the City of Rocky Mount

GATEWAY CORRIDOR PLAN

CITY OF ROCKY MOUNT
NORTH CAROLINA

Prepared for: The City of Rocky Mount, North Carolina
Prepared by: Alta/Greenways

February 2012

ACKNOWLEDGEMENTS

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INTRODUCTION

The City of Rocky Mount has made multi-modal transportation a priority through its bicycle and pedestrian planning and Downtown streetscape improvements. The City recognizes the multiple benefits of bikability and walkability as described in the Rocky Mount Pedestrian Plan. Creating livable, "complete streets" enhances the community and natural environment, enables transportation and recreation for residents, and can stimulate economic development.

The City has identified four key roadway corridors that traverse the City leading people from the US 64 Bypass and US 301 Bypass into the historic Downtown. With significant investment going into the Downtown's streetscape and building facades, it is critical to enhance these roadways as gateways into the Downtown. This Gateway Corridor Plan describes the existing conditions of these corridors and provides recommendations for their enhancements which include bicycle/pedestrian treatments, landscaping/aesthetic improvements, and gateway signage.

The roadway corridors are:

- Church Street (US 64 Bypass to Raleigh Road, near City Hall)
- Atlantic Avenue/Arlington Street (US 64 Bypass to George Street)
- East Raleigh Boulevard (formerly Raleigh Street/George Street) (US 64 Bypass to Arlington Street)
- West Raleigh Boulevard (formerly Raleigh Road) (US 301 Bypass to Arlington Street)

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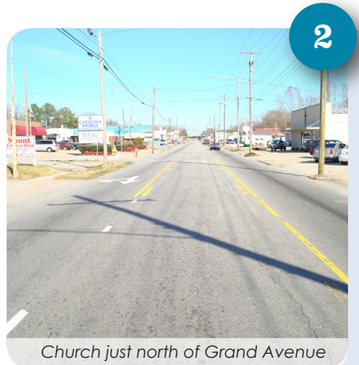
EXISTING CONDITIONS

EXISTING CONDITIONS: Church Street

Church at Tar River

1 US 64 Bypass to Tar River

- Three lane cross section expands to five-lane here leading to US 64 Bypass
- Sidewalk not present
- Only 2-3 feet between curb and guard rail offers limited opportunity for sidewalk
- Mostly wooded
- Traffic volume – 9,600 (2009)
- Speed limit 35/45 mph



Church just north of Grand Avenue

2 Tar River to Grand Avenue

- Three lane cross section
- Sidewalks stop heading north and/or get lost in excess driveways/parking lots
- Utility poles a significant feature creating a poor aesthetic
- Mostly commercial/light-industrial unpleasant land uses
- Speed limit 35 mph

Church at Imperial Centre

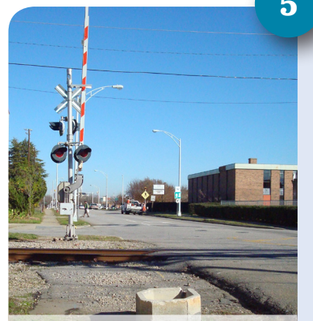
3 Grand Avenue to Sunset Avenue

- One-way three lane cross section
- Sidewalks with small grass buffers
- Land use changes from vacant industrial/ commercial to Downtown institutional/ commercial
- Jack Laughery Park across from Imperial Centre (no crosswalk present)
- Utilities buried starting near Imperial Centre
- Traffic volume – 3,600 (2009)
- Speed limit 25 mph

Church at City Hall

4 Church Street at City Hall

- One-way three lane cross section
- Sidewalk present with grass buffer and trees present on outside of sidewalk
- Trees planted are Bradford pears
- Bus stop only features sign
- Traffic volume – 4,500 (2009)
- Speed limit 25 mph



Church at railroad crossing

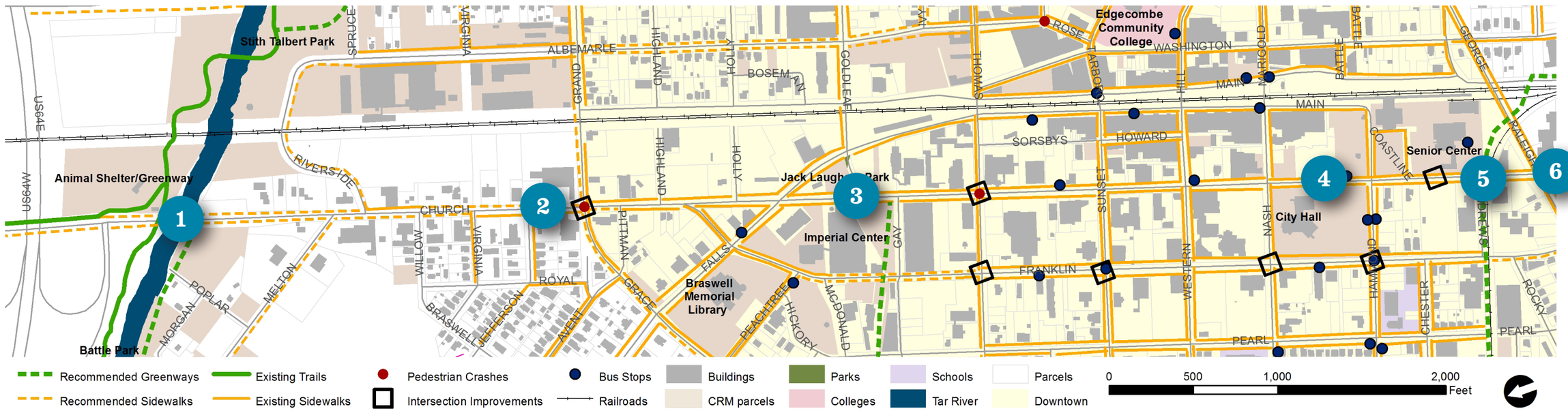
5 Hammond Street to Raleigh Road

- Two-way three lane cross section
- Sidewalk present but stops at railroad crossing forcing pedestrians to cross tracks or enter roadway environment (ADA accessibility issue)
- Sidewalk grown over in places, in need of maintenance
- Land use shifts towards industrial near railroad
- Speed limit 25 mph

Church south of Raleigh overpass

6 Southern Corridor Entrance

- Two-way three lane cross section
- Narrow sidewalk present with grass buffer – not well-maintained
- Land uses not desirable, mostly commercial, vacant commercial, and light industrial
- Opportunity for gateway entrance into Downtown
- Not an appealing walking/biking environment
- No gutter pan
- Speed limit 25 mph



EXISTING CONDITIONS: Atlantic Avenue

Exit ramp onto Atlantic Avenue from US 64 Bypass

1 Corridor Entrance

- Trees and open space at corner
- No gateway signage
- Mostly wooded with no development

Atlantic at Highland Avenue

3 Grand Avenue to Holly Street

- Wide grass buffer present with sidewalk
- Few trees inside grass buffer at this location
- Four lane cross section without turn lane
- Single-family residential use
- Bus stop only features sign
- No gutter pan present
- Low traffic volumes (6,400 in 2009)
- Speed limit 35 mph

Thomas at Atlantic intersection

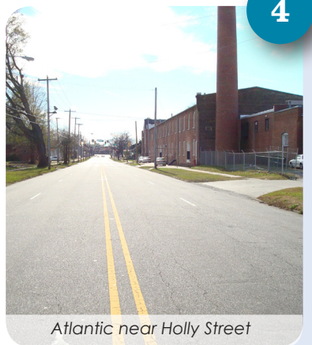
5 Intersection at Thomas Street

- New Douglas Center and Downtown streetscape one block to the west
- Lacks curb ramps at some corners, lacks countdown signals, and has faded marked crosswalks
- Mix of single-family residential, commercial, vacant commercial, and industrial land uses
- Northwest corner lot vacant and provides opportunity for gateway
- Thomas is one-way road
- Speed limit 35 mph

Atlantic near Tar River

2 US 64 Bypass to Spruce Street

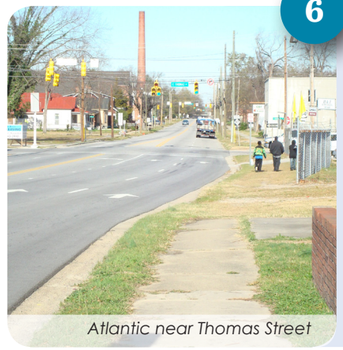
- 4 lane cross section with low traffic volumes (6,000 ADT in 2009)
- Sidewalk ends on east side one block short of Talbert Park
- Sidewalk ends on west side at Spuce Street leaving gap to Tar River Trail
- Single-family residential land use begins at Spruce Street southward
- NW and NE Corner parcel with fencing: opportunity to create pocket park, improve visibility of Tar River Trail, and create gateway on NW corner.



Atlantic near Holly Street

4 Industrial Development (Holly Street to Thomas Street)

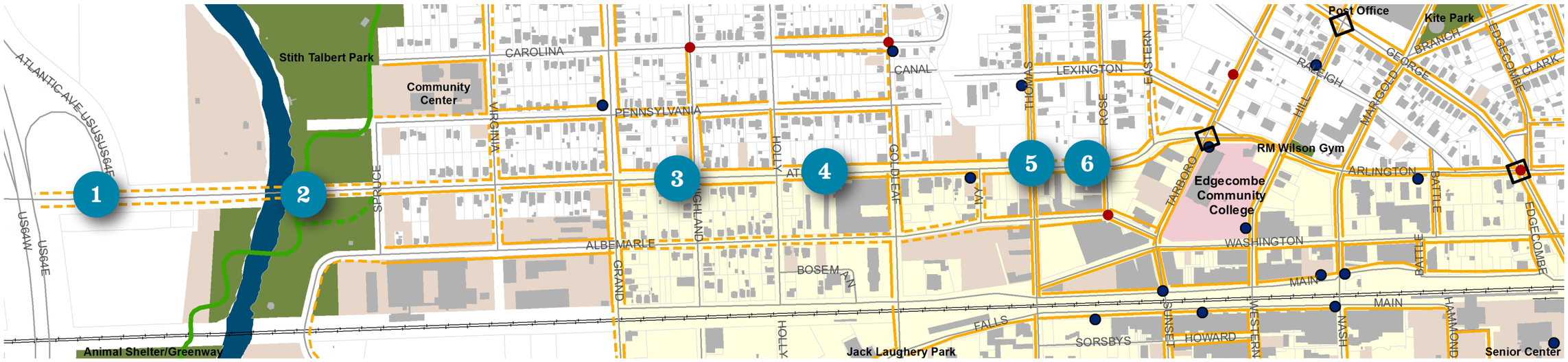
- Industrial complex on west side of road
- Four lane cross section continues
- Sidewalk with grass buffer present on both sides
- Single-family residential changes to industrial land use
- Half curb, no gutter pan
- Low traffic volumes (6,400 in 2009)
- Speed limit 35 mph



Atlantic near Thomas Street

6 Thomas Street to George Street

- Gap in sidewalk network on east side of Atlantic where pedestrians are walking
- Four lane cross section continues
- Mix of mostly commercial, vacant commercial, and single-family residential land use
- Low traffic volumes (4,800 in 2009)
- Bus stop only features sign
- Speed limit 35 mph

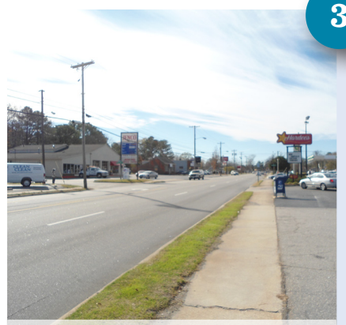


EXISTING CONDITIONS: Raleigh Road (West Raleigh Blvd)

Corridor entrance

1 Wesleyan Boulevard to Nashville Road

- Minimal gateway signage at corridor entrance
- Two travel lanes in each direction with gutter pans and one center turning lane
- Utility lines along the road edge (side varies)
- Low density along this section with a mix of industrial, residential, and open land
- Speed limit 35/45 mph
- Traffic Volume – 6,600 - 8,000 (2009)


Typical commercial strip

3 Nashville Road to Garvis Street

- Corridor narrows to one northbound lane, two southbound lanes, and a center turn lane
- Buffered sidewalks exist on each side but are too narrow for street trees
- Density increases to a mix of medium-density residential and commercial properties
- Speed Limit 35 mph
- Traffic Volume – 12,000 – 13,000 (2009)

Poor bus stop infrastructure

5 Garvis St to Franklin St

- Center turning lane transitions to a second northbound travel lane
- Bus stops along the corridor lack shelters or schedules
- Speed Limit 35 mph
- Traffic Volume – 9,800 (2009)

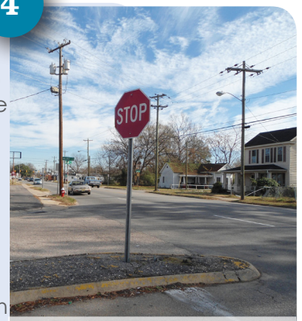
2 Intersection Challenges

- Additional lanes at intersections create additional conflict points for cyclists and lengthen pedestrian crossings
- Traffic Volume – 12,000 (2009)


The Intersection at Nashville Rd

4 Sidewalk Obstructions

- Intersections like that at Walnut present obstacles to pedestrians, especially those with disabilities (wheelchair users that could not mount the raised median were observed going into the travel lane to get around the median)
- Numerous driveways break up the sidewalk, which often disappears into parking lots

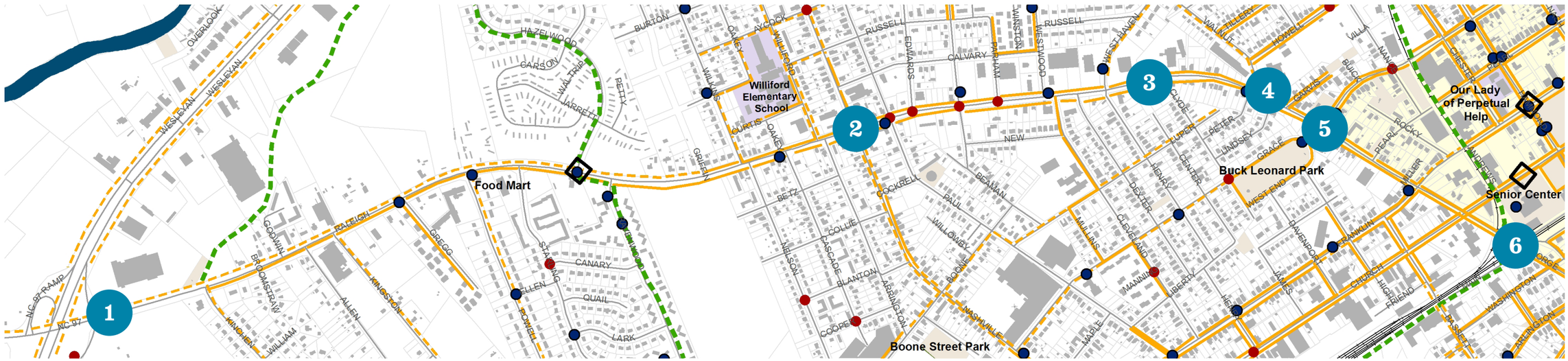


Pedestrian obstructions


Raleigh Rd Bridge at Franklin St

6 Franklin Street to Arlington Street

- Road narrows at Franklin Street to a bridge over the railroad tracks
- Narrow sidewalks, short railings, and steep drop-offs at the ends of the bridge pose hazards to pedestrians
- Bus and truck traffic paired with narrow lanes and no shoulders creates hazardous conditions for cyclists
- Speed Limit 35 mph
- Traffic Volume – 10,000 (2009)



EXISTING CONDITIONS: Raleigh Street/George Street (East Raleigh Blvd)

1 Arlington Street to Rose Street

- Two travel lanes in each direction with gutter pans and buffered sidewalks
- Several municipal buildings including the Post Office and the Fire Department break up this mostly residential stretch
- Existing street tree coverage in this section is greater than other parts of the corridor
- Speed Limit 35 mph
- Traffic Volume – 8,700 – 10,000 (2009)

George St connects E. Raleigh Blvd to W. Raleigh Blvd.

2 Rose Street to Parker Street

- Road expands with center median as it transitions back to commercial development on E. Raleigh Blvd.
- Asphalt median is unattractive with no landscaping
- Utility lines continue on north side of road
- Pedestrian crossing at Coleman Ave for Pope Elementary School lacks highly visible crosswalks or an effective control device
- Speed Limit 25/35 mph
- Traffic Volume – 9,500 (2009)

Median island at merging of E. Raleigh Blvd. & George St

3 Parker Street to Pinehurst Drive

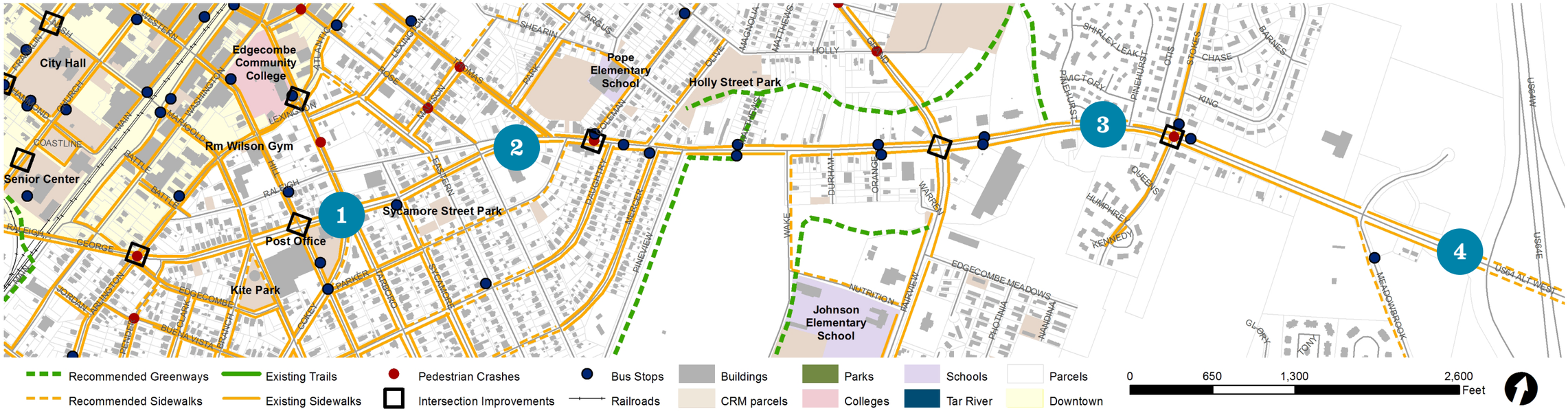
- Road returns to two lanes in each direction with buffered sidewalks
- Strip commercial development lines the corridor
- Bus stops along this stretch contain shelters
- Speed Limit 35/45 mph
- Traffic Volume – 13,000 (2009)

Bus Shelter at commercial section of E. Raleigh Blvd.

4 Pinehurst Drive to US64 Bypass

- Two travel lanes in each direction, one center turning lane, gutter pans, and sidewalks with narrow buffer
- Road expands to accommodate a center turning lane as it nears Highway 64 Bypass
- Center turning lane becomes an unplanted median at the intersection with the Highway
- Commercial development gives way to forested and open land
- Speed Limit 45 mph
- Traffic Volume – 11,000 (2009)

E. Raleigh Blvd. at US Highway 64 Bypass



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RECOMMENDATIONS

Goals for the Corridor Plan

The overarching goal of this Plan's recommendations is to create livable, bikable, and walkable environments on roadway corridors that today are automobile-centric and unattractive (Church Street, Atlantic Avenue, E. Raleigh Blvd., and W. Raleigh Blvd.). These corridors lead people to Downtown Rocky Mount attractions and present an opportunity to improve the overall aesthetic, multi-modal transportation, and the local economy.

Specific goals include:

- Improving pedestrian safety through the filling of sidewalk gaps, enhancements to existing sidewalk, and crossing facilities.
- Improving bicycle safety through the reallocation of roadway space to include separated bicycle facilities.
- Improving existing parks and non-maintained parcels to enhance aesthetics and access by creating attractive and inviting greenspaces.
- Developing gateway features and wayfinding signage to increase visibility and charm and encourage travel to the Downtown.
- Adding vegetation such as street trees, shrubs, and native grasses to enhance traffic calming, pedestrian safety, and the overall character of these roadways.

This Plan provides guidance that will lead to the next steps of design and construction. Detailed recommendations are provided using the following menu of treatments for pedestrian safety, bicycle safety, greenspace, gateway/wayfinding, and vegetation. ***The recommendations of this Plan should not be substituted for a more thorough engineering analysis. This Plan simply provides a vision and guidance leading into the next necessary steps of detailed design and engineering.***

Pedestrian Safety

Pedestrian safety measures are an important component to the livability of any city. Rocky Mount possess tremendous potential for increasing safety for their citizens, as the foundation of ample space exists throughout the corridors studied. To create streets as attractive, safe, and comfortable thoroughfares, elements can easily be added to increase visibility, provide better cues, create hierarchy between vehicle and pedestrian rights of way, and design a space intended for human scale.

Four main components of pedestrian safety for this plan include:

1. Crosswalks

A marked crosswalk designates a pedestrian right-of-way across a street. High-visibility crosswalks, such as continental or ladder style, are more visible than just two parallel lines.

2. Character Crosswalks

A character crosswalk is a high-visibility marked crosswalk that draws inspiration from the surrounding environs and typically uses a unique paver surface.

3. Countdown Signals

Countdown signals provide time information in seconds. As of 2008, new federal policy requires all new pedestrian signals to be of the countdown variety and that all existing signals be replaced within ten years.

4. Curb Ramps

Curb ramps are important components of a crossing facility that provide better access for wheelchair users, people pushing strollers, and pedestrians with mobility or other physical impairment. Ideally, there are two curb ramps at major intersections (one per crosswalk).

Bicycle Safety

Bicycle safety measures create clearly-distinguished, separated space in the roadway for bicyclists. The establishment of separated space encourages less confident bicyclists to enter the roadway and alerts motorists to the presence of bicyclists. For the purposes of this Plan, facilities come in the form of buffered bicycle lanes, bicycle lanes, and shared-lane markings (sharrows).

Three main components of bicycle safety for this plan include:

1. Buffered Bike Lanes

Buffered bike lanes pair bike lanes with a designated buffer space separating the bike lane from the adjacent motor vehicle travel lane.

2. Bike Lanes

Bicycle lanes designate an exclusive space for bicyclists through the use of pavement markings, striping, and signage.

3. Sharrows

Sharrows are road markings used to indicate a shared lane environment for bicycles and automobiles. Sharrows reinforce the legitimacy of bicycle traffic on the street and recommend proper bicyclist positioning.

Greenspace

Greenspace is an important component of urban livability and has multiple benefits. It comes in several forms, shapes, and sizes. These spaces introduce nature into the urban environment, provide a contrast to hard surfaces, create destinations for play or rest, foster community interaction, promote safety, attract business, raise property values, and improve water quality. For this Plan, recommendations are made for greenspace enhancements and greenspace creation as restoration of vacated, overgrown, or abandoned parcels. Both existing and new greenspaces will visually draw residents and tourists - serving as gateways for destinations like Downtown and the Tar River Trail.

Two main components of greenspace for this plan include:

1. Park Improvements

Improvements (such as tree plantings, benches, and fence removal) to existing parks will create more inviting, accessible spaces that enhance the overall corridor.

2. Pocket Parks

Pocket parks are recommended for parcels that are vacated and/or not maintained. These corner parcels can create gateways into the City and Downtown.

Wayfinding

Implementing a well-planned and attractive system of wayfinding signage and entry monuments will draw the attention of motorists, bicyclists, and pedestrians. Effective gateway monuments and wayfinding signage can create a better sense of place and entry that will encourage travel to the Downtown and to key destinations along roadway corridors. Wayfinding will improve the experience of those visiting Rocky Mount and lead visitors directly to the unique cultural, recreation, historic, and natural features in the City.

Two main components of wayfinding for this plan include:

1. Entry Monuments

Gateway monuments would provide a clear, grand message of entrance into Rocky Mount for visitors exiting the US 64 Bypass.

2. Directional Wayfinding

Wayfinding signage can encourage visitation, helps put people at ease when they enter a city, can reflect the character of the place, and can guide to key attractions throughout Rocky Mount.

Vegetation

Vegetation is an integral element of any streetscape. Appropriately selected vegetation provides shade, interest, safety buffers, texture and rhythm creating an interesting environment for all modes of travel. Trees, shrubs, and native grasses also improve air and water quality. For Rocky Mount, an array of large trees, small flowering trees, seasonal interest grasses, perennial shrubs and spreading groundcovers will beautify each corridor and contribute to the character of the City. When choosing species of vegetation, it is imperative to consider sightlines of pedestrians and motorists. Shrubs and trees should be trimmed to accommodate visual clearance between two feet and six feet above roadway surfaces. Vertical clearance of trees should be 16 feet above road surfaces and seven feet above sidewalks.

Four main components of vegetation for this plan include:

1. Large Street Trees

Large street trees provide shade for pedestrians and can act as buffers to vehicular traffic.

2. Small Street Trees

Small street trees pepper the streetscape with seasonal color and interest.

3. Shrubs + Groundcover

Shrubs and groundcover help delineate spaces for pedestrians as well as beautify the streetscape.

4. Native Grasses

Native grasses can be a low maintenance option for streetscapes providing texture and color.

Corridor Finishing Elements

Populating the corridor with finishing elements that are unique to Rocky Mount and consistent across the City will beautify the area and increase the overall legibility and ease of navigation for residents and visitors. The finishing package can range from benches, to bus stop shelters, signage, lighting, planting and more. For this study, pedestrian and bicycle safety remain at the forefront of roadway finishing. Therefore, bus stop facilities, entry monuments, wayfinding, and planting details are highlighted throughout the plan. Approximate locations for each of the elements are indicated, however, further discussions will be necessary to reveal specific treatments, materials, and sequencing.

Bus Stop Facilities

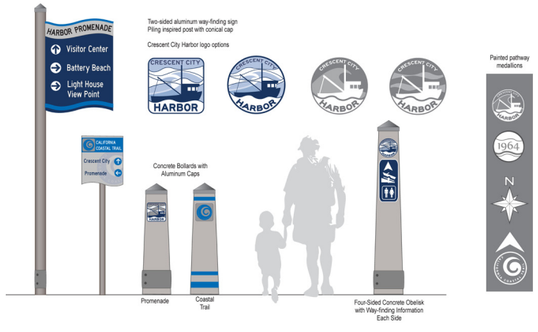
Bus stops are an important transportation element that should be implemented with safety and accessibility in mind. Sidewalk connectivity and comfortable amenities will encourage and facilitate pedestrian, bicycle, and bus travel. Most bus stops in this study's corridors only feature a sign. These bus stops should be updated to include a shelter with seating. In addition, consideration should be given to proper lighting, maps, trash bins, and bicycle parking.

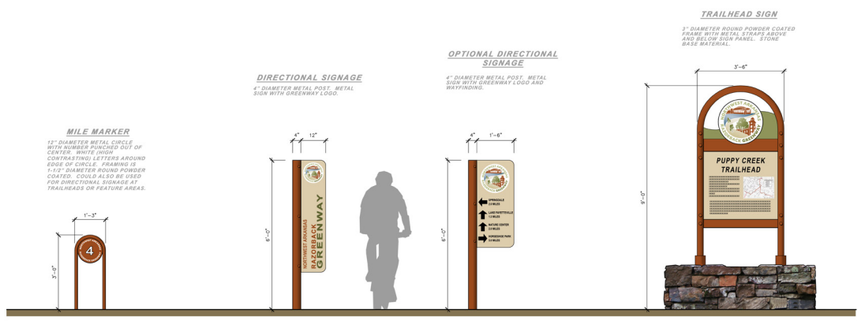
Entry Monuments

Entry monuments are excellent for extending the character of downtown areas into the reaches of periphery traffic. Materials range from natural stone to manufactured metals and can be combined and crafted to integrate with existing buildings, lighting, paving materials, and other form-based identifying elements of the City. Identifying location, quantity, budget, and potential local vendors will lead to a successful vision and feasible entry monument package.

Wayfinding and Lighting

Wayfinding signage throughout Rocky Mount enhances resident and visitor orientation. A clear wayfinding package will also support the character of the City and contribute to economic development by indicating a historic district, key destinations, restaurants, and entertainment venues. Approaching directional signing from the perspective of motorist, pedestrian, and cyclist will complete a multimodal legibility package. Materials for signage should reflect the character of the community and be selected for longevity and ease of maintenance. Pedestrian-scale lighting will improve the safety and overall aesthetics for pedestrians. ***Pedestrian-scale lighting is needed for all roadway corridors in this Gateway Corridor Plan.***



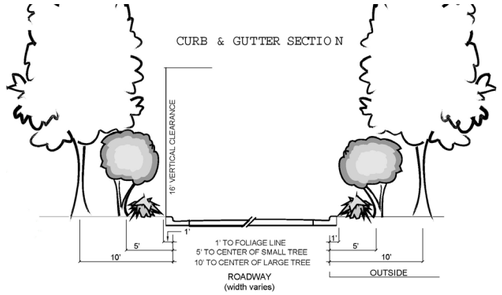


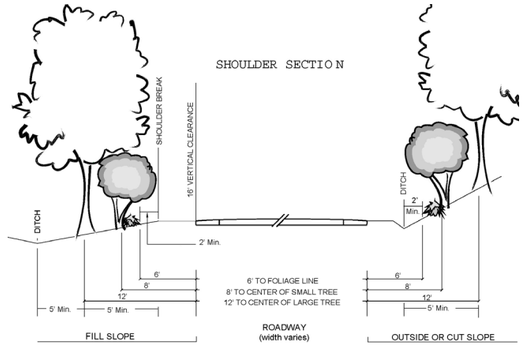
From New York City Department of City Planning

Planting within Highway, Roadway and Interchanges

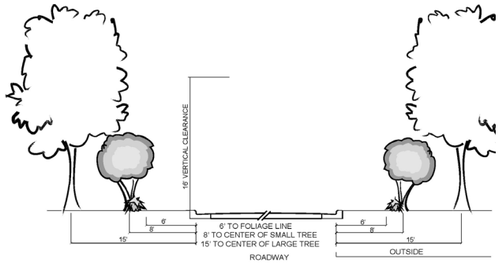
While vegetation along roadways can indicate entrances and create interest, the leading parameter for trees, shurbs, groundcovers, and grasses is to maintain safety for motorists, pedestrians, and bicyclists. Selecting the proper species, coupled with the proper maintenance schedule creates an environment that is aesthetically pleasing and safe. Trees should be specified based on the conditions of the environment and mature growth size. Large tree species should be avoided where they may interfere with power lines, buildings, sidewalks, and other built forms. Shrubs and grasses should be specified based on mature height and spread.

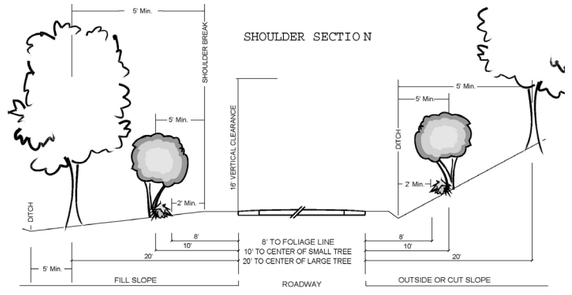
Spacing Recommendations for Roadways at 35mph or less



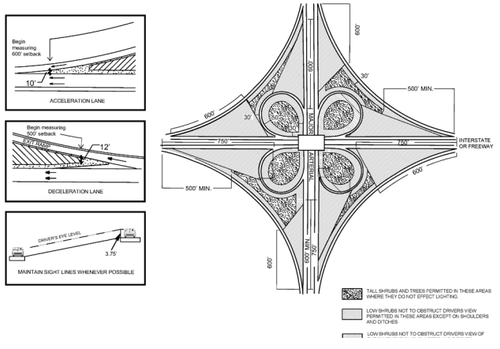


Spacing Recommendations for Roadways between 35 and 45mph

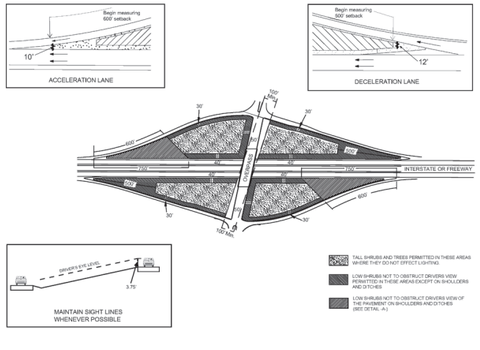




Cloverleaf Interchange



Diamond Interchange



Tree Species Commonly Used by NCDOT

Acer rubrum, Red Maple- D, LT, XFC
Acer saccharum, Sugar Maple- D, LT, XFC
Amelanchier arborea, Downy Serviceberry, D, ST, FL, FR, BK, XFC
Betula nigra, River Birch- D, LT, BK
Cercis canadensis, Eastern Red Bud- D, ST, FL
Chionanthus virginicus, White Fringetree- D, ST, FL, FR
Cladrastis lutea (kentukea)- American Yellowwood- LT, FL, XFC
Cornus florida, Flowering Dogwood- D, ST, FL, FR, XFC
Cryptomeria japonica, Japanese Cryptomeria- E, LT, H/S
Fagus grandiflora, American Beech- D, LT, FR, BK, XFC
Fraxinus pennsylvanica, Green Ash- D, LT
Halesia carolina, Carolina Silverbell- D, LT, FL, FR
Juniperus virginiana- Eastern Red Cedar- E, LT, H/S
Koelreuteria paniculata, Golden Raintree- D, LT, FL, FR, XFC
Lagerstroemia indica, Crape Myrtle - D, ST, FL, BK, XFC
Lagerstroemia fauriei, Japanese Crape Myrtle-cultivars are highly resistant to mildew and more cold hardy)- D, ST, FL, BK, XFC
Liquidambar styraciflua, Sweetgum (the fruitless variety may be more practical for residential use)- D, LT, FR, XFC
Liriodendron tulipifera, Tulip Poplar- D, LT, FL, XFC
Magnolia grandiflora, Southern Magnolia- E, LT, FL, FR, H/S
Magnolia- a large selection of deciduous native and cultivated magnolia species are worthy of use- LT to ST, FL, FR, BK
Malus, Flowering Crabapple- variety of sizes fit well into the landscape (research selection for disease and insect resistance) - D, ST, FL, FR
Metasequoia glyptostroboides, Dawn Redwood- D, LT, H/S, XFC
Nyssa sylvatica, Black Gum- D, LT, FR, BK, XFC
Oxydendrum arboreum, Sourwood- D, ST, FL, FR, BK, XFC
Picea abies, Norway Spruce- E, LT, FR
Pinus strobus, White Pine- E, LT, H/S
Pinus taeda, Loblolly Pine- E, LT
Pinus thunbergiana, Japanese Black Pine- E, LT
Pinus virginiana, Virginia Pine- E, LT, H/S
Pistacia chinensis, Chinese Pistachio- D, ST, FR, BK, XFC
Platanus x acerfolia, London Plane Tree (or Sycamore)- D, LT, FR, BK
Platanus occidentalis, American Plane Tree (or Sycamore)- D, LT, FR, BK
Prunus cerasifera, Flowering Plum- D, ST, FL
Prunus mume, Japanese Apricot- D, ST, FL
Prunus serrulata, Japanese Flowering Cherry- D, ST, FL, BK
Prunus subhirtella, Higan Cherry- D, ST, FL, FR, BK
Prunus x yedoensis- Yoshino Cherry- D, LT, FL, FR, BK
Quercus alba, White Oak, D, LT,
Quercus acutissima, Sawtooth Oak- D, LT, FR
Quercus coccinea, Scarlet Oak- D, LT, FR, XFC
Quercus falcata, Southern Red Oak- D, LT, FR
Quercus palustris, Pin Oak- D, LT, FR, XFC
Quercus phellos, Willow Oak- D, LT, FR
Quercus virginiana, Live Oak- E, LT, FR
Sophora japonica, Japanese Sophora- D, LT, FL, FR
Taxodium distichum, Bald Cypress- E, LT, BK, XFC
Tsuga canadensis, Canadian (Eastern) Hemlock- E, LT, FR, H/S
Tsuga caroliniana, Carolina Hemlock- E, LT, FR, H/S
Vitex agnus-castus, Chastetree (or Vitex)- D, ST, FL
Zelkova serrata, Japanese Zelkova- D, LT, BK, XFC

Shrubs/Groundcover/Grasses Commonly Used by NCDOT

Abelia x grandiflora- Glossy Abelia - E, MS, FL, H/S
Aesculus parviflora, Bottlebrush Buckeye- D, LS, FL, FR
Aronia arbutifolia, Red Chokeberry- D, LS, FR, XFC
Berberis thunbergii, Japanese Barberry- D, MS, FR, XFC
Buddleia davidii, Butterfly-bush- D, MS, FL
Callicarpa americana, American Beautyberry- D, MS, FL, FR
Callicarpa dichotoma, Purple Beautyberry- D, SS, FL, FR
Caryopteris x clandonensis, Bluebeard (or Blue-spirea)- D, SS, FL
Chaenomeles speciosa, Common Flowering Quince- D, LS, FL, FR
Clethra alnifolia, Summersweet- D, MS, FL, FR, XFC
Cornus alba, Tatarian Dogwood- D, LS, BK, XFC
Cornus sericea, Redosier Dogwood – D, LS, BK, XFC
Cotinus coggygria, Smokebush (or Smoke Tree)- D, LS (ST), FL, XFC
Elaeagnus pungens, Thorny Elaeagnus- E, LS, H/S
Euonymus alata 'compacta', Compact Burning-bush- D, LS, FR, BK, H/S, XFC
Forsythia x intermedia, Border Forsythia- D, LS, FL
Fothergilla gardenii, Dwarf Fothergilla- D, SS, FL, XFC
Hamemelis virginiana, Witchhazel- D, LS (ST), FL, XFC
Hamemelis x intermedia- group of hybrid Witchhazels- D, LS (ST), FL, XFC
Hemerocallis- Daylily (thousands of varieties available)- D to E, G, FL
Hydrangea quercifolia, Oakleaf Hydrangea- D, MS, FL, XFC
Hypericum frondosom, Golden St. Johnswort- D, SS, FL
Ilex x attenuata- group of hybrid hollies (Foster)- E, LS (ST), FR, H/S
Ilex cornuta, Chinese Holly- E, LS, FR, H/S
Ilex crenata, Japanese Holly- E, LS, H/S
Ilex glabra, Inkberry- E, LS, FR, H/S
Ilex latifolia, Lusterleaf Holly- E, LS (ST),, FR, H/S
Ilex opaca, American Holly (upright hollies)- E, LS (ST), FR, H/S
Ilex verticillata, Winterberry- D, LS, FR
Ilex vomitoria, Yaupon Holly- E, LS (ST),, FR, H/S
Ilex x 'Nellie R. Stevens', Nellie R. Stevens Holly- E, LS (ST), FR, H/S
Itea virginica, Virginia Sweetspire- D, MS, FL, XFC
Jasminum nudiflorum, Winter Jasmine- D, SS, FL
Juniperus- multitude of junipers ideal for various landscape uses- E, LS to G
Kerria japonica, Japanese Kerria- D, MS, FL
Lagerstroemia- many smaller (shrubby) Crape Myrtles are introduced annually - D, SS(MS), FL, XFC
Liriope muscari, Big Blue Liriope- E, G
Loropetalum chinense, Loropetalum- E, LS, FL, H/S
Myrica cerifera, Southern Wax Myrtle- E, LS, FR, H/S
Myrica pensylvanica, Northern Bayberry- E, LS, FR, H/S
Osmanthus x fortunei, Fortune's Osmanthus- E, LS, FL, H/S
Pyracantha coccinea, Scarlet Firethorn- E, LS, FL, FR, H/S
Pyracantha koidzumii, Formosa Firethorn- E, LS, FL, FR
Raphiolepis umbellata (indica), Indian Hawthorn- E, MS, FL, FR
Spiraea cantoniensis, Reeves Spirea- D, MS, FL
Spiraea x bumalda- Bumald Spirea- D, SS, FL
Taxus x media, Spreading Yew- E, height varies, FR, H/S
Ternstroemia gymnanthera, Japanese Cleyera - E, LS, FL, FR, H/S, XFC
Viburnum - E to D, LS to MS, FL, H/S
Weigela florida, Weigela (various sizes, colors, etc.)- D, LS, FL

E-evergreen
D-deciduous
LT- large tree
ST- small tree
LS- large shrub
MS- medium shrub
SS- small shrub
G-groundcover
FL- conspicuous flower
FR- conspicuous fruit
BK- attractive bark or stem color
H/S-good hedge/screen
XFC- exceptional fall color
LT (Large Tree): 30'- taller
ST (Small Tree): 15'- 30'
LS (Large Shrub): 8'-taller
MS (Medium Shrub): 4'- 8'
SS (Small Shrub): less than 4'

Guidelines for planting are extracted from the North Carolina Department of Transportation Division of Highways "Guidelines for Planting within Highway Right-of-Way."

Bike/Ped/Planting Recommendations: Church Street

Church Street

Church Street leads directly from US 64 Bypass into the Downtown core of Rocky Mount. As a two-way roadway from US 64 Bypass to its intersection/split with Franklin Street, Church Street needs significant improvements to create more of a gateway corridor that is walkable and bikable. Key improvements include gateway enhancements, wayfinding signage, driveway/parking lot access reduction, defined sidewalk on both sides, intersection pedestrian crossing improvements, and street trees where feasible. The one-way Downtown section, along with Franklin Street, should be restriped to two lane with buffered bicycle lanes because it is under-capacity. The southern entrance to the Downtown at the Raleigh Road overpass is also in need of upgrades to provide more of a southern gateway Downtown entrance which would include enhanced pedestrian space, street trees, and wayfinding signage. Trees should be placed in the sidewalk buffer where width allows, or located on the other side of the sidewalk where the buffer is too narrow.

Existing Conditions at Church and Falls

Proposed treatment for Church and Falls (conceptual corner business)

Bike/Ped/Planting Recommendations: Church Street
BIG FOLD OUT GOES HERE

Bike/Ped/Planting Recommendations: Church Street
BIG FOLD OUT GOES HERE

Corridor Statistics

CORRIDOR		EXISTING							PROPOSED ROADWAY				
	LOCATION	LENGTH (feet)	Posted Speed	Dir	Lanes (Total)	Center Turning Lane	2009 AADT	Peak Hour (veh/ hour, 10% of ADT)	Posted Speed	Dir	Lanes (Total)	Center Turning Lane	Median
Church St													
p. 20	US 64 to Tar River	1000	45	2	5	1	9600	960	35	2	2	0	Yes
p. 21	Tar River to Grand Ave	2400	35	2	3	1	9600	960	30	2	3	1	Intermittent
p. 22	Grand Ave to Franklin St	700	25	2	3	0	3600	360	25	2	3	1	No
p. 23	Franklin St to Sunset Ave	2400	25	1	3	0	3600	360	25	1	2	0	No
p. 24	Sunset Ave to Hammond St	1600	25	1	3	0	4500	450	25	1	2	0	No
p. 25	Hammond St to Raleigh Rd	1000	25	2	3	1	2900	290	25	2	3	1	Intermittent

CORRIDOR		CAPACITY (veh/hour)		LEVEL OF SERVICE		PROPOSED BIKE	PROPOSED PEDESTRIAN					VEGETATION				WAYFINDING		GREENSPACE	
	LOCATION	Before	After	Before	After	Bike Facility	Sidewalk	Count-down signals	Marked Cross-walks	Charac-ter Cross-walks	Curb Ramps	Large Trees	Small Trees	Shrubs and Ground-cover	Native Grasses	Entry Monu-ments	Direc-tional Wayfind-ing	Park Improve-ments	Pocket Parks
Church St																			
p. 20	US 64 to Tar River	2580	1440	C	D	Buffered Bike Lane	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
p. 21	Tar River to Grand Ave	1070	1070	C	C	Sharrow	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	No	No	No	No
p. 22	Grand Ave to Franklin St	1070	1070	C	C	Sharrow	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	No	No	No
p. 23	Franklin St to Sunset Ave	1070	650	C	C	Buffered Bike Lane	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
p. 24	Sunset Ave to Hammond St	1070	650	C	C	Buffered Bike Lane	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
p. 25	Hammond St to Raleigh Rd	1070	1070	C	C	Sharrow	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No

Estimated service levels (capacity) and LOS are estimates using guidance from the Highway Capacity Manual. Travel time calculations were not included as part of these estimates. This analysis shows that LOS either remains the same or does not decrease significantly with the proposed roadway changes.

Bike/Ped/Planting Recommendations: Church Street

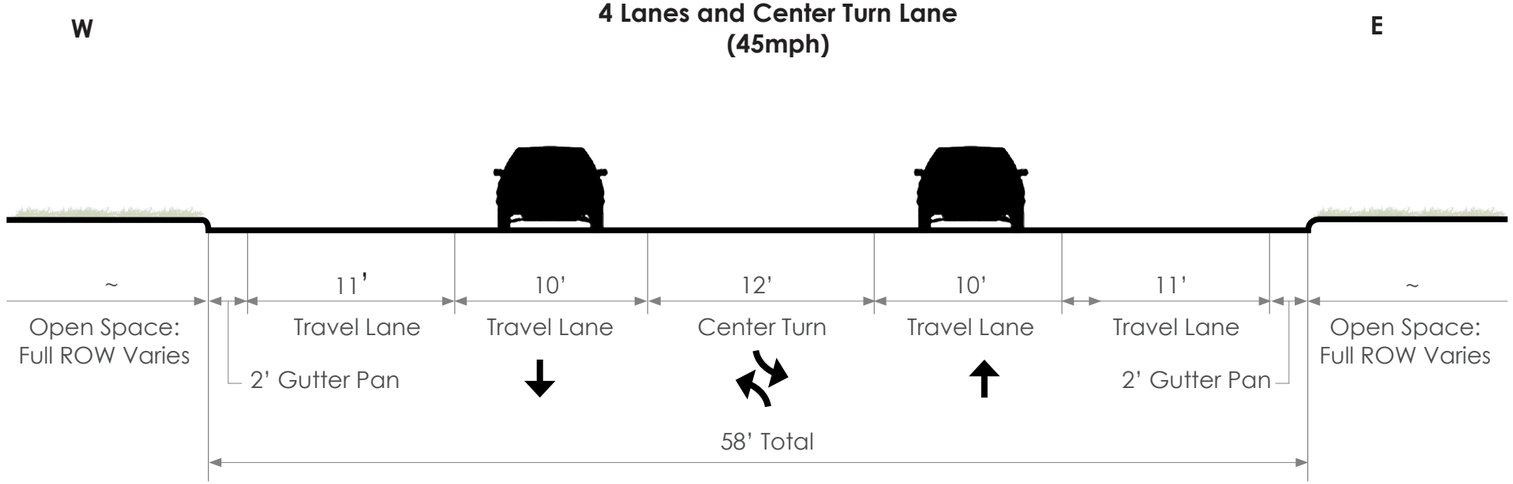
US 64 Bypass to Tar River

Recommended Treatments:

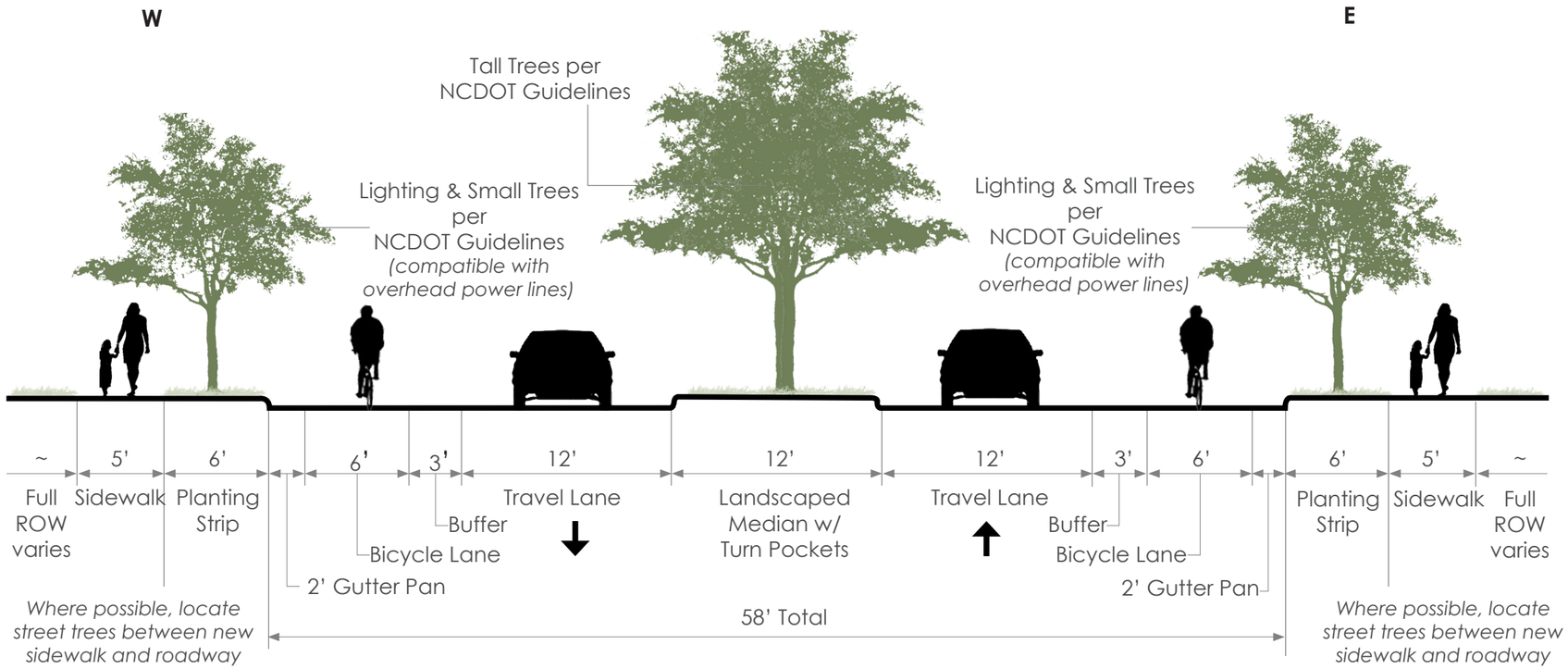
- Implement road diet conversion from five lanes to two lanes with buffered bike lanes (include planted center median with turning pockets)
- Add sidewalk and street trees
- Enhance gateway and add wayfinding signage to the Tar River Trail and to Downtown Rocky Mount
- Reduce speed limit to 35mph

Corridor length: 1,000 feet

EXISTING:
4 Lanes and Center Turn Lane
(45mph)

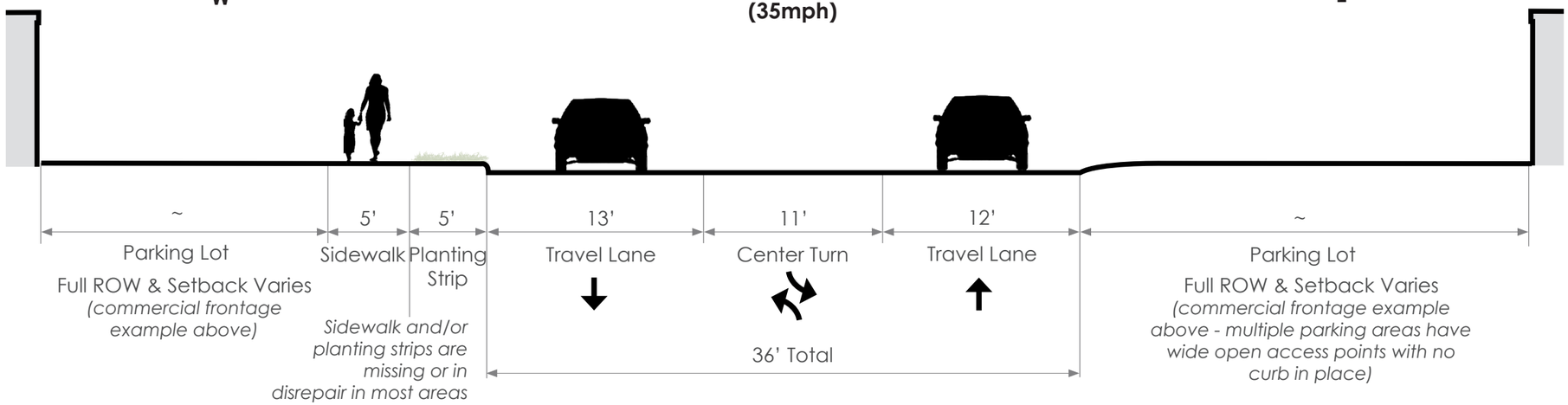


PROPOSED:
2 Lanes, Landscaped Median with Turn Pockets, and Buffered Bicycle Lanes
(35mph)

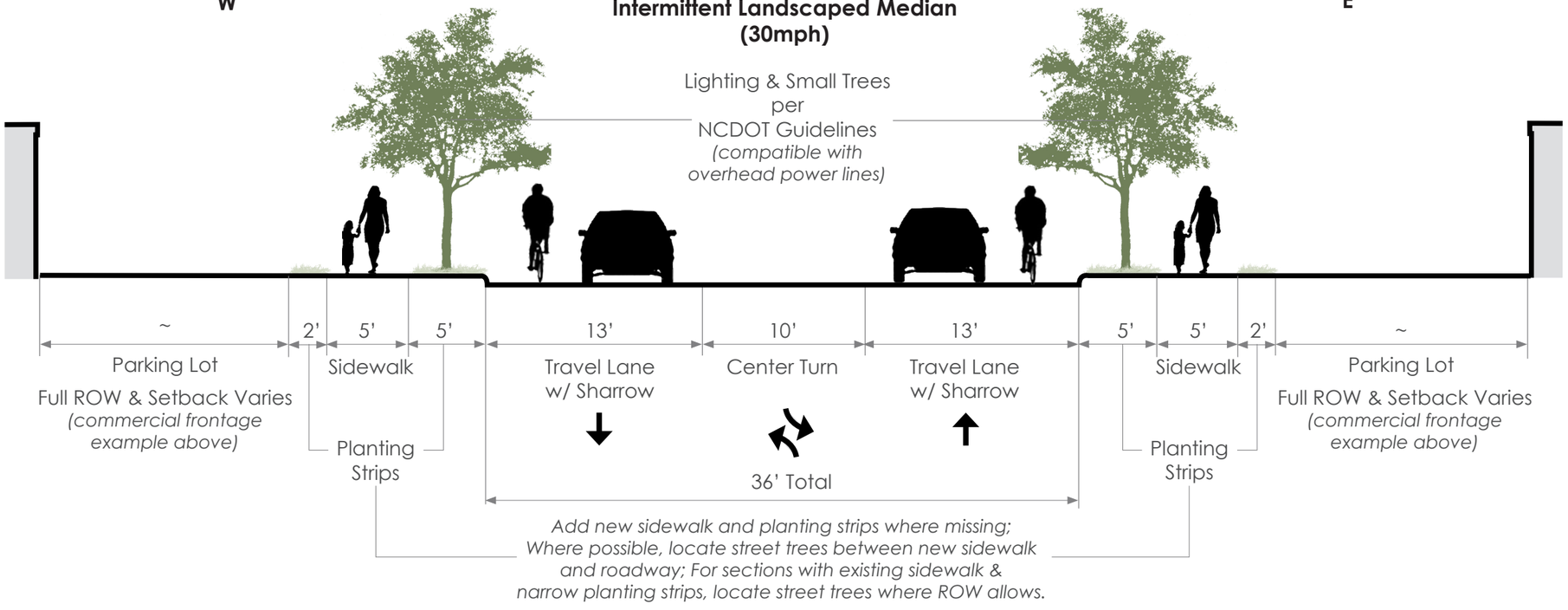


Tar River to Grand Avenue

EXISTING:
2 Lanes and Center Turn Lane
(35mph)



PROPOSED:
2 Lanes and Center Turn Lane with Shared Lane Markings and Intermittent Landscaped Median
(30mph)



Recommended Treatments:

- Add shared lane markings ("sharrows")
- Add sidewalk on both sides with grass buffer and tree plantings where possible
- Reduce size and number of driveway/parking lot entrances
- Add small sections of planted median for traffic calming and aesthetic improvements
- Improve Church/Grand intersection by creating separated pedestrian spaces, curb ramps, countdown signals, and highly-visible marked crosswalks.
- Reduce speed limit to 30mph

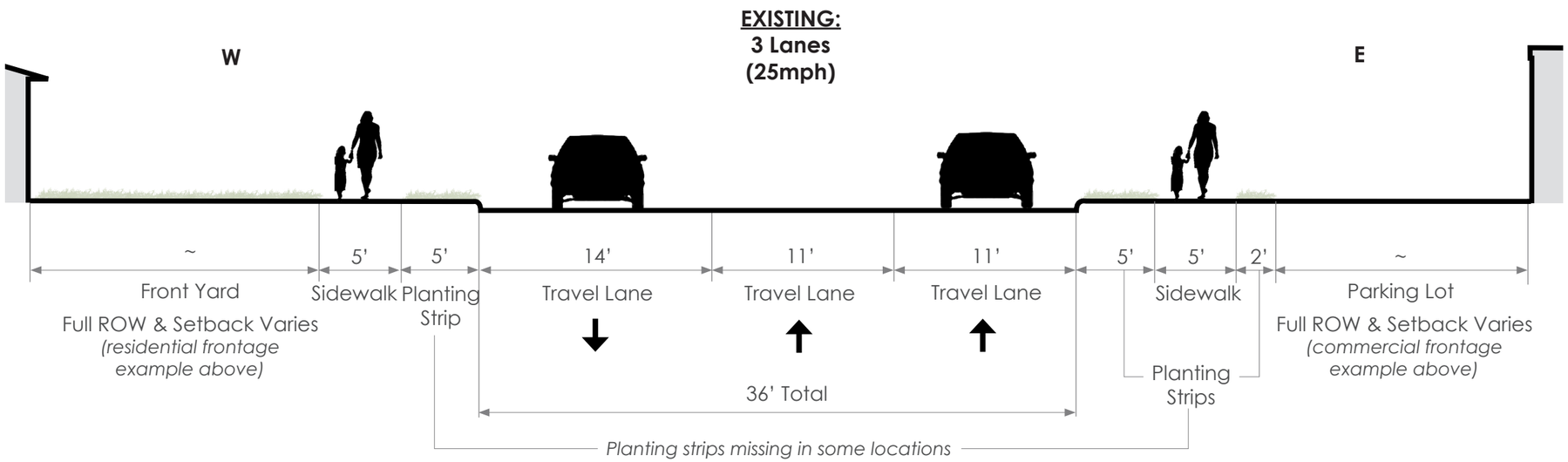
Corridor length: 2,400 feet

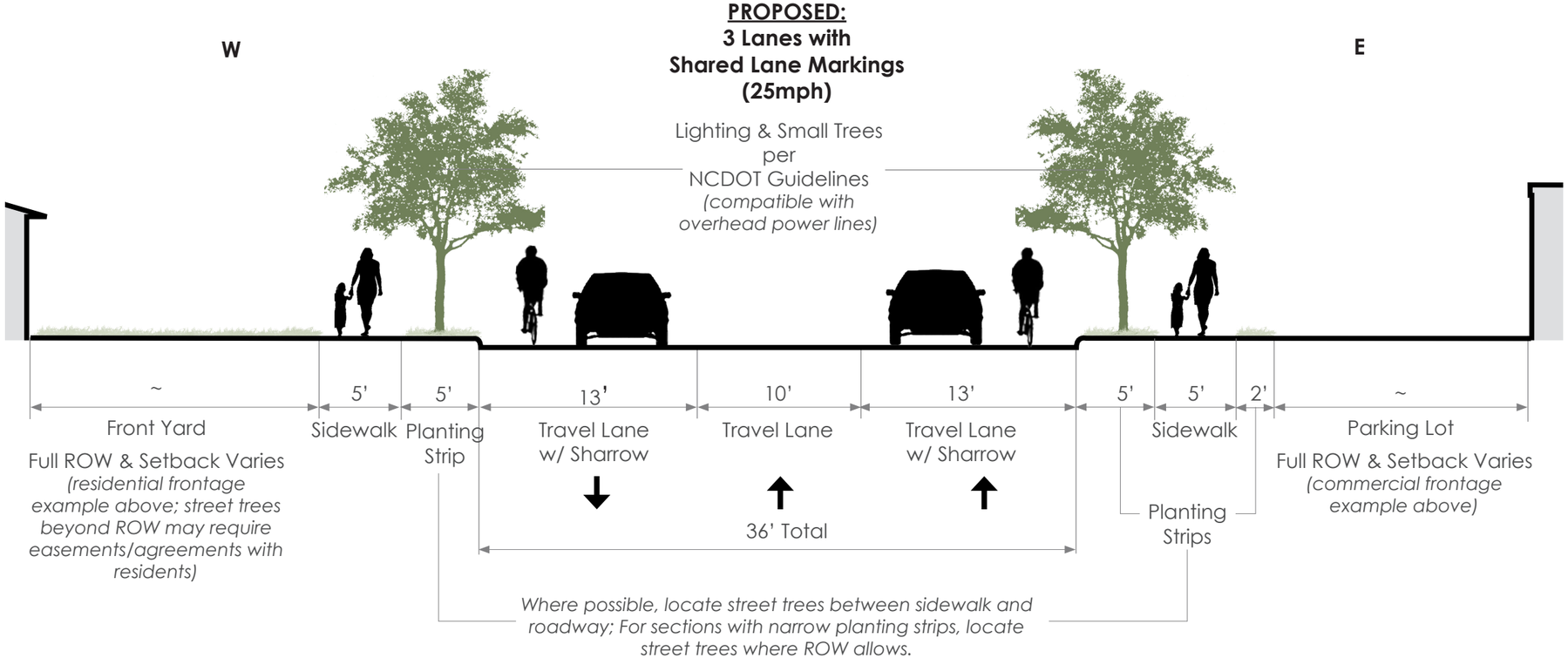
Grand Avenue to Franklin Street

Recommended Treatments:

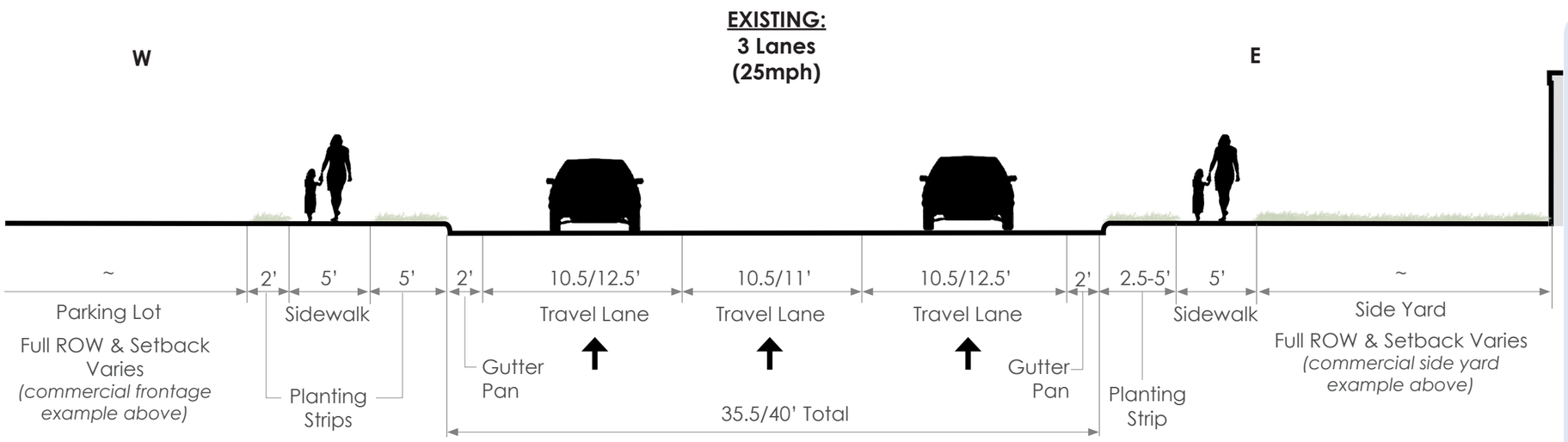
- Add shared lane markings ("sharrows"). At Franklin Street and going north, reduce three-lane one-way Franklin and Church to two-lane one-way with buffered bike lanes
- Add street trees in grass buffer

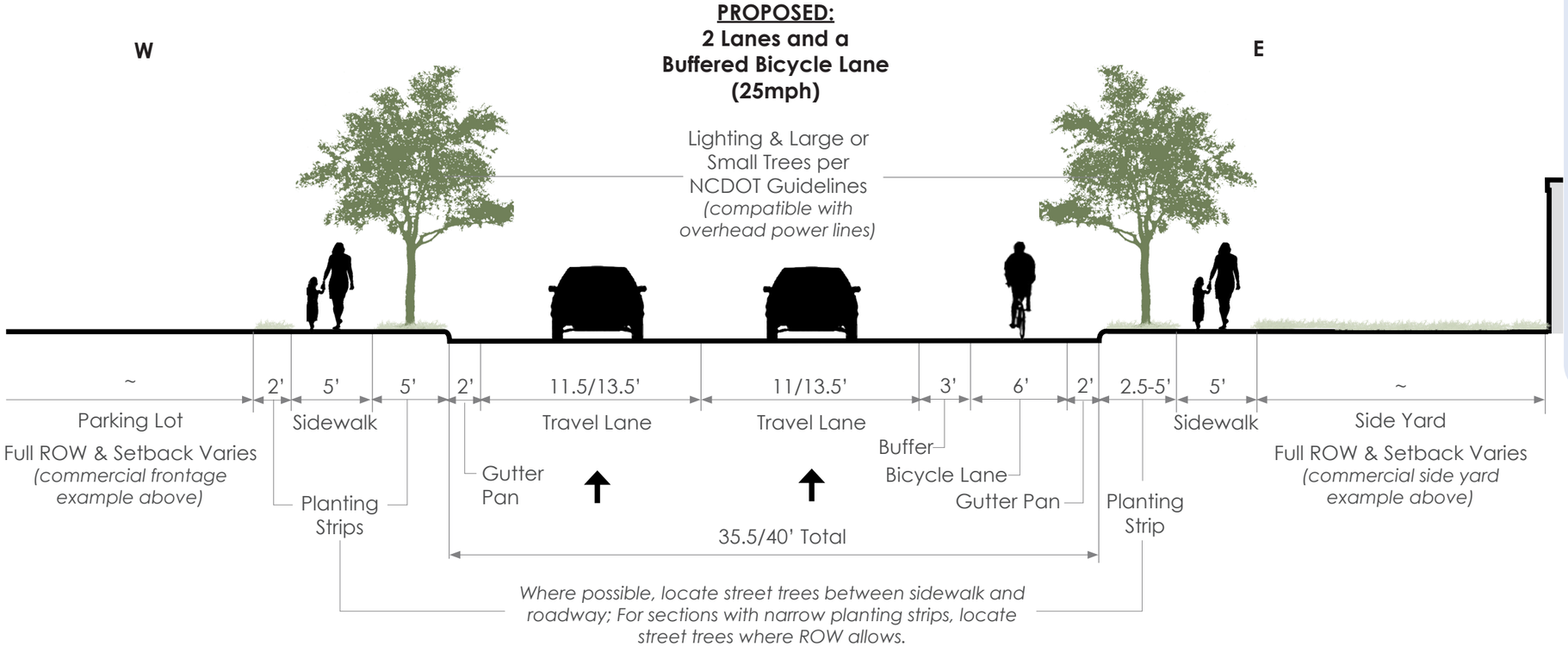
Corridor length: 700 feet





Franklin Street to Sunset Avenue





Recommended Treatments:

- Implement road diet conversion from three lanes one-way to two lanes one-way with buffered bike lanes
- Provide highly-visible marked crosswalk and crossing signage from the Imperial Centre to Jack Laughery Park
- Improve Church/Falls intersection by providing countdown signals, highly-visible marked crosswalks, and curb ramps
- Enhance northwest corner of Falls and Church by reducing driveway/parking lot entrance sizes and creating a separated pedestrian sidewalk zone
- Intersection crossing improvements at Church/ Thomas and Church/Sunset to include character crosswalks and improve curb ramps
- Improve bus stop between Sunset and Thomas by adding a bench and shelter
- Plant street trees in grass buffer where they are not present.

Corridor length: 2,400 feet

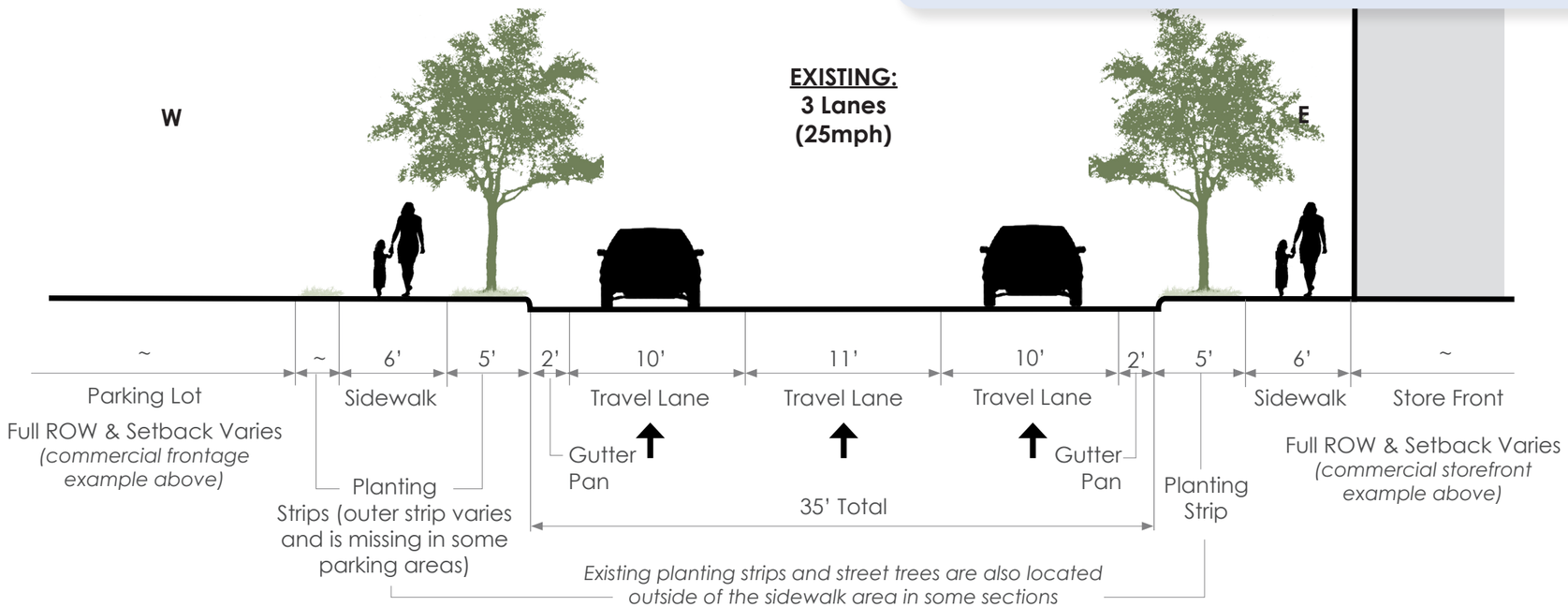
Bike/Ped/Planting Recommendations: Church Street

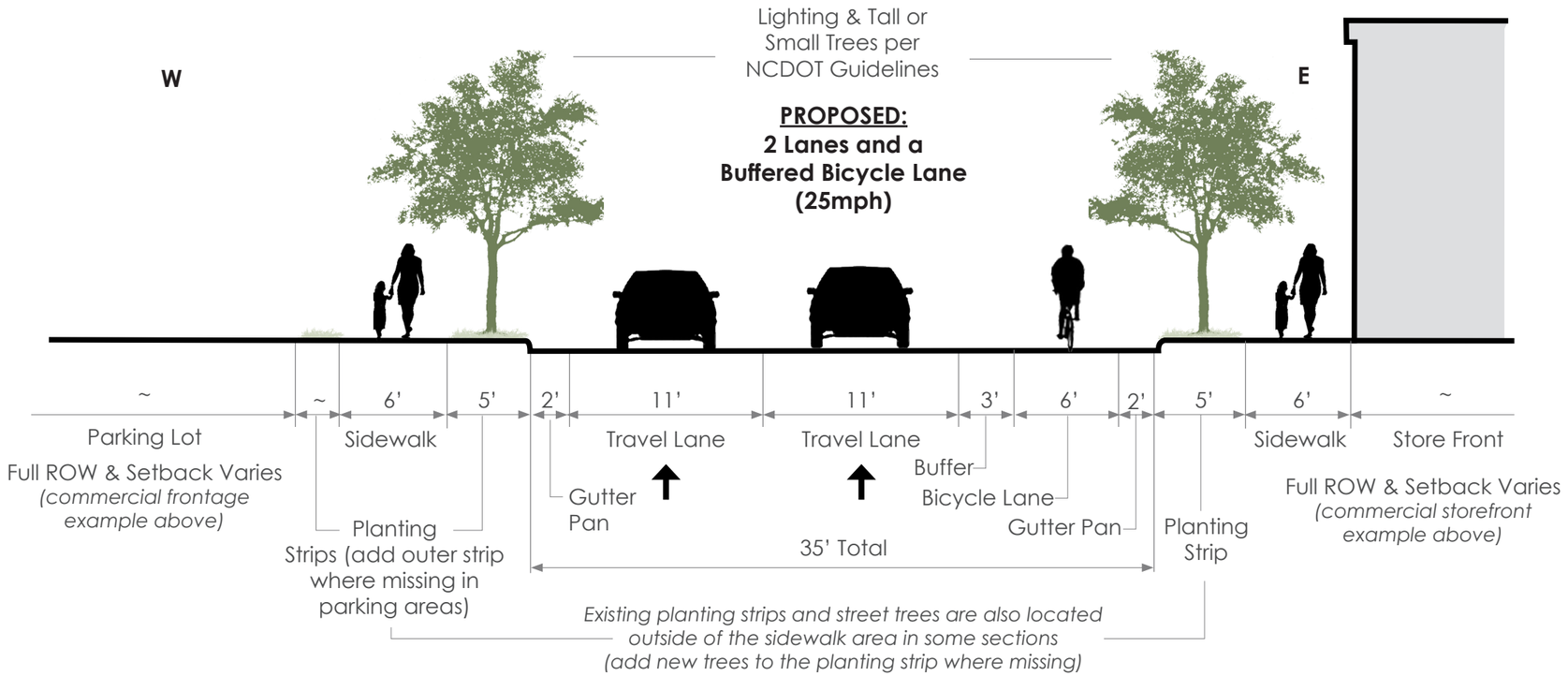
Sunset Avenue to Hammond Street

Recommended Treatments:

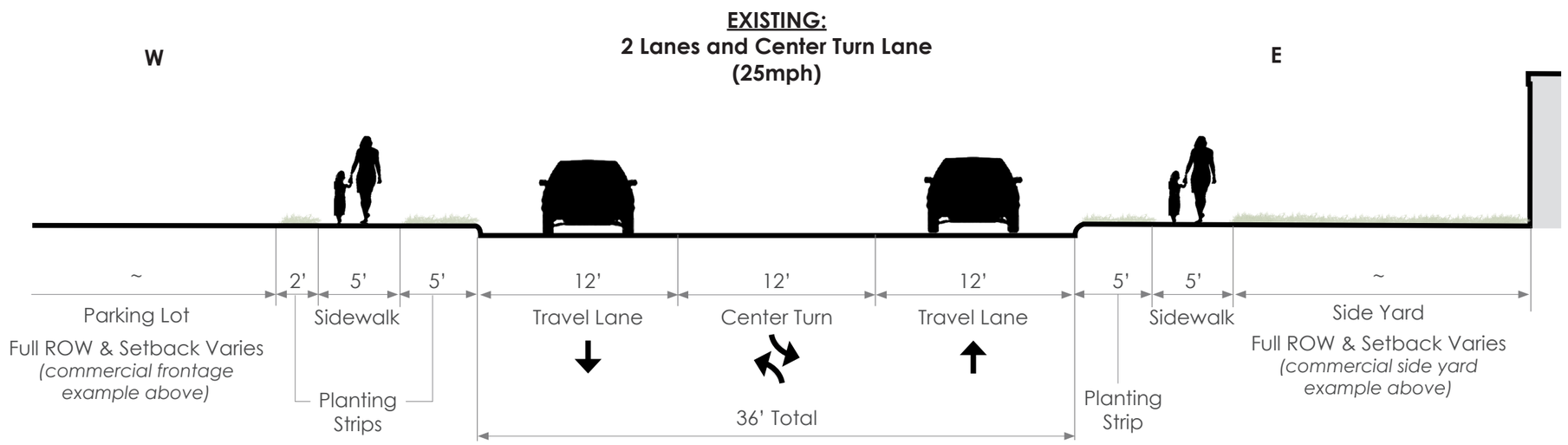
- Implement road diet conversion from three lanes one-way to two lanes one-way with buffered bike lanes
- Improve Church/Hammond intersection by adding countdown signals, installing character crosswalks, and improving curb ramps.
- Improve bus stop at Church/ Hammond and Church/ Western by adding bench/ shelter
- Plant street trees in grass buffer where they are not present

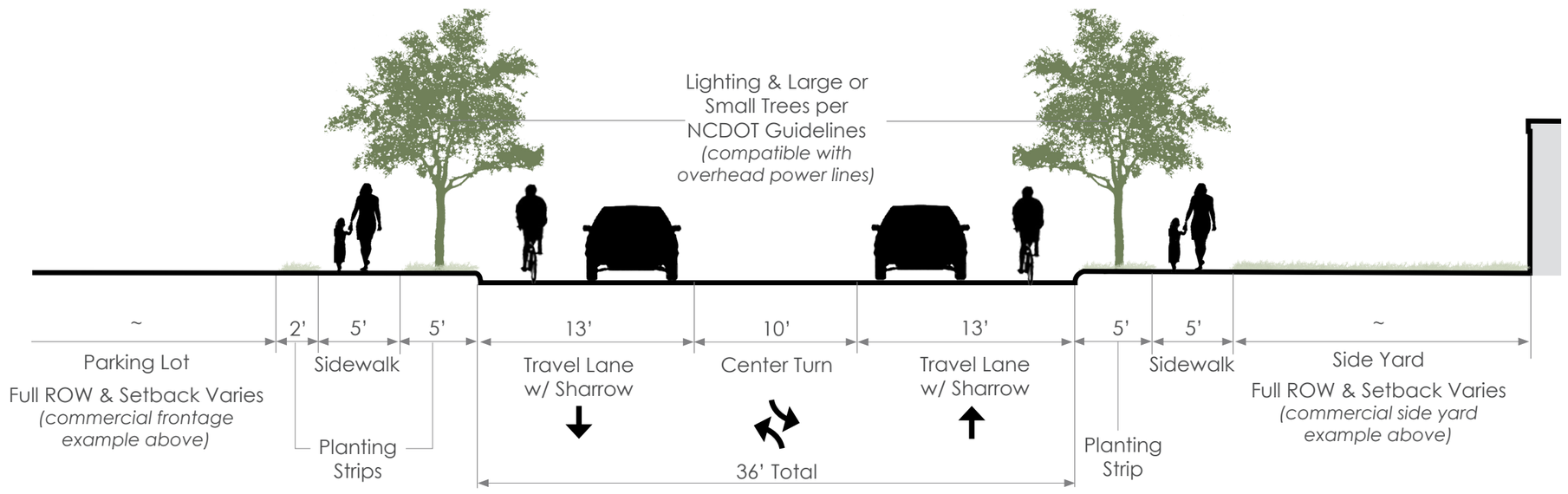
Corridor length: 1,600 feet





Hammond Street to Raleigh Road





Recommended Treatments:

- Add shared-lane markings ("sharrows")
- Add planted median with turning pockets.
- Add highly-visible marked crosswalk with median refuge at Senior Center-track crossing.
- Fill sidewalk gap across railroad tracks and make pedestrian-ADA-accessible
- Repair sidewalk by removing debris/soil/vegetation and repair cracking in places.
- Develop a gateway signage package at overpass and railroad area.

Corridor length: 1,000 feet

Bike/Ped/Planting Recommendations: Atlantic Avenue


Existing Conditions at Atlantic Avenue near Holly St

Atlantic Avenue

Atlantic Avenue leads directly from the US 64 Bypass to the eastern edge of Downtown Rocky Mount. A low-traveled, over-capacity, four-lane roadway, Atlantic Avenue should be reconfigured from four lanes to include one lane of travel in each direction with bicycle lanes, and a center median with center turn lane pockets at crossing roads. In addition to the roadway reconfiguration, intersection pedestrian crossing enhancements are needed to improve safety. A clearly-defined and attractive connection to the Tar River Trail would make that City feature more visible and accessible. Gateway enhancements, wayfinding signage, and the enhancement of specific corner parcels to become pocket parks and gateways to the Downtown would make this corridor more livable, walkable, and bikable. Trees should be placed in the sidewalk buffer where width allows, or located on the other side of the sidewalk where the buffer is too narrow.

Proposed treatment for Atlantic Avenue near Holly Street

Bike/Ped/Planting Recommendations: Atlantic Ave
BIG FOLD OUT GOES HERE

Bike/Ped/Planting Recommendations: Atlantic Ave
BIG FOLD OUT GOES HERE

Corridor Statistics

CORRIDOR		EXISTING							PROPOSED ROADWAY				
	LOCATION	LENGTH (feet)	Posted Speed	Dir	Lanes (Total)	Center Turning Lane	2009 AADT	Peak Hour (veh/ hour, 10% of ADT)	Posted Speed	Dir	Lanes (Total)	Center Turning Lane	Median
Atlantic Ave													
p. 30	US 64 to Spruce St	2100	45	2	4	0	6000	600	35	2	2	0	Yes
p. 31	Spruce St to Grand Ave	1350	35	2	4	1	6000	600	25	2	2	0	Intermittent
p. 32	Grand Ave to Thomas St	2400	35	2	4	0	5500	550	25	2	2	0	Intermittent
p. 33	Thomas St to Marigold St	1850	35	2	4	0	4800	480	25	2	2	0	Intermittent
p. 34	Marigold St to George St	1050	35	2	4	0	2800	280	25	2	2	0	Intermittent

CORRIDOR		CAPACITY (veh/hour)		LEVEL OF SERVICE		PROPOSED BIKE	PROPOSED PEDESTRIAN					VEGETATION				WAYFINDING		GREENSPACE	
	LOCATION	Before	After	Before	After	Bike Facility	Sidewalk	Count-down signals	Marked Cross-walks	Charac-ter Cross-walks	Curb Ramps	Large Trees	Small Trees	Shrubs and Ground-cover	Native Grasses	Entry Monu-ments	Direc-tional Wayfind-ing	Park Improve-ments	Pocket Parks
Atlantic Ave																			
p. 30	US 64 to Spruce St	2580	650	C	C	Bike Lane	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
p. 31	Spruce St to Grand Ave	1510	650	C	C	Bike Lane	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes	No	No
p. 32	Grand Ave to Thomas St	1510	650	C	C	Bike Lane	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
p. 33	Thomas St to Marigold St	1510	650	C	C	Bike Lane	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes
p. 34	Marigold St to George St	1510	650	C	C	Bike Lane	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No	No	No	No

Estimated service levels (capacity) and LOS are estimates using guidance from the Highway Capacity Manual. Travel time calculations were not included as part of these estimates. This analysis shows that LOS either remains the same or does not decrease significantly with the proposed roadway changes.

Bike/Ped/Planting Recommendations: Atlantic Avenue

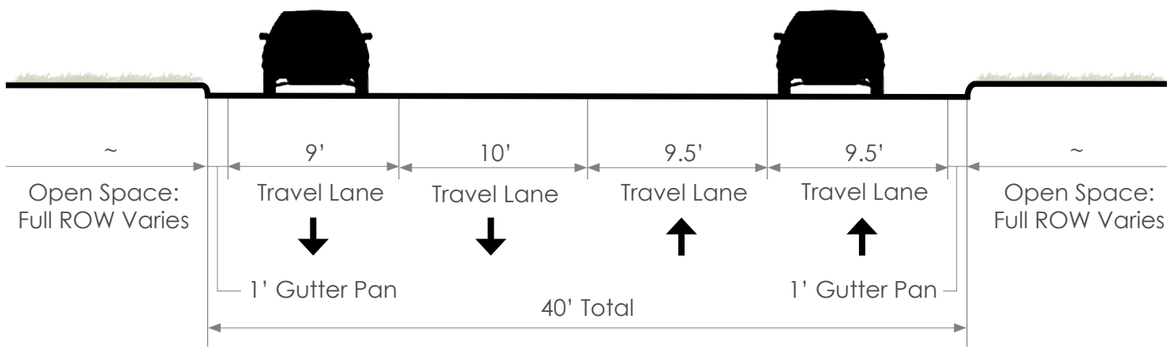
US 64 Bypass to Spruce Street

Recommended Treatments:

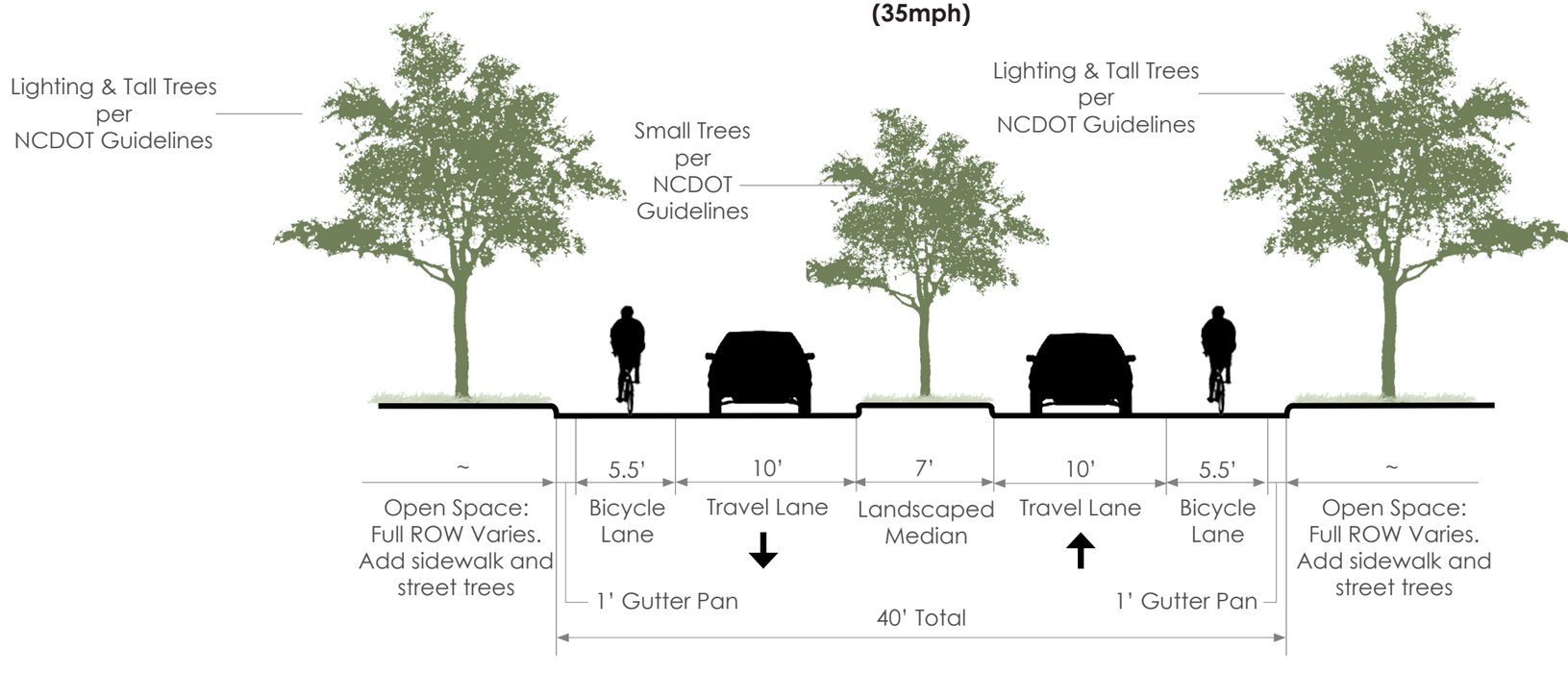
- Implement road diet conversion to 2 lanes with bike lanes (planted center median with turning pockets)
- Add sidewalk and street trees
- Add plantings and gateway welcome signage at exit ramp.
- Enhance Talbert Park at NW corner of Atlantic/Spruce to create gateway to Rocky Mount and gateway entrance to Tar River Trail
- Reduce speed limit to 35mph

Corridor length: 2,100 feet

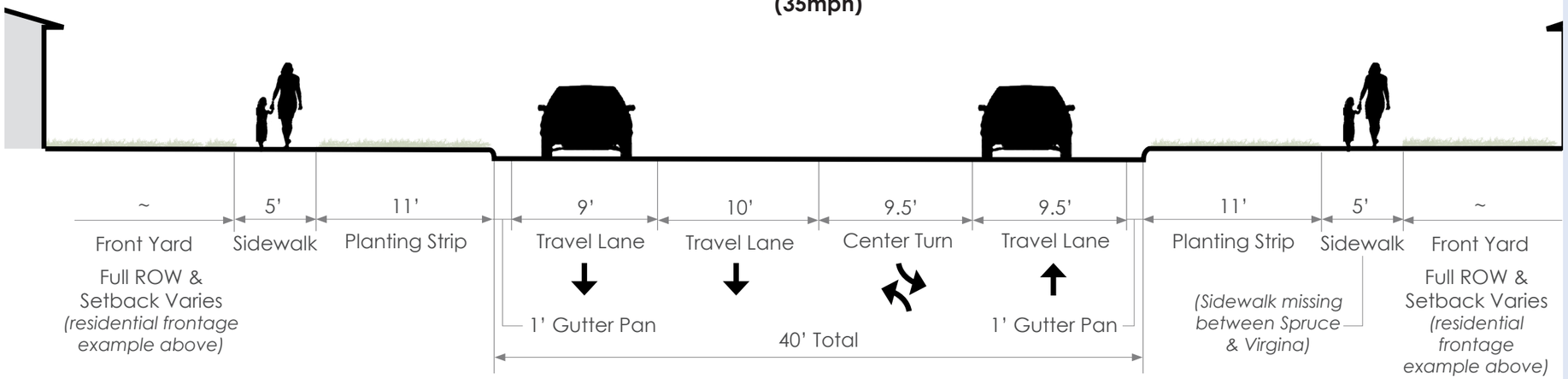
EXISTING:
4 Lanes
(45mph)

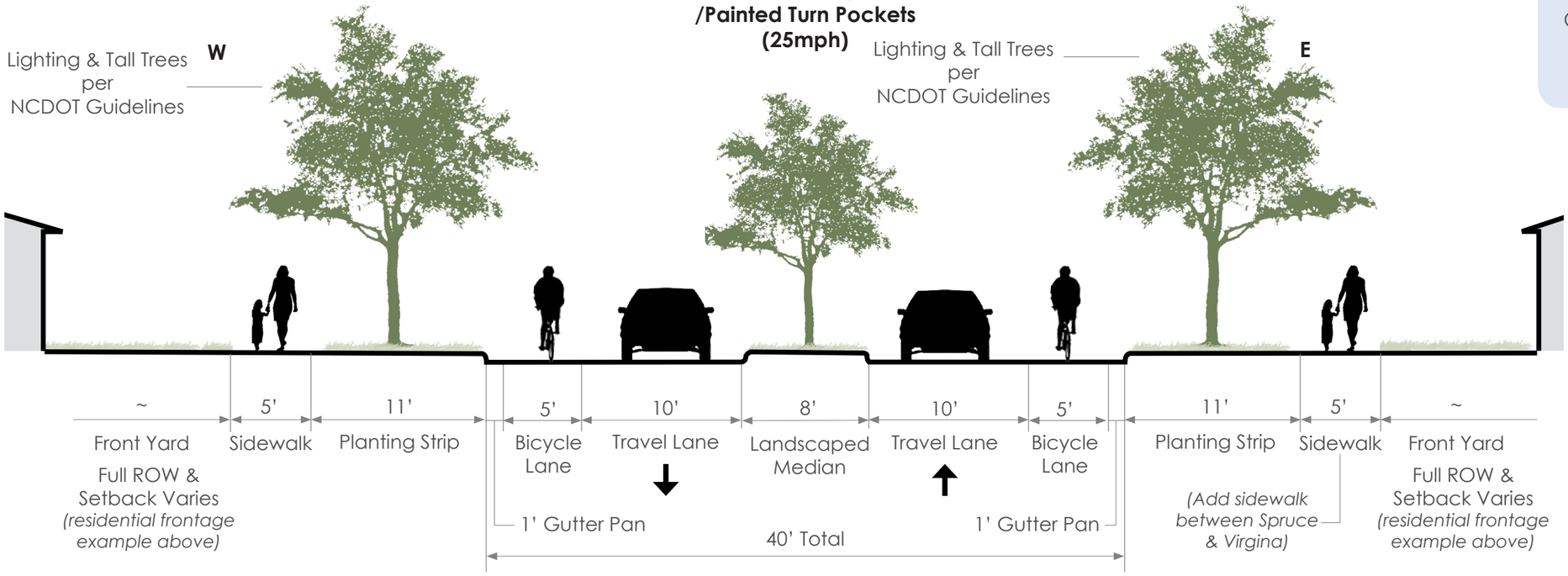


PROPOSED:
2 Lanes with Bicycle Lanes and Landscaped Median
(35mph)



Spruce Street to Grand Avenue





Recommended Treatments:

- Implement road diet conversion to 2 lanes with bike lanes (planted center median with turning pockets)
- Add sidewalk on east side between Spruce and Virginia
- Add street trees in grass buffer
- Improve sidewalk on west side near Grand Avenue
- Enhance Town-owned parcel on northwest side of Atlantic/ Grand intersection to pocket park
- Intersection crossing improvements at Atlantic/ Grand to include countdown signals, high-visibility marked crosswalks, and improved curb ramps
- Reduce speed limit to 25mph

Corridor length: 1,350 feet

Bike/Ped/Planting Recommendations: Atlantic Avenue

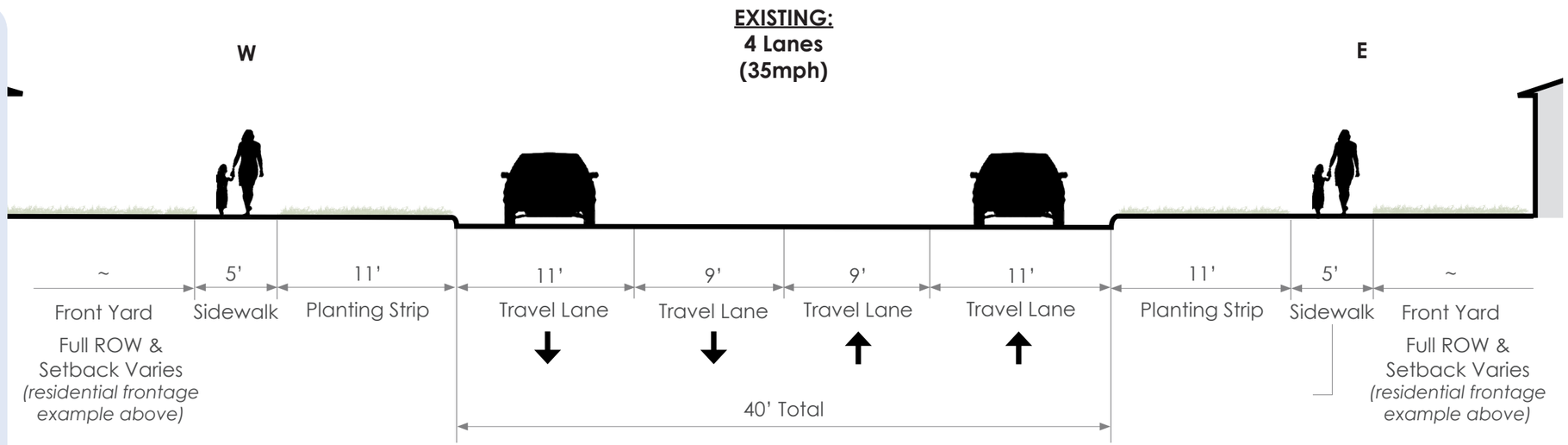
Grand Avenue to Thomas Street

Recommended Treatments:

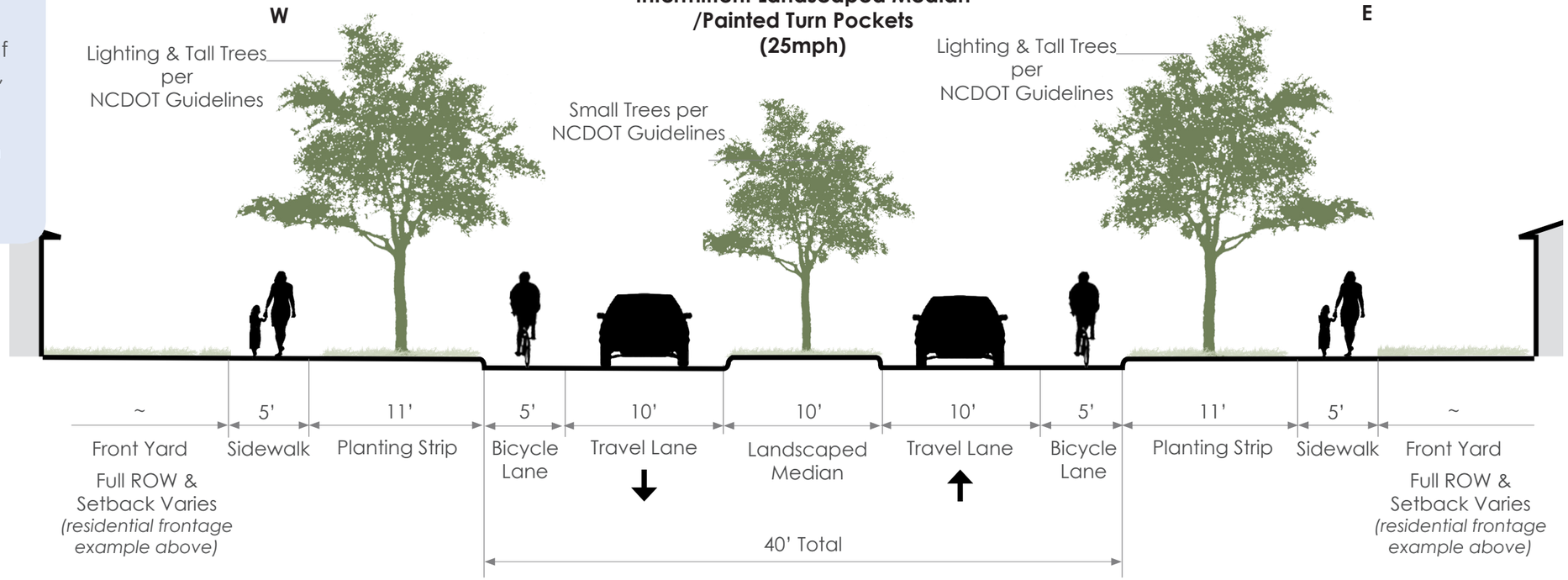
- Implement road diet conversion to 2 lanes with bike lanes (planted center median with turning pockets)
- Add street trees in grass buffer where trees are not present
- Enhance Town-owned parcel on northwest side of Atlantic/ Thomas intersection to pocket park and gateway entrance into Downtown (where streetscape improvements have been made near Douglas Center)
- Enhance bus stop at Atlantic/ Highland to include bench and shelter
- Enhance bus stop at Atlantic/ Ivy to include bench and shelter
- Intersection crossing improvements at Atlantic/ Thomas and Atlantic/Goldleaf to include countdown signals, character crosswalks, and improved curb ramps.
- Reduce speed limit to 25mph

Corridor length: 2,400 feet

EXISTING:
4 Lanes
(35mph)

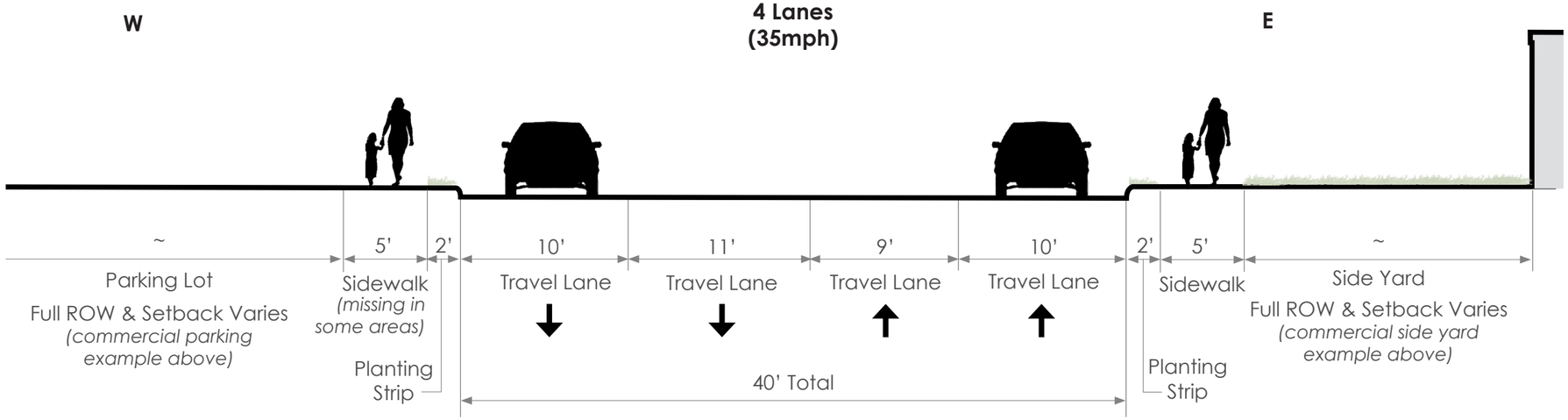


PROPOSED:
2 Lanes with Bicycle Lanes and Intermittent Landscaped Median /Painted Turn Pockets
(25mph)

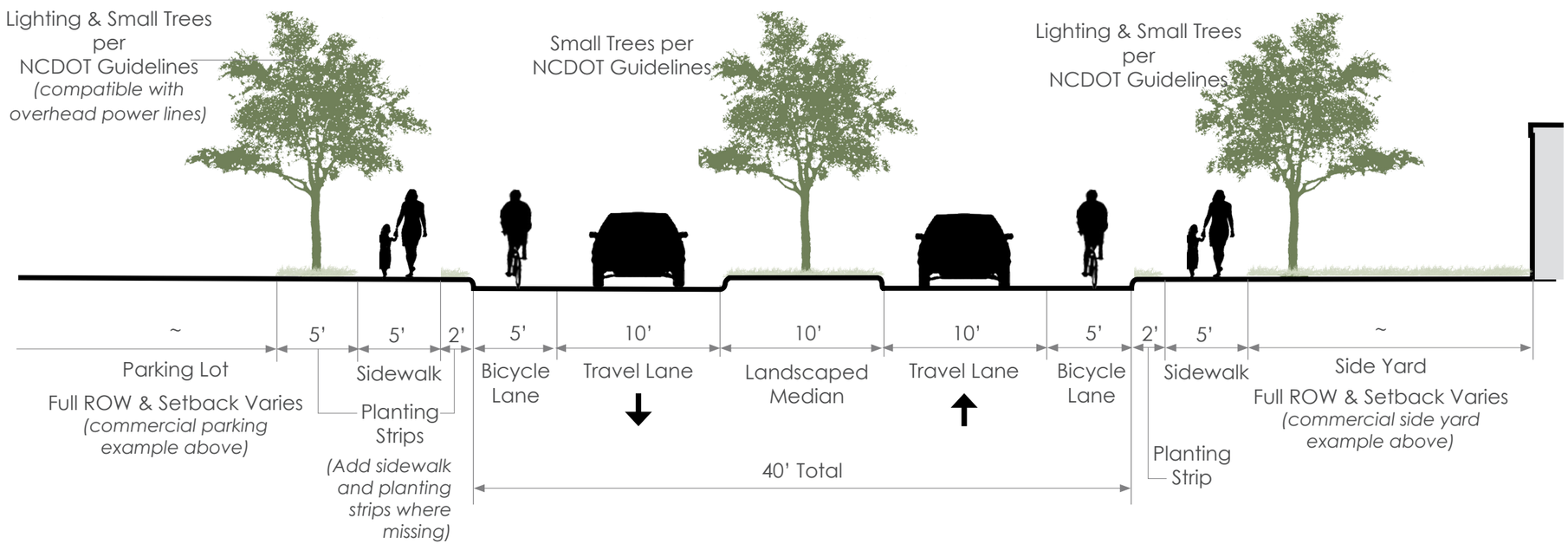


Thomas Street to Marigold Street

EXISTING:
4 Lanes
(35mph)



PROPOSED:
2 Lanes with Bicycle Lanes and Intermittent Landscaped Median /Painted Turn Pockets
(25mph)



Recommended Treatments:

- Implement road diet conversion to 2 lanes with bike lanes (planted center median with increased amount of turning pockets with increase in density of crossing roads)
- Fill sidewalk gap on east side of Atlantic, south of Thomas
- Repair/enhance sidewalk
- Enhance bus stop at Atlantic/ Rose to include bench and shelter. Consider moving closer to Thomas intersection due to blind curve
- Enhance bus stop at Atlantic/ Tarboro to include bench and shelter
- Corner pocket park and gateway opportunities at southwest and northwest corners of Arlington/Hill, northwest corner of Arlington/ Tarboro
- Intersection crossing improvements at Arlington/ Marigold, Arlington/ Hill, Arlington/Tarboro to include high-visibility marked crosswalks/character crosswalks, countdown signals, and improved curb ramps. At Arlington/Marigold, create pedestrian refuge in existing median island.
- Reduce speed limit to 25mph

Corridor length: 1,850 feet

Bike/Ped/Planting Recommendations: Atlantic Avenue

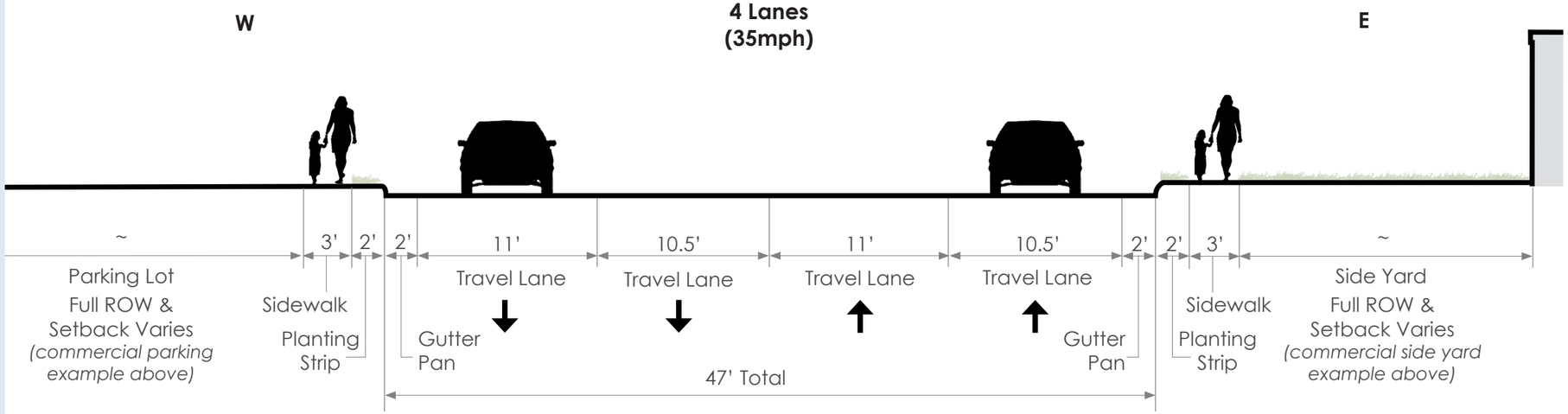
Marigold Street to George Street

Recommended Treatments:

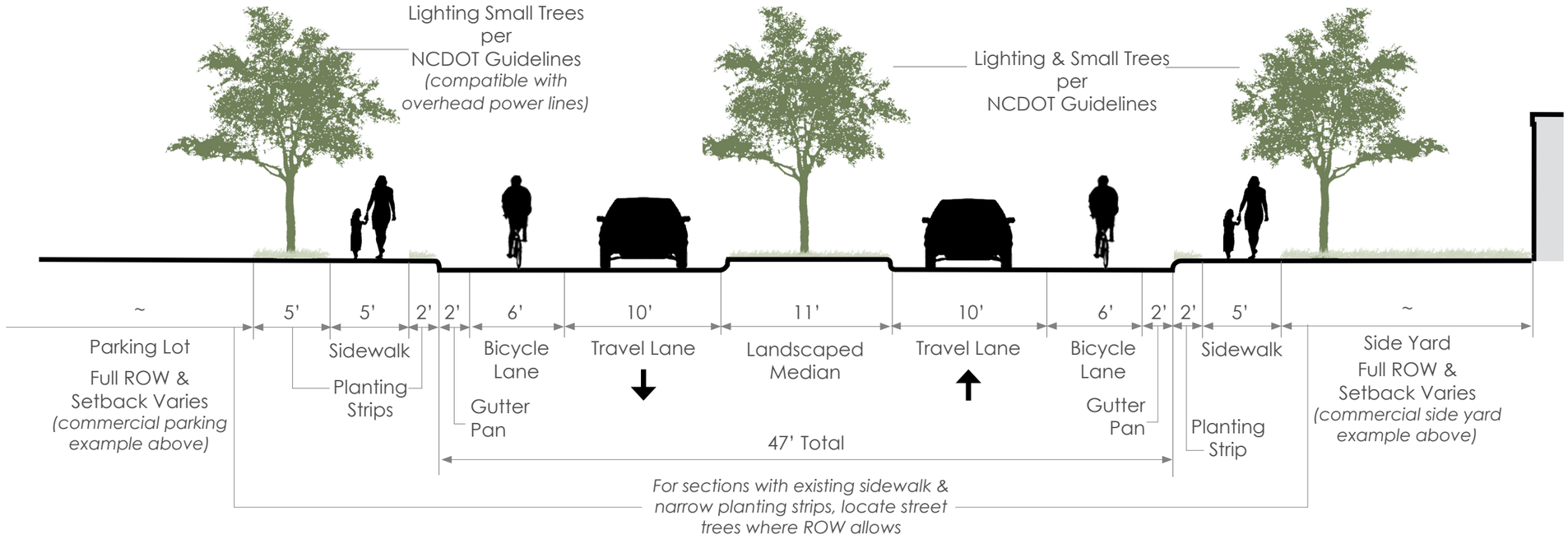
- Implement road diet conversion to 2 lanes with bike lanes (planted center median with turning pockets with increase in crossing roads)
- Repair, widen sidewalk. Add grass buffer if possible.
- Intersection crossing improvements at Arlington/ George
- Enhance bus stop at Atlantic/ Battle to include bench and shelter
- Reduce speed limit to 25mph

Corridor length: 1,050 feet

EXISTING:
4 Lanes
(35mph)



PROPOSED:
2 Lanes with Bicycle Lanes and Intermittent Landscaped Median /Painted Turn Pockets
(25mph)



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Bike/Ped/Planting Recommendations: West Raleigh Blvd.

Existing Conditions at West Raleigh Blvd. and Cleveland St.

West Raleigh Boulevard (formerly Raleigh Road)

West Raleigh Boulevard connects Wesleyan Blvd southwest of Rocky Mount to the downtown core. Given the traffic counts along this corridor, the four-lane roadway is over-designed along much of this stretch. The road should be re-striped to provide one travel lane in each direction, one bike lane in each direction, and a center turning lane. On commercial sections of the corridor, driveways should be consolidated to allow safer passage for pedestrians. Where driveways permit, a planted median is recommended in the center turning lane in order to improve the aesthetics of the corridor and create an appealing gateway into town. Gateway signage should be installed in the median near the corridor entrance at Wesleyan Boulevard to reinforce this characteristic. Street trees are also recommended. Trees should be placed in the sidewalk buffer where width allows, or located on the other side of the sidewalk where the buffer is too narrow. Wherever sidewalk does not currently exist, new sidewalk should be constructed with a wide buffer containing street trees. Finally, safety improvements for pedestrians and cyclists should be incorporated into all intersections, as well as on and around the bridge terminating this corridor just north of Franklin Street.

Proposed treatment for West Raleigh Blvd. and Cleveland Street

Bike/Ped/Planting Recommendations: West Raleigh Blvd.

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Bike/Ped/Planting Recommendations: West Raleigh Blvd.

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Corridor Statistics

CORRIDOR		EXISTING							PROPOSED ROADWAY				
	LOCATION	LENGTH (feet)	Posted Speed	Dir	Lanes (Total)	Center Turning Lane	2009 AADT	Peak Hour (veh/ hour, 10% of ADT)	Posted Speed	Dir	Lanes (Total)	Center Turning Lane	Median
W. Raleigh													
p. 40	Wesleyan Blvd to Nashville Rd	7400	45/35	2	5	1	8000	800	35	2	2	0	Yes
p. 41	Nashville Rd to Garvis St	3900	35	2	4	1	12500	1250	35	2	3	1	No
p. 42	Garvis St to Franklin St	1360	35	2	4	0	9800	980	35	2	3	1	No
p. 43	Franklin St to Arlington St	1850	35	2	3	1	9500	950	35	2	3	1	No

CORRIDOR		CAPACITY (veh/hour)		LEVEL OF SERVICE		PROPOSED BIKE	PROPOSED PEDESTRIAN					VEGETATION				WAYFINDING		GREENSPACE	
	LOCATION	Before	After	Before	After	Bike Facility	Sidewalk	Count-down signals	Marked Cross-walks	Charac-ter Cross-walks	Curb Ramps	Large Trees	Small Trees	Shrubs and Ground-cover	Native Grasses	Entry Monu-ments	Direc-tional Wayfind-ing	Park Improve-ments	Pocket Parks
W. Raleigh																			
p. 40	Wesleyan Blvd to Nashville Rd	1510	1440	C	D	Buffered Bike Lane	Yes	Yes	Yes	No	No	Yes	Yes	No	Yes	Yes	Yes	No	Yes
p. 41	Nashville Rd to Garvis St	1510	2110	C	D	Bike Lane	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	No	No
p. 42	Garvis St to Franklin St	1510	1070	C	C	Bike Lane	Yes	Yes	No	Yes	No	No	Yes	No	Yes	No	Yes	No	No
p. 43	Franklin St to Arlington St	1070	1070	C	C	Bike Lane	Yes	Yes	No	Yes	No	No	No	No	No	No	No	No	No

Estimated service levels (capacity) and LOS are estimates using guidance from the Highway Capacity Manual. Travel time calculations were not included as part of these estimates. This analysis shows that LOS either remains the same or does not decrease significantly with the proposed roadway changes.

Bike/Ped/Planting Recommendations: West Raleigh Blvd.

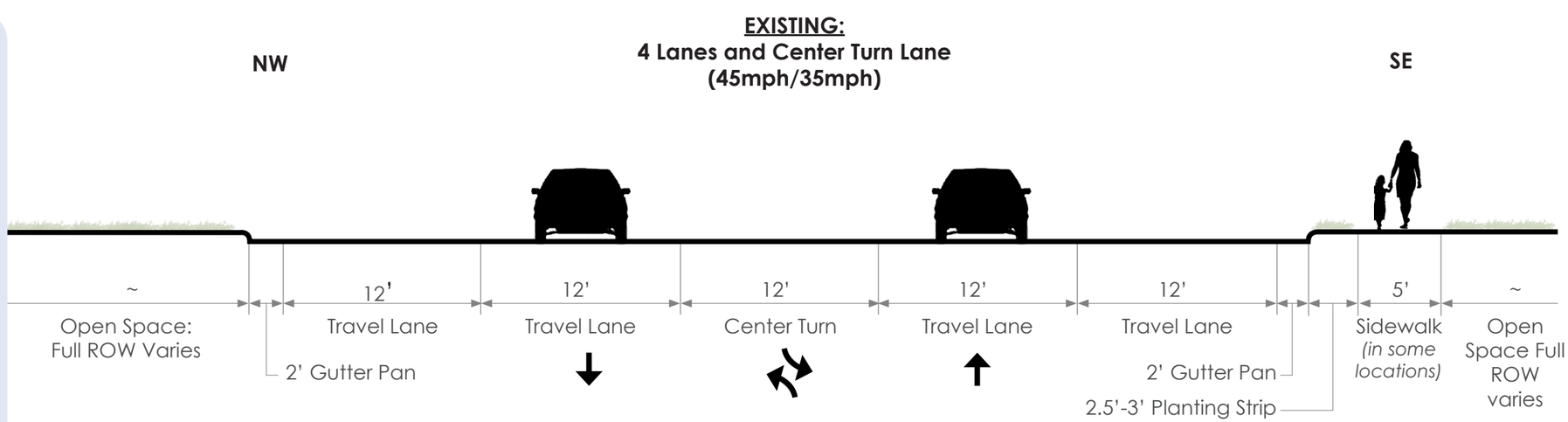
Wesleyan Boulevard to Nashville Road

Recommended Treatments:

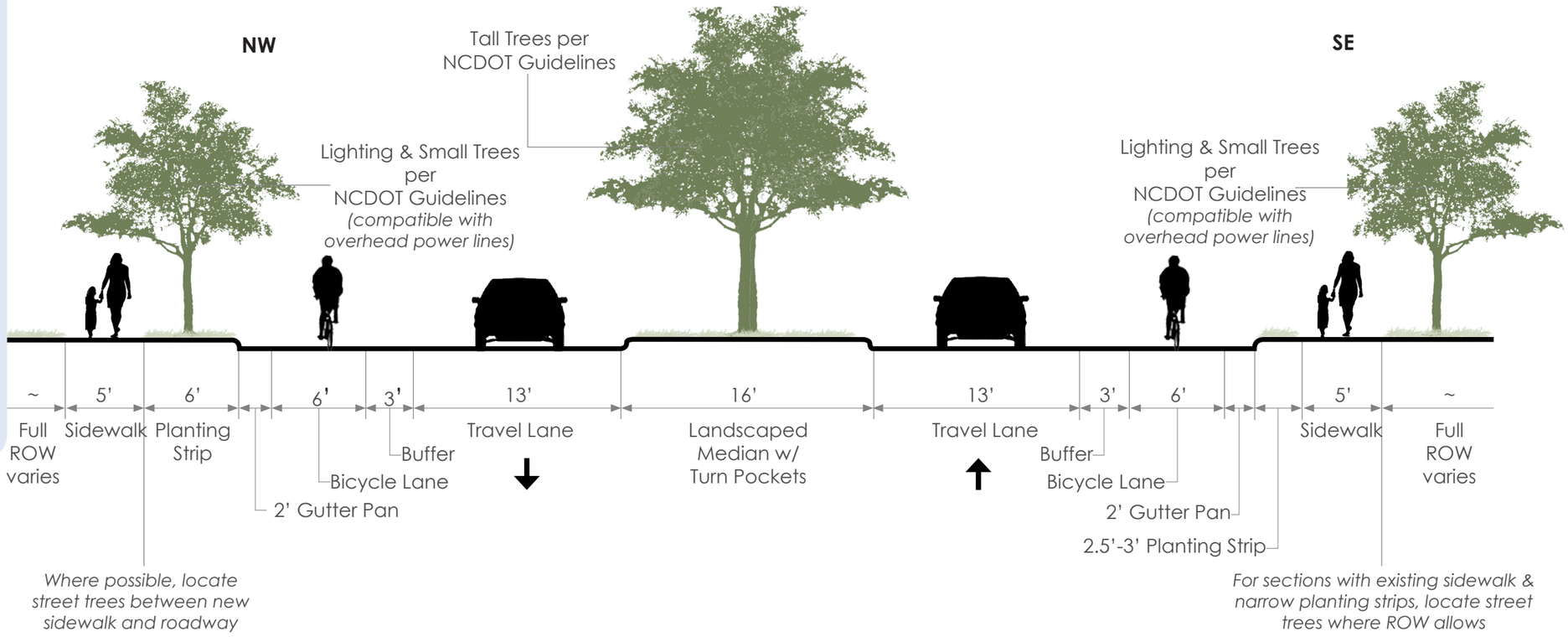
- Implement road diet conversion to 2 lanes with buffered bike lanes
- Begin center median with turning pockets after industry at Kinchen Road
- Install gateway signage in the recommended planted median near the intersection with Kinchen Road
- Add sidewalk according to the Pedestrian Plan
- Add street trees to the sidewalk buffer where feasible, or on the far side of the sidewalk where the buffer is too narrow; use small trees where there are power lines
- Add protective shelters at bus stops
- Add high-visibility crosswalks at Arrington Avenue and Nashville Road, and countdown signals at Nashville Road
- Add crossing with a high-visibility crosswalk at Hazelwood Drive to accommodate the proposed future trail and connect the housing north of W. Raleigh Blvd. to the Food Mart south of the road
- Reduce speed limit to 35 mph on entire length

Corridor length: 7,400 feet

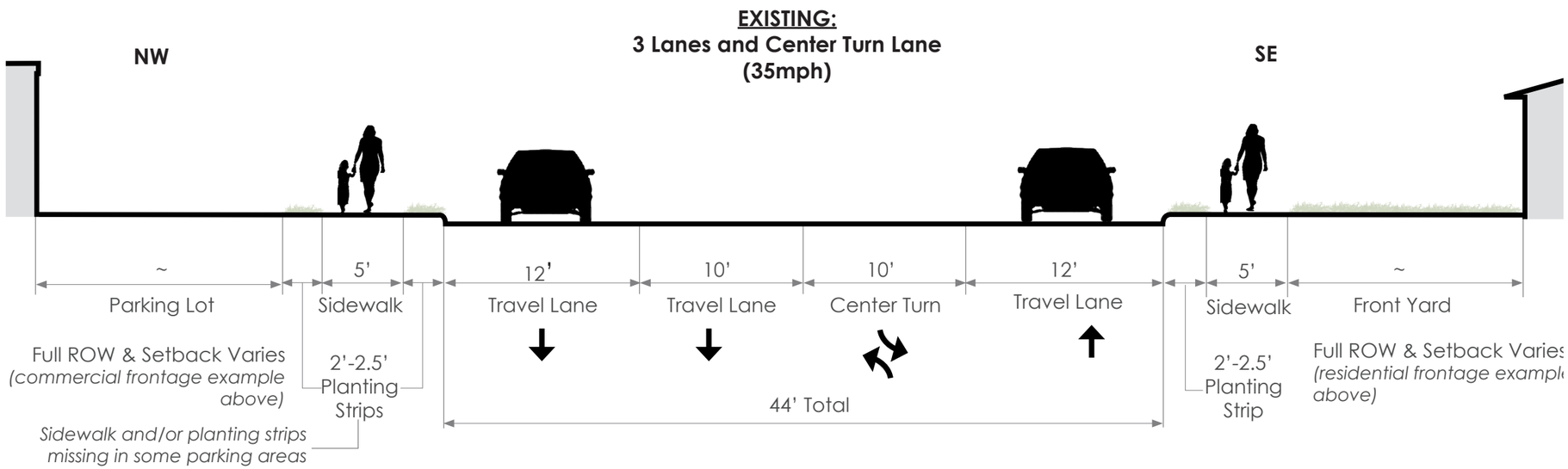
EXISTING:
4 Lanes and Center Turn Lane
(45mph/35mph)

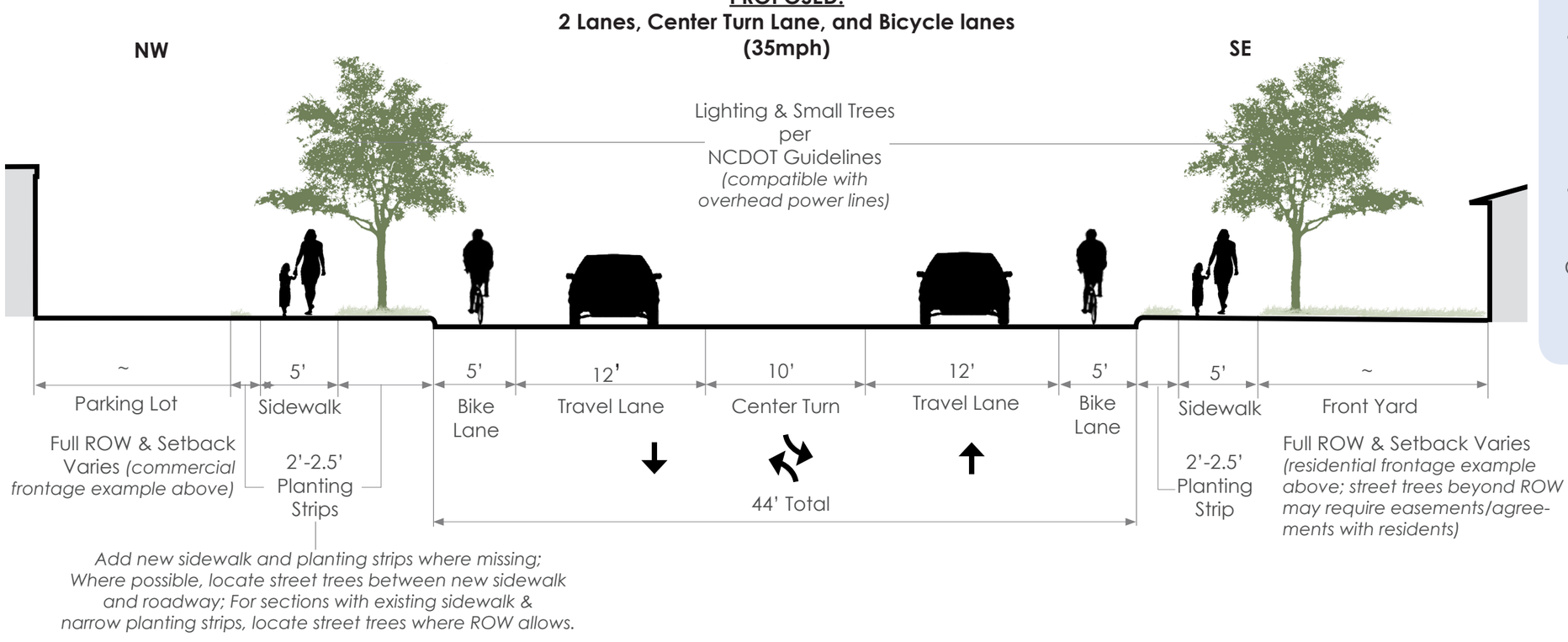


PROPOSED:
2 Lanes, Landscaped Median with Turn Pockets, and Buffered Bicycle Lanes
(35mph)



Nashville Road to Garvis Street





Recommended Treatments:

- Remove one southbound lane to make room for a bike lane in each direction
- Install high-visibility crosswalks and countdown signals in all directions, and improve curb ramps at West Haven Boulevard
- Provide a cut-through for pedestrians in the median at Walnut Street
- Reduce driveways through commercial area and add a center median with turning pockets
- Add a mid-block pedestrian crossing near the grocery store with high-visibility crosswalks and a median refuge
- Add street trees to the sidewalk buffer where feasible, or on the far side of the sidewalk where the buffer is too narrow; use small trees where there are power lines
- Improve bus stops with shelters and benches

Corridor length: 3,900 feet

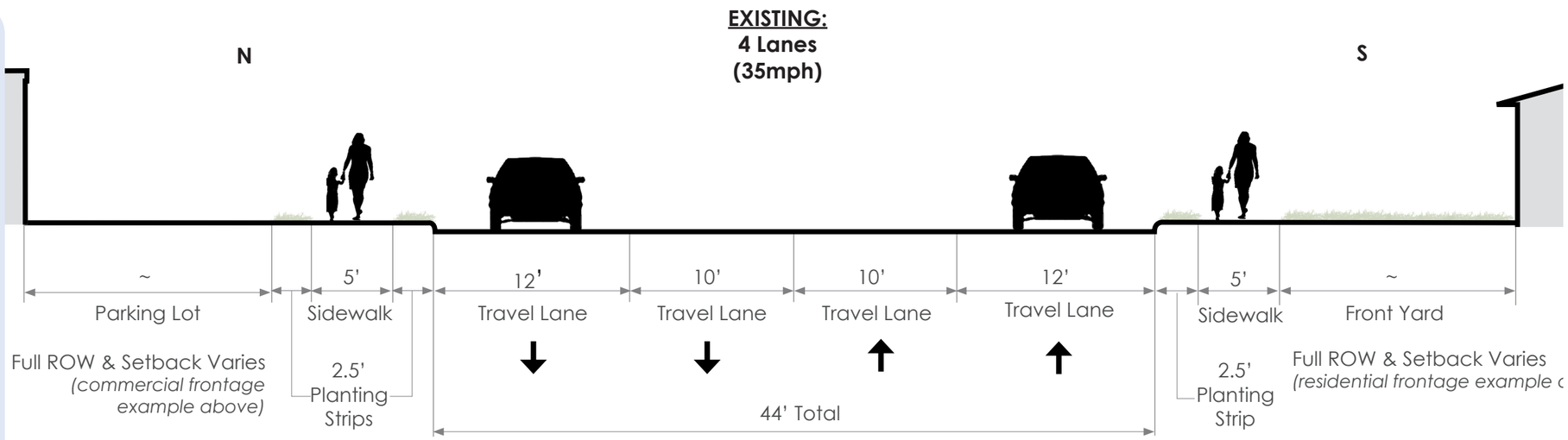
Bike/Ped/Planting Recommendations: West Raleigh Blvd.

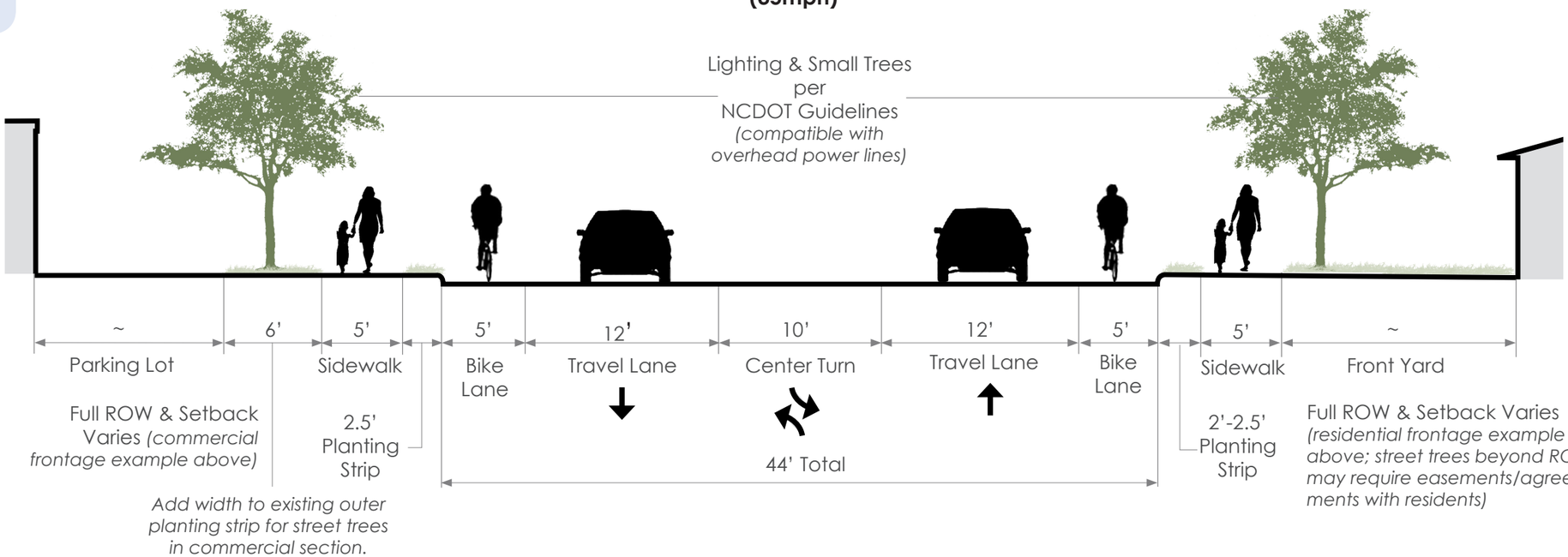
Garvis Street to Franklin Street

Recommended Treatments:

- Implement road diet conversion to 3 lanes with bike lanes (with intermittent planted center median)
- Install character crosswalks at Grace Street and Franklin Street, and countdown signals at Franklin Street
- Add street trees to the sidewalk buffer where feasible, or on the far side of the sidewalk where the buffer is too narrow; use small trees where there are power lines
- Improve bus stops with shelters and benches

Corridor length: 1,360 feet

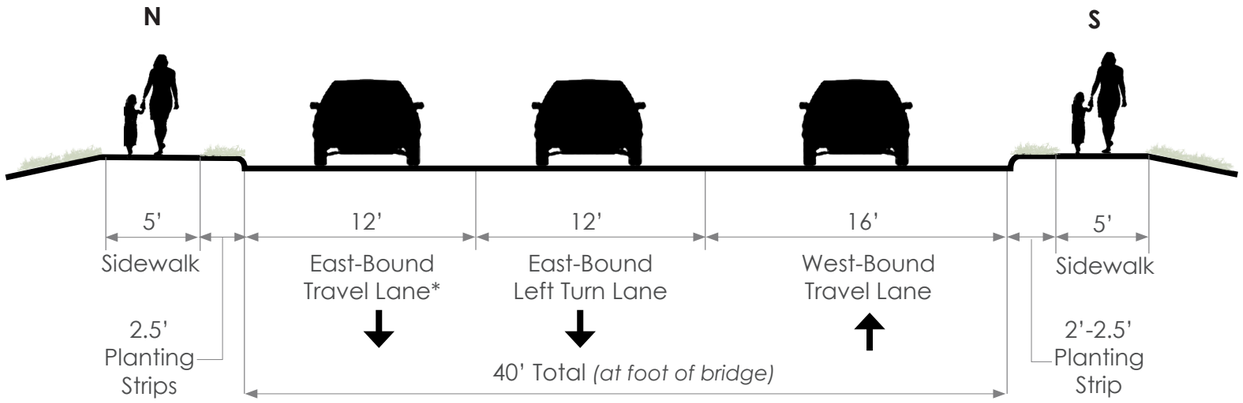




Bike/Ped/Planting Recommendations: West Raleigh Blvd.

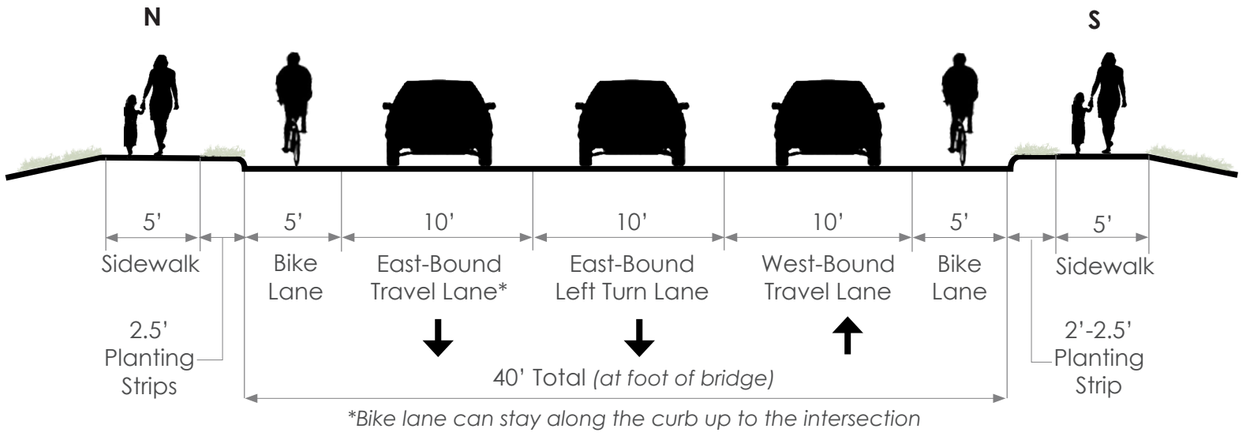
Franklin Street to Arlington Street

EXISTING (at foot of bridge - example below at east end): 3 Lanes (35mph)



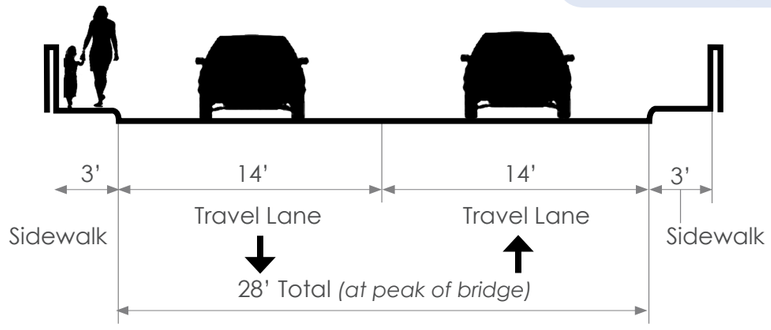
*There is no right turn for this east bound travel lane due to a one-way cross street at Franklin

PROPOSED (at foot of bridge - example below at east end): 3 Lanes and Bicycle Lanes (35mph)

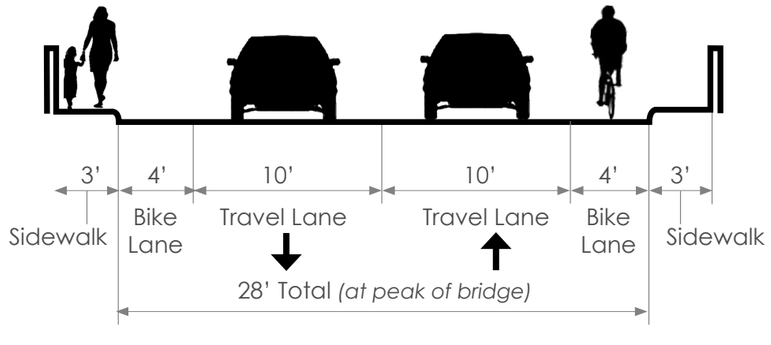


*Bike lane can stay along the curb up to the intersection since there is no right turn for this east bound travel lane.

EXISTING (at peak of bridge): 2 Lanes, 35mph



PROPOSED (at peak of bridge): 2 Lanes and Bicycle Lanes, 35mph



Recommended Treatments:

- Add wayfinding signage directing cyclists and pedestrians to the downtown core
- Narrow travel lanes to install bike lanes on the bridge
- Add railings to the bridge approach to protect pedestrians from the steep grade changes
- Consider retrofitting the existing bridge railing to add height

Corridor length: 1850 feet

Bike/Ped/Planting Recommendations: East Raleigh Blvd.

Existing Conditions at E. Raleigh Blvd. and Rose Street

East Raleigh Boulevard (formerly Raleigh Street)

East Raleigh Boulevard connects the US Highway 64 Bypass northeast of Rocky Mount to the downtown core. This four-lane corridor is significantly under capacity, providing an opportunity for a conversion to a two-lane roadway with a center turning lane and bike lanes in each direction. Gateway signage is recommended both at the corridor entrance near US 64 Bypass and at the corridor transition onto George Street on the existing median. This median should be improved aesthetically with vegetation, and new planted median should be provided between driveways along the entire length of the corridor. Pedestrian and cyclist improvements at intersections are also recommended. The existing crossing at Coleman Avenue near Pope Elementary School is of particular importance, and should be improved with increased warning signage, with the consideration of signalization. Finally, street trees should be installed and driveway access reduced where feasible.

Proposed treatment for East Raleigh Blvd. and Rose Street

Bike/Ped/Planting Recommendations: East Raleigh Blvd

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Bike/Ped/Planting Recommendations: East Raleigh Blvd

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Corridor Statistics

CORRIDOR		EXISTING							PROPOSED ROADWAY				
	LOCATION	LENGTH (feet)	Posted Speed	Dir	Lanes (Total)	Center Turning Lane	2009 AADT	Peak Hour (veh/ hour, 10% of ADT)	Posted Speed	Dir	Lanes (Total)	Center Turning Lane	Median
E. Raleigh													
p. 48	Arlington St to Rose St	2900	35	2	4	0	9500	950	35	2	3	1	No
p. 49	Rose St to Parker St	700	35	2	4	0	9500	950	35	2	2	0	Yes
p. 50	Parker St to Pinehurst Dr	4500	35	2	4	0	11000	1100	35	2	3	1	No
p. 51	Pinehurst Dr to US 64	3650	35/45	2	5	1	11000	1100	35	2	3	1	Yes

CORRIDOR		CAPACITY (veh/hour)		LEVEL OF SERVICE		PROPOSED BIKE	PROPOSED PEDESTRIAN					VEGETATION				WAYFINDING		GREENSPACE	
	LOCATION	Before	After	Before	After	Bike Facility	Sidewalk	Count-down signals	Marked Cross-walks	Charac-ter Cross-walks	Curb Ramps	Large Trees	Small Trees	Shrubs and Ground-cover	Native Grasses	Entry Monu-ments	Direc-tional Wayfind-ing	Park Improve-ments	Pocket Parks
E. Raleigh																			
p. 48	Arlington St to Rose St	1510	1070	C	C	Bike Lane	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	No
p. 49	Rose St to Parker St	1510	1440	C	D	Buffered Bike Lane	Yes	No	No	No	No	Yes	Yes	Yes	Yes	No	Yes	No	No
p. 50	Parker St to Pinehurst Dr	1510	2110	C	D*	Bike Lane	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	No
p. 51	Pinehurst Dr to US 64	1510	2110	C	D*	Buffered Bike Lane	Yes	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes

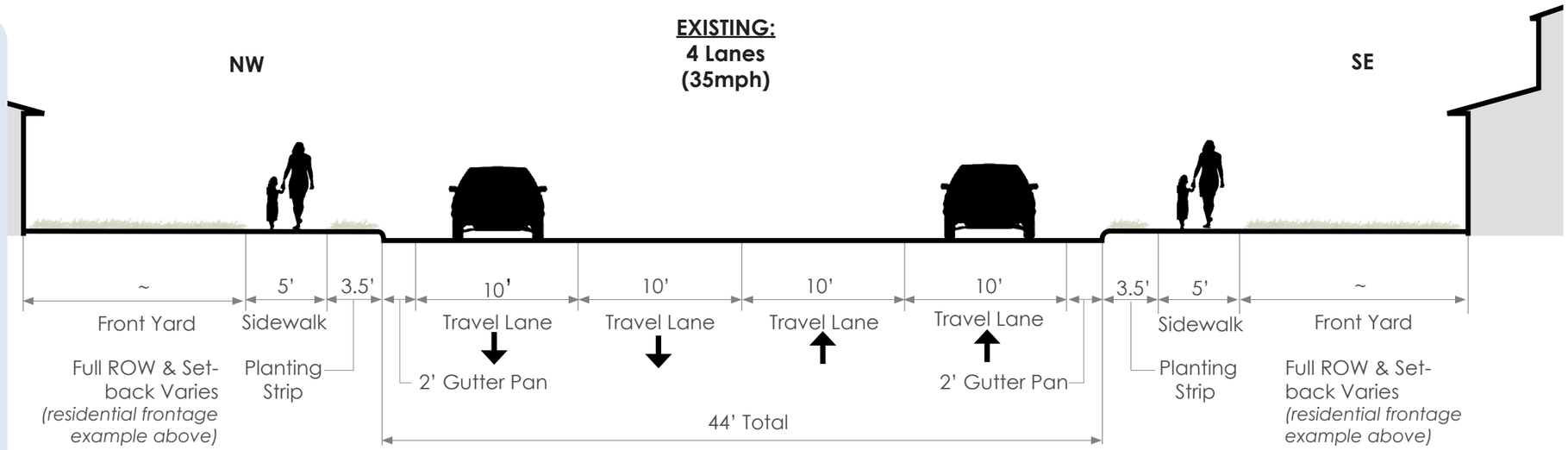
Estimated service levels (capacity) and LOS are estimates using guidance from the Highway Capacity Manual. Travel time calculations were not included as part of these estimates. This analysis shows that LOS either remains the same or does not decrease significantly with the proposed roadway changes.

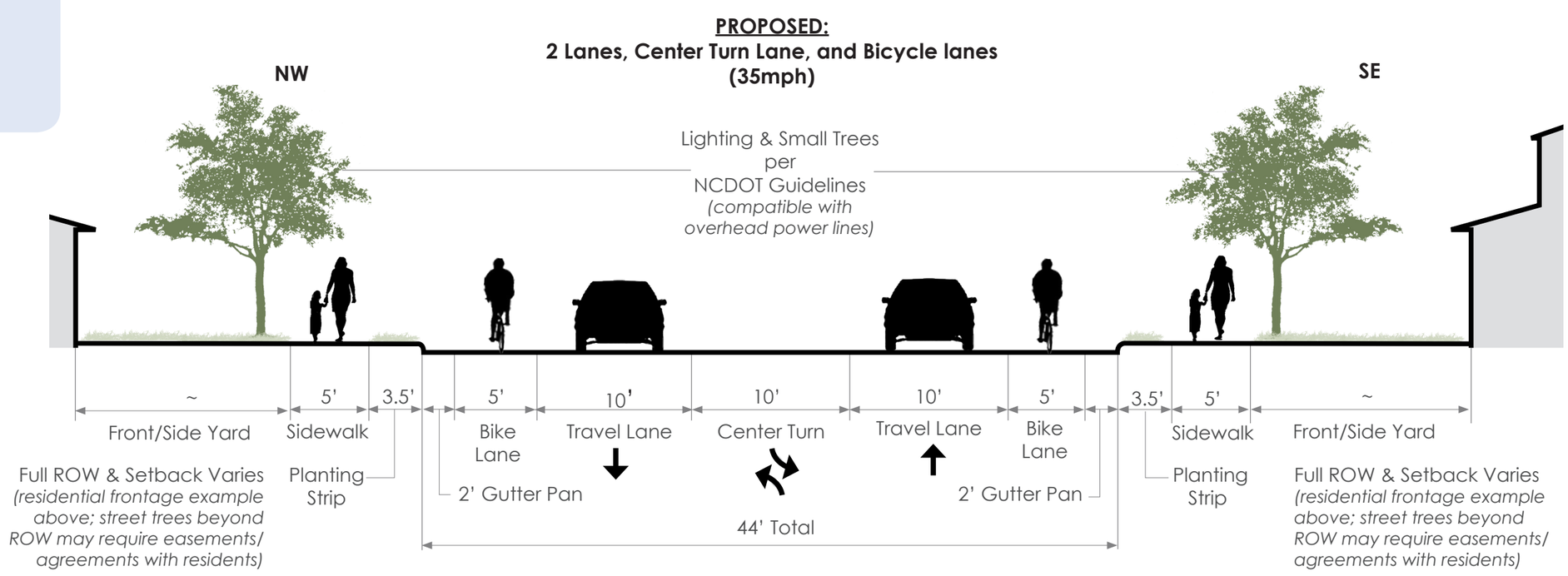
George Street: Arlington Street to Rose

Recommended Treatments:

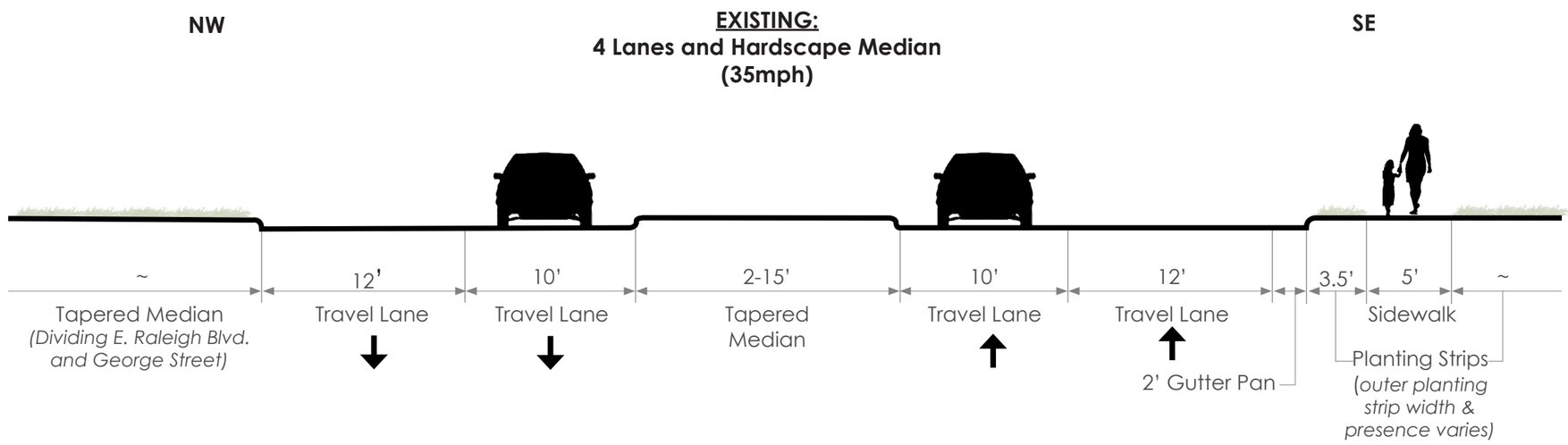
- Implement road diet conversion to 2 lanes with bike lanes and center turn lane (with intermittent planted center median)
- Add wayfinding signage directing cyclists and pedestrians to the downtown core
- Improve the bus stop at Sycamore Street with shelters and benches
- Add high-visibility crosswalks and countdown signals at Arlington Street; increase the size of the pedestrian refuge and add a curb ramp
- Add character crosswalks, countdown signals, and improved curb ramps at Marigold, Hill, and Tarboro Streets

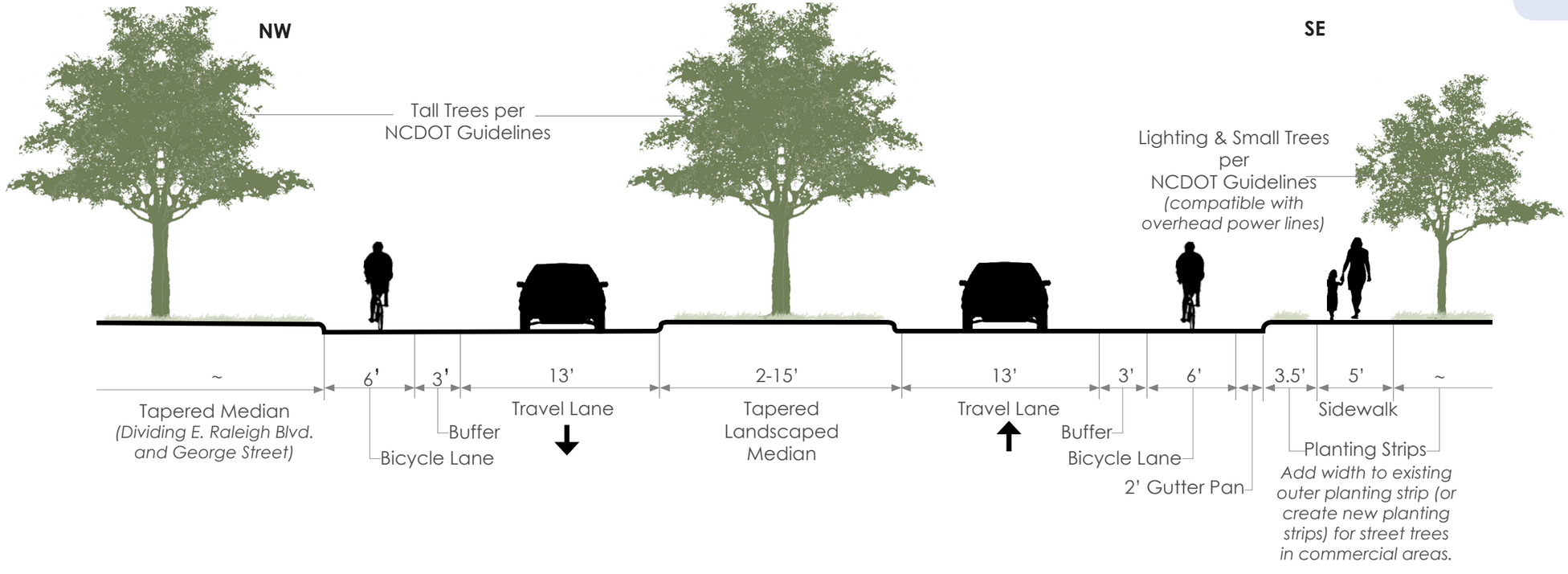
Corridor length: 2,900 feet





George Street: Rose Street to Parker





Recommended Treatments:

- Implement road diet conversion with an expanded center median, two travel lanes, and two buffered bike lanes
- Install gateway signage before intersection with Thomas Street indicating that travelers are approaching downtown Rocky Mount
- Add street trees to the sidewalk buffer where feasible, or on the far side of the sidewalk where the buffer is too narrow; use small trees where there are power lines

Corridor length: 700 feet

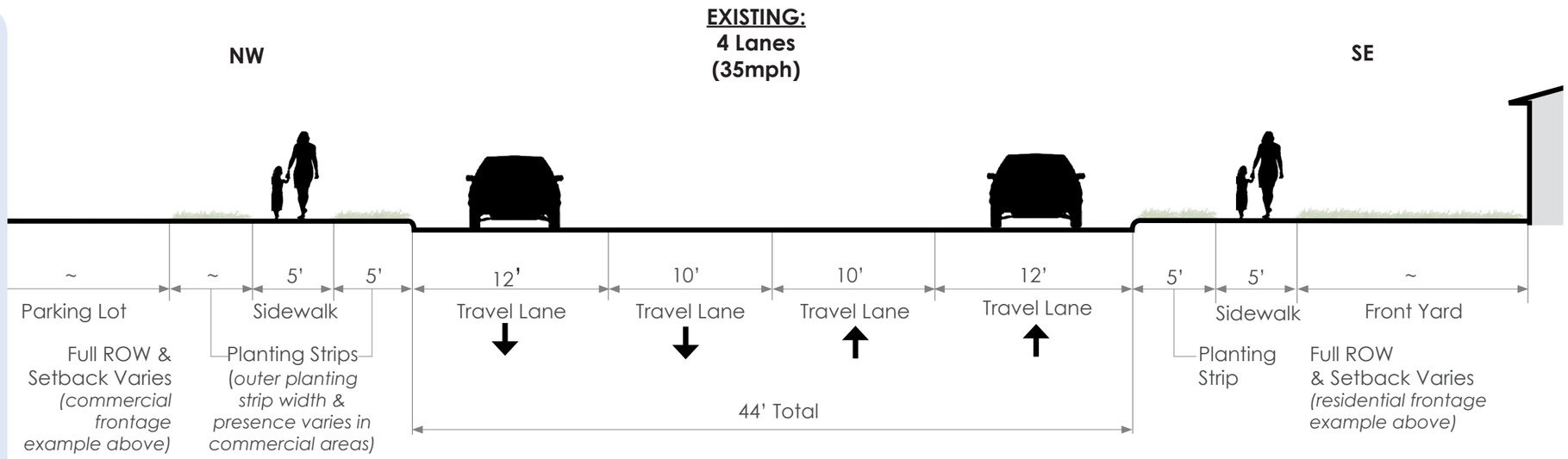
Bike/Ped/Planting Recommendations: East Raleigh Blvd.

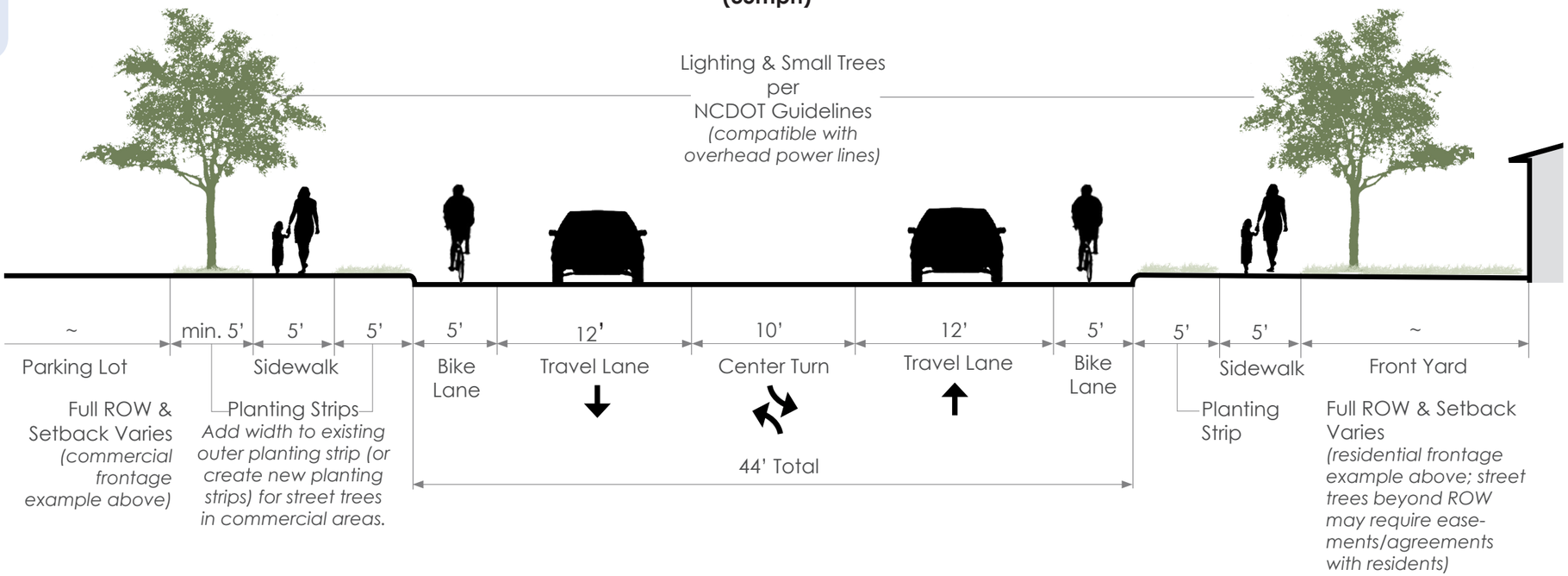
Parker Street to Pinehurst Drive

Recommended Treatments:

- Implement road diet conversion to 2 lanes with bike lanes and center turn lane (with intermittent planted center median)
- Install a high-visibility crosswalk with a median refuge at Coleman Avenue for Pope Elementary School; consider signalization
- Install high-visibility crosswalks, countdown signals, and curb ramps at Grand Avenue
- Add street trees to the sidewalk buffer where feasible, or on the far side of the sidewalk where the buffer is too narrow; use small trees where there are power lines

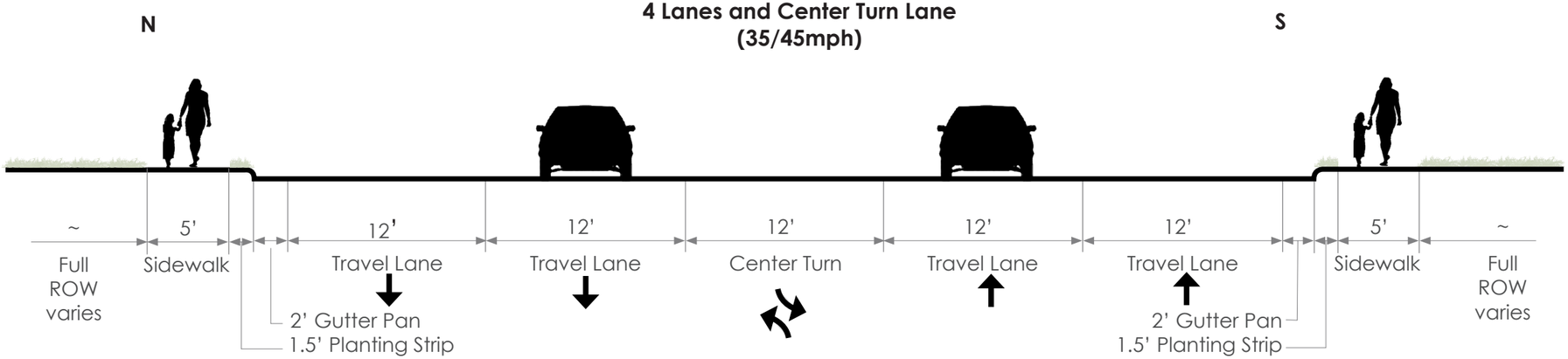
Corridor length: 4,500 feet



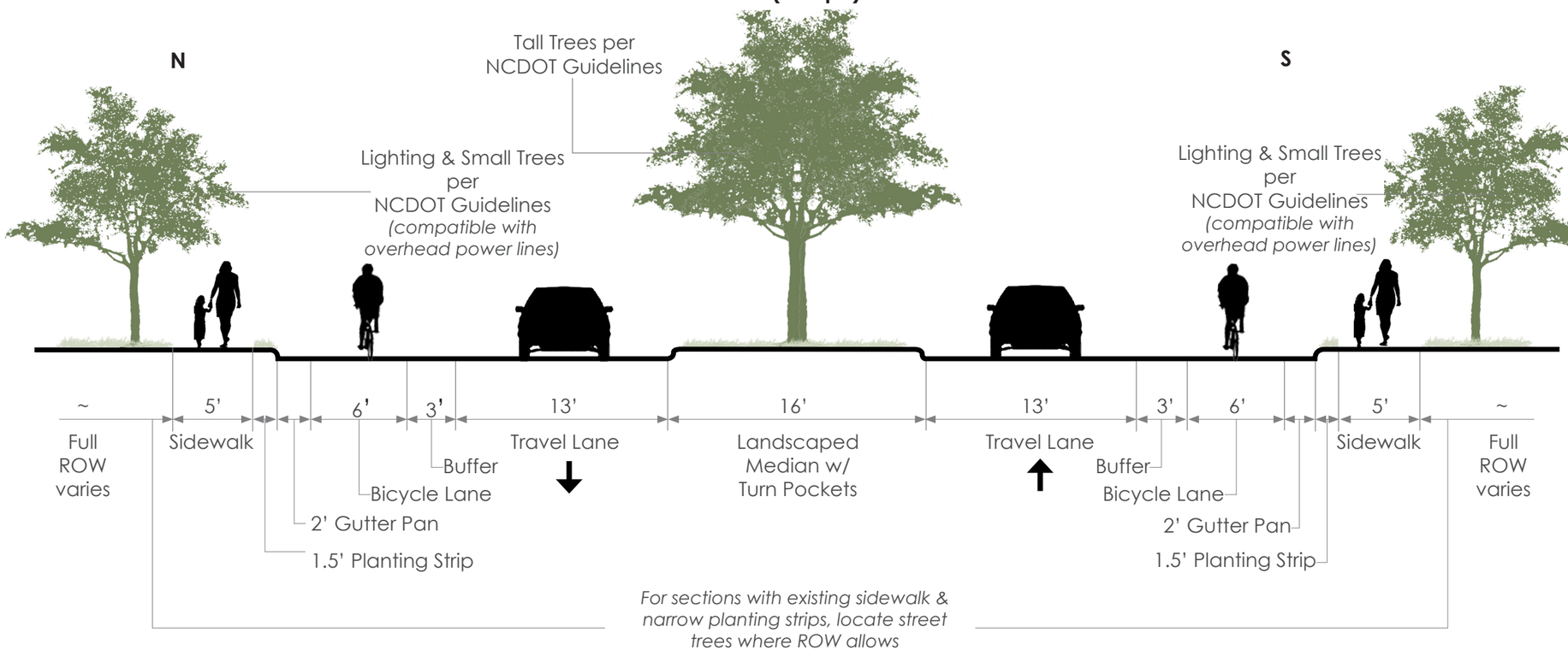


Pinehurst Drive to US 64 Bypass

EXISTING:
4 Lanes and Center Turn Lane
(35/45mph)



PROPOSED:
2 Lanes, Landscaped Median with Turn Pockets, and Buffered Bicycle Lanes
(35mph)



Recommended Treatments:

- Implement road diet conversion to 2 lanes with buffered bike lanes (planted center median with turning pockets)
- Install large trees and gateway signage in the center median at the corridor entrance
- Install high-visibility crosswalks at Stokes Street
- Provide a high-visibility crosswalk with median refuge at Matthew Street to accommodate the future proposed trail and provide access to the Pineview Cemetery
- Add street trees to the sidewalk buffer where feasible, or on the far side of the sidewalk where the buffer is too narrow; use small trees where there are power lines

Corridor length: 3,650 feet

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APPENDIX A: COSTS

Planning-level Cost Estimates

Cost estimates were developed at the concept planning-level scale. Actual costs may vary considerably from those provided here. A thorough design process that includes surveying, striping plans, and construction documents is needed prior to construction. This advanced engineering and design will yield more accurate construction cost estimates.

Design Fees

Includes survey of infrastructure/utilities, construction documents, and striping plans

$125,000-$250,000 per corridor

Construction Estimates

Does not include burying utilities

Church Street

$1,300,000 - $1,800,000

Atlantic Avenue

$3,200,000 - $3,700,000

West Raleigh Blvd.

$3,250,000 - $3,750,000

East Raleigh Blvd.

$2,045,000 - $2,545,000

Total Estimate

Includes design/survey and construction of all four corridors

$10,295,000-$12,795,000

APPENDIX B: BENEFITS & RETURN ON INVESTMENT

East Boulevard road diet in Charlotte, NC

Introduction

Several studies show multiple benefits and returns from investments in bicycle and pedestrian infrastructure. Evidence suggests that improved bicycle and pedestrian infrastructure leads to more walking and cycling than would otherwise happen. According to the Nationwide Personal Transportation Survey, 40% of all trips are within 2 miles of home and 50% are within 5 miles of home – distances that can be easily completed by walking or biking. Similarly, a Rodale Press survey showed that 40% of Americans would switch to biking from driving if safe bicycling facilities were available. This appendix summarizes and quantifies observed returns on investment seen in various research and case studies around the country. [1] The benefits are divided into several categories: health, safety, economic, transportation costs, and environmental.

Health

Bicycling and walking can help individuals attain the Center for Disease Control's recommended moderate-intensity aerobic activity of at least 150 minutes a week. [2] On average, compared to less than 0.5 hours per week of moderate-to-vigorous-intensity physical activity, engaging in approximately 1.5 hours per week (90 minutes) of such activity is associated with about a 20% reduction in risk of mortality. [3] Public health research indicates that the health benefits of walking and cycling far outweigh the increased risk of collisions with automobiles. Some examples from the broad set of research literature available on these public health benefits include:

- Cycling and walking levels in the U.S. decreased 66% between 1960 and 2009, while obesity levels increased by 156%. [4]
- An increase in bicycling and walking due to a $30.4 million complete streets project in Beaufort, South Carolina is estimated to contribute over $3.8 million in livability benefits. Job creation due to the pedestrian and bicycle elements are estimated at almost $48 thousand. Other walking and bicycling investments contributed to a total benefit of $137.1 million, resulting in a net benefit of $106.7 million. [5]
- The benefits of walking and bicycling can be outweighed by the risks associated with these behaviors by as much as 77 to 1. [6]
- Researchers assessing the costs of Portland, Oregon's past and planned investments in bicycling monetized health care cost savings and value of statistical life saving and found that by 2040, the benefit-cost ratios for bicycle infrastructure are between 1.2 and 3.8 to 1 for each dollar invested in Portland's bicycle infrastructure. [7]
- The incremental cost of residential sidewalk construction is generally repaid by health benefits of increased physical fitness and reduced air quality. [8]
- Each physically inactive person who starts bicycle commuting provides about $4,000-5,000 annual economic benefits. [9]
- Individuals who shift from driving to bicycling enjoy 3- to 14-month longevity gains. [10]
- A study of the alternative transportation promotion implemented in conjunction with the 1996 Olympic games in Atlanta showed a more than 40% reduction in acute care visits and hospitalizations for childhood asthma events. These findings support efforts to reduce air pollution, especially ozone pollution during morning peak periods. [11]
- Exercise is shown to decrease clinical depression and anxiety. [12]
- ADHD symptoms can be reduced with a walk in the park. [13]
- A 2009 study of Orenco Station, Oregon found more walking is associated with more community interaction. [14]

Safety

Investments in bicycling and walking have been shown to benefit the safety of all road users. For example, road diets, which typically convert 4-lane roads to 3-lanes with a two-way left-turn lane and bicycle lanes, can reduce vehicle speeds and vehicle interactions as well as shorten the crossing length for pedestrians. Traffic calming also has benefits to road users. Additionally, several countermeasures specifically aimed at pedestrian safety demonstrate significant improvements to pedestrian crashes.

- Road diets in California, Washington, and Iowa have demonstrated an average crash modification factor of 0.71, meaning after implementation overall crashes can be expected to reduce by 29%. More specifically, U.S. or state routes with moderate annual average daily traffic volumes (AADT) can expect a 47% reduction in total crashes, while suburban corridors near a large central city can expect a 19% reduction from the road diet treatment. [15]
- A road diet on Edgewater Drive in Orlando, Florida, state-owned route with high commuter traffic, demonstrated a reduction in speeding along the entire corridor. The North End reduced from 15.7% of vehicles traveling above 36 mph to 7.5% and the South End from 29.5% to 19.6%. [16]
- The table below displays pedestrian-crash modification factors for several pedestrian infrastructure investments: [17]

Treatment	Crash Modification Factor
Convert permissive or permissive/protected to protected only left turn phasing	0.01 (all crashes)
Convert unsignalized intersection to roundabout	0.27 (pedestrian crashes)
Install pedestrian countdown signal heads	0.25 (pedestrian fatal/injury crashes)
Install pedestrian refuge islands	0.56 (pedestrian crashes)
Install raised median (marked crosswalk) at unsignalized intersection	0.46 (pedestrian crashes)
Provide paved shoulder (of at least 4 feet) (to avoid walking along roadway)	0.71 (pedestrian crashes)
Improve lighting at intersections	0.42 (pedestrian injury crashes)
Restrict parking near intersections	0.30 (pedestrian crashes)

- Traffic calming reduces the chances of pedestrian fatalities; approximately 5% of vehicle-pedestrian crashes result in a fatality when the vehicle is traveling only 20 miles per hour, whereas for 30 mph the figure is 45% and 40 mph 85% of crashes result in pedestrian fatality. [18]
- There is an inverse relationship between the number of walkers and cyclists and the occurrence of automobile collisions. Since it is unlikely that people walking and biking would become more cautious if their numbers are larger, a change in motorist behavior must be at play. [19]
- An year-long analysis of cycling and walking injuries in California, New York, and North Carolina showed that 70% of reported bicycle injuries and 64% of reported pedestrian injuries did not involve an automobile. Additionally, 31% of bicyclists and 53% of pedestrians were injured in non-roadway locations like sidewalks, parking lots, or off-road trails. [20]

Economy

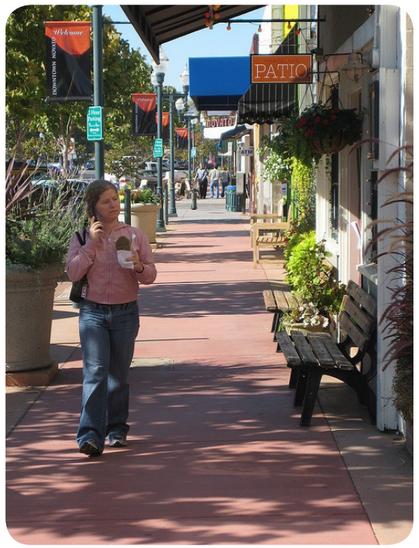
The economic benefits of improved pedestrian and bicycle environments are demonstrated in this section. Three categories of economic benefits are considered: changes in property values, business attraction and economic development, and sales.

Property values

- Based on a 2009 survey study of U.S. cities, a one-point increase in Walk Score is associated with a $700-$3,000 increase in home value. Walk Score is a proprietary scoring system that measures the walkability of any address on a scale from 0 to 100. [21]
- Property values have been shown to increase substantially with an increase in Walk Score from 20 to 80 points. [22]

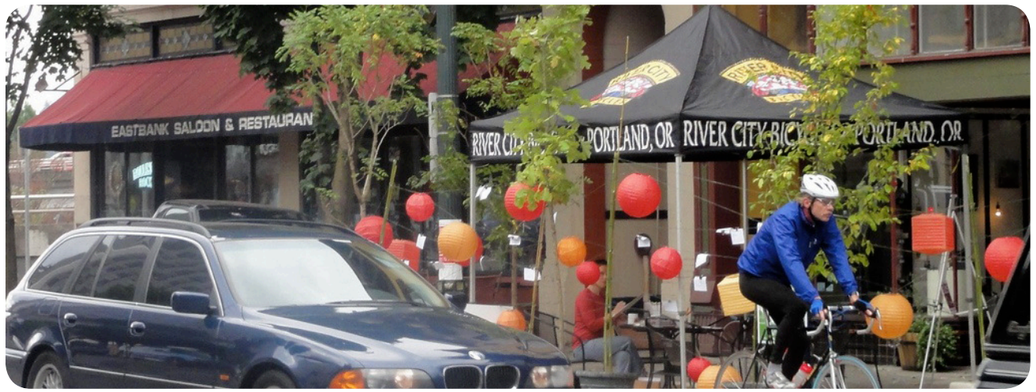
Property Type	Market Value	Net Operating Income	Appreciation per quarter
Office	+54%	+42%	1.92%
Retail	+54%	+42%	
Apartments	+6%		

- Office, retail and apartment values increased 1% to 9% for each 10-point increase in the 100 point Walk Score index. [23]
- Neighborhoods with good walking conditions in London exhibit 5.2% higher residential property values and 4.9% higher retail rents. [24]
- Residential house sale prices in tree-lined areas may be up to 6% greater than in similar areas without trees, according to several studies of US cities. [25]
- Complete, compact, connected communities increase land values 5-12% on average. [26]



Business attraction/economic development

- In Kansas City, it was found that every $1 invested in bicycle and pedestrian projects yielded $11.80 in benefits. A more generalized study found the return on each dollar to be at least $4-5. [27]
- Street trees are more than a pedestrian amenity; they can increase commercial and residential property values by up to 10-20%. [28]
- Bicycle facilities resulted in $60 million in revenue from tourists, almost 9 times the public investment used to construct the facilities in the Outer Banks region of North Carolina. It is estimated that 1,400 jobs are created or supported annually with expenditures from bicycle tourists. [29]
- Bicycle and pedestrian projects create nearly 2 times as many jobs as investment in typical road projects based on a national study. These projects created 11-14 jobs per $1 million spent, while more typical road construction created only 7 jobs per $1 million. [30]
- 65% of urban retail business owners surveyed in San Francisco support local traffic calming programs and believe they provide overall economic benefits. Only 4% consider the programs to have overall negative economic impacts. [31]



Sales

- Surveys were conducted in order to study the economic benefits to Prince Street in New York City and Bloor Street in Toronto from investments in pedestrian and bicycle infrastructure. On Prince St., visitors who would visit more often if space from parking were re-allocated to pedestrians tend to spend about 5X more than people who reported they would visit less often. On Bloor St., people who drive to the area visit the least often and spend the least amount of money when they are there. [32]
- High quality walking and cycling conditions tend to attract retail customers. [33, 34]
- Bicycle parking is space efficient – many bicycles can fit in the space reserved for one parked car. Therefore, bicycle parking generates about five times as much spending per square meter as car parking. [35]
- Consumers report a willingness to pay approximately 11% more for goods in landscaped business districts than in non-landscaped districts. They are willing to pay as much as 50% more in these districts for convenience goods. [36]

Transportation Costs

Investments in bicycle and pedestrian infrastructure not only increase the economic benefits listed above, but also they can decrease transportation-related costs to society and the individual.

Societal

- A traveler shifting 160 annual trips (about 3 per week) averaging 2.4 miles from driving to bicycling reduces congestion costs to other road users by approximately $216 in urban areas and about $108 in rural settings. [37]
- For the cost of a single mile of freeway, an entire bicycle network was built in Portland, Oregon. [38]
- Because heavy vehicles cause damage to roadways, roadway costs for automobiles average about $0.04 per mile, while cycling costs much less. Therefore, shifts from driving to walking or bicycling provide cost savings of approximately $0.05 per mile for urban driving and $0.03 per mile for rural driving, including indirect travel reductions leveraged by non-motorized transport improvements. This could be up to as much as $0.50 savings per vehicle-mile in urban-peak settings (during the commute hours). [39]
- The "National Traffic Scorecard" published by INRIX reports that a 3 percent decrease in VMT is associated with a 30 percent decrease in peak period congestion. This suggests that an increase in pedestrian and bicycles trips could lead to a decrease in congestion, increasing the efficiency of our transportation system. [40]
- For each trip not driven, $1.05 in rural areas to $3.58 in urban peak conditions can be saved due to reduced congestion, road costs, parking, user costs, air pollution, noise, road safety and additional environmental and social factors. [41]

Individual

- For individuals, savings from shifting from auto use to non-motorized travel can provide parking savings of $2-4 per urban-peak trip (a typical commute has $4-8 per day parking costs), $1-3 per urban off-peak trip, and about $1 per rural trip. [42]
- Communities with more accessible land use and multi-modal transportation systems tend to spend 1/3rd less on transportation than communities without these amenities ($5,500 annually vs. $8,500 annually). [43]



Environmental

Lastly, several environmental benefits can be reaped from the provision of good walking and bicycling infrastructure.

- Modest shifts to walking and bicycling for shorter trips (up to 3 miles) could reduce passenger vehicle greenhouse gas emissions by 3-8%. [44]
- Non-motorized transportation tends to provide relatively large energy savings because it often substitutes for short urban trips that have high emission rates per mile (since engines are most inefficient during the first few minutes of operation) and cause congestion. As a result, a 1% shift from automobile to non-motorized travel typically reduces fuel consumption 2-4%. [45]
- A British study estimates that shifts from driving to non-motorized modes provide air pollution reduction benefits of 10¢ per mile for urban-peak driving, 5¢ for urban off-peak and 1¢ for rural driving. [46]
- Private cars account for about 40% of all oil consumed in the U.S. Each gallon of gasoline equates to 19.4 lbs. of CO2 emissions (about 1 lb. per mile driven). [47]
- Private cars account for 20 percent of US CO2 emissions (the fastest growing source of greenhouse gases); VMT is growing faster than population in the U.S. [48]
- Motor vehicle emissions account for 31% of CO2, 81% of CO, and 49% of NOx emissions. [49]
- A 4-mile bike trip leads to a 2,000 lbs. reduction in CO2 emissions. [50]
- Since bicycles and pedestrians require less road space than personal motorized vehicles, less impervious surface is required to create mobility. Impervious surface coverage is an accepted indicator of water quality in a watershed (runoff is increased causing a whole host of problems including water pollution, flooding, erosion, and lessened biodiversity).

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Before and after photo of Broad Street in New Bern, NC following a road diet project.