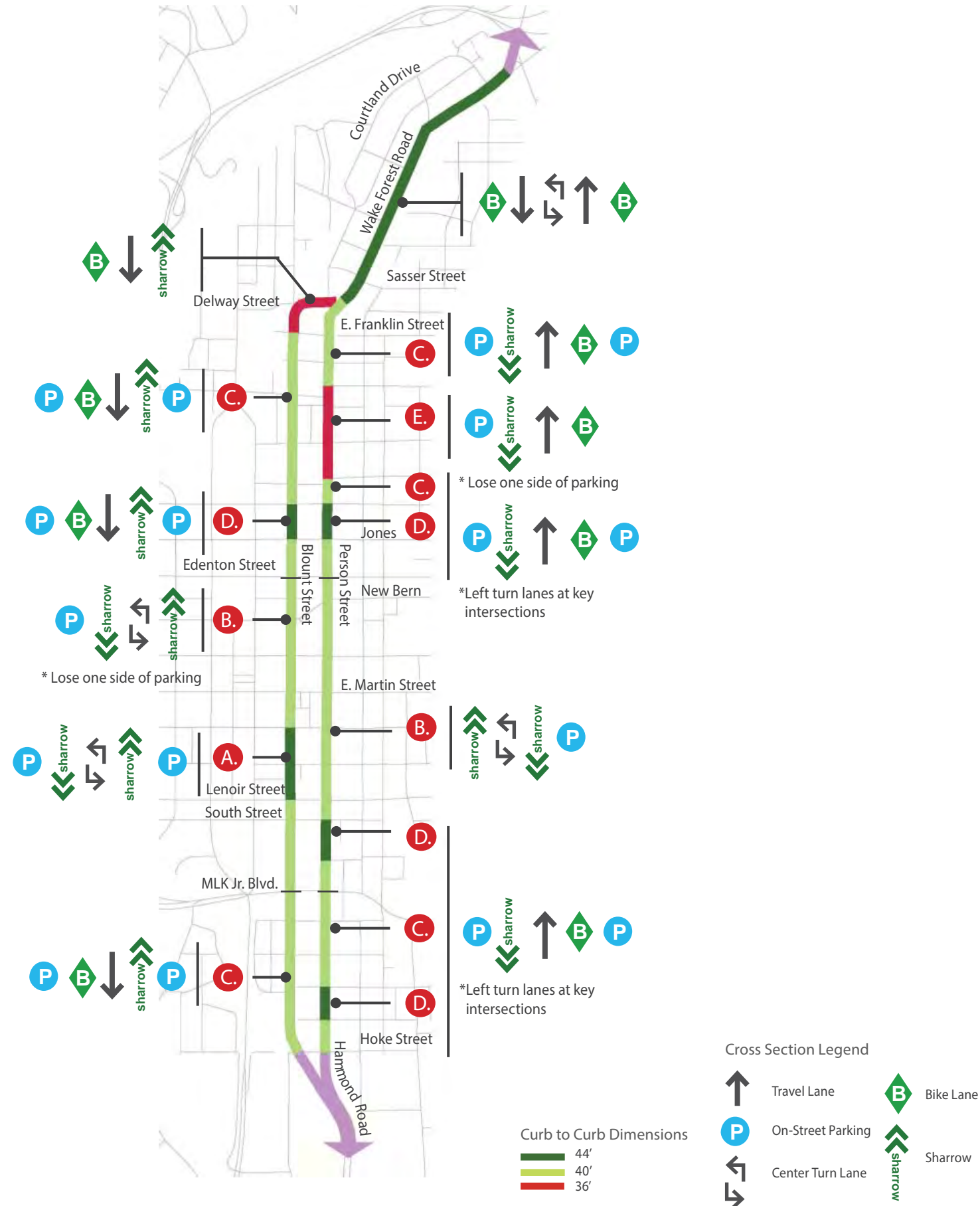
- On-street parking defined by landscaped bulb-outs with street trees. The result is a visually narrowed roadway that will calm traffic and provide a shaded/landscaped pedestrian sidewalk space.
- Narrowed travel lanes (along with bulb-outs) help to calm traffic through this neighborhood section of the corridor.
- Gaps in the sidewalk/streetscape are completed to create a consistent pedestrian network.
- Redefined street creates an attractive "address" for future infill housing opportunities.



### 3.5 Two-Way Restoration - Cross Section Summary

This alternative restores two-way traffic operation on Blount Street and Person Street by converting each street to two-way, incorporating bicycle facilities, and inserting streetscape elements such as bulb-outs.

- **Wake Forest Road** – Proposes road diet from four lanes to three lanes. Eliminates one travel lane to create a three-lane section that includes bicycle lanes, one travel lane in each direction, and a center turn lane.
- **Blount Street and Person Street** - Proposes the restoration of two-way traffic operation on Blount Street and Person Street with a combination of two-lane and three-lane configurations.
- **Blount Street** - Includes two-travel lanes (one in each direction) with a southbound bicycle lane and northbound sharrow (lane shared with bicycles). Center turn lane is incorporated between Edenton Street and MLK Jr. Boulevard, resulting in a loss of on-street parking on one side and the conversion of the southbound bicycle lane into a sharrow.
- **Person Street** - Includes two-travel lanes (one in each direction) with a northbound bicycle lane and southbound sharrow (lane shared with bicycles). Center turn lane is incorporated between Edenton Street and MLK Jr. Boulevard, resulting in a loss of on-street parking on one side and the conversion of the southbound bicycle lane into a sharrow.
- **Bicycle Facilities** – Integrates space for a continuous bike lane in each direction (northbound on Person Street, southbound on Blount Street) except for the downtown section between MLK Jr. Boulevard and Edenton Street where a center left turn lane is necessary and sharrows are provided.
- **On-Street Parking** - Existing on-street parking is maintained except for the sections of Blount Street and Person Street from MLK Jr. Boulevard to Edenton Street where a center left turn lane is necessary and on-street parking is lost on one side. In addition, on-street parking is eliminated on one side of Person Street from Oakwood Street to Peace where the 36-foot curb-to-curb dimension limits ability to maintain parking on both sides of street.
- **Cross Sections** – A variety of specific cross sections have been developed, tailored to the varying curb-to-curb dimensions of the corridor



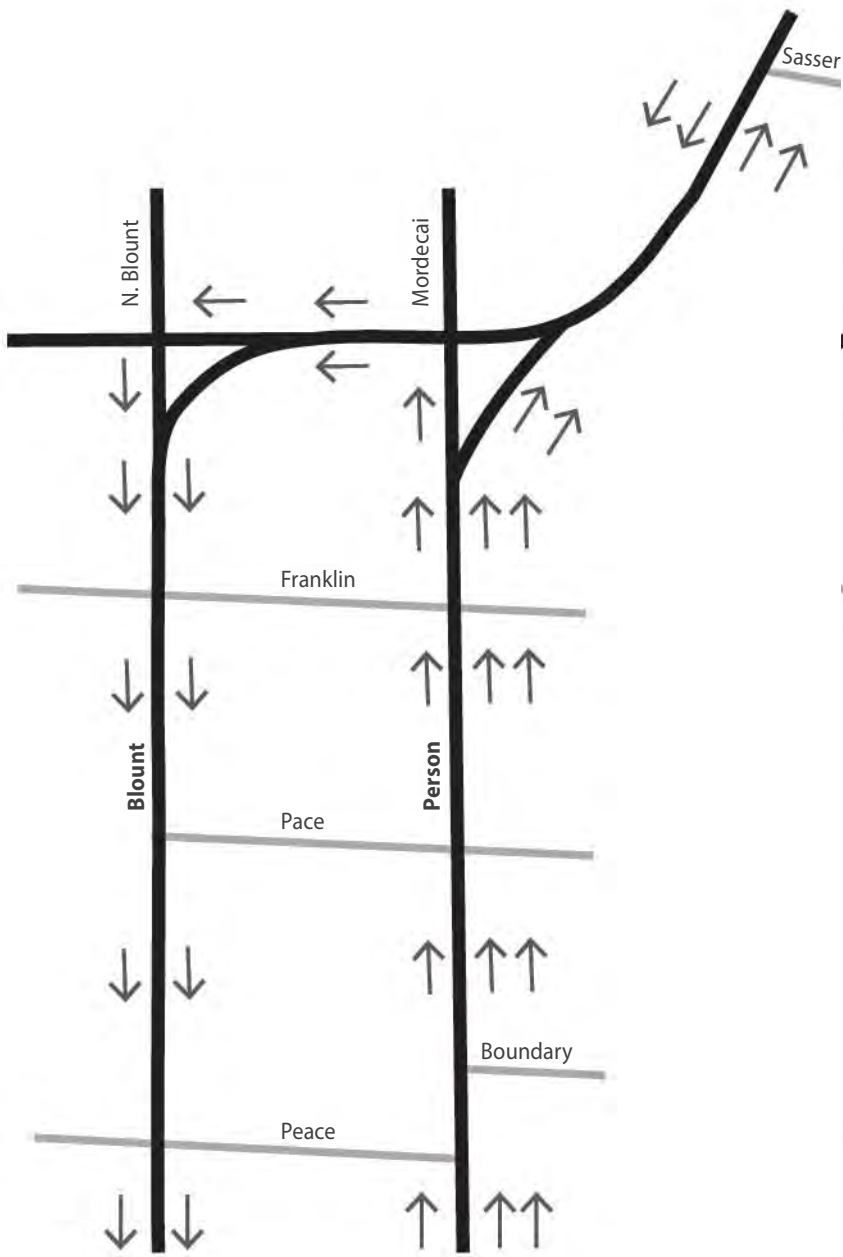


Partial Two-Way Alternatives

As part of the alternatives development, the concept of a partial two-way restoration was identified. This partial two-way restoration is focused on the section of Blount Street and Person Street between Delway Street and Peace Street. This alternative is specifically targeted to the Person Street Business District to create two-way visibility and access for businesses along the street.

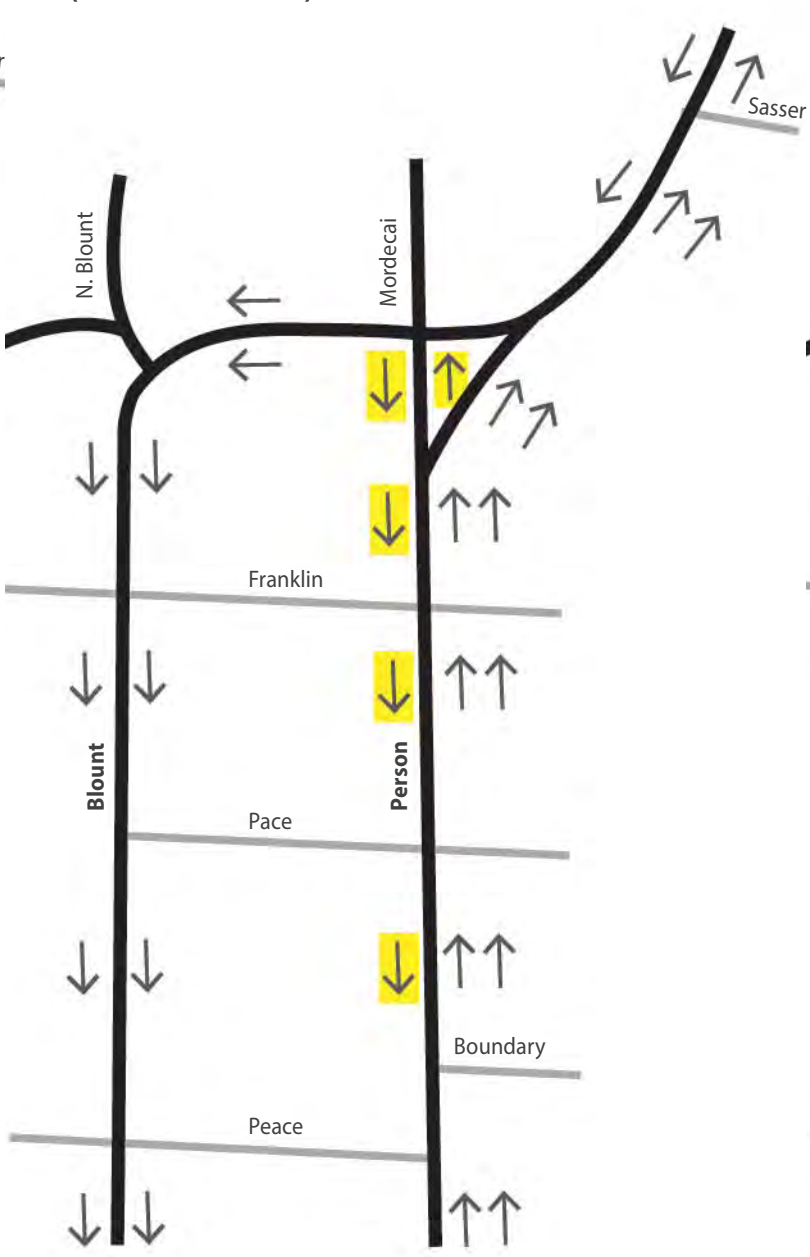
- Alternative #1:**
- **Person Street (Delway to Peace)** - Restores two-way operation with two lanes northbound and one lane southbound. Analysis assumed 10% of southbound Blount Street traffic would utilize southbound Person Street.
  - **Mordecai Drive** – Makes the segment south of Delway Street two-way, allowing southbound traffic from Wake Forest Road to turn left at Mordecai Drive and head south on Person Street.
  - **Peace Street Intersection** – Southbound lane on Person Street becomes right turn lane onto westbound Peace Street.
  - **Intersection Operation** – No significant change from the Existing Conditions (2020) Alternative (except at unsignalized intersections of Delway/Mordecai Drive and Person/Boundary Street).
  - **Long-term Two-Way Restoration** - Compatible with long-term potential restoration of two-way traffic on corridor, the three lanes of traffic on Person Street would be reconfigured into one lane in each direction and additional on-street parking.
- Alternative #2:**
- **Person Street (Delway to Peace)** - Restores two-way operation with two lanes northbound and one lane southbound. Analysis assumed 10% of southbound Blount Street traffic would use southbound Person Street.
  - **Mordecai Drive** – Makes the segment south of Delway Street two-way, allowing southbound traffic from Wake Forest Road to turn left at Mordecai Drive and head south on Person Street.
  - **Peace Street Intersection** – Southbound lane on Person Street becomes right-turn lane onto westbound Peace Street.
  - **Blount Street (Delway to Peace)** – Restores two-way operation with one lane in each direction. Analysis assumes 10% of traffic turning left at Peace/Person would use Blount Street northbound.
  - **Transition at Delway and Wake Forest Road** – Assumes a roundabout at this location to allow northbound traffic from Blount Street to continue onto Wake Forest Road.
  - **Intersection Operation** – No significant change from the Existing Conditions (2020) Alternative (except at unsignalized intersection of Blount/Franklin Street).
  - **Long-term Two-Way Restoration** - Compatible with long-term potential restoration of two-way traffic on corridor, the three lanes of traffic on Person Street would be made into one lane in each direction and additional on-street parking.

Existing (No Build)



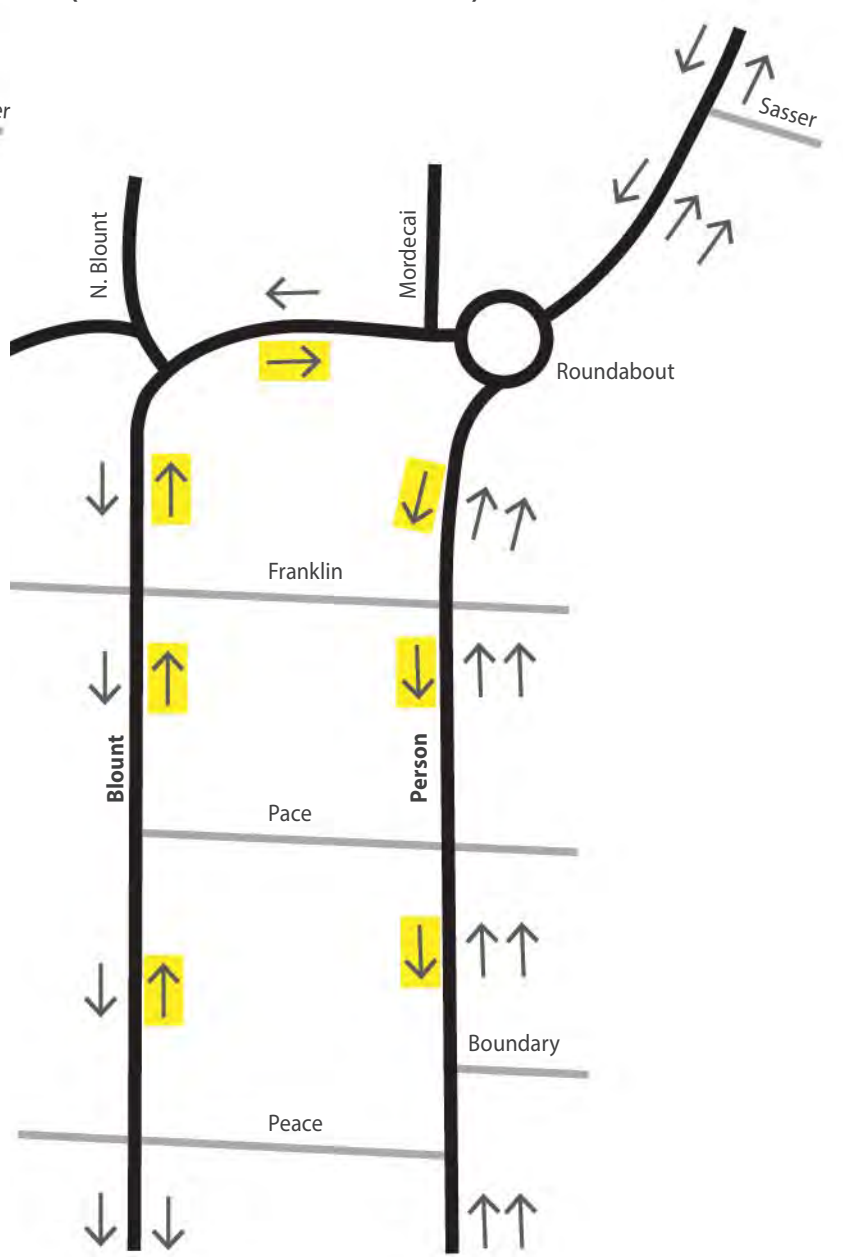
Alternative # 1

Partial Two-Way Restoration  
(Person to Peace)



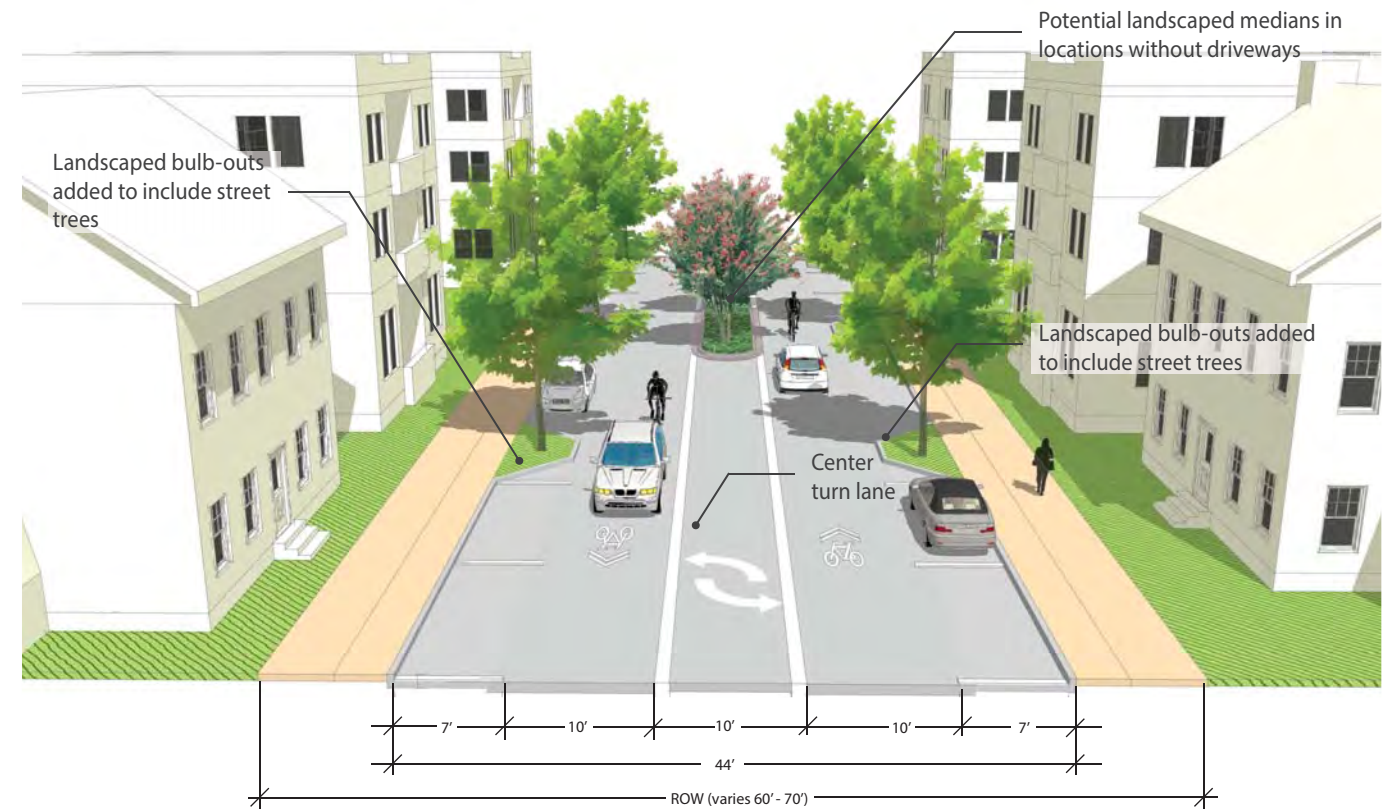
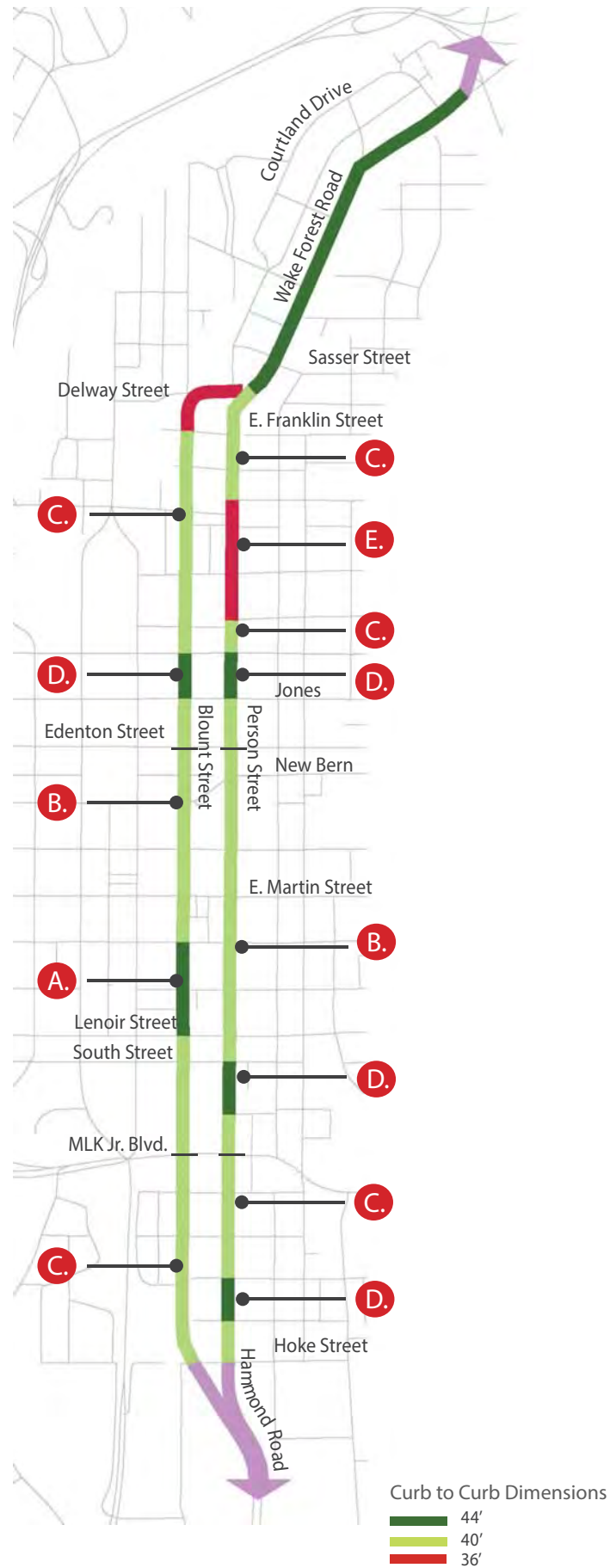
Alternative # 2

Partial Two-Way Restoration  
(Blount and Person to Peace)

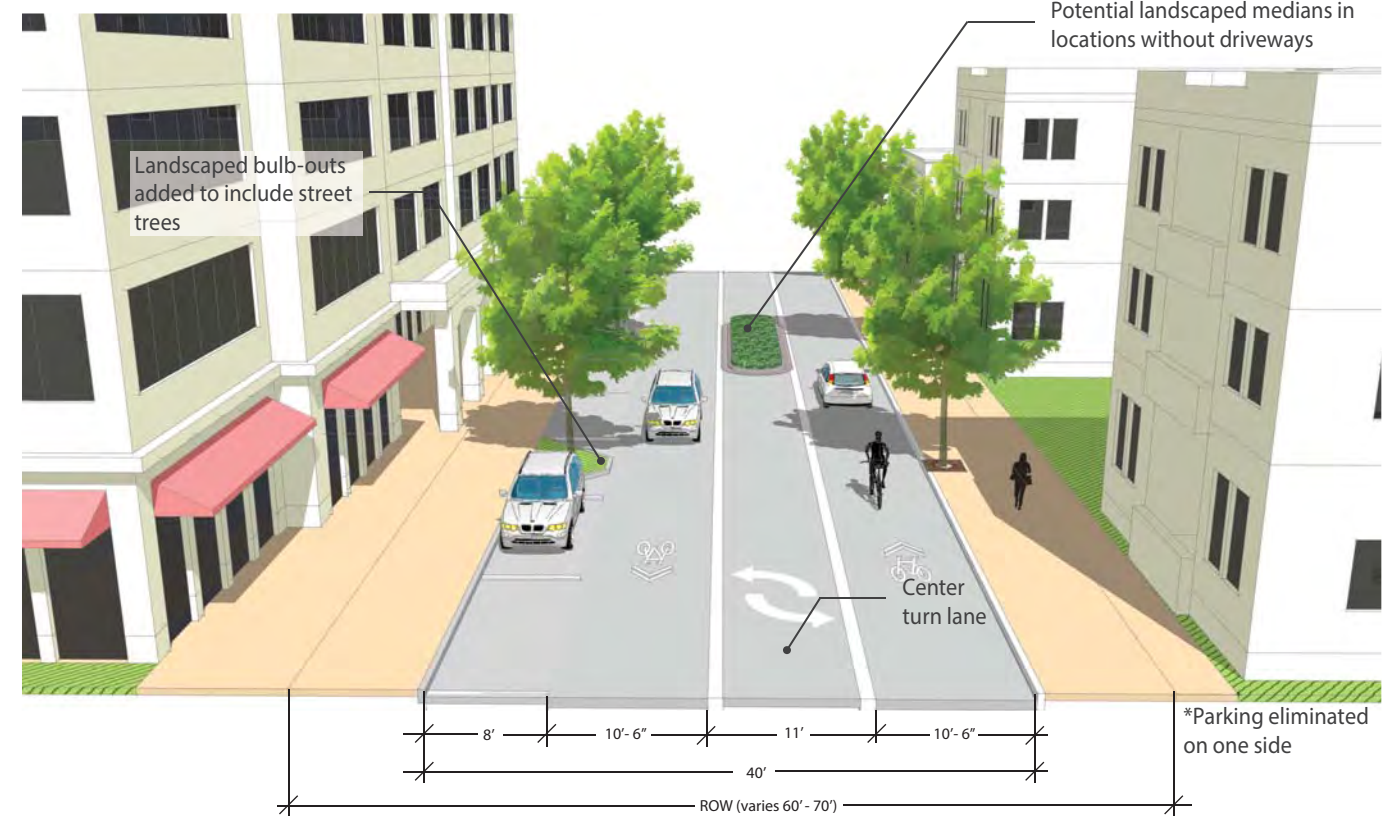




### 3.5 Two-Way Restoration - Cross Section Summary



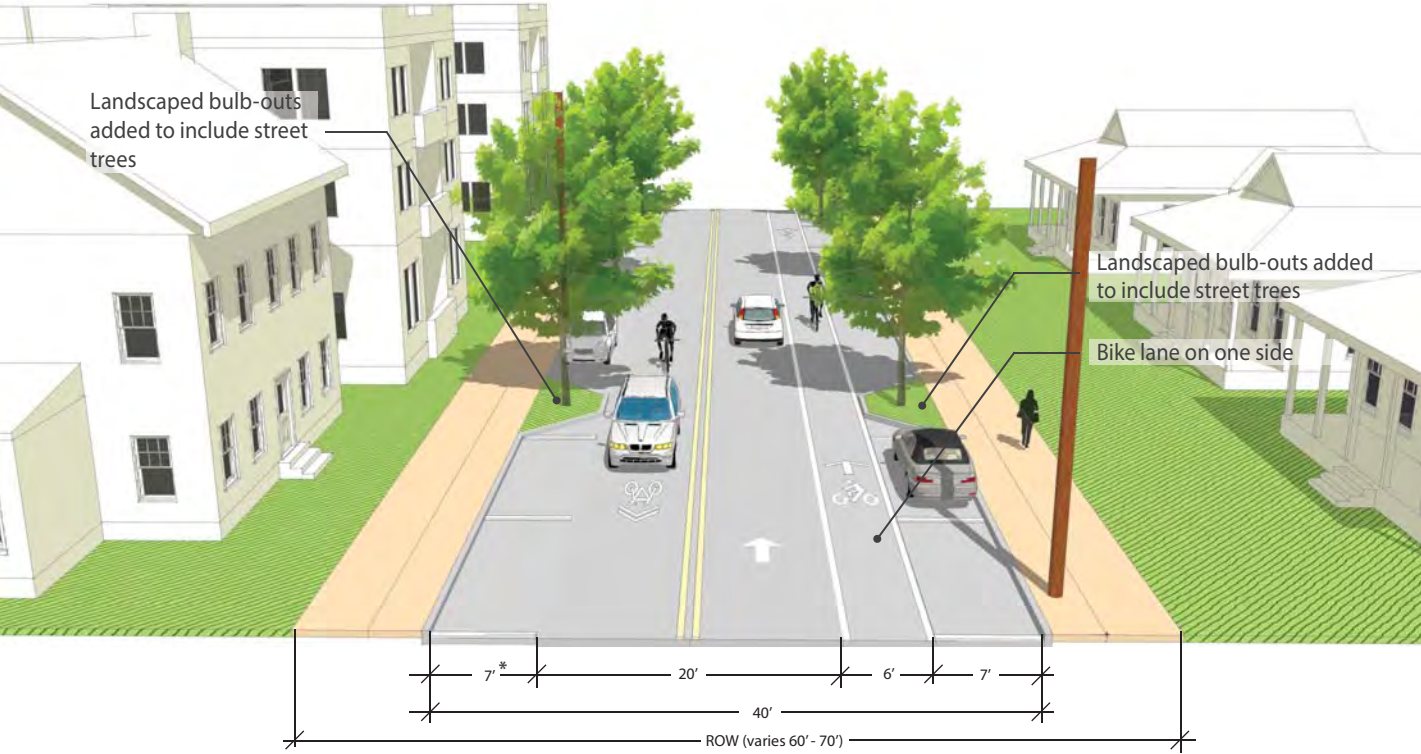
**A. Blount Street Two-Way**  
44' Curb-to-Curb



**B. Blount Street + Person Street Two-Way**  
40' Curb-to-Curb



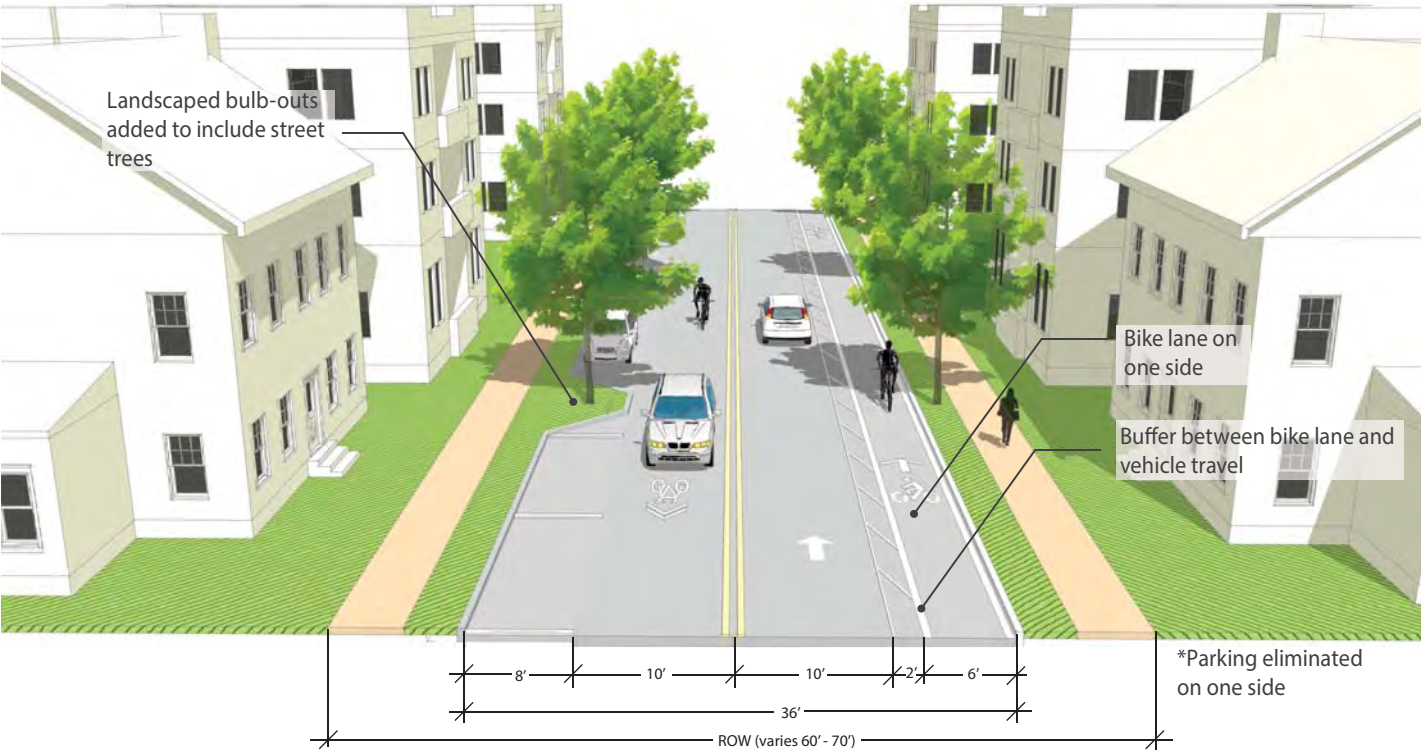




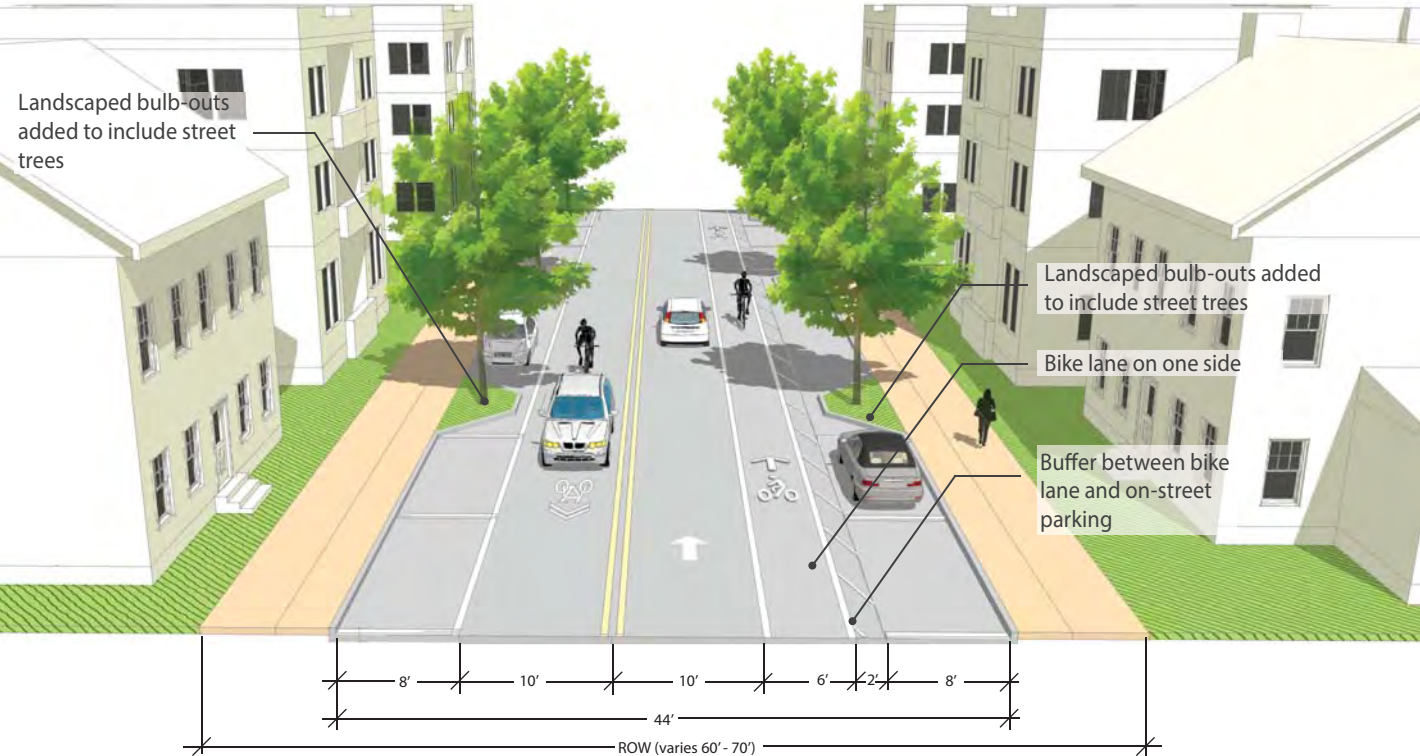
**C.** Blount Street + Person Street Two-Way  
40' Curb-to-Curb



**\*Note:** 7-foot wide parking aisle adjacent to a 10-foot travel lane will require approval from NCDOT. An alternative in this condition would be to provide sharrows instead of a bike lane.



**E.** Person Street Two-Way  
36' Curb-to-Curb



**D.** Blount Street + Person Street Two-Way  
44' Curb-to-Curb





### 3.5 Two-Way Restoration - Transition Design

The two-way restoration alternative requires designed transitions at two key locations.

#### Wake Forest at Blount and Person Street

- **Roundabout** – Located at the intersection of Wake Forest Road, Person Street, and Delway Street, this roundabout accommodates southbound and northbound traffic to and from Wake Forest Road via Blount Street or Person Street. The intent is to not prioritize one street over another, allowing for a balanced distribution of traffic between Blount Street and Person Street, dependent only on desired driver destination.
- **North Blount Street & Delway Street intersection** – Realigns North Blount Street to Blount/Delway Street to calm and clarify traffic movement into neighborhood and Peace University. Creates two green spaces on each corner that could be neighborhood gateways and/or “green” stormwater treatment planters. Two-way traffic on Blount Street allows for direct connection to North Blount Street and Mordecai Drive.



#### A. Wake Forest at Blount and Person Street



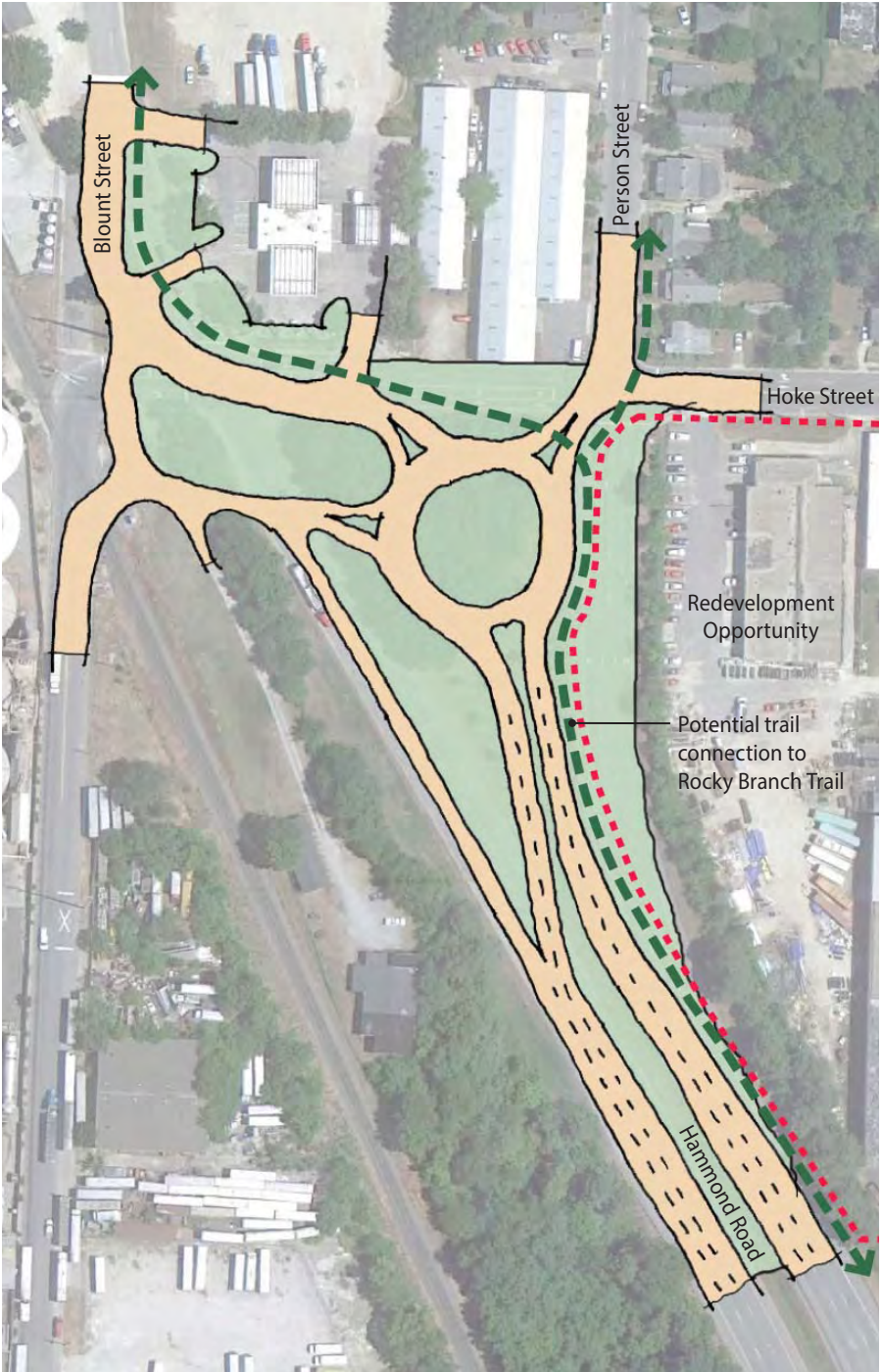
#### Note:

An alternate design to the Blount/Delway intersection would be to “tee” them together. This alternative would require southbound traffic on Blount St. to make a left turn (likely signalized) effecting the flow and distribution of traffic between Blount St. and Person St.

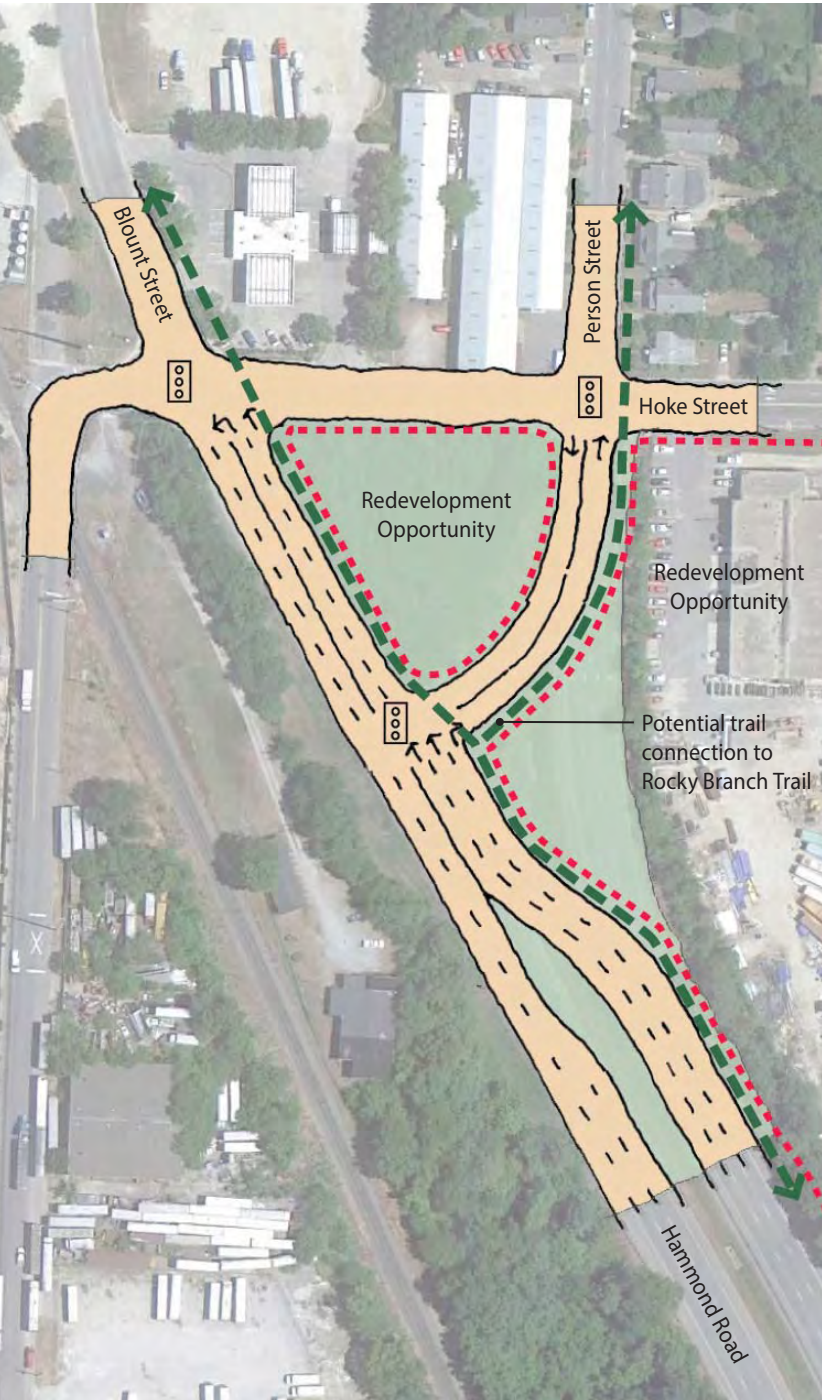




**B.** Hammond Road at Blount and Person Street



Hammond Road Transition - Roundabout (Option 1)



Hammond Road Transition - Signal (Option 2)





**AECOM**





## Blount St · Person St Corridor Study

# Corridor Plan Report - 04 Alternatives Traffic Evaluation











# Table of Contents

## Acknowledgements

**Prepared for:**  
City of Raleigh, North Carolina  
Raleigh Urban Design Center

**The Honorable Mayor**  
Nancy McFarlane

**Raleigh City Council**  
Eugene Weeks, Mayor Pro Tem  
Mary-Ann Baldwin  
Thomas G. Crowder  
Bonner Gaylord  
John Odom  
Randall K. Stagner  
Russ Stephenson

**Prepared by:**  
AECOM  
Alta/Greenways  
Susan Hatchell Landscape Architecture, PLLC

**Adopted:**  
July 16, 2013

**ORGANIZATION OF THE REPORT**  
*This report is organized into the following sections that document the process, design development and technical analysis of the corridor study. Each section functions as a stand-alone document and as part of the overall report.*

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*Provides an overview of the vision, design, evaluation, and implementation*

The Vision  
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*Highlights the corridor's unique conditions and context*

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*Details the streetscape design alternatives*

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2.2 Purpose of the Design Guidelines  
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*Illustrates the translation of the vision to design alternatives*

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*Summarizes the traffic analysis and conclusions*

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**SUPPORT DOCUMENTS -**  
  
Blount St-Person St Corridor Study - Traffic Capacity Analysis Report  
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# 04 ALTERNATIVES TRAFFIC EVALUATION

For each of the three alternatives the transportation analysis includes an overall network and a corridor-specific evaluation. The network analysis is focused on key measures of delay including; total network delay, delay per vehicle, total network travel time, and total network stops. The corridor-specific evaluation is focused on individual intersection operation and delay, and overall corridor travel time. For the purposes of comparing the alternatives these measures of delay are summarized here and compared to the Existing Conditions (2020) Alternative (how the corridor would function if no changes were made). It should be noted that some level of increased delay in the corridor is anticipated with the proposed alternatives and that added delay, or the slowing of traffic, is a desired positive outcome in some sections of the corridor.

Provided here is a summary of the traffic analysis and conclusions. A detailed Traffic Capacity Analysis Report has been prepared as a support document to this study.

## 4.1 Methodology + Assumptions

- Corridor capacity analyses were performed for all intersections in the AM and PM peak periods for the three alternatives. Key assumptions in this analysis include:
- An assumed 2020 design year was created by increasing the 2012 existing volumes by an agreed upon annual growth rate.
  - Assumes the two-way restoration of several streets that cross the Blount St.-Person St. Corridor including Jones Street/Lane Street, and Lenoir Street/South Street.
  - All signal timing along the Blount St.-Person St. Corridor (based on the existing one-way operation) to remain the same. In order to accurately determine the appropriate future timings based on two-way operation the study would need to reconsider the signal timings for the entire downtown signal network. Using the existing signal timings for the road diet and/or two-way restoration alternatives provides a more conservative analysis and future performance (with retiming) may likely be better than what this analysis reports.
  - Total traffic distribution for the two-way restoration alternative was assumed to be split 50-50 between Blount Street and Person Street.

## 4.2 Summary Conclusions

### Road Diet Alternative

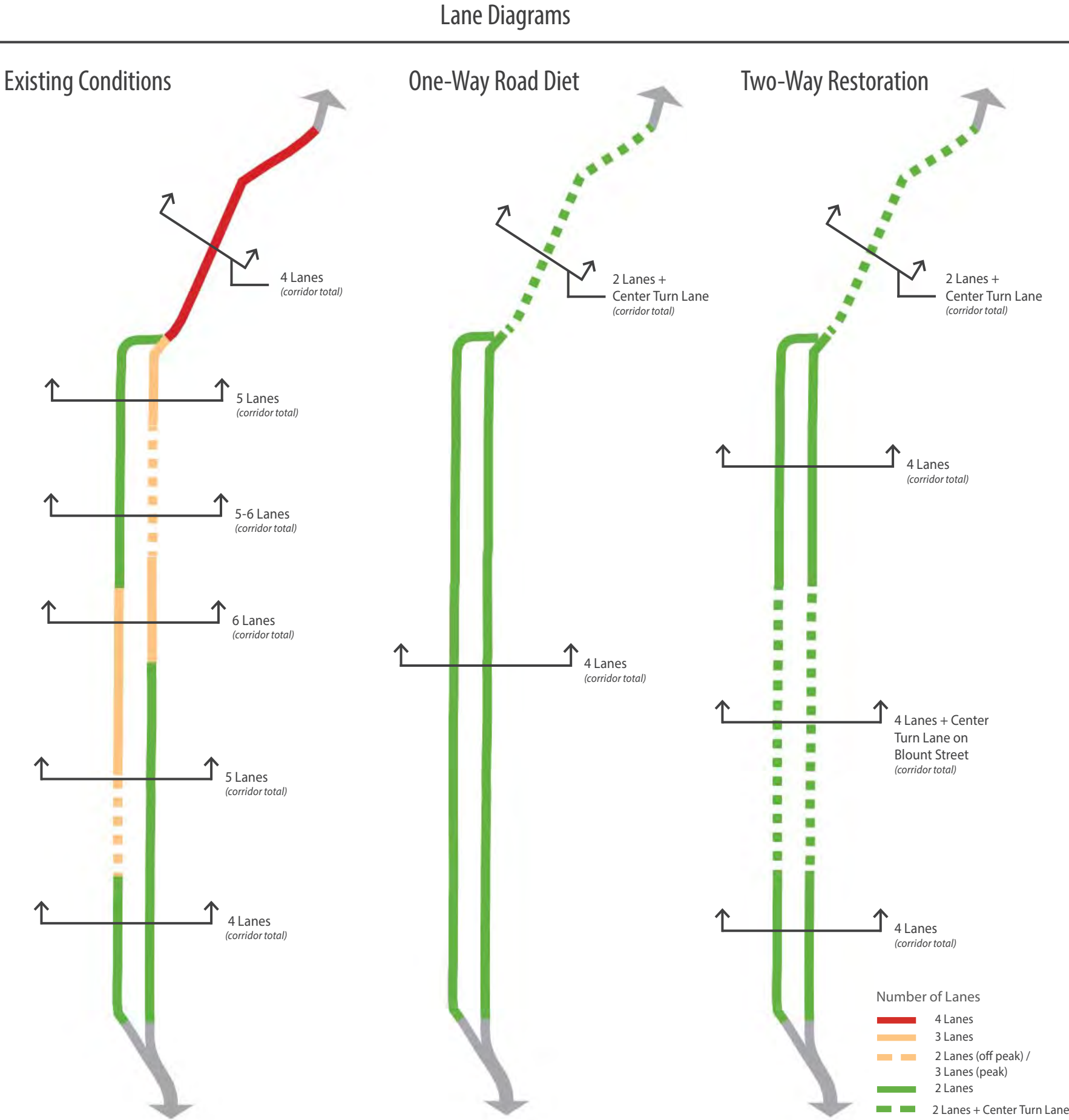
- Network Measures of Delay**
- Relatively little change from the Existing Conditions (2020) Alternative.
  - 14% increase in total network delay in PM peak hour.
  - 10% increase in total stops in PM peak hour.
- Corridor Measures - Blount/Person**
- Average Corridor Travel Time – Additional 40-47 seconds of delay in the PM peak hour from the Existing Conditions (2020) alternative.
  - Intersection Delay – Notable increases at Edenton, New Bern, Lenoir, and South intersections from the Existing Conditions (2020) Alternative. These are all intersections with crossing one-way pair corridors where the assumption of maintaining the existing signal timing has a significant effect on the intersection operation. Future operation (with retiming) may likely be better than what this analysis reports.
- Corridor Measures - Wake Forest Road**
- Average Corridor Travel Time - No significant change from the Existing Conditions (2020) Alternative.
  - Intersection Operation - No significant change from the Existing Conditions (2020) Alternative.

### Two-Way Restoration Alternative

- Network Measures of Delay**
- Relatively little change in AM peak hour operation from the Existing Conditions (2020) Alternative.
  - 30% increase in total network delay in PM peak hour.
  - 23% increase in delay per vehicle in the PM peak hour.
  - 13% increase in the total network travel time in the PM peak hour.
  - 22% increase in total stops in PM peak hour.
- Corridor Measures**
- Average Corridor Travel Time – Additional 55-98 seconds of delay (10% -13% increase) in the PM peak hour from the Existing Conditions (2020) Alternative.
  - Intersection Delay – Notable increases at Edenton, New Bern, Cabarrus, Lenoir, and South intersections from the Existing Conditions (2020) Alternative. These are all intersections with crossing one-way pair corridors where the assumption of maintaining the existing signal timing has a significant effect on the intersection operation. Future operation (with retiming) may likely be better than what this analysis reports.



			Road Diet	Two-Way Restoration
Network Measures	Total Network Delay	AM	No significant difference	No significant difference
		PM	+ 14%	+30%
	Delay Per Vehicle	AM	No significant difference	No significant difference
		PM	No significant difference	+23%
	Total Network Travel Time	AM	No significant difference	No significant difference
		PM	No significant difference	+13%
	Total Network Stops	AM	No significant difference	+6%
		PM	+10%	+22%
			Road Diet	Two-Way Restoration
Corridor Measures	Average Corridor Travel Time (PM)	Northbound	+ 9% (47 seconds)	+10% (55 seconds)
		Southbound	+5% (40 seconds)	+13% (98 seconds)
	Average Corridor Travel Time (AM)	Northbound	No significant difference	No significant difference
		Southbound	+2% (14 seconds)	+11% (62 seconds)
	Intersection Delay	Blount	Increase at: Edenton, Lenoir, South	Increase at: Edenton, Cabarrus, Lenoir, South
		Person	Increase at: New Bern	Increase at: Edenton, New Bern, Lenoir, South





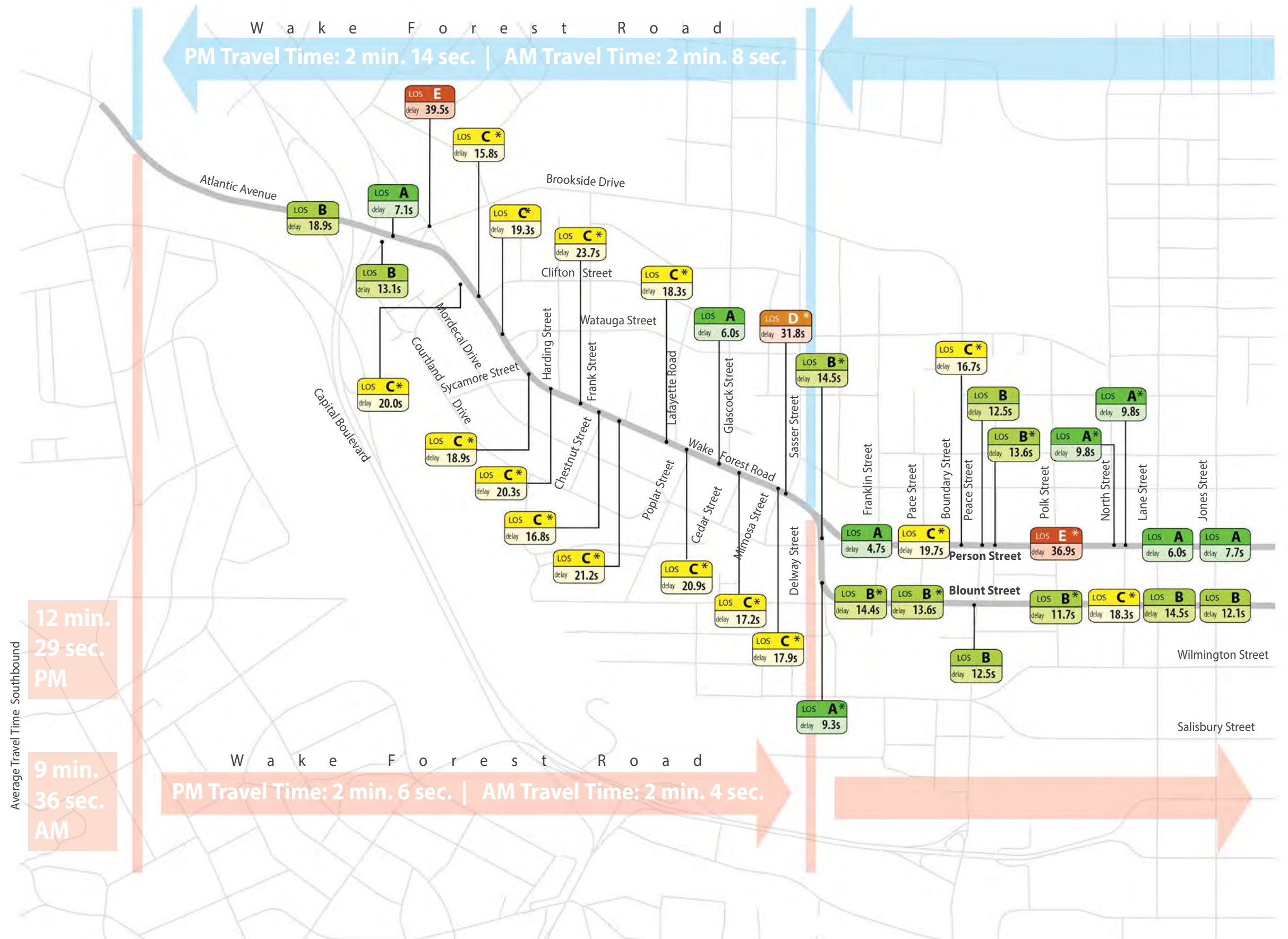
### 4.3 No Build (2020) - Intersection / Corridor LOS + Delay

The Existing Conditions (2020) Alternative assumes the current lane configuration and operation. This is the base condition from which the other alternatives are compared and is a representation of how the corridor will operate in 2020 with no changes.

#### Key Observations:

- Overall the Existing Conditions (2020) Alternative operates at similar conditions and delay as the existing (2012) conditions with minor differences in intersection delay.
- Blount Street at MLK Jr. Boulevard** – Operates at LOS D in the PM peak hour, a result of the volume of southbound traffic leaving downtown in the evening.
- Person Street at MLK Jr. Boulevard** – Operates at LOS F in the AM peak hour, a result of the volume of northbound traffic entering downtown in the morning, with a significant queue (700 feet) for northbound traffic on Person Street. It should be noted that this is the same LOS as exists today (2012).
- Person Street at South Street** – Operates at LOS D in the AM peak hour. This is a reduction in delay from the 2012 condition (LOS E), potentially due to the restoration of two-way traffic operation on South Street.

LOS	Traffic Flow Conditions	Delay (seconds) Signalized Intersections	Delay (seconds) Unsignalized Intersections
A	Represents unrestricted maneuverability and operating speeds and most vehicles do not stop at all.	0-10	0-10
B	Represents reduced maneuverability and operating speeds	10-20	10-15
C	Represents restricted maneuverability and operating speeds closer to the speed limit	20-35	15-25
D	Represents restricted maneuverability and low operating speeds (typically considered acceptable in developed urban areas)	35-55	25-35
E	Represents operating conditions at or near the capacity level	55-80	35-50
F	Represents breakdown conditions characterized by stop and go travel	>80	>50









#### 4.4 Road Diet (2020) - Intersection / Corridor LOS + Delay

The Road Diet Alternative maintains the one-way operation of Blount Street and Person Street but reconfigures each street by eliminating a lane in certain sections to create a consistent two-lane cross section in each direction. Wake Forest Road is converted from four-lanes to three-lanes (one lane in each direction and a center left turn lane).

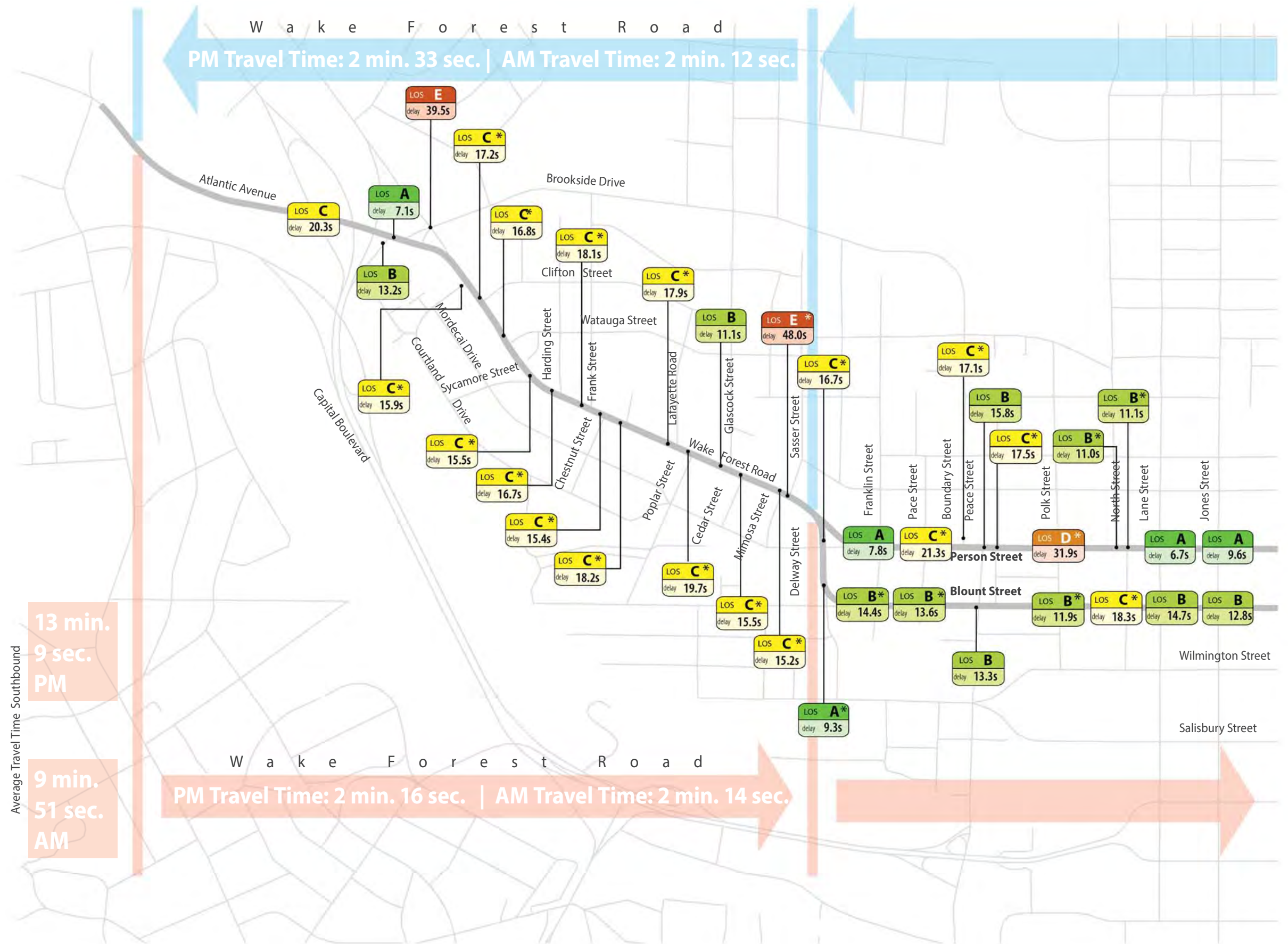
##### Key Observations:

##### Wake Forest Road

- **Intersection Operation** - No significant change from the Existing Conditions (2020) Alternative.
- **Average Corridor Travel Time** - No significant change from the Existing Conditions (2020) Alternative.

##### Blount/Person Street

- **Delway Street to Jones Street** - No significant change from the Existing Conditions (2020) Alternative.
- **Edenton/New Bern Intersections** – Added delay in PM (LOS D at Edenton/Blount) and AM (LOS D at New Bern/ Person) over the Existing Conditions (2020) Alternative. This is the anticipated result of eliminating one lane of throughput on Blount Street and Person Street without adjusting the existing signal timing.
- **South/Lenoir Street Intersections** – Added delay in PM (LOS D) on Blount Street at Lenoir Street and South Street. This is the anticipated result of eliminating one lane of throughput on Blount Street without adjusting the existing signal timing.
- **MLK Jr. Boulevard Intersections** - No significant change from the Existing Conditions (2020) Alternative.
- **MLK Jr. Boulevard to Hoke Street** - No significant change from the Existing Conditions (2020) Alternative (except at unsignalized intersections).
- **Average Corridor Travel Time (Person Street)** – Increase (+) 27 seconds (PM) from the Existing Conditions (2020) Alternative.
- **Average Corridor Travel Time (Blount Street)** – Increase (+) 30 seconds (PM) from the Existing Conditions (2020) Alternative.









## 4.5 Two-Way Restoration (2020) - Intersection / Corridor LOS + Delay

The Two-Way Restoration Alternative restores two-way traffic operation on both Blount Street and Person Street from Wake Forest Road to Hoke Street. Wake Forest Road is converted from four-lanes to three-lanes (one lane in each direction and a center left turn lane).

### Key Observations:

Wake Forest Road (same configuration as Road Diet Alternative)

- **Intersection Operation** - No significant change from the Existing Conditions (2020) Alternative.
- **Average Travel Time** - No significant change from the Existing Conditions (2020) Alternative.

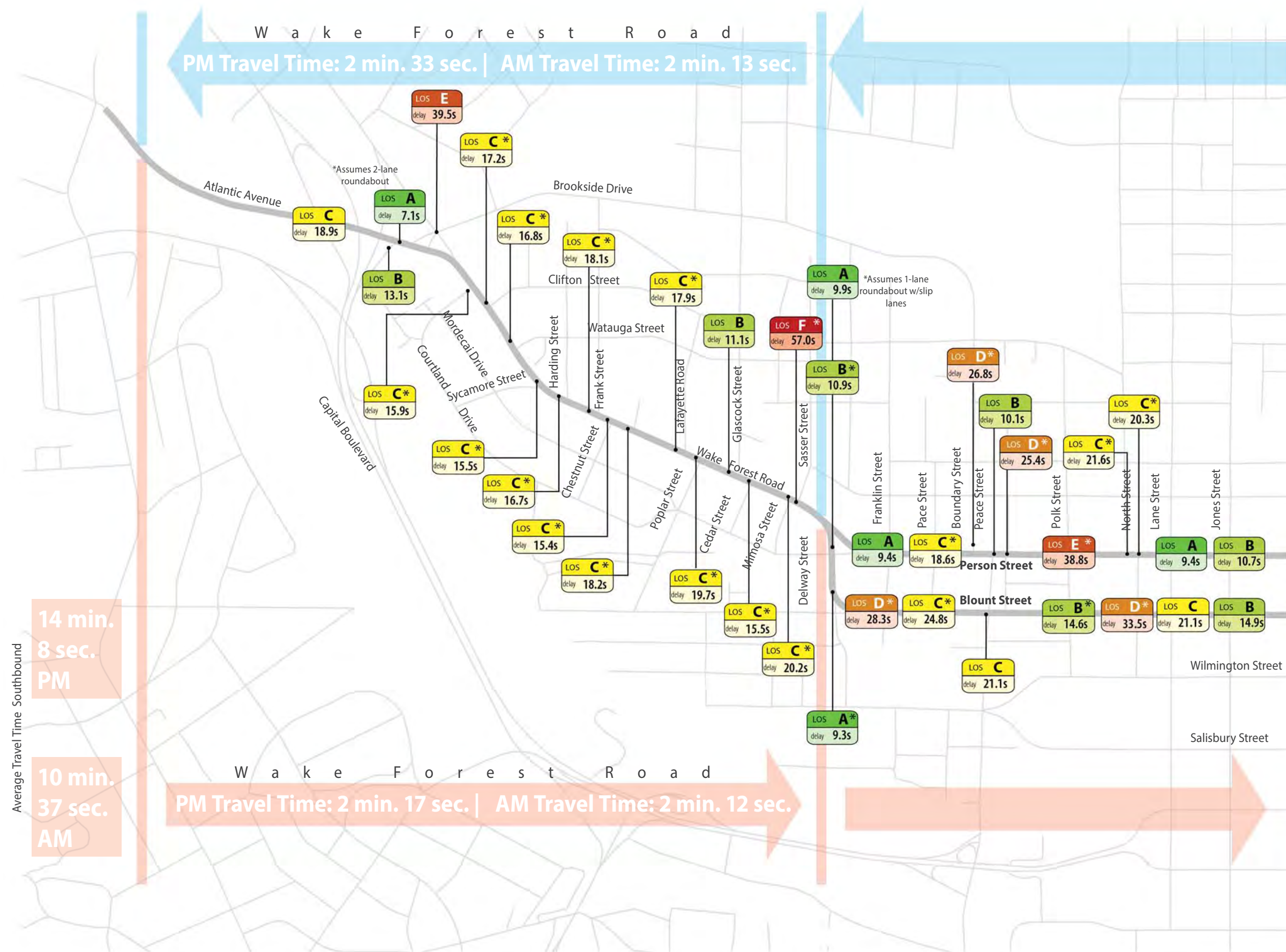
### Blount/Person Street

- **Delway Street to Jones Street** - No significant change from the Existing Conditions (2020) Alternative (except at unsignalized intersections).
- **Edenton/New Bern Intersections** - Added delay in PM (LOS D at Edenton/Blount) and AM (LOS D at New Bern/Person) over the Existing Conditions (2020) Alternative. This is the anticipated result of eliminating one lane of throughput on Blount Street and Person Street without adjusting the existing signal timing. Similar traffic operation to the Road Diet Alternative but with more balanced peak traffic flows between Blount Street and Person Street (result of two-way operation).
- **Cabarrus/South/Lenoir Street Intersections (Blount Street)** - Added delay in PM over the Existing Conditions (2020) Alternative. This is the anticipated result of the existing signal timing, high southbound traffic flow, and only one lane of southbound throughput. Potential modifications to this alternative could include creating an additional southbound lane (by eliminating one side of on-street parking) from Cabarrus Street south, ending in a right-turn lane at MLK Jr. Boulevard.
- **South/Lenoir Street Intersections (Person Street)** - Some added delay in PM (LOS C) and AM (LOS D/E) over the Existing Conditions (2020) Alternative. This is the anticipated result of eliminating one lane of throughput on Person Street without adjusting the existing signal timing.
- **MLK Jr. Boulevard Intersections** - Decrease in delay (AM peak at Person Street, PM peak at Blount Street) from the Existing Conditions (2020) Alternative. This is the anticipated result of balancing peak traffic flows between Blount Street and Person Street and is an anticipated positive result of two-way restoration.
- **MLK Jr. Boulevard to Hoke Street** - No significant change from the Existing Conditions (2020) Alternative (except at unsignalized intersections).
- **Average Corridor Travel Time (Blount Street southbound)** - Increase (+) 30 seconds (AM) and (+) 1 minute, 10 seconds (PM) over the Existing Conditions (2020) Alternative.
- **Average Corridor Travel Time (Person Street northbound)** - Decrease of (-) 1 minute (AM) and increase of (+) 30 seconds (PM) over the Existing Conditions (2020) Alternative.

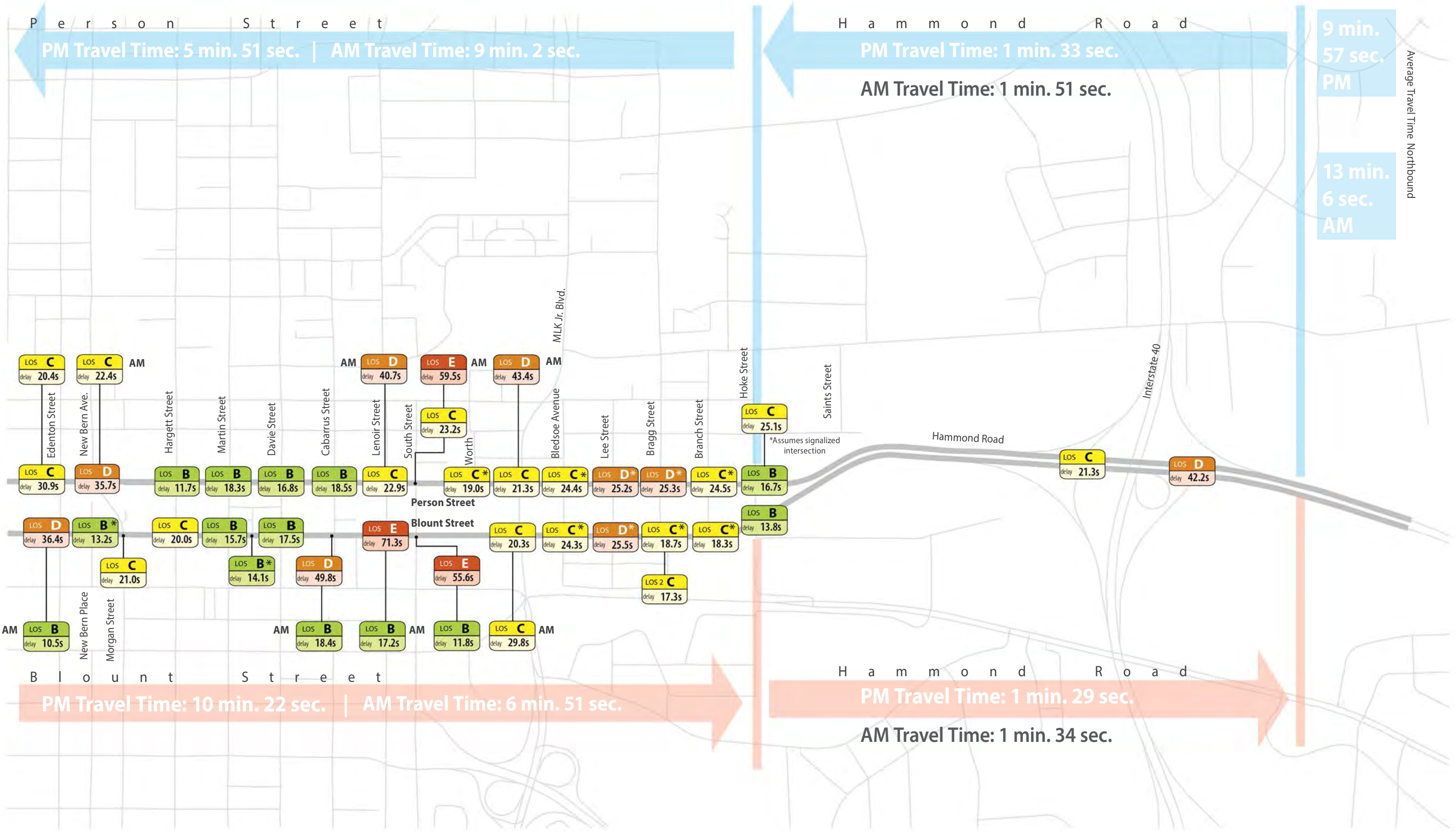
Average Travel Time Southbound

14 min.  
8 sec.  
PM

10 min.  
37 sec.  
AM









## 4.6 Blount / Person Comparison Alternatives

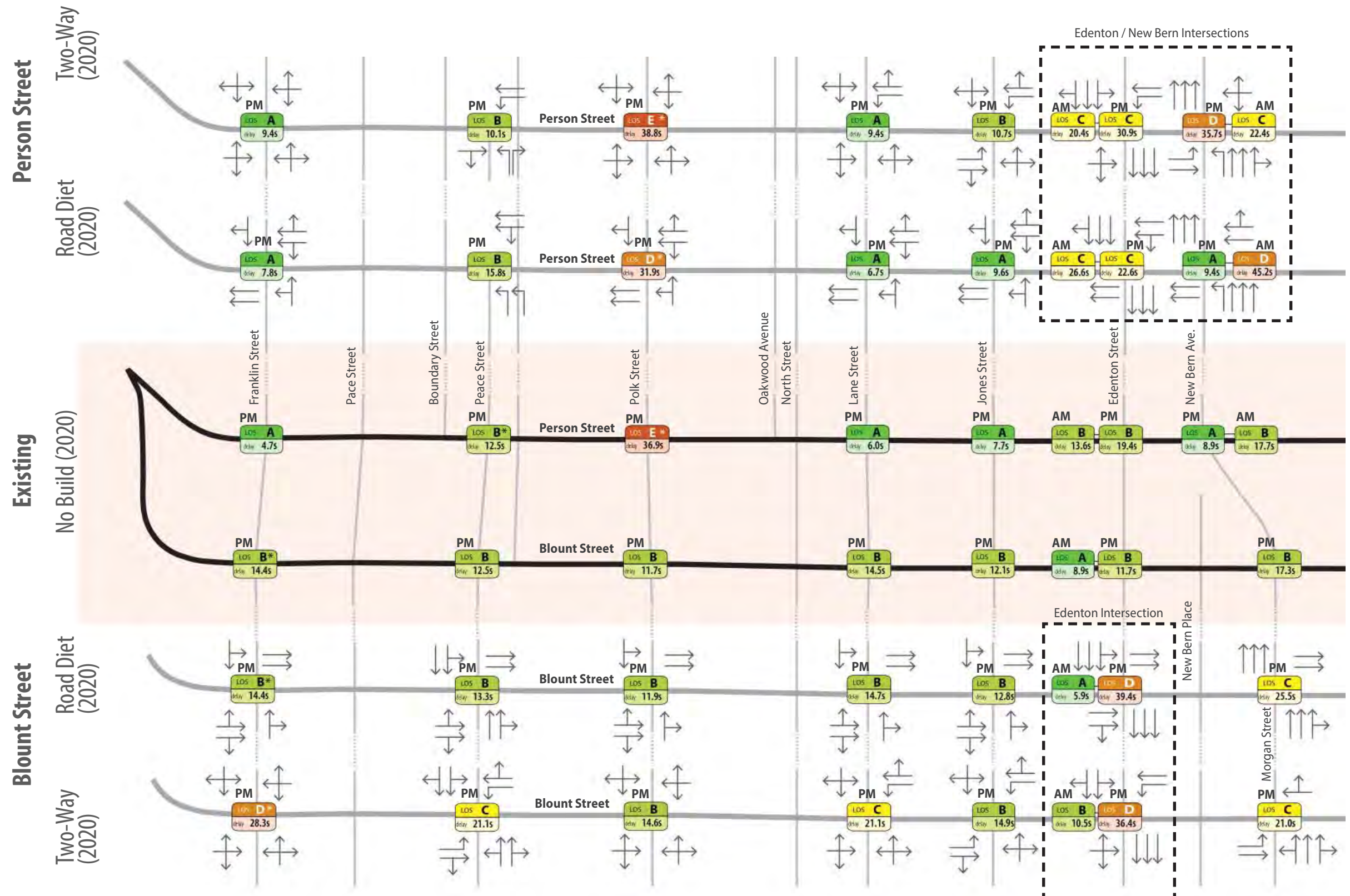
A comparison of the alternatives for the Blount Street and Person Street sections of the corridor (Delway Street to Hoke Street) highlight key areas of focus including:

### Road Diet:

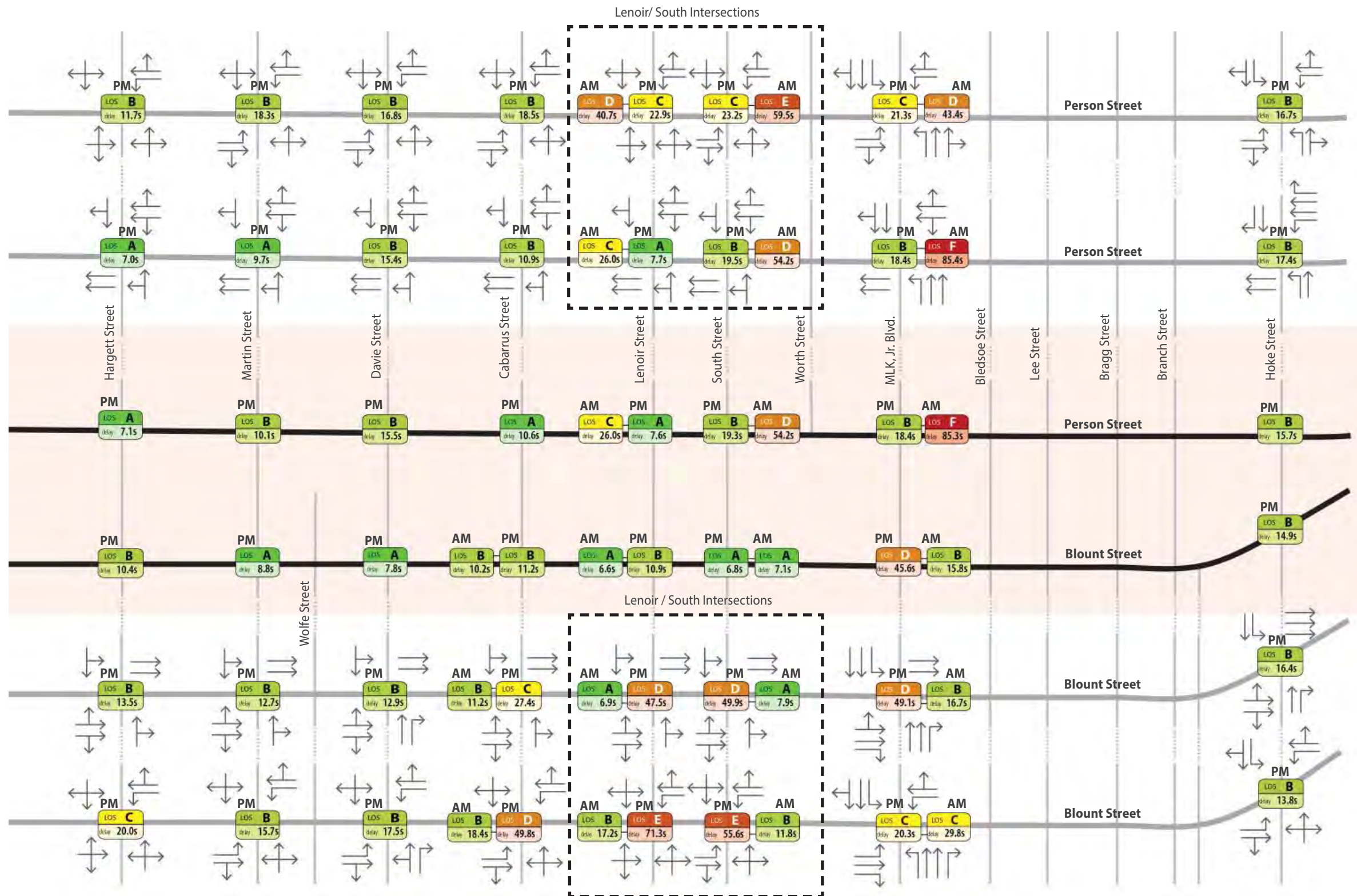
- **Edenton/New Bern Intersections** – Added delay in PM (LOS D at Edenton/Blount) and AM (LOS D at New Bern/Person) over the Existing Conditions (2020) Alternative. This is the anticipated result of eliminating one lane of throughput on Blount Street and Person Street without adjusting the existing signal timing.
- **South/Lenoir Street Intersections** – Added delay in PM (LOS D) on Blount Street at Lenoir Street and South Street. This is the anticipated result of eliminating one lane of throughput on Blount Street without adjusting the existing signal timing.

### Two-way Restoration:

- **Edenton/New Bern Intersections** – Added delay in PM (LOS D at Edenton/Blount) and AM (LOS D at New Bern/Person) over the Existing Conditions (2020) Alternative. This is the anticipated result of eliminating one lane of throughput on Blount Street and Person Street without adjusting the existing signal timing. Similar traffic operation to the Road Diet Alternative but with more balanced peak traffic flows between Blount Street and Person Street (result of two-way operation).
- **Cabarrus/South/Lenoir Street Intersections (Blount Street)** – Added delay in PM over the Existing Conditions (2020) Alternative. This is the anticipated result of the existing signal timing and high southbound traffic flow and only one lane of southbound throughput. Potential modifications to this alternative could include creating an additional southbound lane (by eliminating one side of on-street parking) from Cabarrus Street south, ending in a right-turn lane at MLK Jr. Boulevard.
- **South/Lenoir Street Intersections (Person Street)** – Some added delay in PM (LOS C) and AM (LOS D/E) over the Existing Conditions (2020) Alternative. This is the anticipated result of eliminating one lane of throughput on Person Street without adjusting the existing signal timing.









## 4.7 Partial Two-Way Evaluation

As part of the alternatives development, the concept of a partial two-way restoration was identified. This partial two-way restoration is focused on the section of Blount Street and Person Street between Delway Street and Peace Street. This alternative is specifically targeted to the Person Street Business District to create two-way visibility and access for businesses along the street.

### Alternative #1:

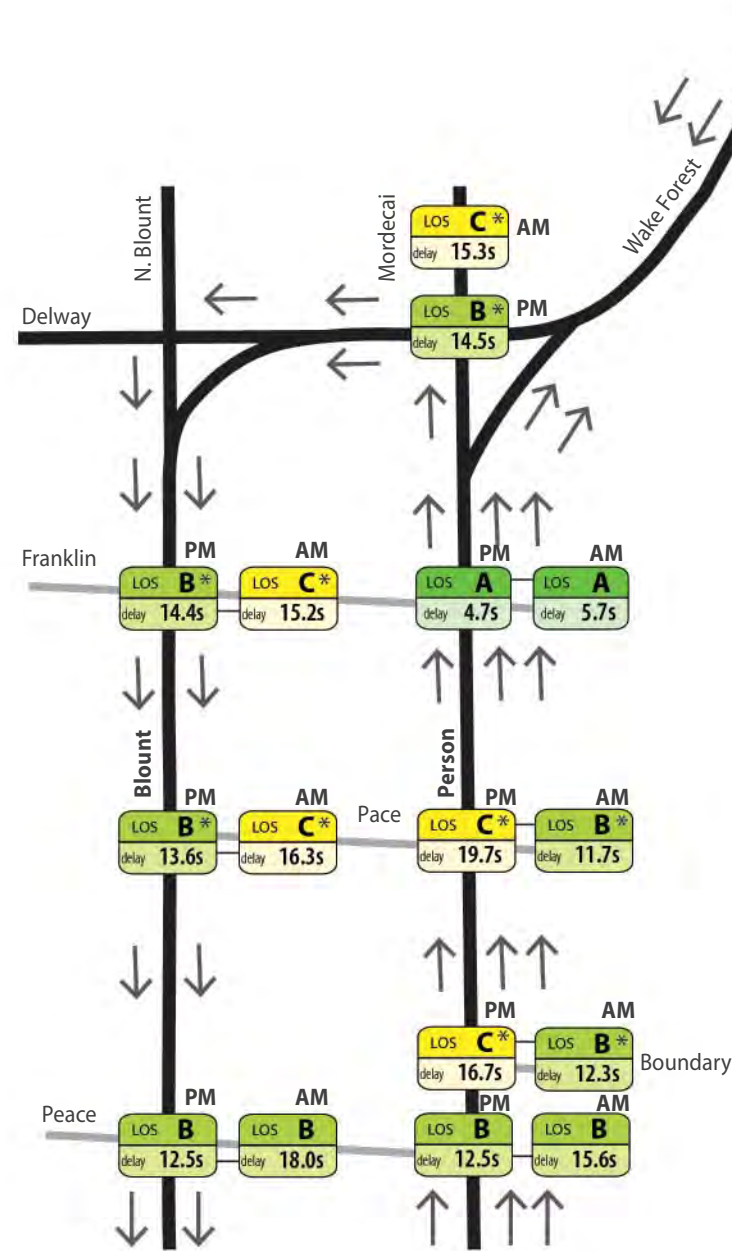
- **Person Street (Delway to Peace)** - Restores two-way operation with two lanes northbound and one lane southbound. Analysis assumed 10% of southbound Blount Street traffic would utilize southbound Person Street.
- **Mordecai Drive** - Makes the segment south of Delway Street two-way, allowing southbound traffic from Wake Forest Road to turn left at Mordecai Drive and head south on Person Street.
- **Peace Street Intersection** - Southbound lane on Person Street becomes right turn lane onto westbound Peace Street.
- **Intersection Operation** - No significant change from the Existing Conditions (2020) Alternative (except at unsignalized intersections of Delway/Mordecai Drive and Person/Boundary Street).
- **Long-term Two-Way Restoration** - Compatible with long-term potential restoration of two-way traffic on corridor, the three lanes of traffic on Person Street would be reconfigured into one lane in each direction and additional on-street parking.

### Alternative #2:

- **Person Street (Delway to Peace)** - Restores two-way operation with two lanes northbound and one lane southbound. Analysis assumed 10% of southbound Blount Street traffic would utilize southbound Person Street.
- **Mordecai Drive** - Makes the segment south of Delway Street two-way, allowing southbound traffic from Wake Forest Road to turn left at Mordecai Drive and head south on Person Street.
- **Peace Street Intersection** - Southbound lane on Person Street becomes right-turn lane onto westbound Peace Street.
- **Blount Street (Delway to Peace)** - Restores two-way operation with one lane in each direction. Analysis assumes 10% of traffic turning left at Peace/Person would use Blount Street northbound.
- **Transition at Delway and Wake Forest Road** - Assumes a roundabout at this location to allow northbound traffic from Blount Street to continue onto Wake Forest Road.
- **Intersection Operation** - No significant change from the Existing Conditions (2020) Alternative (except at unsignalized intersection of Blount/Franklin Street).
- **Long-term Two-Way Restoration** - Compatible with long-term potential restoration of two-way traffic on corridor, the three lanes of traffic on Person Street would be made into one lane in each direction and additional on-street parking.

## Partial Two-Way Evaluation

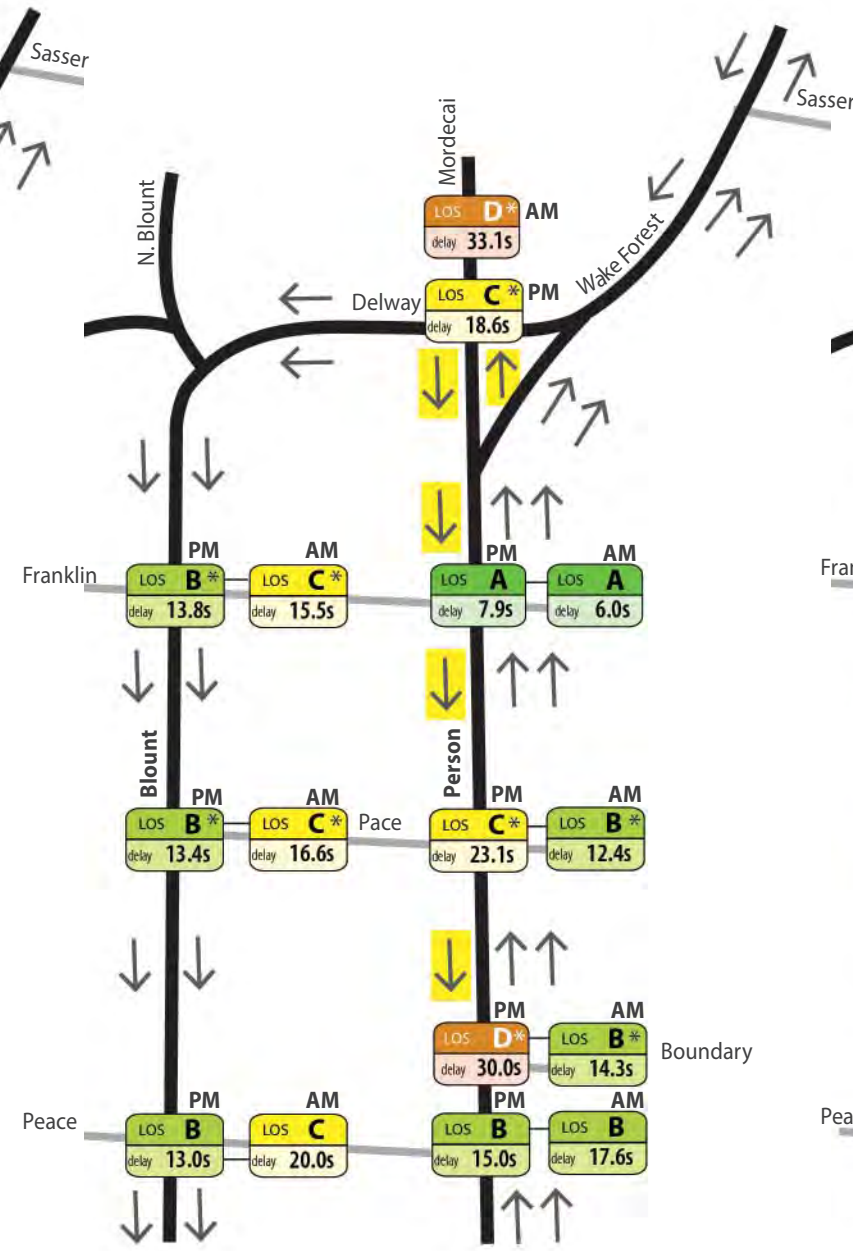
### Existing (No Build 2020)



\* Unsignalized Intersection

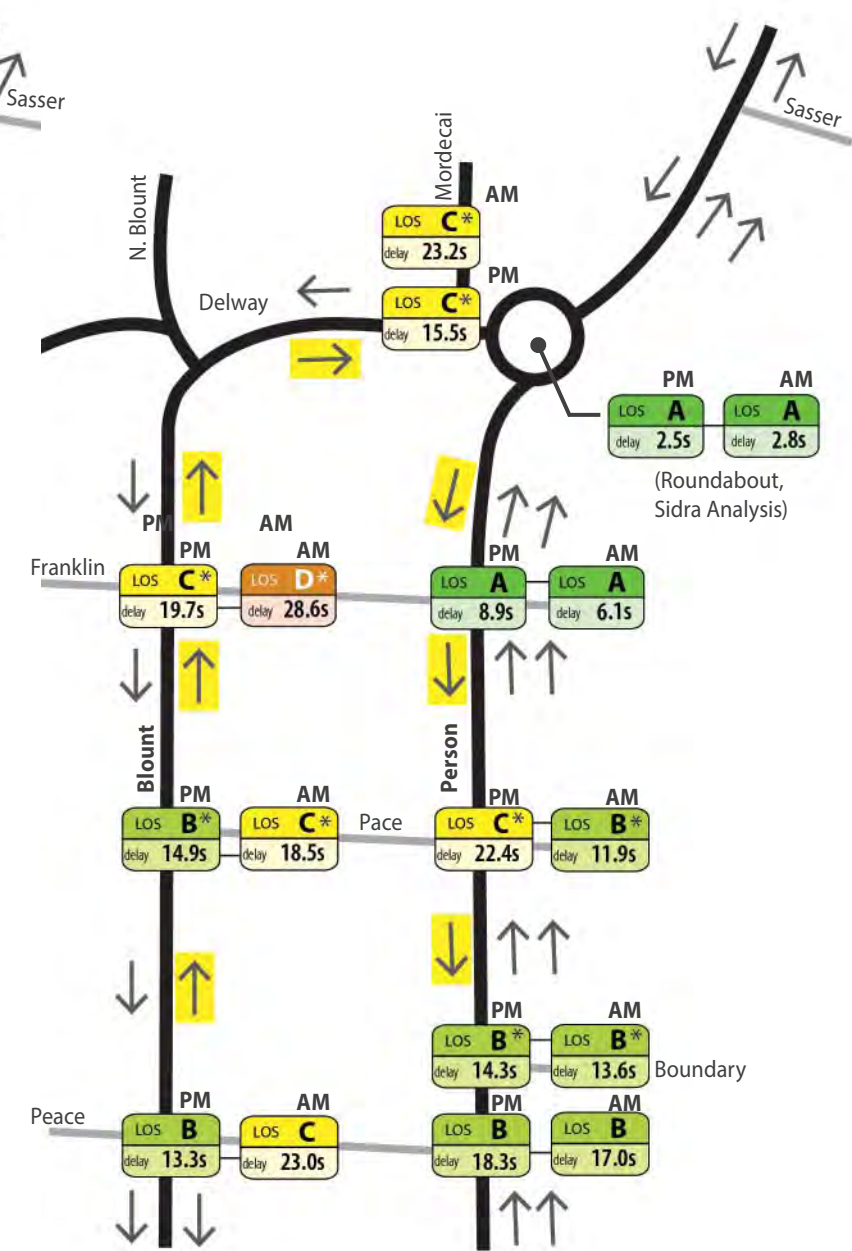
### Alternative # 1

#### Partial Two-Way Restoration (2020) (Person to Peace)



### Alternative # 2

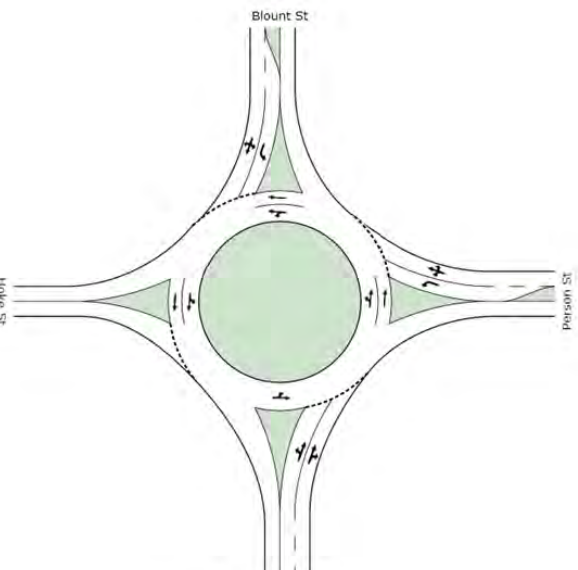
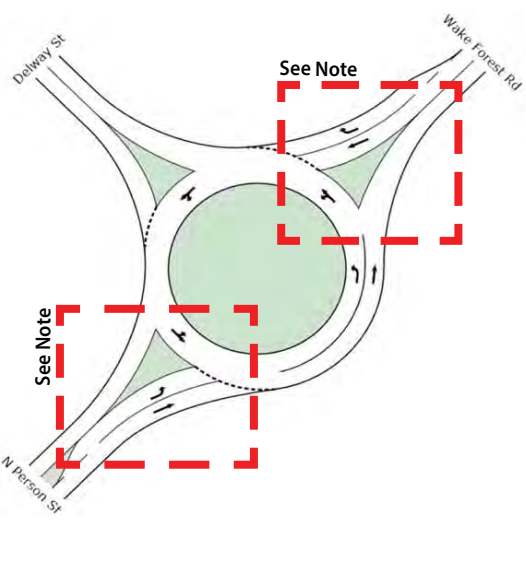
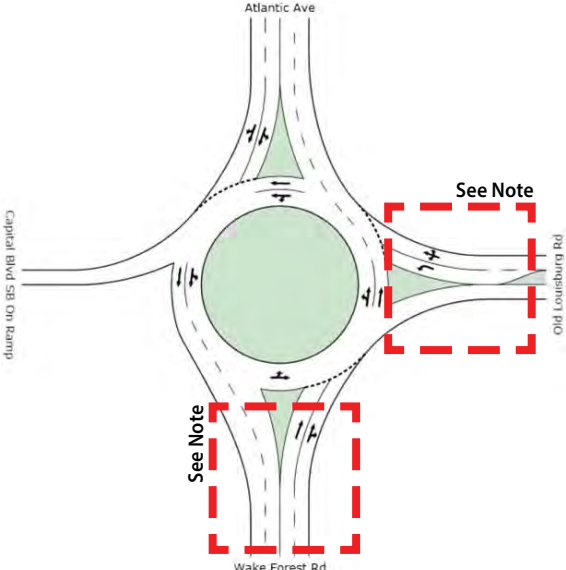
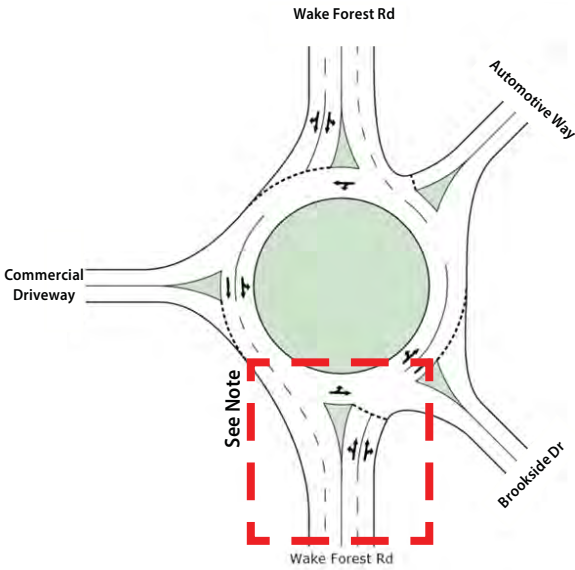
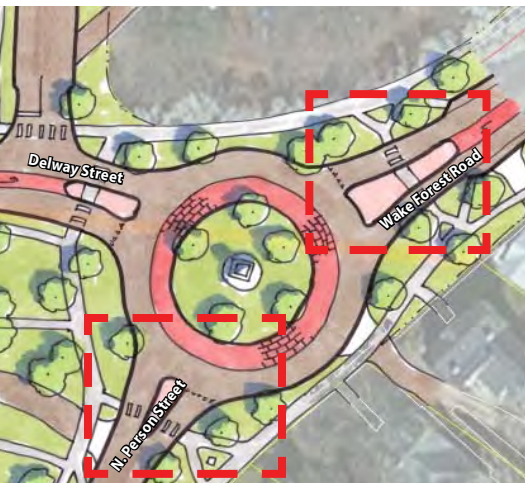
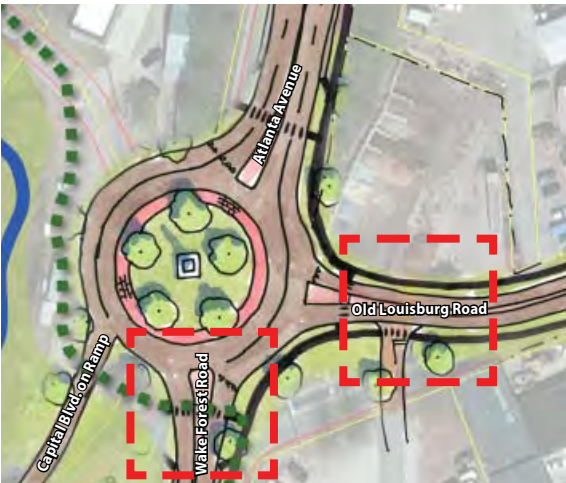
#### Partial Two-Way Restoration (2020) (Blount and Person to Peace)





4.8 Roundabout Analysis

A number of roundabouts are proposed as part of the two-way restoration alternative or as part of the Capital Boulevard Corridor Study. Provided here are preliminary design feasibility and operational analysis results.



- Wake Forest Road at Automotive Way/Brookside Drive**
- As proposed in the Capital Boulevard Study and is not required for the road diet or two-way restoration alternatives.
  - This intersection was assumed as a roundabout in all the 2020 design alternatives.
  - Planned as a two-lane roundabout, operates at a LOS A in both AM and PM peak hours.
  - Wake Forest Road Transition – South of roundabout transitions to one lane in each direction.

- Wake Forest Road at Old Louisburg Road/Capital Boulevard**
- Potential roundabout north of Capital Boulevard connects Atlantic Avenue, Old Louisburg Road, and the Capital Boulevard on-ramp.
  - Planned as a two-lane roundabout, operates at a LOS A in both AM and PM peak hours with some queuing on the northbound leg in the PM peak hour.
  - This roundabout is proposed where the planned Pigeon House Branch Greenway crosses Atlantic Avenue and provides a safe greenway pedestrian connection. It is not required for the road diet or two-way restoration alternatives.
  - This intersection was assumed as a roundabout in all the 2020 design alternatives.

- Wake Forest Road at Blount and Person Street (Two-way Restoration Alternative)**
- Located at the intersection of Wake Forest Road, Person Street and Delway Street, this roundabout accommodates southbound and northbound traffic to and from Wake Forest Road via Blount Street or Person Street.
  - The design intent is to not prioritize one street over another, allowing for a balanced distribution of traffic between Blount Street and Person Street, dependent only on desired driver destination.
  - Located within the right-of-way of the Delway Street/Wake Forest Road “triangle.”
  - Planned as a two-lane roundabout, operates at a LOS A in AM peak and LOS B in PM peak hour with some queuing on the northbound leg in the PM peak hour.

- Hammond Road at Blount and Person Street (Two-way Restoration Alternative)**
- This roundabout distributes Hammond Road traffic between Person Street, Blount Street, and South Blount Street.
  - Located within the Hammond Road right-of-way south of Hoke Street.
  - Planned as a two-lane roundabout, operates at a LOS A in AM peak and LOS B in PM peak hour with some queuing on the northbound leg in the AM peak hour.

**Note:**

The number of approach lanes and roundabout lanes will need to be tested and designed in further detail. Provided here are schematic diagrams and illustrations used for preliminary engineering and design analysis.





**AECOM**





# Blount St · Person St Corridor Study

## Corridor Plan Report - Opinion of Probable Cost











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Raleigh Urban Design Center

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## Phase 1 | Road Diet Restriping

The Road Diet restriping has been organized into a series of smaller steps that could be implemented separately or together corridor-wide. The intent with this phase is to target quick actions that will not require a large investment but will have an immediate effect on traffic behavior and consequently pedestrian comfort and corridor quality-of-life.

*1.1 South – South Park (Person & Blount)*

**Description** – Defines the lane configuration of Blount Street and Person Street from Hoke Street to MLK Jr. Boulevard, better defining the existing two travel lanes, adding a bicycle lane northbound on Person Street and southbound on Blount Street, and defining on-street parking on both sides.

**Intent** – Serves to immediately redefine the street helping to calm traffic through the South Park Neighborhood, and implements the first segment of corridor-wide bicycle facilities north-south.

**Choice** – Requires no change in traffic operation, simply better defines the existing curb-to-curb space and two travel lanes to calm traffic.

**Cost – \$65,000**

*1.2 North - Wake Forest Road*

**Description** – Converts the four-lane cross section of Wake Forest Road into the proposed three-lane section (one lane in each direction with a center turn lane), and adds bicycle lanes on both sides.

**Intent** – Serves to calm traffic along this neighborhood section of the corridor, incorporates bicycle facilities, and makes pedestrian crossings easier and safer.

**Choice** – Analysis suggests this change will have little effect in traffic operation.

**Cost - \$245,000**

*1.3 Partial Two-way Restoration (Person Street – Delway Street to Peace Street)*

**Description** – Restores Person Street from Delway Street/ Mordecai Drive to Peace Street to two-way operation. This is achieved by making the western-most lane southbound and keeping the remaining two lanes northbound. Partial two-way restoration will require new traffic signals at the Franklin Street and Peace Street intersections to facilitate two-way functionality.

**Intent** – Serves to provide increased access, ease of wayfinding, and visibility to businesses along this predominantly retail section of Person Street.

**Choice** – Analysis suggests this change will have little effect in traffic operation and is consistent with both road diet and potential corridor-wide two-way restoration. However, limits on-street parking to one side and restricts the inclusion of a bicycle lane until future corridor-wide two-way restoration.

**Cost - \$135,000**

*1.4 Central – Downtown (Person & Blount)*

**Description** – Defines the lane configuration of Blount Street and Person Street from Peace Street to MLK Jr, Blvd. to a consistent two travel lanes, adding a bicycle lane northbound on Person Street and southbound on Blount Street, and on-street parking on both sides.

**Intent** – Serves to calm traffic, provide appropriate lane width (in existing areas with three lanes), and complete a connected bicycle facility north-south through the corridor.

**Choice** – Analysis suggests this change will have some effect on traffic operation and will require acceptance of some additional vehicular travel delay.

**Cost - \$285,000**

## Phase 2 | Streetscape

An important component of the vision is the physical transformation of the corridor. The road diet restriping sets in place a framework for focused streetscape and bulb-out investment intended to enhance the corridor’s physical character and improve the pedestrian environment. The initial streetscape investments are targeted on the north and south sections where the investment is most needed and will have the greatest impact.

*2.1 South – South Park (Person & Blount)*

**Description** – Inserts landscaped bulb-outs at intersection corners and selected mid-block locations (MLK Jr. Blvd. to Hoke St.) to better define the on-street parking aisle, narrow pedestrian crossings, add street trees and landscaping, and visually narrows the road to support traffic calming. This phase should include the completion of missing sidewalks on east side of Person Street from Hoke Street to Bragg Street.

**Intent** – Serves to calm traffic, provide additional streetscape and tree canopy enhancement, complete sidewalk network and make safer pedestrian crossings.

**Choice** – Requires final streetscape design, more detailed cost estimate and decision on timing and inclusion in capital budget.

**Cost – \$1,645,000**

*2.2 North – Wake Forest Road (to Peace Street)*

**Description** – Inserts landscaped medians and pedestrian crossings at select locations along Wake Forest Road from Brookside/Automotive Way to Delway Street. This phase should include the completion of missing sidewalks on the west side of Wake Forest Road from Sycamore Street to Cedar Street. This phase includes landscaped bulb-outs at intersection corners and selected mid-block locations on Blount Street and Person Street (from Delway Street to Peace Street).

**Intent** – Serves to calm traffic, provide additional streetscape and tree canopy enhancement, complete sidewalk network and make safer pedestrian crossings.

**Choice** – Requires final streetscape design, more detailed cost estimate and decision on timing and inclusion in capital budget.

**Cost - \$1,755,000**

*2.3 Central Streetscape – Downtown (Person & Blount)*

**Description** – Inserts landscaped bulb-outs at intersection corners and selected mid-block locations (Peace Street to MLK Jr. Blvd.) to better define the on-street parking aisle, narrow pedestrian crossings, add street trees and landscaping, and further visually narrow the road to support traffic calming. This streetscape phase can occur before a decision is made on two-way restoration (the proposed design is not dependent on two-way operation).

**Intent** – Serves to calm traffic, provide additional streetscape and tree canopy enhancement, and make safer pedestrian crossings.

**Choice** – Requires final streetscape design, more detailed cost estimate and decision on timing and inclusion in capital budget.

**Cost - \$4,070,000**

## Phase 3 | Two-Way Restoration

The ultimate two-way restoration of the Blount Street and Person Street sections of the corridor is part of the long-term vision. Preliminary traffic analysis suggests there are no fatal flaws to this scenario; however, there is further analysis necessary and a future choice to be made regarding the level of additional traffic delay acceptable for the community benefits gained.

*3.1 Refined Traffic Analysis (roundabouts and new corridor signal timing)*

**Description** – The preliminary analysis has identified several key intersections (Edenton/New Bern, South/Lenoir) with increase delay caused by the restoration of two-way

traffic operation. This initial analysis was limited by the assumption of the corridor’s existing timing (designed for one-way traffic). Further analysis should be conducted to test alternative signal timing scenarios and their effect on the corridor and adjacent downtown street network. In addition, further engineering design and traffic testing is needed to refine the design and operational analysis of the proposed roundabouts.

**Intent** – Analysis will allow a more accurate picture of the traffic effects and allow a more informed decision.

**Choice** – To continue to work with City staff and elected officials to gain a better picture of the benefits and trade-offs of two-way restoration.

**Cost - \$50,000-100,000**

*3.2 Two-Way Restoration (Wake Forest to Hammond Road)*

**Description** – Based on the results of the additional two-way restoration analysis, potentially restore two-way operation. The implementation will require roundabouts at the transitions with Wake Forest Road and Hammond Road, and new traffic signals at all signalized intersections on Blount Street and Person Street to facilitate two-way functionality.

**Intent** – Maximize routing options and access to the downtown, calm traffic on the corridor, increase business visibility, strengthen the corridor’s neighborhood vitality, and support walkable, street-oriented development.

**Choice** – The acceptance of additional traffic delay to gain community benefits.

**Cost - \$2,720,000**

*3.3 Capital Boulevard Roundabouts*

**Description** – Inserts two potential roundabouts north and south of Capital Boulevard on Wake Forest Road as part of the long-term plan for Capital Boulevard. This project is independent of the Wake Forest road diet and can occur based on the development and timing of the proposed Capital Boulevard improvements.

**Intent** – Serves to redesign the intersection of Wake Forest Road/Automotive Way/Brookside Drive, supports the recommendations of the Capital Boulevard Study, and helps create a stronger pedestrian link for the planned Pigeon House Branch Greenway.

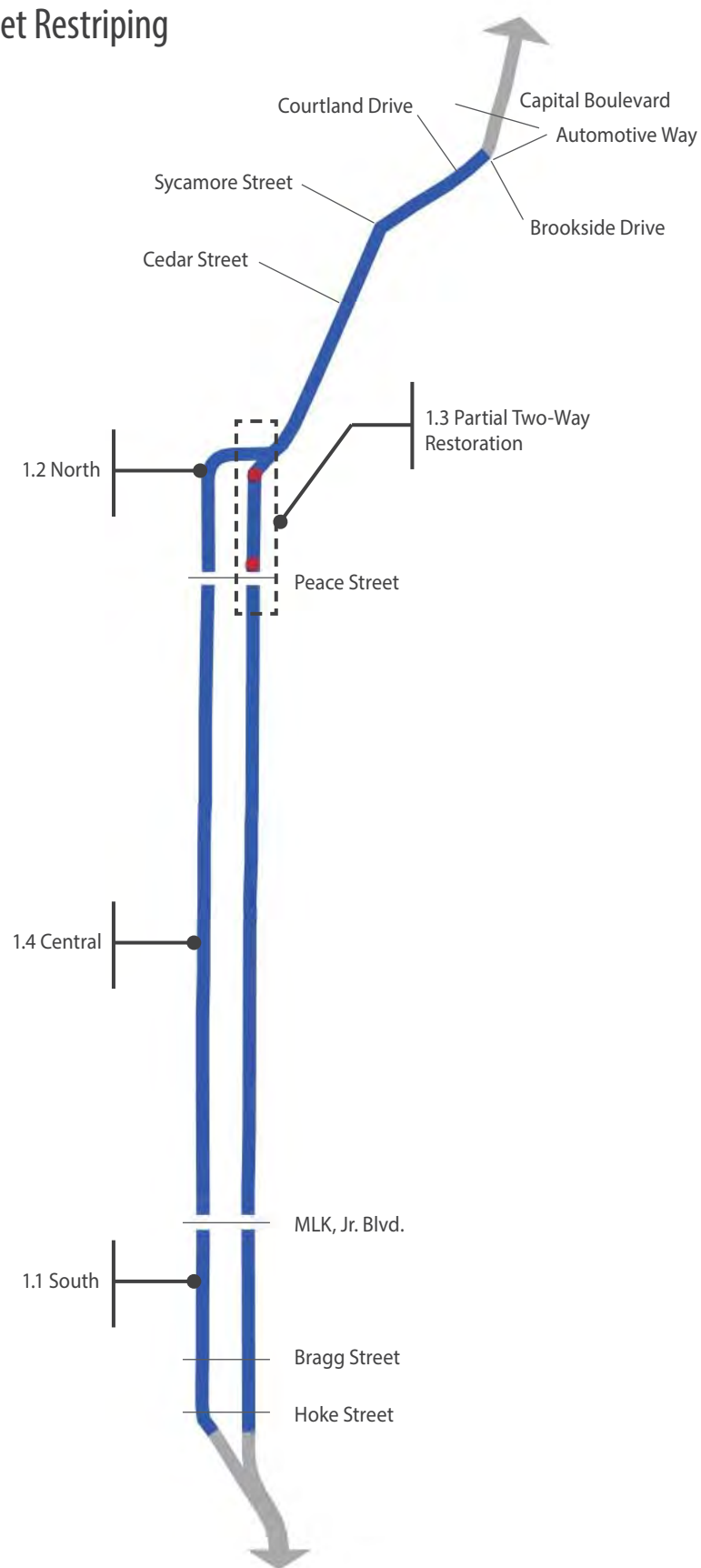
**Choice** – Requires final design, more detailed cost estimate and decision on timing and inclusion in capital budget.

**Cost - \$1,350,000**

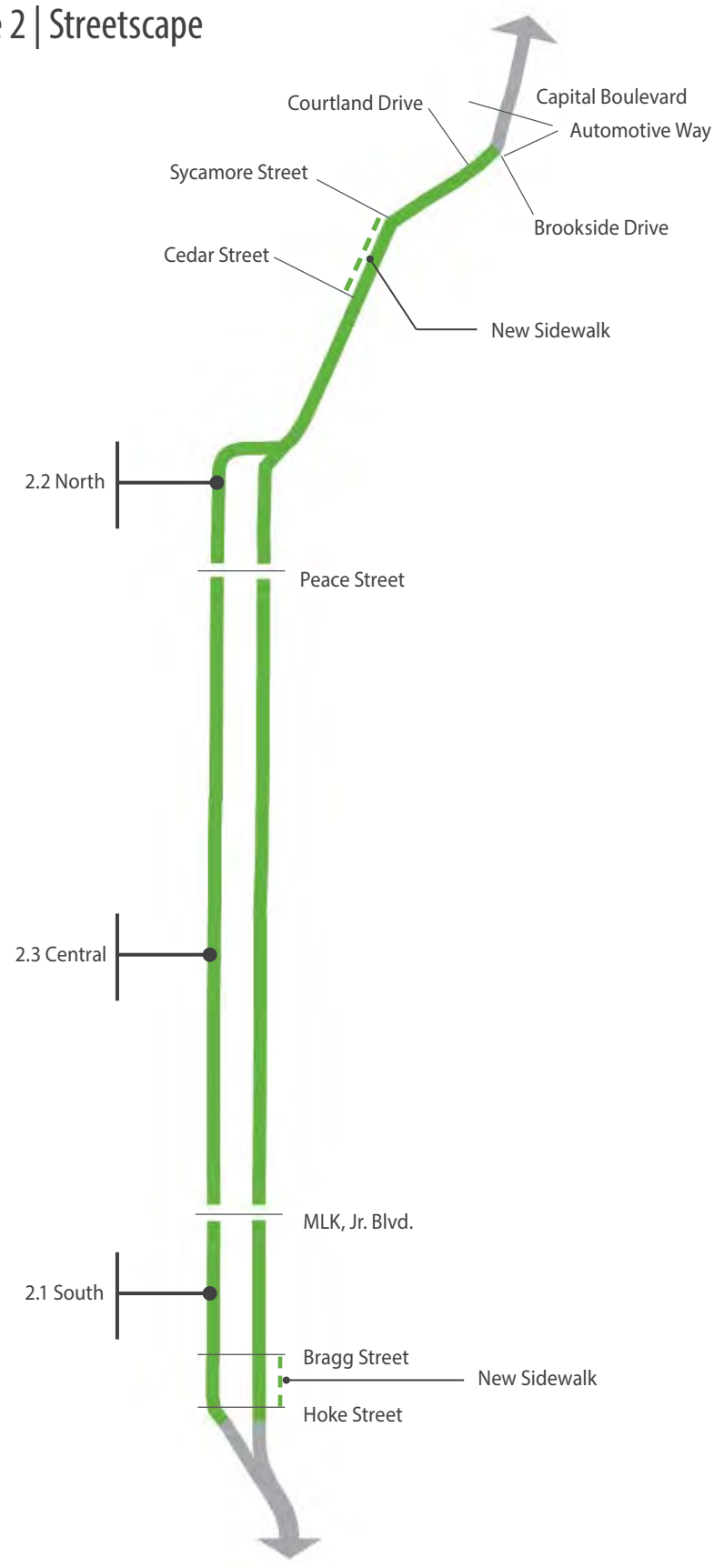


## Phasing

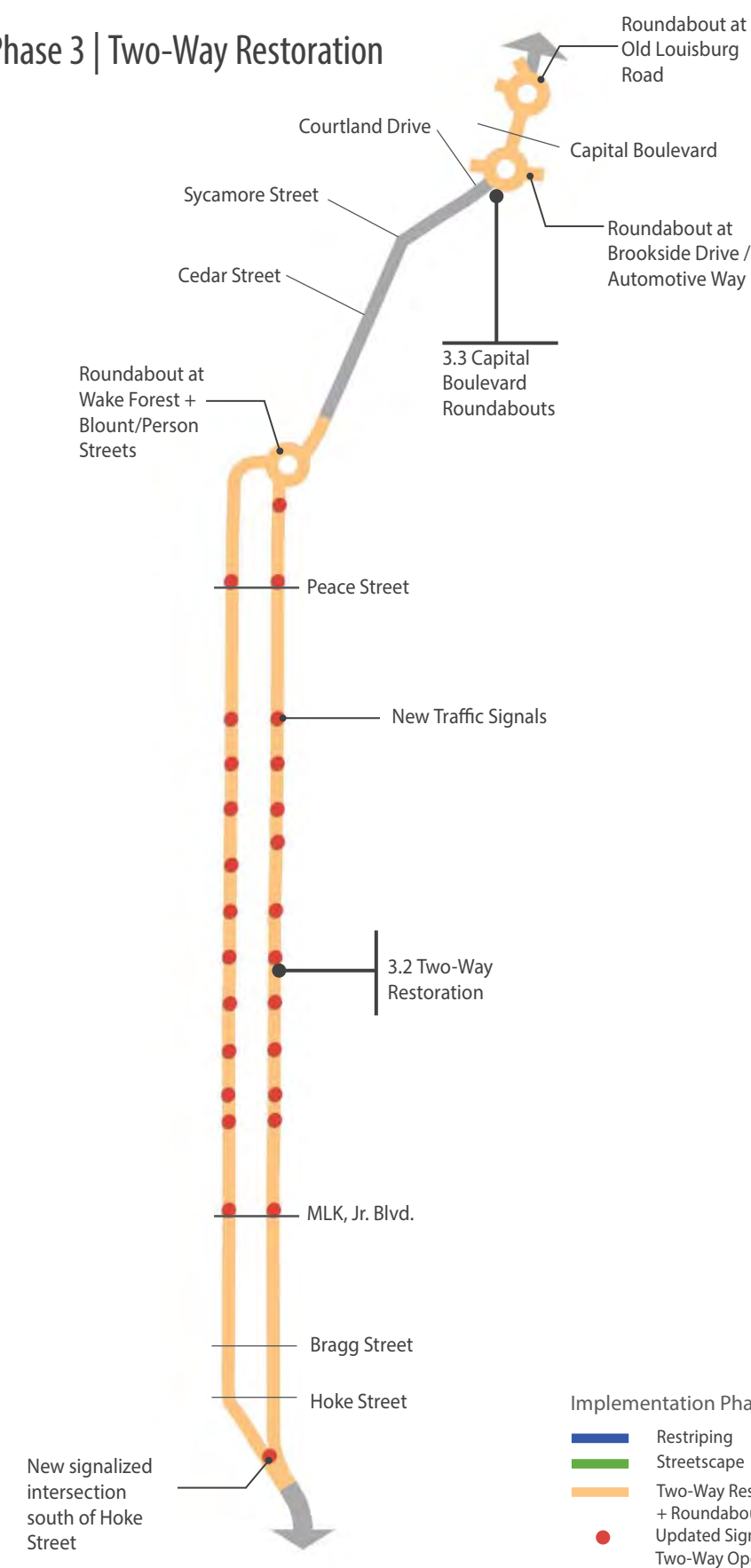
## Phase 1 | Road Diet Restriping



## Phase 2 | Streetscape



## Phase 3 | Two-Way Restoration



- Implementation Phases
- Restriping
  - Streetscape
  - Two-Way Restoration + Roundabouts
  - Updated Signals for Two-Way Operation



## Opinion of Probable Costs

The following Opinion of Cost by AECOM and its subconsultants is based on a variety of assumptions. AECOM has no control over the cost of labor, materials, or equipment, the Contractor’s method of determining prices or competitive bidding or market conditions. Therefore, the firm’s statements of probable construction costs provided for herein are made on the basis of experience and represent our best judgment as Landscape Architects familiar with the construction industry. The firm cannot and does not guarantee that proposals, bids, or the construction cost will not vary from our statements of probable costs. If the Owner wishes greater assurances as to the construction cost, we recommend the employment of an independent cost estimator.

### Phase 1 | Road Diet Restriping

Phase 1 assumes the removal of existing roadway striping and the addition of new painted striping consistent with the proposed road diet.

### Phase 2 | Streetscape Construction

The proposed streetscape will require construction to add bulb-outs at intersections and mid-block locations to accommodate landscaped medians and parallel parking.

Phase 2 assumes the retrofit of the existing stormwater infrastructure system related to the addition and realignment of proposed curbs. The cost provided for this necessary improvement is preliminary and should be considered mainly as a placeholder than as a feasible cost at this level of documentation. As with all infrastructure improvements, technical expertise and a thorough understanding of the existing conditions is necessary in order to develop a responsive design and comprehensive cost estimate.

### Phase 3 | Two-Way Configuration

The proposed two-way restoration will include the updating of signals for two-way operation and the construction of roundabouts and/or intersection reconfiguration to facilitate transitions to Blount St. and Person St.

## Overall Assumptions

- Assumptions are based on the following:
- Maintenance of traffic to accommodate existing traffic flow with as little conflict as necessary, however a greater cost will be associated with longer time periods of construction.
  - Erosion and sedimentation controls cost may differentiate based on the discretion of the contractor in meeting relevant regulatory standards.
  - Roadway, bicycle lane, and parallel parking striping to follow NCDOT standards unless otherwise noted.
  - Handicapped ramps are to meet ADA standards.
  - Lighting and associated electrical costs are based on existing light pole spacing of 100-150’. The unit costs for this installation generally includes the costs associated with other utility infrastructure required in order to accommodate these improvements, however additional electrical service runs and sources of power, transformers, etc. may be required following a thorough investigation of the corridor by a licensed electrical engineer.
  - Refinement to pedestrian hardscaped areas may need to be adjusted with curbs and rails to meet ADA accessibility standards. The conceptual design is based on limited survey and topo information.
  - Site furnishing quantities such as benches, trash receptacles, and bicycle racks are based on the existing land use and proximity to residential and commercial properties.
  - Street sign and regulatory signage quantity is based solely on the replacement of existing signs. Regulatory signage described within the cost estimate only considers the replacement of speed limit signs and no other type of regulatory signage such as ‘no parking’, ‘one-way’, etc.
  - Landscape material is based on a specific size and spacing. Based on availability and time of year that installation occurs, cost may differentiate from what is noted.
  - Irrigation costs are based on the proposed amount of landscaped areas to be added. This cost does not include additional electrical service runs, meters, back-flow devices, etc. that may be necessary to irrigate the planted areas appropriately. A thorough investigation by an irrigation consultant will provide additional insight as to what is required.



PROJECT NAME: Blount St-Person St Corridor Study  
AECOM PROJECT NO.: 60276086  
DATE: April 19, 2013  
PROJECT PHASE: Conceptual Design

OPINION OF PROBABLE COSTS

Item No.	Item	Quantity	Unit	Price	Subtotal	Description
Phase 1 - Road Diet Restriping						
1.1	South - South Park (Person St & Blount St)					
1.	Maintenance of Traffic	1	LS	\$3,000.00	\$3,000.00	
2.	Erosion and Sedimentation Controls	1	LS	\$500.00	\$500.00	
3.	Milling Existing Asphalt Pavement	0	TN	\$2.00	\$0.00	2" Thick
4.	Road Striping Removal	1,050	LF	\$20.00	\$21,000.00	
5.	Asphalt Replacement from Striping Removal	1,050	LF	\$10.00	\$10,500.00	
6.	Concrete Curb	0	LF	\$16.00	\$0.00	
7.	Vehicular Lane Striping	3,500	LF	\$1.50	\$5,250.00	6"
8.	Bicycle Lane Striping	5,900	LF	\$1.00	\$5,900.00	6"
9.	Parallel Parking Striping	1,380	LF	\$1.00	\$1,380.00	6"
Subtotal					\$47,530.00	
Design (10%)				10%	\$4,753.00	
Mobilization/General Conditions/Bonds (5%)				5%	\$2,376.50	
Contingency (20%)				20%	\$9,506.00	
1.1 Total					\$64,165.50	
1.2	North - Wake Forest Rd					
1.	Maintenance of Traffic	1	LS	\$6,000.00	\$6,000.00	
2.	Erosion and Sedimentation Controls	1	LS	\$500.00	\$500.00	
3.	Milling Existing Asphalt Pavement	0	TN	\$2.00	\$0.00	2" Thick
4.	Road Striping Removal	4,890	LF	\$20.00	\$97,800.00	
5.	Asphalt Replacement from Striping Removal	4,890	LF	\$10.00	\$48,900.00	
6.	Concrete Curb	0	LF	\$16.00	\$0.00	
7.	Continuous Left Turn Striping	5,100	LF	\$2.50	\$12,750.00	Double Yellow Line, 4" Width
8.	Vehicular Lane Striping	1,350	LF	\$1.50	\$2,025.00	6"
9.	Bicycle Lane Striping	10,200	LF	\$1.00	\$10,200.00	6"
10.	Parallel Parking Striping	480	LF	\$1.00	\$480.00	6"
Subtotal					\$178,655.00	
Design (10%)				10%	\$17,865.50	
Mobilization/General Conditions/Bonds (5%)				5%	\$8,932.75	
Contingency (20%)				20%	\$35,731.00	
1.2 Total					\$241,184.25	
1.3	Partial Two-way Restoration (Person St-Delway St to Peace St)					
1.	Maintenance of Traffic	1	LS	\$3,000.00	\$3,000.00	
2.	Erosion and Sedimentation Controls	1	LS	\$500.00	\$500.00	
3.	Signalized Intersection	2	EA	\$35,000.00	\$70,000.00	Franklin St. and Peace St. Intersections
4.	Milling Existing Asphalt Pavement	0	TN	\$2.00	\$0.00	2" Thick
5.	Road Striping Removal	650	LF	\$20.00	\$13,000.00	
6.	Asphalt Replacement from Striping Removal	650	LF	\$10.00	\$6,500.00	
7.	Concrete Curb	0	LF	\$16.00	\$0.00	
8.	Vehicular Lane Striping	650	LF	\$1.50	\$975.00	6"
9.	Bicycle Lane Striping	2,600	LF	\$1.00	\$2,600.00	6"
10.	Parallel Parking Striping	1,200	LF	\$1.00	\$1,200.00	6"
Subtotal					\$97,775.00	
Design (10%)				10%	\$9,777.50	
Mobilization/General Conditions/Bonds (5%)				5%	\$4,888.75	
Contingency (20%)				20%	\$19,555.00	
1.3 Total					\$131,996.25	
1.4	Central - Downtown (Person St & Blount St)					
1.	Maintenance of Traffic	1	LS	\$3,000.00	\$3,000.00	
2.	Erosion and Sedimentation Controls	1	LS	\$500.00	\$500.00	
3.	Milling Existing Asphalt Pavement	0	TN	\$2.00	\$0.00	2" Thick
4.	Road Striping Removal	5,400	LF	\$20.00	\$108,000.00	Person-Peace St.-MLK Jr. Blvd (2 lines removed)
5.	Asphalt Replacement from Striping Removal	5,400	LF	\$10.00	\$54,000.00	
6.	Concrete Curb	0	LF	\$16.00	\$0.00	
7.	Vehicular Lane Striping	12,600	LF	\$1.50	\$18,900.00	6"
8.	Bicycle Lane Striping	21,600	LF	\$1.00	\$21,600.00	6"
9.	Parallel Parking Striping	4,820	LF	\$1.00	\$4,820.00	6"
Subtotal					\$210,820.00	
Design (10%)				10%	\$21,082.00	
Mobilization/General Conditions/Bonds (5%)				5%	\$10,541.00	
Contingency (20%)				20%	\$42,164.00	
1.4 Total					\$284,607.00	
PHASE 1 GRAND TOTAL					\$721,953.00	

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<div><div><div>AECOM</div></div><div><div>PROJECT NAME: Blount St-Person St Corridor Study</div><div>AECOM PROJECT NO.: 60276086</div><div>DATE: April 19, 2013</div><div>PROJECT PHASE: Conceptual Design</div></div></div>		OPINION OF PROBABLE COSTS				
Item No.	Item	Quantity	Unit	Price	Subtotal	Description
Phase 2 - Streetscape (North/South)						
2.1A South - South Park - Blount Street						
A. Road Hardscape						
1.	Maintenance of Traffic	1	LS	\$3,000.00	\$3,000.00	
2.	Erosion and Sedimentation Controls	1	LS	\$1,000.00	\$1,000.00	
3.	Stormwater Infrastructure Retrofit	1	EA	\$150,000.00	\$150,000.00	
4.	Remove Existing Asphalt and Pavement Base	3,500	SF	\$2.00	\$7,000.00	
5.	ADA Ramps	16	EA	\$1,000.00	\$16,000.00	
6.	Concrete Curb & Gutter	2,500	LF	\$15.00	\$37,500.00	Type F
	Subtotal				\$214,500.00	
B. Electrical						
1.	Street Lights	14	EA	\$9,500.00	\$133,000.00	Assuming 130' Spacing
2.	Conduit + Wire	2,100	LF	\$20.00	\$42,000.00	
	Subtotal				\$175,000.00	
C. Hardscape Elements						
1.	Concrete Sidewalk (Both sides of street from Bragg St. to Hoke St.)	1,700	LF	\$17.50	\$29,750.00	5' Wide Sidewalk, 4" TH Broom Finish Concrete
2.	Brick Paver Accent at Crosswalks	840	SF	\$5.00	\$4,200.00	3-1/8" Brick Paver
3.	Tree Grates	0	EA	\$2,000.00	\$0.00	6' x 6' Paver Grate
4.	Pedestrian Pavers	0	SF	\$5.00	\$0.00	Brick Paver
5.	Benches	9	EA	\$2,000.00	\$18,000.00	6' Length w/Center Arm
6.	Bike Racks	2	EA	\$900.00	\$1,800.00	Ring Style, Stainless Steel
7.	Trash Receptacle	9	EA	\$1,500.00	\$13,500.00	35 gal., Side Opening
8.	Heritage Markers	0	EA	\$3,500.00	\$0.00	Interpretive Heritage Markers
9.	Overhead Street Sign	5	EA	\$400.00	\$2,000.00	Hanging from Cable - Replacing Existing
10.	Medium Street Sign	0	EA	\$300.00	\$0.00	Attached Horizontally - Replacing Existing
11.	Decorative Street Sign	8	EA	\$591.00	\$4,728.00	Twin Signs - Replacing Existing
12.	Decorative Stop Sign	7	EA	\$408.00	\$2,856.00	30" Stop Sign
13.	Decorative Regulatory Sign	2	EA	\$471.00	\$942.00	24" x 30" Speed Limit Sign
14.	Public Art	1	LS	\$25,000.00	\$25,000.00	Allowance
	Subtotal				\$102,776.00	
D. Landscape Elements						
1.	Top Soil	430	CY	\$35.00	\$15,050.00	
2.	Canopy Tree	14	EA	\$1,200.00	\$16,800.00	200 gal.; 5" cal.
3.	Shrub and Groundcover	0	EA	\$9.00	\$0.00	3 gal. plant material
4.	Sod	0	SF	\$0.50	\$0.00	Zoysia japonica "Empire" and Arachis glabra
	Subtotal				\$31,850.00	
E. Irrigation Elements						
1.	Irrigation - Bubblers	14	EA	\$350.00	\$4,900.00	Trees in Planted Areas and Paver Grates
2.	Irrigation - Pop-up Sprays	0	SF	\$2.50	\$0.00	Planted Areas and Sod Areas; Full Coverage
	Subtotal				\$4,900.00	
	Phase 2.1A Subtotal				\$529,026.00	
	Design (10%)			10%	\$52,902.60	
	Mobilization/General Conditions/Bonds (5%)			5%	\$26,451.30	
	Contingency (20%)			20%	\$105,805.20	
	Phase 2.1A Total				\$714,185.10	
2.1B South - South Park - Person Street						
A. Road Hardscape						
1.	Maintenance of Traffic	1	LS	\$3,000.00	\$3,000.00	
2.	Erosion and Sedimentation Controls	1	LS	\$1,000.00	\$1,000.00	
3.	Stormwater Infrastructure Retrofit	1	EA	\$150,000.00	\$150,000.00	
4.	Remove Existing Asphalt and Pavement Base	9,200	SF	\$2.00	\$18,400.00	
5.	ADA Ramps	20	EA	\$1,000.00	\$20,000.00	
6.	Concrete Curb & Gutter	1,770	LF	\$15.00	\$26,550.00	Type F
	Subtotal				\$218,950.00	
B. Electrical						
1.	Street Lights	14	EA	\$9,500.00	\$133,000.00	Assuming 130' Spacing
2.	Conduit + Wire	2,100	LF	\$20.00	\$42,000.00	
	Subtotal				\$175,000.00	
C. Hardscape Elements						
1.	Concrete Sidewalk (Both sides of street from Bragg St. to Hoke St.)	1,700	LF	\$17.50	\$29,750.00	5' Wide Sidewalk, 4" TH Broom Finish Concrete
2.	Brick Paver Accent at Crosswalks	1,200	SF	\$5.00	\$6,000.00	3-1/8" Brick Paver
3.	Tree Grates	0	EA	\$2,000.00	\$0.00	6' x 6' Paver Grate
4.	Pedestrian Pavers	0	SF	\$5.00	\$0.00	Brick Paver
5.	Benches	10	EA	\$2,000.00	\$20,000.00	6' Length w/Center Arm
6.	Bike Racks	2	EA	\$900.00	\$1,800.00	Ring Style, Stainless Steel
7.	Trash Receptacle	10	EA	\$1,500.00	\$15,000.00	35 gal., Side Opening
8.	Heritage Markers	0	EA	\$3,500.00	\$0.00	Interpretive Heritage Markers
9.	Overhead Street Sign	6	EA	\$400.00	\$2,400.00	Hanging from Cable - Replacing Existing
10.	Medium Street Sign	0	EA	\$300.00	\$0.00	Attached Horizontally - Replacing Existing
11.	Decorative Street Sign	8	EA	\$591.00	\$4,728.00	Twin Signs - Replacing Existing
12.	Decorative Stop Sign	8	EA	\$408.00	\$3,264.00	30" Stop Sign
13.	Decorative Regulatory Sign	2	EA	\$471.00	\$942.00	24" x 30" Speed Limit Sign
14.	Public Art	1	LS	\$25,000.00	\$25,000.00	Allowance
	Subtotal				\$108,884.00	

Item No.	Item	Quantity	Unit	Price	Subtotal	Description
D. Landscape Elements						
1.	Top Soil	760	CY	\$35.00	\$26,600.00	
2.	Canopy Tree	76	EA	\$1,200.00	\$91,200.00	200 gal.; 5" cal.
3.	Shrub and Groundcover	4,100	EA	\$3.00	\$12,300.00	1 gal plant material; 18" O.C.
4.	Sod	5,800	SF	\$0.50	\$2,900.00	Zoysia japonica "Empire" and Arachis glabra
	Subtotal				\$133,000.00	
E. Irrigation						
1.	Irrigation - Bubblers	76	EA	\$350.00	\$26,600.00	Trees in Planted Areas
2.	Irrigation - Pop-up Sprays	9,900	SF	\$2.50	\$24,750.00	Planted Areas and Sod Areas; Full Coverage
	Subtotal				\$51,350.00	
	Phase 2.1B Subtotal				\$687,184.00	
	Design (10%)			10%	\$68,718.40	
	Mobilization/General Conditions/Bonds (5%)			5%	\$34,359.20	
	Contingency (20%)			20%	\$137,436.80	
	Phase 2.1B Total				\$927,698.40	
	Phase 2.1 GRAND TOTAL				\$1,641,883.50	
2.2 North - Wake Forest Road (to Peace Street)						
A. Road Hardscape						
1.	Maintenance of Traffic	1	LS	\$10,000.00	\$10,000.00	
2.	Erosion and Sedimentation Controls	1	LS	\$1,000.00	\$1,000.00	
3.	Stormwater Infrastructure Retrofit	1	LS	\$250,000.00	\$250,000.00	
4.	Remove Existing Asphalt and Pavement Base	30,980	SF	\$2.00	\$61,960.00	
5.	ADA Ramps	36	EA	\$1,000.00	\$36,000.00	
6.	Concrete Curb & Gutter	3,900	LF	\$15.00	\$58,500.00	Type F
	Subtotal				\$417,460.00	
B. Electrical						
1.	Street Lights	35	EA	\$9,500.00	\$332,500.00	Assuming 130' Spacing
2.	Conduit + Wire	6,000	LF	\$20.00	\$120,000.00	
	Subtotal				\$452,500.00	
C. Hardscape Elements						
1.	Concrete Sidewalk (At Pedestrian Island)	1,668	LF	\$17.50	\$29,190.00	5' Wide Sidewalk, 4" TH Broom Finish Concrete
2.	Concrete Sidewalk (West-Side, Sycamore St. to Cedar St.)	1,800	LF	\$17.50	\$31,500.00	5' Wide Sidewalk, 4" TH Broom Finish Concrete
3.	Brick Paver Accent at Crosswalks	1,480	SF	\$5.00	\$7,400.00	3-1/8" Brick Paver
4.	Tree Grates	15	EA	\$2,000.00	\$30,000.00	6' x 6' Paver Grate
5.	Pedestrian Pavers	0	SF	\$5.00	\$0.00	Brick Paver
6.	Benches	12	EA	\$2,000.00	\$24,000.00	6' Length w/Center Arm
7.	Bike Racks	4	EA	\$900.00	\$3,600.00	Ring Style, Stainless Steel
8.	Trash Receptacle	12	EA	\$1,500.00	\$18,000.00	35 gal., Side Opening
9.	Heritage Markers	0	EA	\$3,500.00	\$0.00	Interpretive Heritage Markers
10.	Overhead Street Sign	8	EA	\$400.00	\$3,200.00	Hanging from Cable - Replacing Existing
11.	Medium Street Sign	5	EA	\$300.00	\$1,500.00	Attached Horizontally - Replacing Existing
12.	Decorative Street Sign	21	EA	\$591.00	\$12,411.00	Twin Signs - Replacing Existing
13.	Decorative Stop Sign	22	EA	\$408.00	\$8,976.00	30" Stop Sign
14.	Decorative Regulatory Sign	8	EA	\$471.00	\$3,768.00	24" x 30" Speed Limit Sign
15.	Public Art	1	LS	\$50,000.00	\$50,000.00	Allowance
	Subtotal				\$223,545.00	
D. Landscape Elements						
1.	Top Soil	1,270	CY	\$35.00	\$44,450.00	
2.	Canopy Tree	76	EA	\$1,200.00	\$91,200.00	200 gal.; 5" cal. (assuming 22 trees in medians)
3.	Shrub and Groundcover	4,000	EA	\$3.00	\$12,000.00	1 gal plant material; 18" O.C.
4.	Sod	7,950	SF	\$0.50	\$3,975.00	Zoysia japonica "Empire" and Arachis glabra
	Subtotal				\$151,625.00	
E. Irrigation Elements						
1.	Irrigation - Bubblers	76	EA	\$300.00	\$22,800.00	Trees in Landscaped Beds and Paver Grates
2.	Irrigation - Pop-up Sprays	11,950	SF	\$2.50	\$29,875.00	Planted Areas and Sod Areas; Full Coverage
	Subtotal				\$52,675.00	
	Phase 2.2 Subtotal				\$1,297,805.00	
	Design (10%)			10%	\$129,780.50	
	Mobilization/General Conditions/Bonds (5%)			5%	\$64,890.25	
	Contingency (20%)			20%	\$259,561.00	
	2.2 Total				\$1,752,036.75	
	PHASE 2 SOUTH & NORTH GRAND TOTAL				\$3,393,920.25	

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AECOM PROJECT NO.: 60276086  
DATE: April 19, 2013  
PROJECT PHASE: Conceptual Design

OPINION OF PROBABLE COSTS

Item No.	Item	Quantity	Unit	Price	Subtotal	Description
Phase 2.3 - Streetscape (North/South)						
2.3A Central Streetscape - Downtown (Blount Street)						
A. Road Hardscape						
1.	Maintenance of Traffic	1	LS	\$10,000.00	\$10,000.00	
2.	Erosion and Sedimentation Controls	1	LS	\$2,000.00	\$2,000.00	
3.	Stormwater Infrastructure Retrofit	1	LS	\$200,000.00	\$200,000.00	
4.	Remove Existing Asphalt and Pavement Base	21,000	SF	\$2.00	\$42,000.00	
5.	ADA Ramps	50	EA	\$1,000.00	\$50,000.00	
6.	Concrete Curb & Gutter	4,600	LF	\$15.00	\$69,000.00	Type F
	Subtotal				\$373,000.00	
B. Electrical						
1.	Street Lights	52	EA	\$9,500.00	\$494,000.00	Assuming 150' Spacing
2.	Conduit + Wire	13,400	LF	\$20.00	\$268,000.00	Total for both sides of street
	Subtotal				\$762,000.00	
C. Hardscape Elements						
1.	Concrete Sidewalk	0	SF	\$17.50	\$0.00	5' Wide Sidewalk, 4" TH Broom Finish Concrete
2.	Brick Pavers within Crosswalks	6,480	SF	\$5.00	\$32,400.00	3-1/8" Brick Paver
3.	Tree Grates	22	EA	\$2,000.00	\$44,000.00	6' x 6' Paver Grate
4.	Pedestrian Pavers	0	SF	\$5.00	\$0.00	Brick Paver
5.	Benches	24	EA	\$2,000.00	\$48,000.00	6' Length w/Center Arm
6.	Bike Racks	7	EA	\$900.00	\$6,300.00	Ring Style, Stainless Steel
7.	Trash Receptacle	24	EA	\$1,500.00	\$36,000.00	35 gal., Side Opening
8.	Heritage Markers	0	EA	\$3,500.00	\$0.00	Interpretive Heritage Markers
9.	Overhead Street Sign	10	EA	\$400.00	\$4,000.00	Hanging from Cable - Replacing Existing
10.	Medium Street Sign	34	EA	\$300.00	\$10,200.00	Attached Horizontally - Replacing Existing
11.	Decorative Street Sign	9	EA	\$591.00	\$5,319.00	Twin Signs - Replacing Existing
12.	Decorative Stop Sign	6	EA	\$408.00	\$2,448.00	30" Stop Sign
13.	Decorative Regulatory Sign	12	EA	\$471.00	\$5,652.00	24" x 30" Speed Limit Sign
14.	Public Art	1	LS	\$25,000.00	\$25,000.00	Allowance
	Subtotal				\$219,319.00	
D. Landscape Elements						
1.	Top Soil	2,600	CY	\$35.00	\$91,000.00	
2.	Canopy Tree	105	EA	\$1,200.00	\$126,000.00	200 gal.; 5" cal.
3.	Shrub and Groundcover	0	EA	\$3.00	\$0.00	1 gal plant material; 18" O.C.
4.	Sod	19,500	SF	\$0.50	\$9,750.00	Zoysia japonica "Empire" and Arachis glabra
	Subtotal				\$226,750.00	
E. Irrigation Elements						
1.	Irrigation - Bubblers	105	EA	\$350.00	\$36,750.00	Trees in Planted Areas and Paver Grates
2.	Irrigation - Pop-up Sprays	19,500	SF	\$2.50	\$48,750.00	Planted Areas and Sod Areas; Full Coverage
	Subtotal				\$85,500.00	
	Phase 2.3A Subtotal				\$1,666,569.00	
	Design (10%)			10%	\$166,656.90	
	Mobilization/General Conditions/Bonds (5%)			5%	\$83,328.45	
	Contingency (20%)			20%	\$333,313.80	
	AREA 2.3A TOTAL				\$2,249,868.15	

AECOM has no control over the cost of labor, materials, or equipment, the Contractor's method of determining prices or competitive bidding or market conditions. Therefore, the firm's statements of probable construction costs provided for herein are made on the basis of experience and represent our best judgment as Landscape Architects familiar with the construction industry. The firm cannot and does not guarantee that proposals, bids, or the construction cost will not vary from our statements of probable costs. If the Owner wishes greater assurances as to the construction cost, we recommend the employment of an independent cost estimator.

Item No.	Item	Quantity	Unit	Price	Subtotal	Description
2.3B Central Streetscape - Downtown (Person Street)						
A. Road Hardscape						
1.	Maintenance of Traffic	1	LS	\$5,000.00	\$5,000.00	
2.	Stormwater Infrastructure Retrofit	1	LS	\$200,000.00	\$200,000.00	
3.	Stormwater Infrastructure	1	LS	\$0.00	\$0.00	
4.	Remove Existing Asphalt and Pavement Base	15,200	SF	\$2.00	\$30,400.00	
5.	ADA Ramps	50	EA	\$1,000.00	\$50,000.00	
6.	Concrete Curb & Gutter	3,420	LF	\$15.00	\$51,300.00	Type F
	Subtotal				\$336,700.00	
B. Electrical						
1.	Street Lights	52	EA	\$9,500.00	\$494,000.00	Assuming 150' Spacing
2.	Conduit + Wire	13,400	LF	\$20.00	\$268,000.00	
	Subtotal				\$762,000.00	
C. Hardscape Elements						
1.	Concrete Sidewalk	0	SF	\$17.50	\$0.00	5' Wide Sidewalk, 4" TH Broom Finish Concrete
2.	Brick Pavers within Crosswalks	6,720	SF	\$5.00	\$33,600.00	3-1/8" Brick Paver
3.	Tree Grates	0	EA	\$2,000.00	\$0.00	6' x 6' Paver Grate
4.	Pedestrian Pavers	0	SF	\$5.00	\$0.00	Brick Paver
5.	Benches	24	EA	\$2,000.00	\$48,000.00	6' Length w/Center Arm
6.	Bike Racks	7	EA	\$900.00	\$6,300.00	Ring Style, Stainless Steel
7.	Trash Receptacle	24	EA	\$1,500.00	\$36,000.00	35 gal., Side Opening
8.	Heritage Markers	0	EA	\$3,500.00	\$0.00	Interpretive Heritage Markers
9.	Overhead Street Sign	3	EA	\$400.00	\$1,200.00	Hanging from Cable - Replacing Existing
10.	Medium Street Sign	17	EA	\$300.00	\$5,100.00	Attached Horizontally - Replacing Existing
11.	Decorative Street Sign	10	EA	\$591.00	\$5,910.00	Twin Signs - Replacing Existing
12.	Decorative Stop Sign	6	EA	\$408.00	\$2,448.00	30" Stop Sign
13.	Decorative Regulatory Sign	12	EA	\$471.00	\$5,652.00	24" x 30" Speed Limit Sign
14.	Public Art	1	LS	\$50,000.00	\$50,000.00	Allowance
	Subtotal				\$194,210.00	
D. Landscape Elements						
1.	Canopy Tree	6	EA	\$1,200.00	\$7,200.00	200 gal.; 5" cal.
2.	Shrub and Groundcover	0	EA	\$3.00	\$0.00	1 gal plant material; 18" O.C.
3.	Sod	14,800	SF	\$0.50	\$7,400.00	Zoysia japonica "Empire" and Arachis glabra
	Subtotal				\$14,600.00	
E. Irrigation Elements						
1.	Irrigation - Bubblers	6	EA	\$350.00	\$2,100.00	Trees in Planted Areas and Paver Grates
2.	Irrigation - Pop-up Sprays	14,800	SF	\$2.50	\$37,000.00	Planted Areas and Sod Areas; Full Coverage
	Subtotal				\$39,100.00	
	Phase 2.3B Subtotal				\$1,346,610.00	
	Design (10%)			10%	\$134,661.00	
	Mobilization/General Conditions/Bonds (5%)			5%	\$67,330.50	
	Contingency (20%)			20%	\$269,322.00	
	Phase 2.3B TOTAL				\$1,817,923.50	
	PHASE 2.3 GRAND TOTAL				\$4,067,791.65	

Item No.	Item	Quantity	Unit	Price	Subtotal	Description
Phase 3 - Two-Way Restoration						
3.1 Refined Traffic Analysis						
1.	Analysis	1	LS	\$100,000.00	\$100,000.00	Study cost to be determined
	Phase 3.1 Subtotal				\$100,000.00	
3.2 Two-Way Restoration (Wake Forest Road to Hammond Road)						
1.	Roundabout	2	EA	\$500,000.00	\$1,000,000.00	
2.	Signalized Intersections (Along Person Street)	15	EA	\$35,000.00	\$525,000.00	
3.	Signalized Intersections (Along Blount Street)	14	EA	\$35,000.00	\$490,000.00	
	Phase 3.2 Subtotal				\$2,015,000.00	
	Design (10%)			10%	\$201,500.00	
	Mobilization/General Conditions/Bonds (5%)			5%	\$100,750.00	
	Contingency (20%)			20%	\$403,000.00	
	Phase 3.2 Total				\$2,720,250.00	
3.3 Capital Boulevard Roundabouts						
1.	Roundabout	2	EA	\$500,000.00	\$1,000,000.00	
	Phase 3.3 Subtotal				\$1,000,000.00	
	Design (10%)			10%	\$100,000.00	
	Mobilization/General Conditions/Bonds (5%)			5%	\$50,000.00	
	Contingency (20%)			20%	\$200,000.00	
	Phase 3.3 Total				\$1,350,000.00	
	Phase 3 GRAND TOTAL				\$4,170,250.00	









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