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Appendix A

Public Engagement

Overview

Throughout the Walk Wilmington planning process, the project team prioritized soliciting robust public input and feedback to ensure that the final plan aligned closely with the vision that Wilmington residents have for their city.

Steering Committee Meetings

Four steering committee meetings were held throughout the planning process, in March, May, September, and December of 2022. The project steering committee helped determine the plan's overall vision and goals, assisted with public outreach, and provided feedback to the project team during every step of the plan's development. The committee was made up of a diverse group of Wilmington residents, representing the City and the WMPO as well as public safety agencies, nonprofits, New Hanover County Schools, and other neighborhood and business associations.

Steering Committee members:

- Karin Mills, WMPO Bicycle and Pedestrian Advisory Committee
- Liz Carbone, Good Shepherd Center
- Gloria Gardner, Disability Resource Center
- Eddie Anderson/Leanne Laurence, New Hanover County Schools
- Holly Childs, Wilmington Downtown Inc.
- Drew Davey, UNCW
- Adrienne Cox, NCDOT Division 3
- Deborah Porterfield, WMPO GoCoast
- Lt. Alanna Williams/Will Richards, WPD
- Wendy Giannini-King, WFD
- Amber Smith, NHC Senior Center
- Elizabeth Forte, Novant Health
- Dave Spertrino, developer
- Sonya Green, Interfaith Community
- Marie Parker, Wave Transit
- Kim Huffman, CVB
- Christina Haley, Wilmington Downtown, Inc.
- TBD, Cape Fear Collective
- Rhonda Bellamy, Phillip Brown, citizens

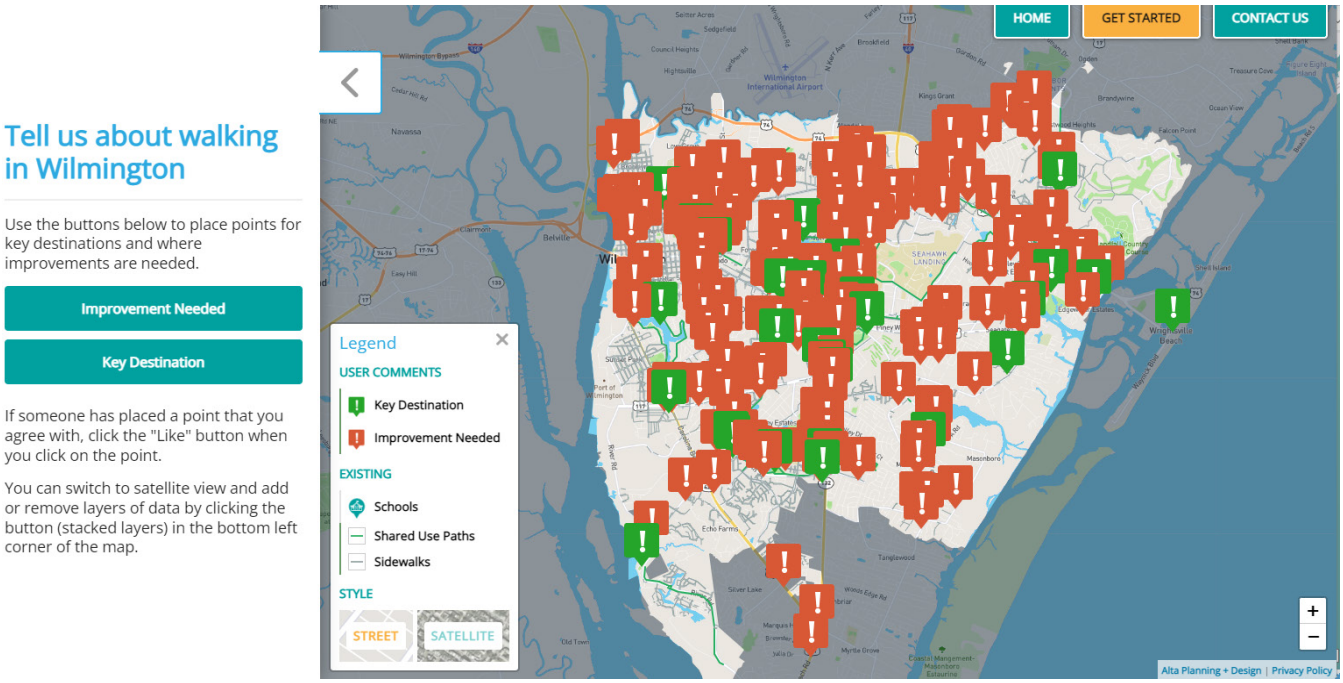
Representing the City of Wilmington:

- Doug Lewis, Community Services
- Ron Satterfield, Long-Range Planning
- Denise Freund, Engineering
- Jason Pace, Engineering
- Denys Vielkanowitz, Traffic Engineering
- Joe Conway, Diversity, Equity, and Inclusion

Project Website

The project team created a website, *walkwilmington.com*, where Wilmington residents could access all information related to the plan in one location. The website provided information on the project purpose, the anticipated project timeline, links to related WMPO and City of Wilmington

Homepage of the Walk Wilmington project website.



Screenshot of the online input map, with over 200 points marked by residents.

policies and planning efforts, as well as links to access the online survey form and the online input map. The website also had a page in Spanish with a condensed version of all of the above information, plus a link to the Spanish version of the survey.

Online Input Map

The online input map was accessible via the project website from June through October 2022. Participants were able to mark locations and add comments on a map of Wilmington where walking improvements were needed, or where there were key destinations in the community that should be connected by walking routes. Users were also able to "like" or "dislike" others' comments. Over 200 points were placed on the online map (see left), and comment clusters helped provide valuable input as the planning team created project recommendations.

In-Person Outreach

Representatives from the project team traveled to Wilmington for three days of in-person outreach during summer 2022. The main purpose of the in-person outreach was to increase visibility of the project and to encourage survey completion. Locations for in-person outreach were chosen based on the goal of reaching target populations that are most likely to be pedestrians out of necessity (including transit riders, the elderly, low-income populations, and people of color). At most locations (except where context made it infeasible), the team's approach was to set up

Front and back of the project information cards distributed during in-person outreach. The QR code was linked to the survey.

a table with a large map, paper copies of the survey, and stacks of project information cards (see above). WMPO staff assisted at most of the tabling events, and the WMPO team also held separate tabling events at farmers markets during summer 2022, helping to distribute project information cards and collect survey responses.

Alta-led outreach events:

June 22, 2022

- Padgett Station, 10:00 - 11:45 a.m.
- Good Shepherd Center Grocery Giveaway, 12:00 - 1:00 p.m.
- Robert R. Taylor Senior Homes, 2:00 - 3:00 p.m.

July 20, 2022

- Mt. Zion AME Church, 1:00 - 1:45 p.m.
- NHC Library Main Branch, 2:00 - 4:00 p.m.
- Forden Station, 5:00 - 7:00 p.m.

July 21, 2022

- Padgett Station, 8:00 - 10:00 a.m.
- Good Shepherd Center, 10:00 - 11:00 a.m.
- NHC Senior Resource Center (College Rd), 11:00 - 12:00 p.m.

The team also distributed stacks of project information cards to local businesses such as coffee shops, breweries, restaurants, markets, and thrift stores, and also left cards on the campuses of Cape Fear Community College and UNC Wilmington.

Tabling setup at Padgett Station, above; placard publicizing the survey on the WAVE buses, below.

Filling out surveys at the Senior Resource Center.

WAVE Bus Ads

The ad shown on the previous page was printed and put on every bus in the WAVE transit fleet, where it ran from early August to early September 2022.

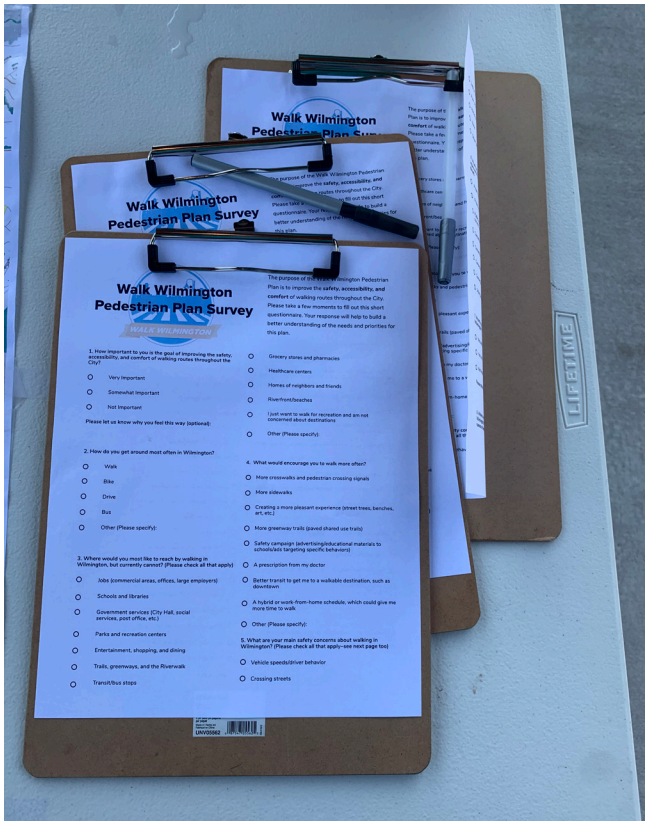
Survey

The Walk Wilmington pedestrian plan survey consisted of nine questions related to current conditions for walking in Wilmington, as well as suggested areas for improvement. There were an additional six demographic questions, which were optional.

The survey was available online on SurveyMonkey from June 15 - September 7, 2022, along with several opportunities for in-person completion of paper survey forms, as described above. The paper surveys were input manually into SurveyMonkey, for a total of 1,038 surveys completed.

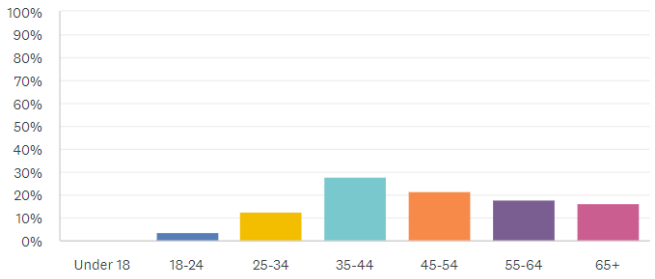
Respondent Demographics

As is common with online surveys, respondents to the Walk Wilmington comment form largely identified as White/ Caucasian (88% of respondents) and had higher incomes (23% of respondents reported household incomes above $150,000) relative to the rest of the city's population. This is the reason that survey answers were filtered by race/ethnicity and income during the prioritization process.



Paper copies of the survey used during in-person outreach.

Additionally, approximately 68% of respondents who provided their gender indicated that they were female, while 32% were male. The age of respondents was clustered around the middle, with the largest group of respondents (nearly 28%) indicating that they were between 35 and 44 years of age (see chart below). Analysis of the more directly pedestrian plan-related questions appears in the following pages.

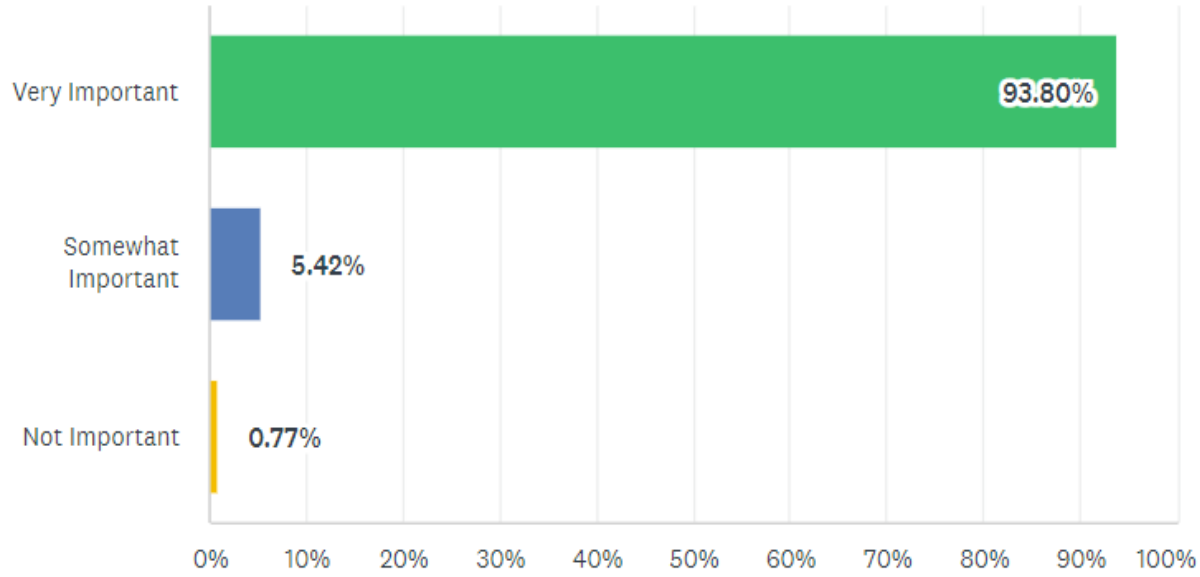


Age distribution of survey respondents.

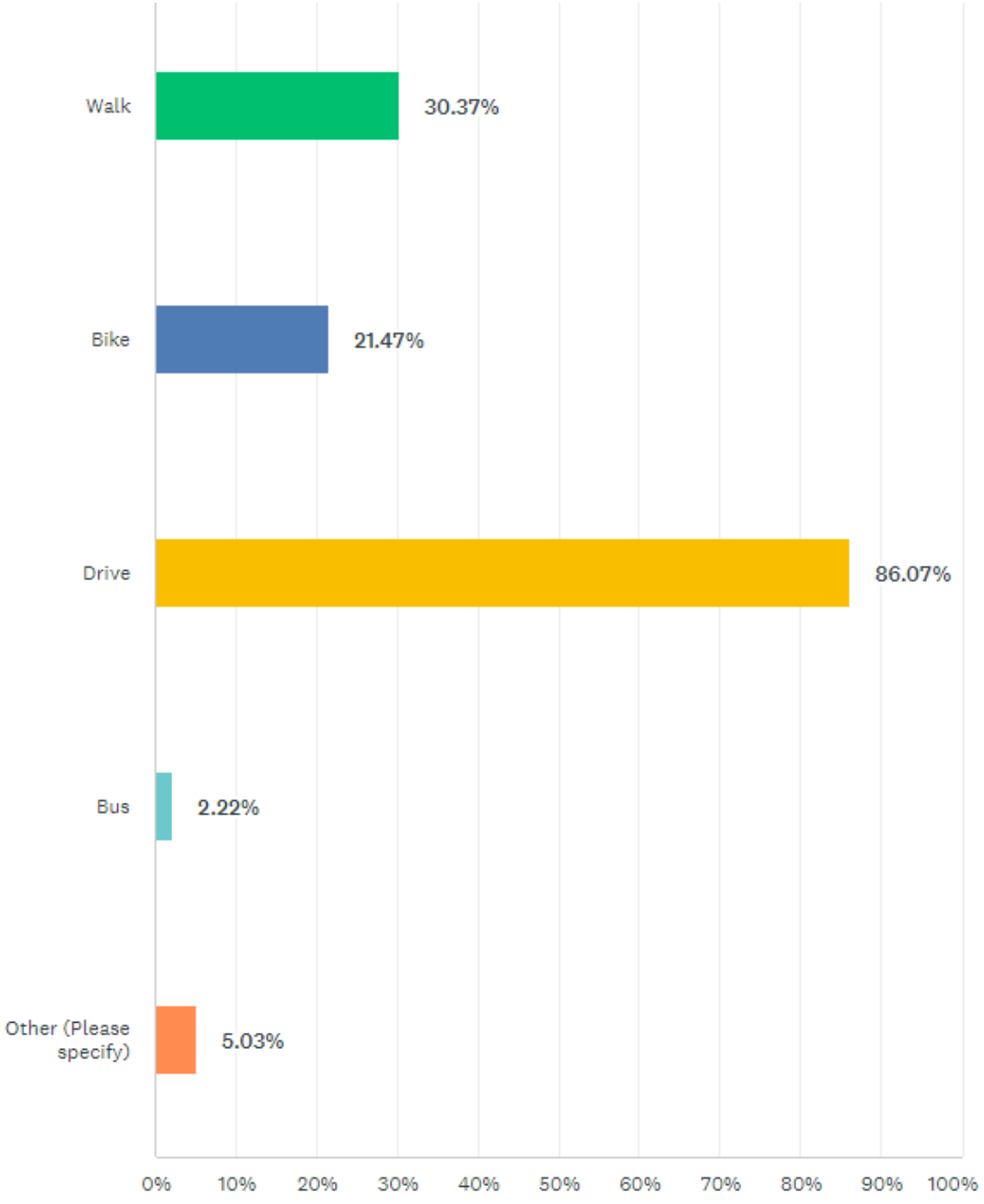
Main Survey Questions

Q1. *"How important to you is the goal of improving the safety, accessibility, and comfort of walking routes throughout the City?"*

1,033 Responses

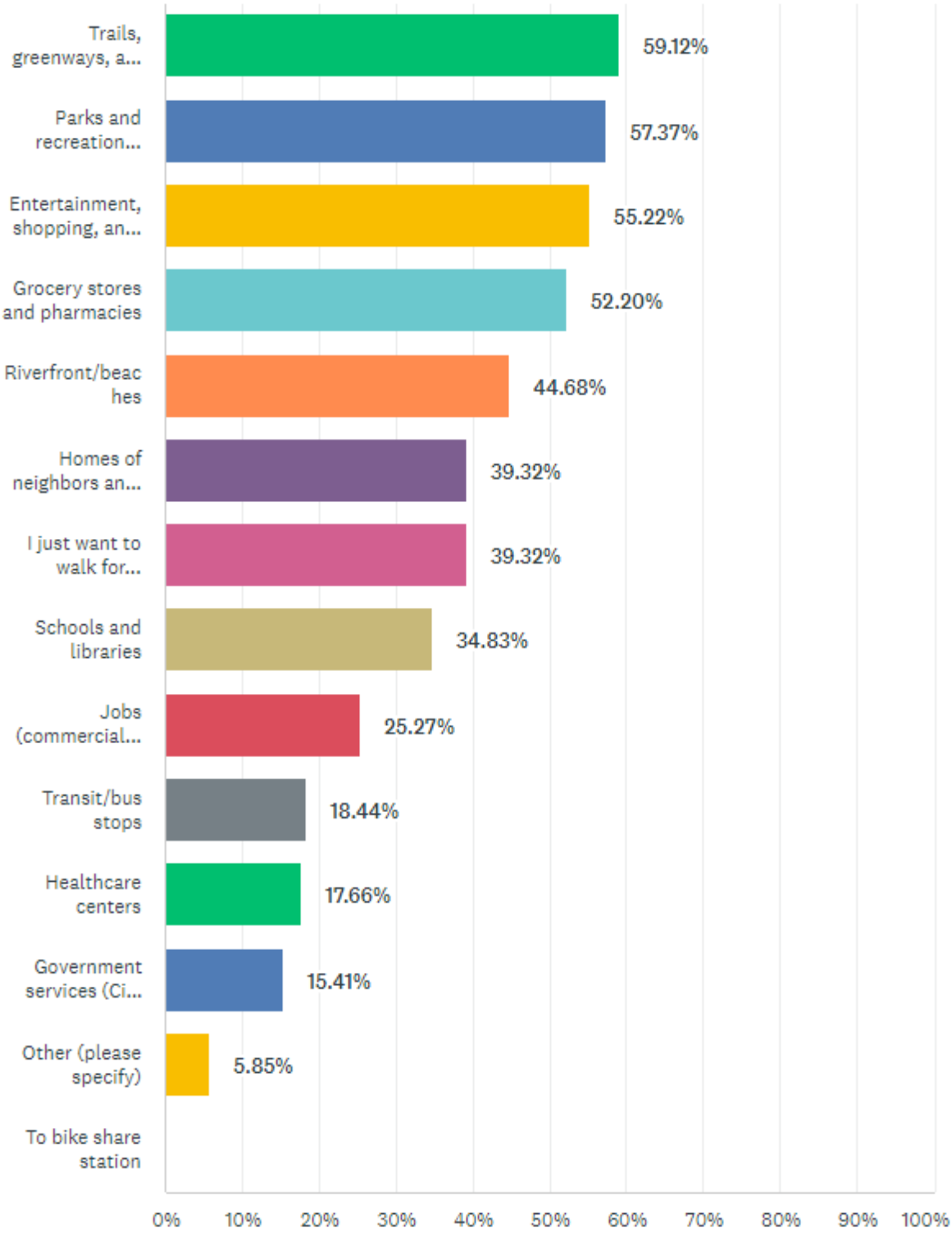


Q2. *"How do you get around most often in Wilmington?"* 1,034 Responses

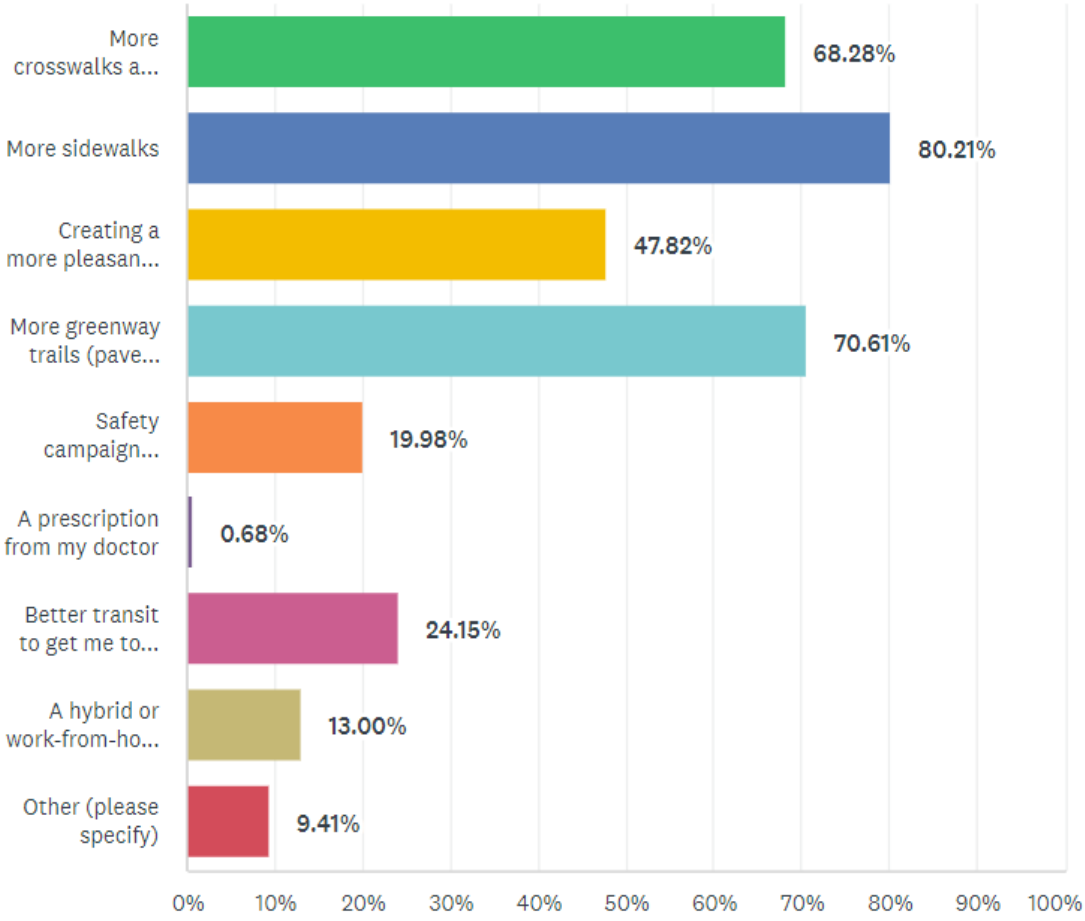


"Other" responses include wheelchair/motorized chair, multiple modes, motorcycle, or asking friends & family to drive them.

Q3. *"Where would you most like to reach by walking in Wilmington, but currently cannot (Please check all that apply)?"* 1,025 Responses



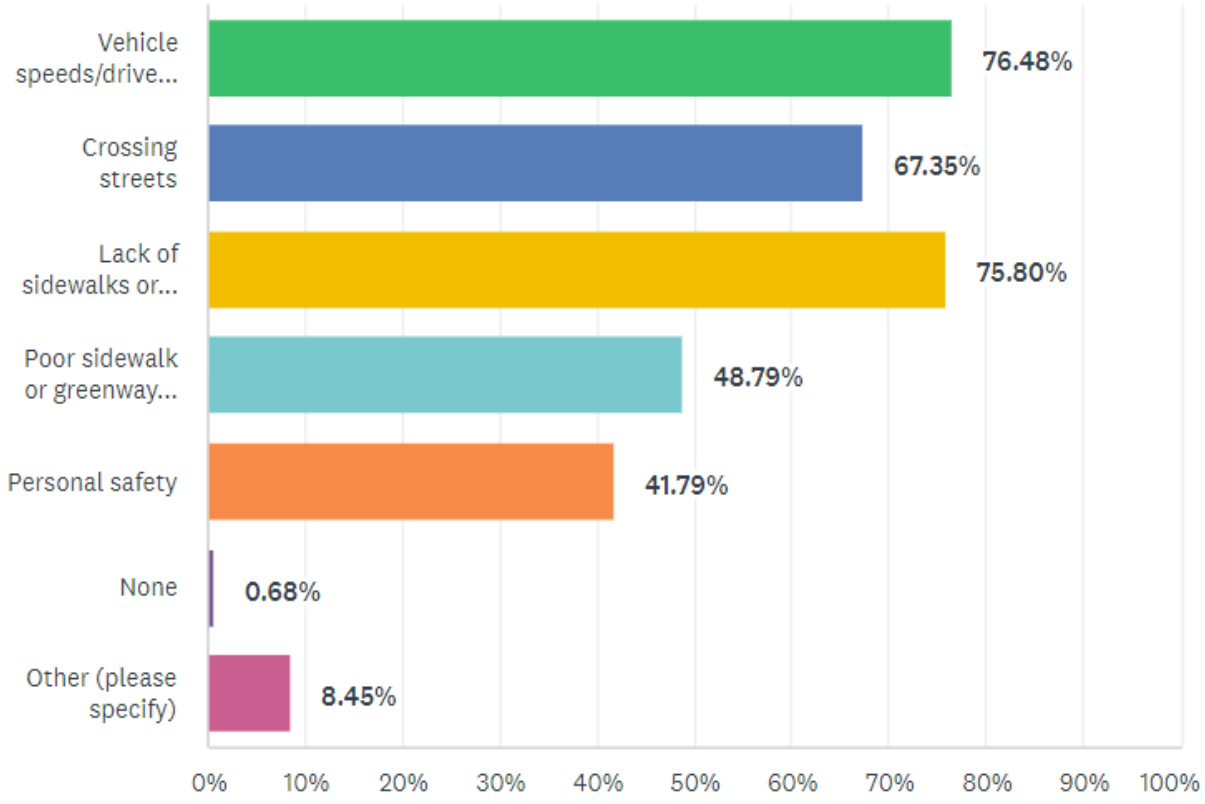
Q4. *"What would encourage you to walk more often (Please check all that apply)?"* 1,031 Responses



ANSWER CHOICES		RESPONSES	
More crosswalks and pedestrian crossing signals		68.28%	704
More sidewalks		80.21%	827
Creating a more pleasant experience (street trees, benches, art, etc.)		47.82%	493
More greenway trails (paved shared use trails)		70.61%	728
Safety campaign (advertising/educational materials to schools/ads targeting specific behaviors)		19.98%	206
A prescription from my doctor		0.68%	7
Better transit to get me to a walkable destination, such as downtown		24.15%	249
A hybrid or work-from-home schedule, which could give me more time to walk		13.00%	134
Other (please specify)	Responses	9.41%	97
Total Respondents: 1,031			

"Other" responses include: better enforcement of traffic laws, better connections to existing greenways, pedestrian bridges/underpasses, share trees and artwork, better signage/ wayfinding and publicity about where walking routes are.

Q5. *"What are your main safety concerns about walking in Wilmington (Please check all that apply)?"* 1,029 Responses

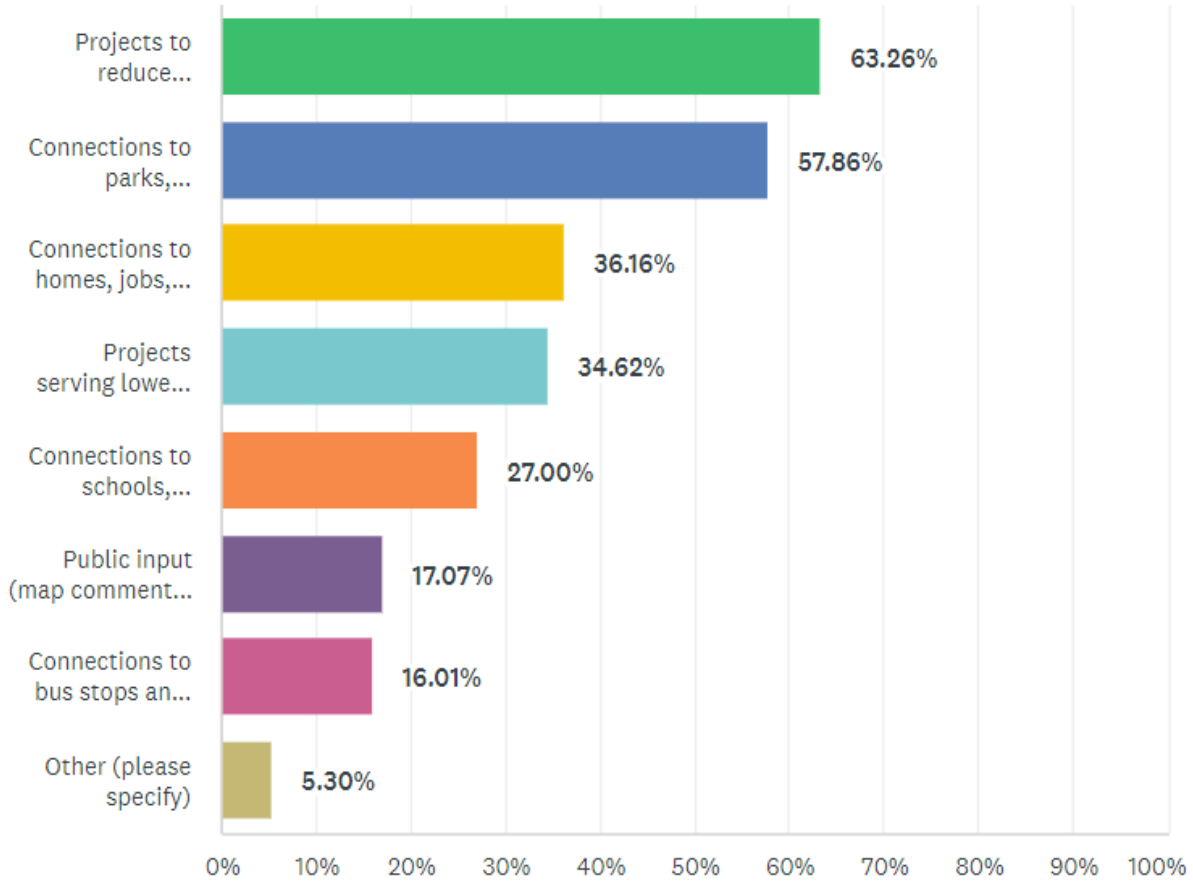


ANSWER CHOICES		RESPONSES	
Vehicle speeds/driver behavior		76.48%	787
Crossing streets		67.35%	693
Lack of sidewalks or greenways		75.80%	780
Poor sidewalk or greenway conditions		48.79%	502
Personal safety		41.79%	430
None		0.68%	7
Other (please specify)	Responses	8.45%	87

"Other" responses include: concerns about lighting at night, personal safety concerns, tree roots pushing up sidewalks, need for more family-oriented spaces downtown to walk to, dangerous drivers, lack of enforcement of speed limits/other traffic laws.

Q6. *"What factors are most important to you in prioritizing improvements for walking in Wilmington (Please select up to three)?"*

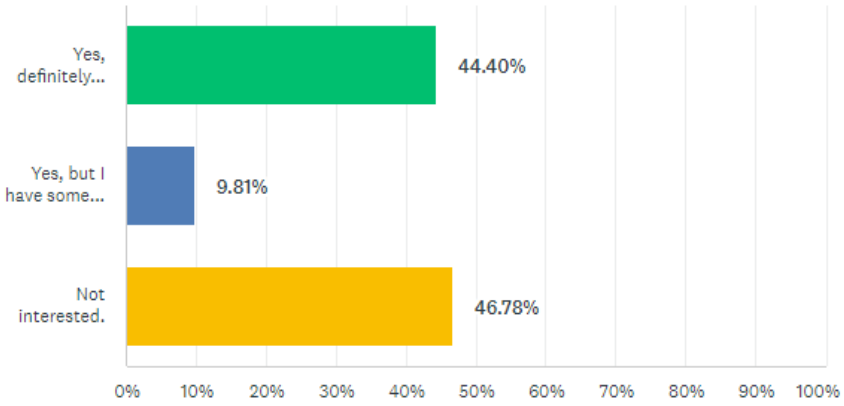
1,037 Responses



ANSWER CHOICES		RESPONSES	
Projects to reduce pedestrian injuries and fatalities		63.26%	656
Connections to parks, greenways, and recreation centers		57.86%	600
Connections to homes, jobs, and entertainment		36.16%	375
Projects serving lower income areas		34.62%	359
Connections to schools, libraries, colleges, and universities		27.00%	280
Public input (map comments, stakeholder interviews, surveys, past plans)		17.07%	177
Connections to bus stops and routes		16.01%	166
Other (please specify)	Responses	5.30%	55
Total Respondents: 1,037			

"Other" responses include: connections to Pender & Brunswick counties, connections to the beaches, connections to UNCW, all of the above.

Q7. *"Would you be interested in using a bike share service in Wilmington?"* 1,009 Responses



ANSWER CHOICES	RESPONSES	
Yes, definitely interested.	44.40%	448
Yes, but I have some concerns (please use comment box below to share).	9.81%	99
Not interested.	46.78%	472
Total Respondents: 1,009		

Concerns include: bikeshare bikes left in roadways/on sidewalks in other cities–people largely prefer bikeshare bikes that are docked at specific stations, cost to the city, safety concerns for tourists/inexperienced cyclists biking sharing the roads with cars, general lack of bike infrastructure, which should be the priority.

Q8. *"Where are improvements most needed for walking in Wilmington? Please include street names, intersections, or names of destinations."* 773 Responses - Contact the WMPO for a copy of the full results.

Common responses include: Middle Sound Loop, Greenville Loop, Shipyard, Market St, Carolina Beach Rd, Wrightsville Ave, Mayfaire, UNCW, River Rd, Eastwood Rd, Oleander, downtown, Monkey Junction, Greenfield Lake, Military Cutoff Rd, Kerr Rd, 17th St, Masonboro Loop, 3rd St.

Q9. *"Are there other comments you would like to share about walking in Wilmington and how to improve it?"* 1,009 Responses - Contact the WMPO for a copy of the full results.

Selected comments:

"Walking and biking access should be required for all new development in the greater Wilmington area. The City and County need to develop a greater degree of cooperation."

"Better signage, or an app or something to easily navigate accessible routes. improve connectivity between existing routes. focus on destinations and improve connectivity between destinations"

"As a person who walks with a cane, it would be nice to walk on smooth well kept sidewalks when I am required to walk on them."

"Sidewalks are just so all over the place and so inconsistently implemented and maintained, and crosswalks so unsafe (left turning drivers are the WORST) I don't feel safe walking the city."

"If the plan is to provide a city that has a walks of life residing and visiting here, then make sure the plan is highly inclusive for all. Not just those who have the $$$ and status."

"Traffic is never going to get better, and we are running out of space to build roads, so if we want to improve traffic in town we need to focus on building a better public walking/biking infrastructure."

"I walk for leisure and for exercise, as a women my biggest priority is safety. But for people who again walk as their means of transportation, then those areas need to be well lit as it gets darker especially when in the Fall it gets darker earlier."

"Yes, this isn't happening in a vacuum. Cyclists need to be considered too. It's my position that all main roads should contain walkable, cycleable, and drivable terrain. Walk or bike up and down Market, College, and Oleander and let me know how that goes. It's going to go bad. That's how it's going to go."

"I wish there were more walking/biking trails connecting parks, and that they didn't need to cross the roads (have more overpasses, underpasses, etc). Needs to be a connection for cross city trail to greenfield lake and Maides park, and pedestrian overpasses on market and college. Would love Kerr to become like a University Boulivard for students to be able to walk, shop, go to restaurants, etc. If there is a volunteer" committee for this, I'd love to be part of it."

Outreach to Community Organizations

The project team enlisted the help of representatives from the City of Wilmington and the Good Shepherd Center to put together a list of local organizations that serve target communities and could help with outreach to these groups. After the list was created, the project team reached out these organizations via an email message that included an introduction to the project purpose, the link to the project website, and a PDF of the flyer in both English and Spanish.

Organizations/agencies contacted:

- Wilmington Arts Council
- Frankie's Market
- Arts Council
- Mother Hubbard's Cupboard
- Wilmington Housing Authority
- Good Shepherd Center Grocery Giveaway
- Disability Resource Center
- Harrelson Center
- Nourish NC
- Cape Fear COG Continuum of Care
- Public Health Dept
- Voyage
- St Jude's MCC
- New Hanover County Schools
- Farmers Market
- Port City United
- UNCW Latino Alliance
- Basilica of St. Mary
- UNCW Catholic Ministry
- Community Relations Advisory Committee
- Wilmington Downtown Inc.
- UNCW
- CFCC
- LGBTQ Center of the Cape Fear Coast
- Northside Food Co-Op
- Cape Fear Food Council
- Wilmington Ministerial Alliance
- New Hanover Public Library
- meals on wheels
- Senior Resource Center
- NHC-NAACP
- Cape Fear Latinos
- Cape Fear Habitat for Humanity
- Vigilant Hope
- The Help Hub at the Harrelson Center
- One Christian Network
- Food Bank of Eastern and Central NC
- First Fruit Ministries
- Poplar Grove Plantation
- The A.C.T.S. Movement
- Foster Pantry
- Wrightsboro United Methodist Church
- Feast Down East
- Brigade Boys and Girls Club
- StepUp Wilmington

- Dreams Center for Arts Education
- Cape Fear Literacy Council
- Cameron Art Museum
- Wilma
- Sea level Vegan Diner
- the lower case leaders
- Mics Wide Open
- Cape Fear Volunteer Center
- YWCA Lower Cape Fear
- WRAAP (Wilmington's Residential Adolescent Achievement Place)
- Communities in Schools Cape Fear
- Smart Start New Hanover County
- NC Cooperative Extension
- Bargain Box of Wilmington

Public Workshops and Draft Plan Comments

The project team provided opportunities for the public to review and comment on the draft plan. Alta and WMPO hosted two in-person public open house events to solicit feedback on the draft plan:

- Jan 31, 2023, Halyburton Park, 5:00 - 7:00 p.m.
- Feb 1, 2023, MLK Center, 5:00 - 7:00 p.m.

Additionally, the draft plan was posted to the project website, along with an online form to submit comments. The public comment period for the draft plan was January 20th through February 20th, 2023. In total, 183 draft plan comments were received online and at the in-person events.

Participants at a public open house event provided feedback on the plan at MLK Center on February 1, 2023.

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Appendix B

Design Resources

Overview

This toolbox presents guidance for local agency staff, elected officials and community advocates to create a more walkable and bicycle-friendly community for people of all ages and abilities. Planners and project designers should refer to these guidelines in developing the infrastructure projects recommended by this plan, but they should not be used as the sole reference for any detailed engineering design.

As a starting point, the following list of resources are from the NCDOT website for "Bicycle & Pedestrian Project Development & Design Guidance," located here (resources listed are linked through this page; Last retrieved in December 2021):

https://connect.ncdot.gov/projects/BikePed/Pages/Guidance.aspx

North Carolina Guidelines

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT)

- WalkBikeNC: Statewide Pedestrian & Bicycle Plan
- Glossary of North Carolina Terminology for Active Transportation
- NCDOT Complete Streets: This policy directs the department to consider and incorporate several modes of transportation when building new projects or making improvements to existing infrastructure. The link below is a landing page with resources such as the Complete Streets policy, the Implementation Guide, Evaluation Methodology, Flowchart, FAQs, and more. https://connect.ncdot.gov/projects/BikePed/Pages/Complete-Streets.aspx
- Evaluating Temporary Accommodations for Pedestrians
- NC Local Programs Handbook
- Traditional Neighborhood Development Guidelines

GREENWAY CONSTRUCTION STANDARDS

- Greenway Standards Summary Memo
- Design Issues Summary
- Greenway Design Guidelines Value Engineering Report
- Summary of Recommendations
- Minimum Pavement Design Recommendations for Greenways
- Steps to Construct a Greenway or Shared-Use Trail

National Guidelines

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

- Guide for the Planning, Design, and Operation of Pedestrian Facilities

RAILS-TO-TRAILS CONSERVANCY

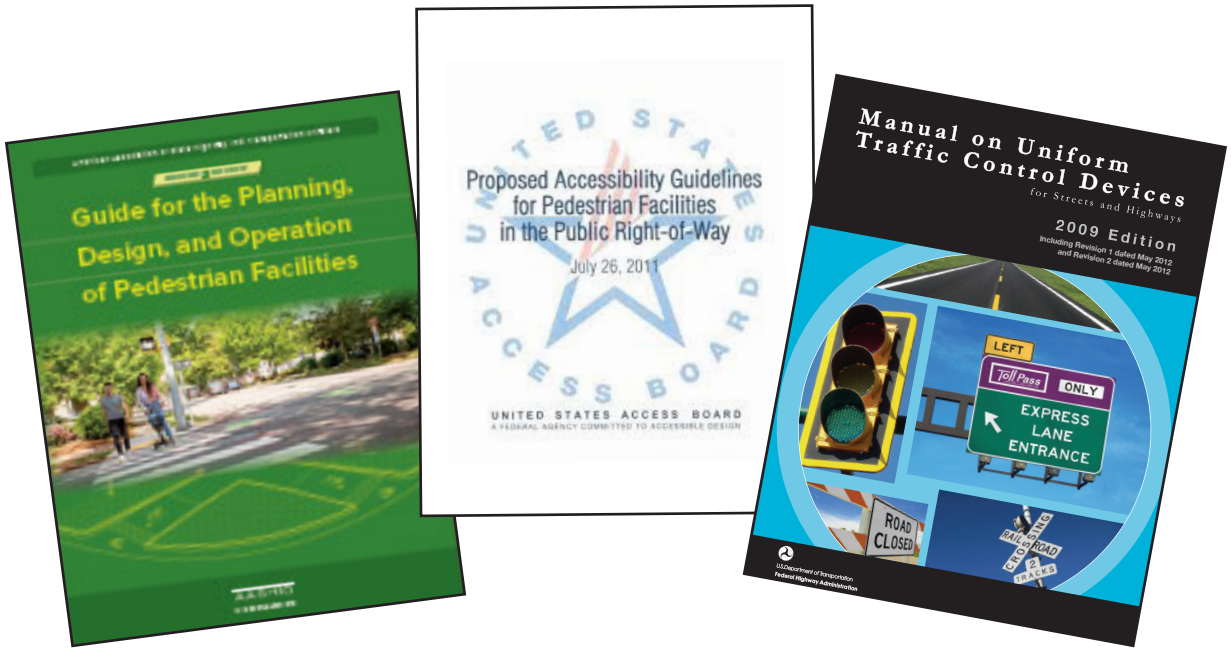
- General Design Guidance: *https://www.railstotrails.org/build-trails/trail-building-toolbox/*
- Rails-with-Trails: *https://www.railstotrails.org/resource-library/resources/americas-rails-with-trails/*

THE FEDERAL HIGHWAY ADMINISTRATION (FHWA)

- Accessibility Guidance
- Design Guidance
- Facility Design
- Facility Operations

MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

- Part 4E: Pedestrian Control Features
- Part 7: Traffic Controls for School Areas



NATIONAL ASSOCIATION OF CITY TRANSPORTATION OFFICIALS (NACTO)

- Urban Street Design Guide
- City Limits: Setting Safe Speed Limits on Urban Streets

SAFE ROUTES TO SCHOOL (SRTS) NON-INFRASTRUCTURE

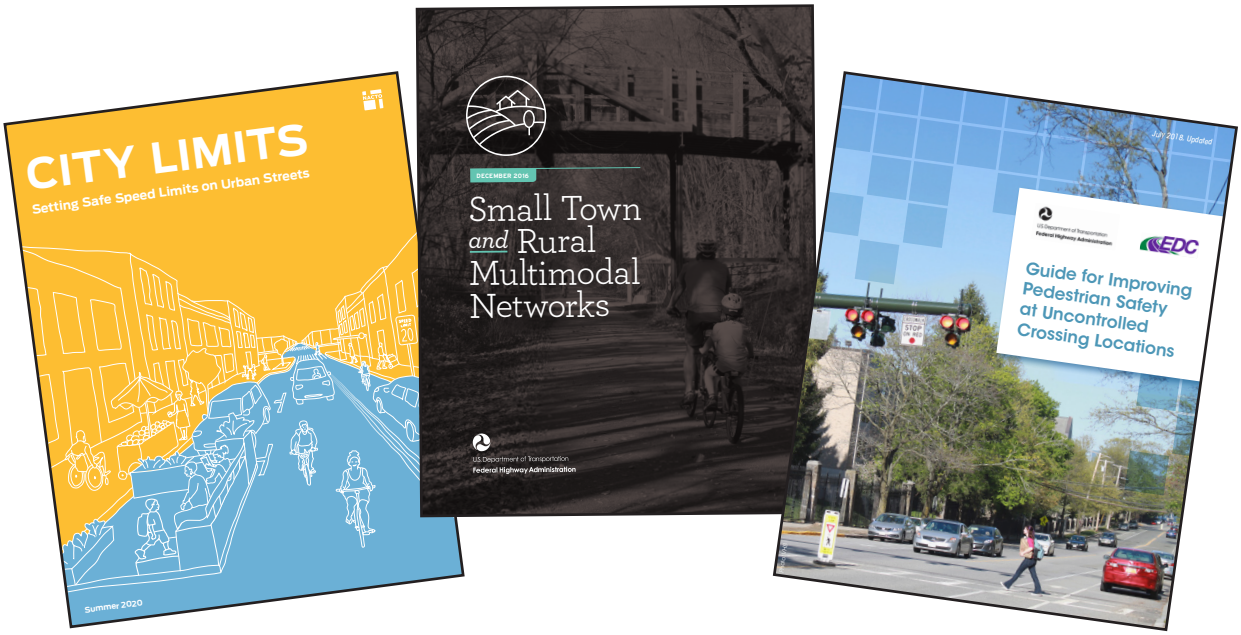
- National Center for Safe Routes to School
- National Partnership for Safe Routes to School

US ACCESS BOARD

- ABA Accessibility Standards
- ADA Accessibility Guidelines
- ADA Accessibility Standards
- Public Rights-of-Way, Streets & Sidewalks, and Shared-Use Paths

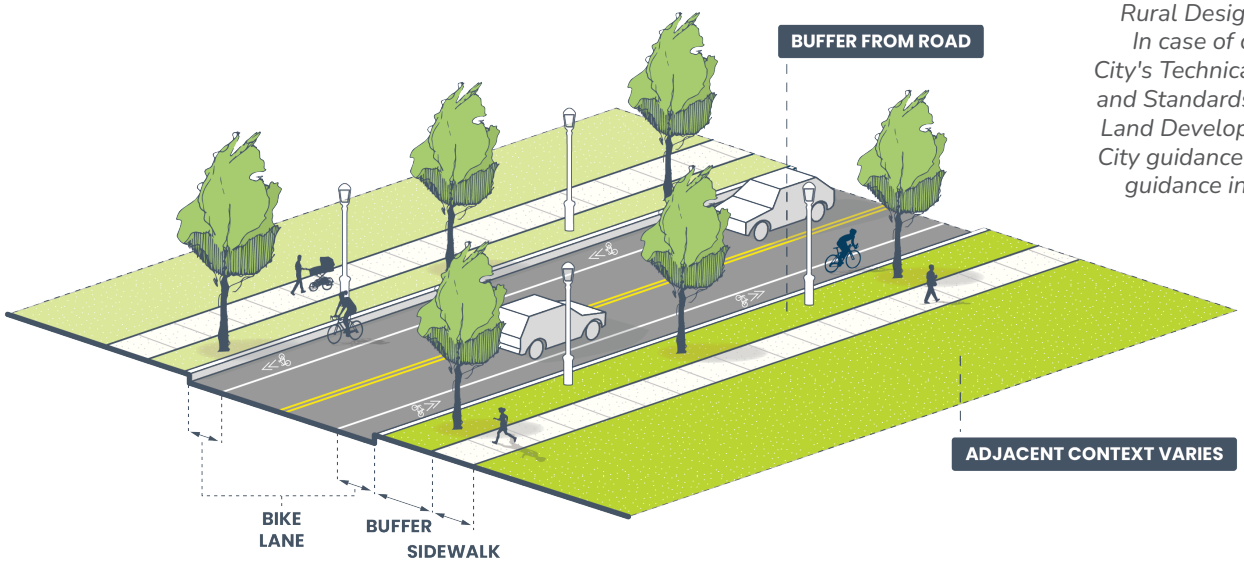
ADDITIONAL FHWA RESOURCES

- Achieving Multimodal Networks (2016): https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/multimodal_networks/
- Small Town and Rural Multimodal Networks Design Guide (2016): https://ruraldesignguide.com/
- Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations (2018): https://safety.fhwa.dot.gov/ped_bike/step/docs/STEP_Guide_for_Improving_Ped_Safety_at_Unsig_Loc_3-2018_07_17-508compliant.pdf



Sidewalks

Design guidelines are based on NACTO Design Guides and the Small Town and Rural Design Guide (2016). In case of conflict with the City's Technical Specifications and Standards Manual and/or Land Development Code, the City guidance supersedes the guidance in this appendix."



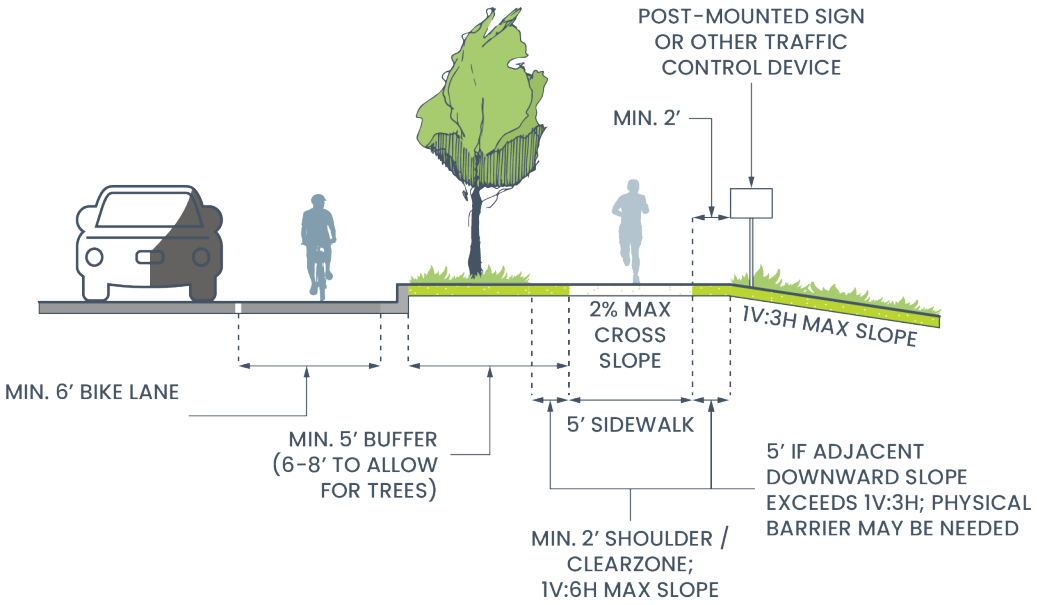
Sidewalks are the most fundamental element of the walking network, as they provide an area for pedestrian travel separated from vehicle traffic. Providing adequate and accessible facilities can lead to increased numbers of people walking, improved safety, and the creation of social space.

Typical Applications

Sidewalks should be provided on both sides of urban commercial streets, and should be required in areas of moderate residential density. (1-4 dwelling units per acre).

When retrofitting gaps in the sidewalk network, locations near transit stops, schools, parks, public buildings, and other areas with high concentrations of pedestrians should be the highest priority.

In some suburban areas, no curb and gutter is necessary to establish a sidewalk. Instead, the sidewalk should feature a wide furnishing zone, which may be configured as an open ditch for stormwater catchment and infiltration. Ditches can be retrofitted into bioswales or rain-gardens for filtration and water purification.



Design Guidelines

WIDTH

It is important to provide adequate width along a sidewalk corridor. A pedestrian through zone width of 6’ enables two pedestrians (including wheelchair users) to walk side-by-side, or to pass each other comfortably.

In areas of high demand, sidewalks should contain adequate width to accommodate the high volumes and different walking speeds of pedestrians.

BUFFER

Appropriate placement of street trees in the furnishing zone (minimum width 4’) helps buffer pedestrians from the travel lane and increases facility comfort.

OTHER DESIGN CRITERIA

At a minimum, the Americans with Disabilities Act requires a 3’ clear width in the pedestrian zone plus 5’ passing areas every 200’.

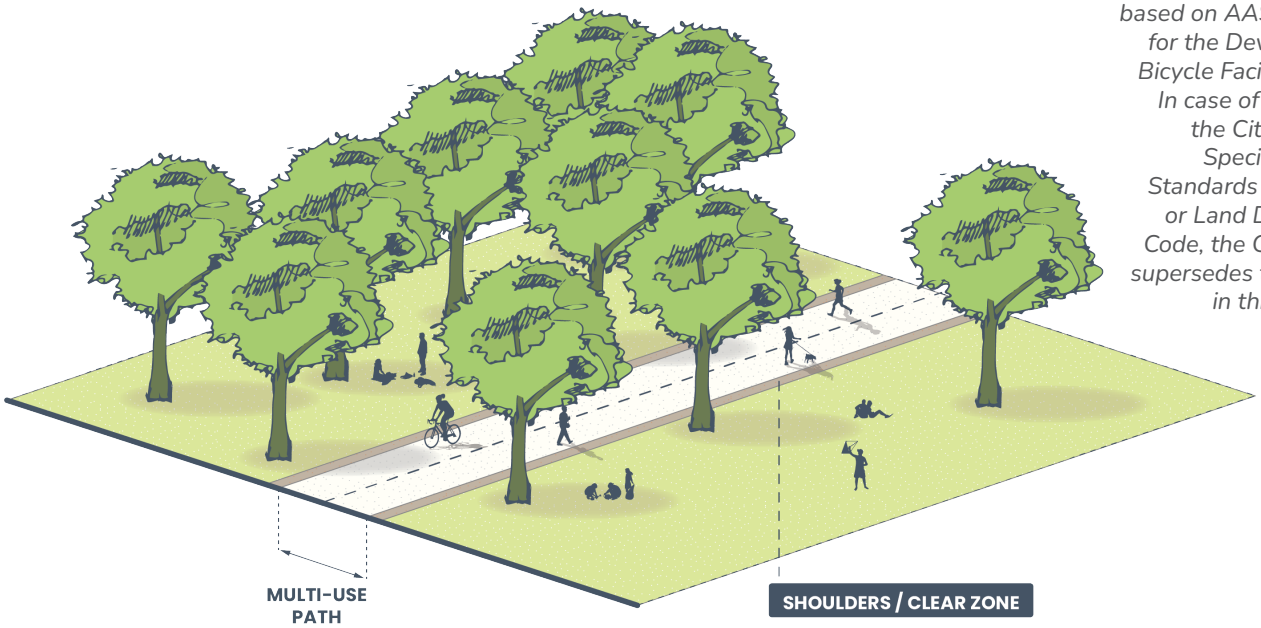
The clear width may be reduced to a minimum of 32 inches for short, constrained segments of up to 24 inches long, provided that constrained segments are separated by regular clear width segments that are a minimum of 48 inches long and 36 inches wide.

Providing a 6’ clear width across the full corridor for all new sidewalks (and 12’ or greater in downtown and pedestrian-priority areas) meets requirements for passing and maneuverability.

Existing deficient-width sidewalks are to be retrofitted to meet citywide standards.

Shared-Use Path (or Greenway)

Design guidelines are based on AASHTO, Guide for the Development of Bicycle Facilities (2012). In case of conflict with the City's Technical Specifications and Standards Manual and/or Land Development Code, the City guidance supersedes the guidance in this appendix."



A shared-use path (SUP), labeled in the graphic above as a multi-use path, provides a travel area separate from motorized traffic for cyclists, pedestrians, skaters, wheelchair users, joggers, and other users. SUPs are desirable for cyclists of all skill levels preferring separation from traffic. These off-road travelways generally provide routes and connections not provided by existing roadways. Most SUPs are designed for two-way travel of multiple user types. Designs vary depending on factors such as the grade of the land, size and amount of vegetation present, and proximity to waterways, structures, and other elements.

Typical Application

SUPs are typically located in independent rights-of-way, separate from roadways.

Refer to guidance on sidepaths for information on SUPs adjacent to roadways.

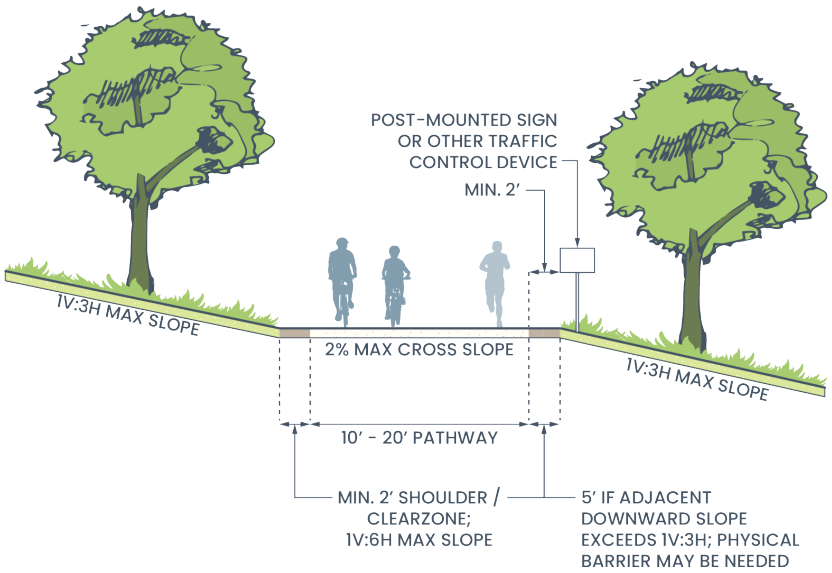
REAL WORLD EXAMPLES

Gary Shell Cross City Trail
Wilmington, NC

Island Greenway
Carolina Beach, NC

South Tar River Greenway
Greenville, NC

Source: Visit Greenville NC



Design Guidelines

WIDTH

A demand analysis, combined with the use of FHWA's SUPLOS Calculator, should be conducted to determine appropriate widths. 10-12' is a typical default SUP width, and 8' width is acceptable only in constrained conditions and for short distances (AASHTO Bike Guide Section 5.2.1).

SHOULDER / CLEAR ZONE

Minimum 2' graded area (maximum 1V:6H slope) should be provided for clearance from landscaping or other vertical elements such as fences, light poles, sign posts, etc.; recommend aggregate or turf grass to prevent weeds from spilling onto trail.

VERTICAL CLEARANCE

8' minimum, 10' typical.

SLOPE

Trail slopes should be designed at 5% (greater slope is permitted, but should be limited, see AASHTO); SUP cross slope should not exceed 2%.

PHYSICAL BARRIER

If the land beyond the shoulder/clear zone has a slope exceeding 3:1, a physical barrier may need to be added.

OTHER DESIGN CRITERIA

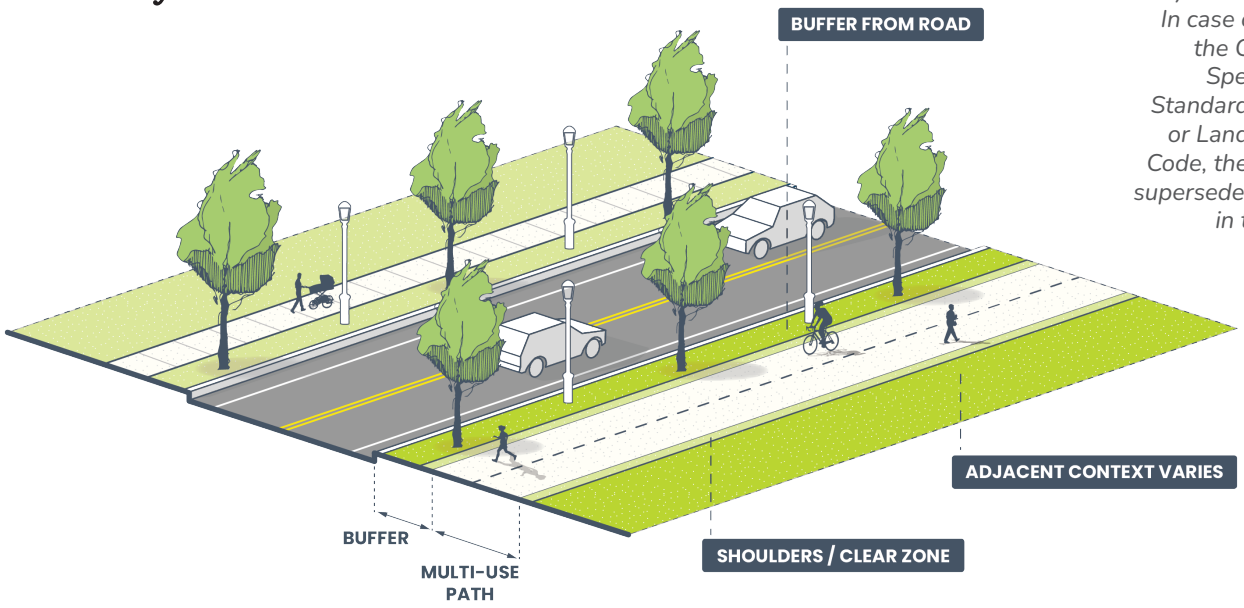
With the great variety of users on open space trails, amenities such as benches, trash and recycling receptacles, bike racks, and appropriate lighting should be included along trails.

Trail design should comply with all AASHTO requirements for SUPs related to design speed, sight distances, stopping distances, and grades.

Shared-Use Path (or Greenway)

Design guidelines are based on AASHTO, Guide for the Development of Bicycle Facilities (2012). In case of conflict with the City's Technical Specifications and Standards Manual and/ or Land Development Code, the City guidance supersedes the guidance in this appendix."

Roadway Corridor



Shared-use paths which are located alongside roadway corridors, also known as sidepaths, serve as both recreational and utilitarian routes. While this placement poses unique SUP challenges, such as driveway crossings and close proximity to moving vehicles, these trails create direct and important routes through the community.

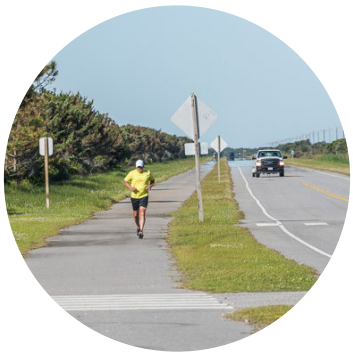
Typical Application

When SUPs run alongside a roadway corridor, standard shared use path characteristics should be maintained in order to reinforce the continuity of the SUP and create a distinction between sidewalks and other nearby facilities. Buffer space of at least 5' between the roadway and SUP can include smaller vegetation, light and utility poles, and other physical barriers. A buffer must be at least 8' wide to accommodate trees.

REAL WORLD EXAMPLES

Gary Shell Cross City Trail
Wilmington, NC

Source: Wilmington and Beaches

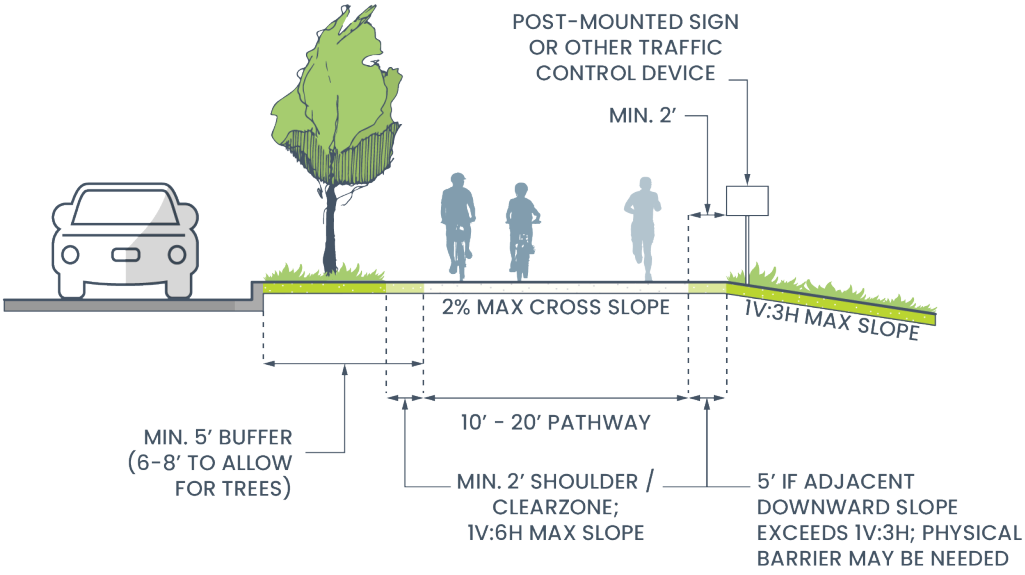


Highway 12 Sidepath
Ocracoke Island, NC

Source: OuterBanks.com

Emerald Path
Emerald Isle, NC

Source: Town of Emerald Isle



Design Guidelines

WIDTH

A demand analysis, combined with the use of FHWA's SUPLOS Calculator, should be conducted to determine appropriate widths. 10-12' is a typical default SUP width, and 8' width is acceptable only in constrained conditions and for short distances (AASHTO Bike Guide Section 5.2.1).

BUFFER

A wide separation should be provided between the trail and adjacent roadway. The buffer is measured from the face of curb (if present) or the edge of the paved roadway, and should not be less than 8'. Paved shoulders do not count towards the overall buffer width. Greater separation is desirable along high-speed roadways. In either case, if proper separation is not achievable, a physical barrier or railing should be provided.

SHOULDER / CLEAR ZONE

Minimum 2' graded area (maximum 1V:6H slope) should be provided for clearance from landscaping or other vertical elements such as streetscape amenities, light poles, sign posts, etc.; recommend aggregate or turf grass to prevent weeds from spilling onto trail.

VERTICAL CLEARANCE

8' minimum, 10' typical.

SLOPE

SUP slopes should be designed at 5% (greater slope is permitted, but should be limited, see AASHTO); SUP cross slope should not exceed 2%.

OTHER DESIGN CRITERIA

Trail design should comply with all AASHTO requirements for shared use paths related to design speed, sight distances, stopping distances, and grades. See AASHTO p. 5-8 for roadway corridor conflict considerations.

SIGNAGE

Wayfinding or other informational signage, if located within buffer between roadway and trail, should be mounted at 7' from trail to bottom of sign and 2' from the side of the SUP (see MUTCD).

Street Trees

Street trees contribute to attractive and comfortable places to walk. Healthy trees can provide ample shade to cool a hot urban environment. For more information on Wilmington's street tree policies and maintenance, refer to the City's **2022 Parks, Recreation & Open Space Comprehensive Plan.**

Typical Application

Urban street trees are typically located within paved sidewalks (in tree wells or planters), in parking lots, or in continuous planting strips parallel to a roadway or walkway.

Design Guidelines

TREE SPACE DESIGN

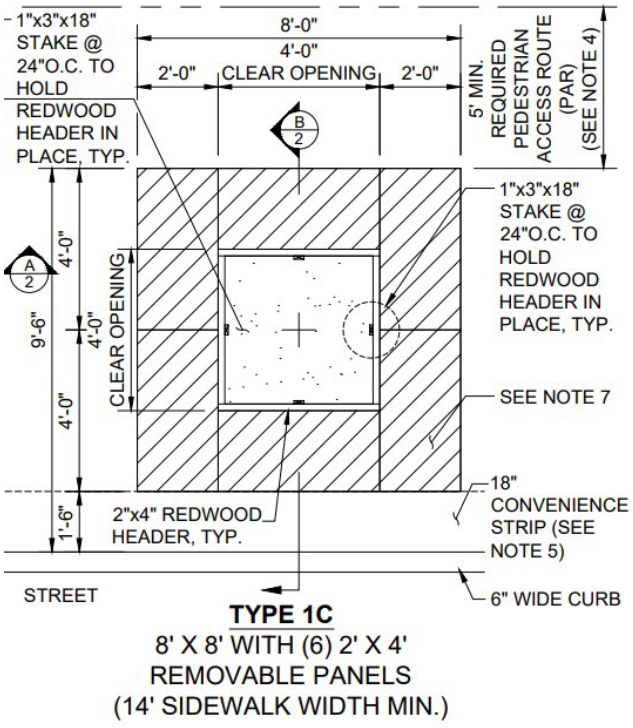
A preferred design detail for a city standard tree well detail is one that goes beyond a typical 4'x4' dimension with the goal of providing as much rootable soil as possible and a larger area of open soil for gas exchange and stormwater infiltration.

Studies have shown that trees grown in large volumes of rootable soil grow faster, develop larger canopies, and outlive those grown in smaller volumes of compacted soil. For example, the approximate recommended soil volume for a 30-foot canopy street tree is 1,000-1,500 cubic feet.

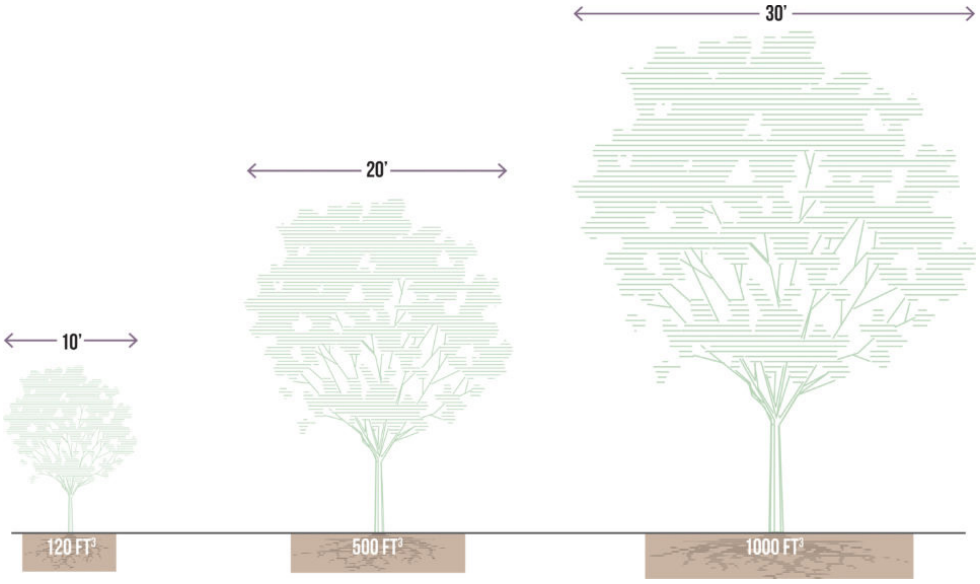
When grates are used, avoid small openings that cause "girdling" or constriction of the tree's natural trunk flare, which is vital to tree health (trunk flare is typically two to three times the expected trunk diameter at maturity). The tree space design should also allow for easy inspection of the soil and irrigation system to promptly diagnose and address any issues affecting tree health.

TREE SPACING

Trees should be spaced to account for maturity; two-thirds of mature canopy width between trees is ideal, with regular pruning once trees are mature.



Example tree well detail for a large tree (Source: Los Angeles Bureau of Engineering)



Larger trees that provide the greatest shade and cooling benefits require greater volumes of uncompacted soil space to allow roots to grow. For example, a tree with a 30-foot wide canopy needs approximately 1,000 cubic feet of root space to thrive. (Source: NACTO)

IRRIGATION

Many street trees are non-irrigated, relying instead on moisture from precipitation and urban runoff to meet their water needs. Prolonged drought and heat stress can be detrimental to trees and may necessitate tree removal.

When new street trees are planted, an 'establishment' period is typically put into place where the trees will receive supplemental water for a period of time, typically 1 to 3 years.

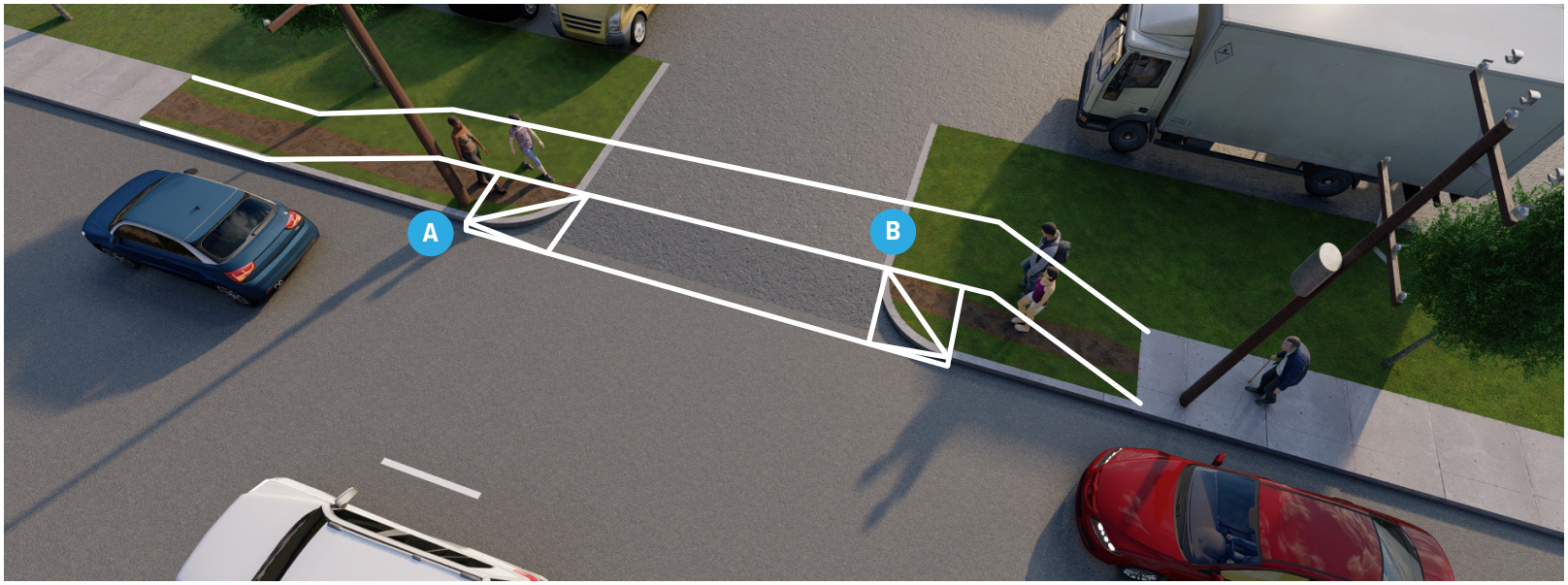
Street trees may be permanently irrigated using a variety of methodologies with the most typical configurations being surface bubblers, root watering systems, and subsurface drip irrigation.

MAINTENANCE

Routine maintenance includes removing leaf litter, replenishing mulch, applying fertilizer, and irrigation. Periodic maintenance includes tree pruning, pest inspection/extermination, and removing dead branches.

OTHER CONSIDERATIONS

Tree species should be selected carefully to match the location's conditions and constraints. Consider whether the desired tree species is appropriate for the spatial context (above and below ground), solar orientation and expected sunlight year-round, and projected future increases in extreme weather conditions (eg, heat, drought).



Sidewalk Infill and Improvements

Due to historic development patterns, sidewalks may be missing or underbuilt for limited segments along an otherwise continuous corridor, or may be provided on only one side of the street where demand exists for access on both sides. Sidewalk infill and improvement strategies should identify and prioritize gaps in order to provide complete, accessible facilities. Providing a sidewalk along a roadway can reduce pedestrian crashes by 88%[1].

Typical Application

- Missing segments in an otherwise complete corridor
- Missing on one side of a corridor
- Where sidewalks are completely absent from the roadway
- The AASHTO Guide for the Development of Pedestrian Facilities states "Wherever there is developed frontage along a road or street, there will be people walking for exercise, visiting neighbors, accessing bus stops, or walking for pure enjoyment. Sidewalk or pathways are needed to safely accommodate these activities." (2004, p.25)

Design Features

- Sidewalk width will vary depending on the available public right-of-way between the curb line and private property line.
- Generally, sidewalk infill projects do not change the configuration of the roadway travel area.
- When filling gaps in a corridor, sidewalk segments should provide adequate width and landscaped buffer. A buffer zone of four to six feet is desirable to separate pedestrians from the street.

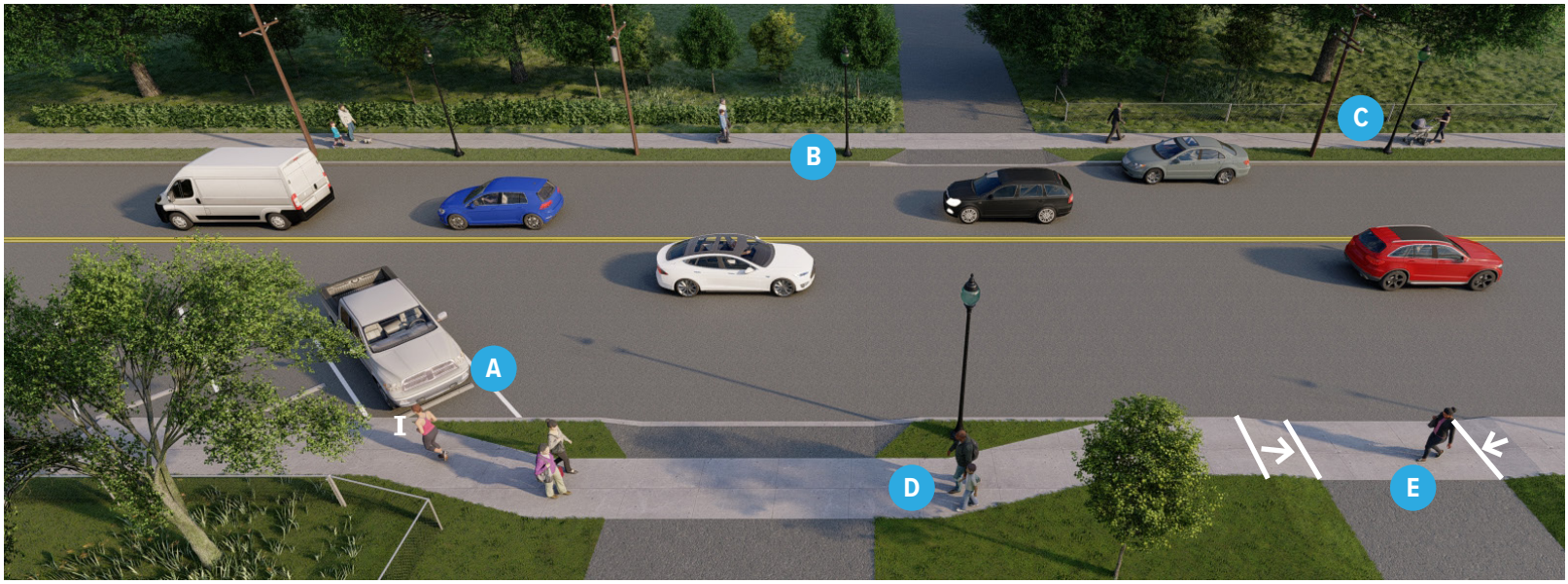
A Infill sidewalks may need to transition at the ends of the segments to connect to existing sidewalk alignment and design.

B New and reconstructed sidewalks must meet accessibility guidelines. This includes the design of curb ramps and driveway curb cuts.

Planning-Level Cost Estimate

- Varies significantly dependent on project specifications

[1] http://www.cmfclearinghouse.org/index.cfm



Sidewalk Obstructions and Driveways

Obstructions to pedestrian travel in the sidewalk corridor typically include driveway ramps, curb ramps, sign posts, utility and signal cabinets, pull boxes and poles, mailboxes, fire hydrants and street furniture. Driveways and entrances to parking structures can also be challenging due to the restricted visibility of exiting motorists.

Typical Application

- Limiting the number and width of access points reduces the need for special provisions.
- Obstructions such as utility boxes, pull boxes and traffic signal cabinetry should be placed in the furnishing or utility zone between the sidewalk and the roadway, or behind the sidewalk. They should be set back from driveway entrances to increase visibility of pedestrians.

Design Features

A When sidewalks abut angled on-street parking, increase the width of the sidewalk by 3' to account for vehicle overhang.

B Planter strips allow sidewalks to remain level, with the driveway grade change occurring within the planter strip. The furnishing or utility zone also serves as the extended area where driveway grade changes should occur. This ensures a continuous elevation along the pedestrian through zone.

C When sidewalks abut hedges, fences, or buildings, an additional two feet of lateral clearance should be added to provide appropriate shy distance.

D Where constraints preclude a planter strip, or where the planter strip is narrow, wrapping the sidewalk around the driveway allows the sidewalk to still remain level.

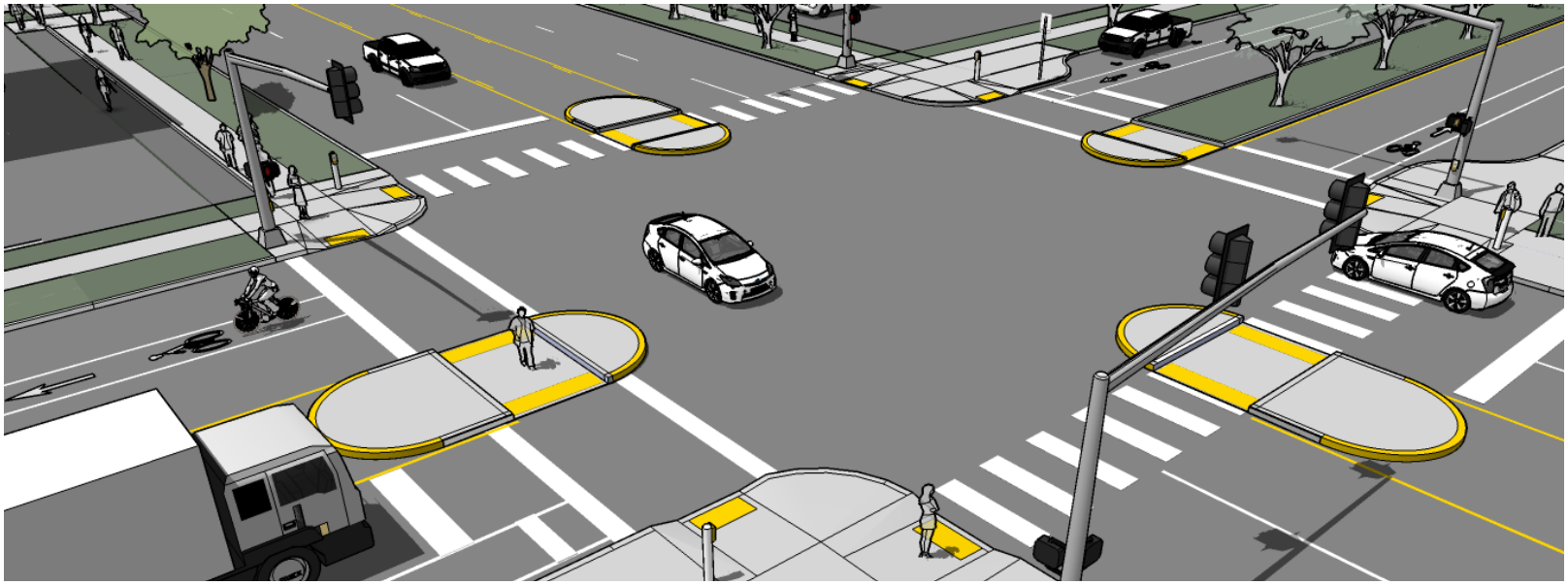
E Driveways are a common sidewalk obstruction, especially for wheelchair and other mobility assisted device users. When constraints only allow curb-tight sidewalks, lowering the entire sidewalk at the driveway approach keeps the cross-slope at a constant grade. However, this may be uncomfortable for pedestrians and could create drainage problems behind the sidewalk. Frequent driveways in this configuration create a "roller coaster" effect forcing pedestrians to constantly be climbing or descending.

Further Considerations

Pedestrians easements may allow for the installation of sidewalks outside of the available right-of-way.

Planning-Level Cost Estimate

- Varies significantly dependent on project specifications



Marked Crosswalks

Marked crosswalks support walkability by signaling to motorists that they must yield to pedestrians and encouraging pedestrians to cross at designated locations. Depending on context, crosswalks may need to be implemented in conjunction with other visibility and safety measures.

Typical Application

All crosswalks should be marked at signalized intersections. At stop- or yield-controlled intersections and mid-block locations, an engineering study should be performed prior to installation, considering: **number of lanes, presence of a median, distance from adjacent signalized intersections, pedestrian volumes and delays, average daily traffic (ADT), posted speed limit or 85th-percentile speed, geometry of the location, possible consolidation of multiple crossing points, availability of street lighting, and other appropriate factors.**[1]

Design Features

- The crosswalk should be located to align as closely as possible with the through pedestrian zone of the sidewalk corridor.
- Users should not have to leave the crosswalk or reorient themselves from the crosswalk when accessing the curb ramp onto the sidewalk.
- Several marking types are acceptable, depending on the context and intersection type. Further guidance is provided in the MUTCD, Section 3B.18: Crosswalk Markings.

Further Considerations

- Pedestrians are sensitive to out-of-direction travel, and reasonable accommodations should be made to make crossings convenient at locations with adequate visibility.
- At roadways that meet certain geometric and ADT criteria, new mid-block marked crosswalks should not be installed without other measures designed to reduce traffic speeds, shorten crossing distances, enhance driver awareness of the crossing, and/or provide active warning of pedestrian presence.[2]
- Because the effectiveness of marked crossings depends entirely on their visibility, maintaining marked crossings should be a high priority. Thermoplastic markings offer increased durability over conventional paint.

Planning-Level Cost Estimate

- Varies significantly dependent on project specifications

[1,2] Manual on Uniform Traffic Control Devices, Part 3: https://mutcd.fhwa.dot.gov/pdfs/2009r1r2r3/part3.pdf

Raised Crosswalks

Typically limited to 2 and 3-lane roadways (30mph max), raised crosswalks slow vehicles and have a studied crash reduction factor of 45%[1].

Raised crosswalks create a special emphasis on crossing pedestrians and should be used on a limited basis. Schools and Neighborhood Greenways are good candidate locations. Some raised crossings can eliminate the need for grade changes over the pedestrian path of travel and improve comfort for users.

Typical Application

- Use detectable warnings at the curb edges to alert vision-impaired pedestrians that they are entering the roadway.
- Approaches to the raised crosswalk may be designed to be similar to speed humps.
- Drainage improvements may be required depending on the grade of the roadway.

Design Features

A. A tactile warning device should be used at the curb edge.

B. No grade change with sidewalk level is preferred.

Further Considerations

Like a speed hump, raised crosswalks have a traffic slowing effect which may be unsuitable on high-speed streets, designated transit or freight routes, and in locations that would reduce access for emergency responders. The noise of vehicles traveling over raised crosswalks may be of concern to nearby residents and businesses.

Planning-Level Cost Estimate

- $300-400 per linear foot of crossing width utilizing concrete construction. Does not include bulb-outs as depicted in graphic.

[1] http://www.cmfclearinghouse.org/index.cfm

Pedestrian Hybrid Beacon

Hybrid beacons or High-Intensity Activated Crosswalks (HAWK) are used to improve non-motorized crossings of major streets. A hybrid beacon consists of a signal head with two red lenses over a single yellow lens on the major street, and a pedestrian signal head for the crosswalk. Hybrid beacons are only used at marked mid-block crossings or unsignalized intersections. They are activated with a pedestrian pushbutton at each end. If a median refuge island is used at the crossing, another pedestrian pushbutton can be located on the island to create a two-stage crossing.

Typical Application

- Suitable for arterial streets where posted speeds are 30-45 mph and multiple travel lanes. In some cases, PHBs are also being implemented along 2-lane roadways.
- Where off-street pedestrian/bicycle facilities intersect major streets without signalized intersections.
- At intersections or midblock crossings where there are high pedestrian volumes.

Design Features

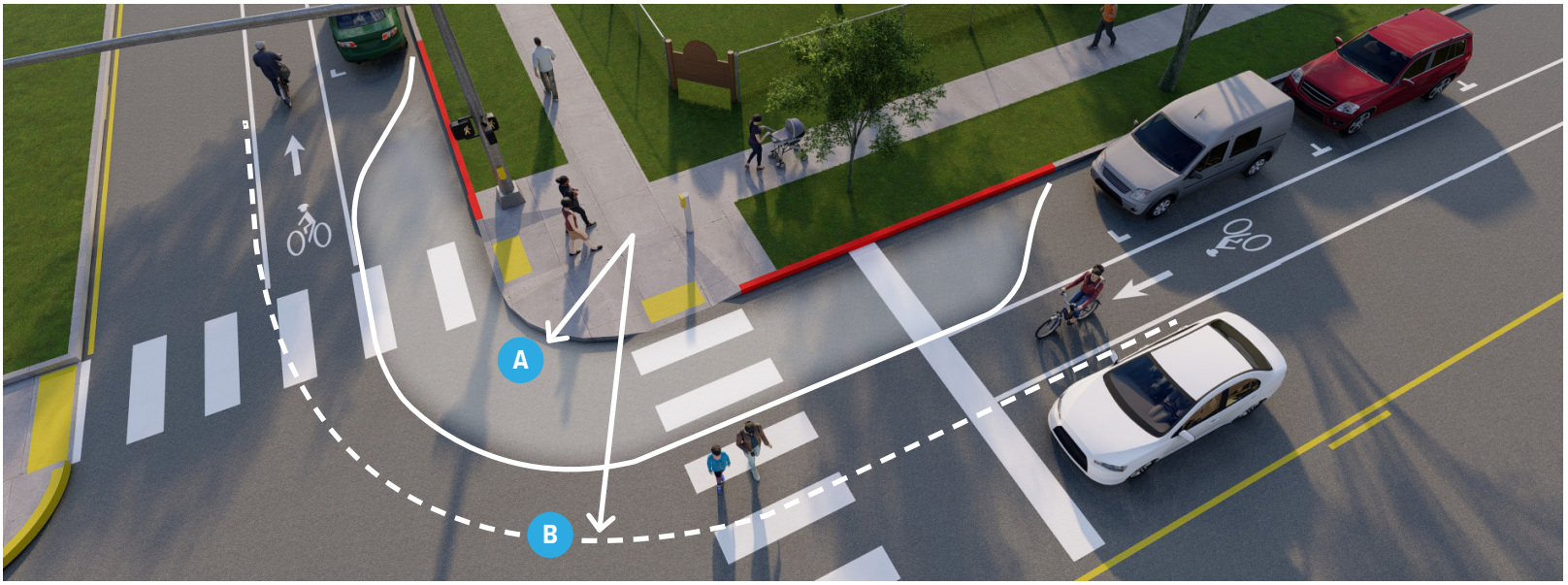
- Hybrid beacons may be installed without meeting traffic signal control warrants based on engineering judgment if roadway speed and volumes are excessive for comfortable pedestrian crossings.
- If installed within a signal system, signal engineers should evaluate the need for the hybrid beacon to be coordinated with other signals. To maximize pedestrian compliance, the PHBs should activate on demand.
- Parking and other sight obstructions should be prohibited for at least 100 feet in advance of and at least 20 feet beyond the marked crosswalk to provide adequate sight distance.
- Crossings with a median refuge and no more than two lanes in each direction may utilize side mounted beacons for reduced cost and complexity.

Further Considerations

- Hybrid beacons are normally activated by push buttons, but may also be triggered by infrared, microwave, or video detectors. If not on-demand, the maximum delay for activation of the signal should be two minutes, with minimum crossing times determined by the width of the street, but a much shorter delay is strongly preferred.
- Each crossing, regardless of traffic speed or volume, requires review to identify sight lines, potential impacts on traffic progression, timing with adjacent signals, capacity, and safety.
- The installation of hybrid beacons should also include public education and enforcement campaigns to ensure proper use and compliance.

Planning-Level Cost Estimate

- $75,000-$150,000 depending on complexity and overhead vs side mounted configuration.



Corner Radii and Bulb-Outs

The size of a curb's radius can have a significant impact on pedestrian comfort and safety. A smaller curb radius provides more pedestrian area at the corner, allows more flexibility in the placement of curb ramps, results in a shorter crossing distance and requires vehicles to slow more on the intersection approach. During the design phase, the chosen radius should be the smallest possible for the circumstances and consider the effective radius in any design vehicle turning calculations.

Typical Application

The curb radius may be as small as 3 ft where there are no turning movements, or 5 ft where there are turning movements and adequate street width. On-street parking and bike lanes create a larger effective turning radius and can therefore allow a smaller physical curb radius.

Design Features

Corners have two critical dimensions which must be considered together.

- **A** The physical radius controls the pedestrian experience.
- **B** The effective radius is the widest turning arc that a vehicle can take through the corner and is larger than the physical radius. The effective radius should be considered when studying design vehicle accommodation.

Further Considerations

Several factors govern the choice of curb radius in any given location. These include the desired pedestrian area of the corner, traffic turning movements, street classifications, design vehicle turning radius, intersection geometry, and whether there is on-street parking or a bike lane (or both) between the travel lane and the curb. This is a complex topic and many strategies can be employed to balance the trade-offs between accommodating large vehicles and maximizing pedestrian safety. Truck aprons, mountable corners, and wider turning into multiple receiving lanes can help keep turning speeds low for the vast majority of vehicles.

For more information on corner design, including policy support, recommendations, case studies and more, see *Corner Design for All Users: A review of geometric design practices to improve safety for pedestrians and bicyclists at intersection corners*.

Pedestrians at Signalized Intersections

Typical Application

PEDESTRIAN SIGNAL HEADS

Pedestrian signal heads indicate to pedestrians when to cross at a signalized crosswalk. Pedestrian signal indications are recommended at all traffic signals except where pedestrian crossing is prohibited by signage.

Countdown pedestrian signals should be retrofitted at existing signals with older style pedestrian signals and on any new installation. Countdown signals have a crash reduction factor of between 25 and 52% in varied studies[1].

SIGNAL TIMING AND THE PEDESTRIAN PHASE

Adequate pedestrian crossing time is a critical element of the walking environment at signalized intersections. The length of a signal phase with parallel pedestrian movements should provide sufficient time for a pedestrian to safely cross the adjacent street. The MUTCD recommends a walking speed of 3.5 ft per second.

At crossings where older pedestrians or pedestrians with disabilities are expected, crossing speeds as low as 3 ft per second should be assumed. Special pedestrian phases can be used to provide greater visibility or more crossing time for pedestrians at certain intersections (See *Pedestrian Traffic Signal Enhancements)*.

Large pedestrian crossing distances can be broken up with median refuge islands. A pedestrian pushbutton can be provided on the median to create a two-stage pedestrian crossing if the pedestrian phase is actuated. This ensures that pedestrians are not stranded on the median, and is especially applicable on large, multi-lane roadways with high vehicle volumes, where providing sufficient pedestrian crossing time for a single stage crossing may be an issue.

A Consider the use of a Leading Pedestrian Interval (LPI) to provide additional traffic-protected crossing time to pedestrians. See *Pedestrian Traffic Signal Enhancements* for additional detail.

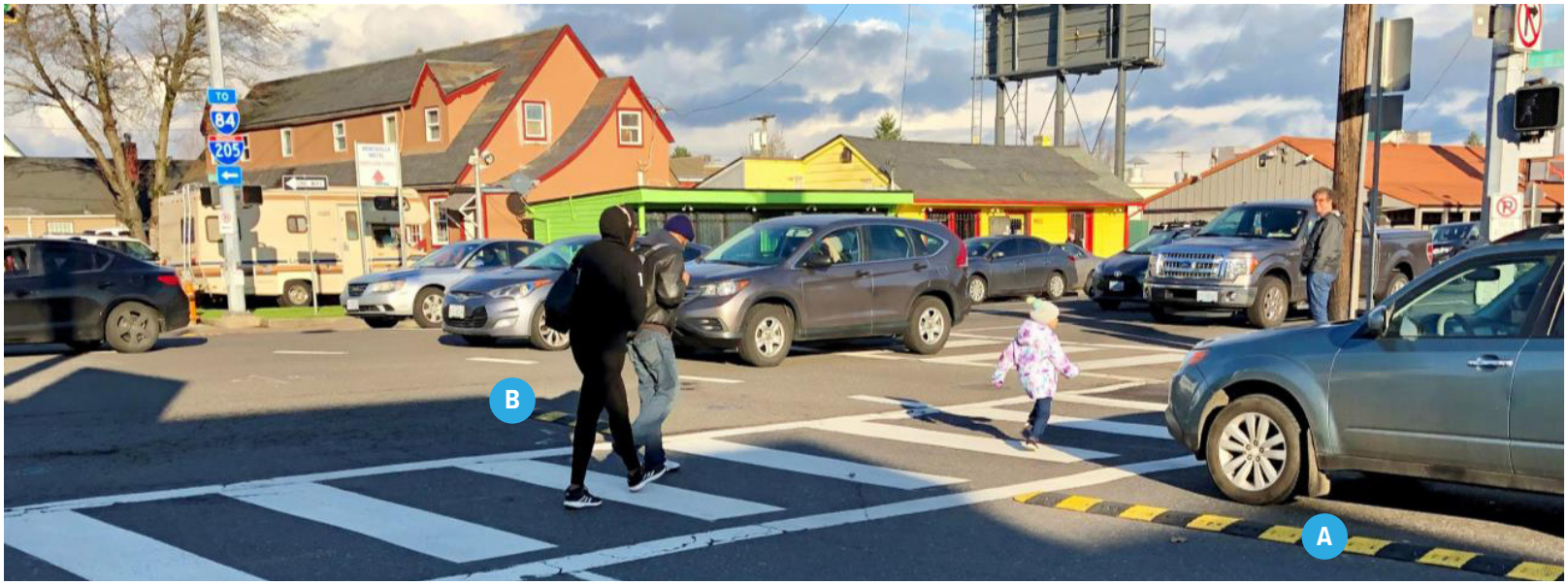
B Accessible Pedestrian Signals (APS) provide crossing assistance to pedestrians with vision impairment at signalized intersections

Further Considerations

Pushbuttons should be located so that someone in a wheelchair can reach the button from a level area of the sidewalk without deviating significantly from the natural line of travel into the crosswalk. Pushbuttons should be marked (for example, with arrows) so that it is clear which signal is affected.

In areas with very heavy pedestrian traffic, consider an all-pedestrian signal phase to give pedestrians free passage in the intersection when all motor vehicle traffic movements are stopped. This may provide operational benefits as turning movements are then unimpeded.

[1] http://www.cmfclearinghouse.org/index.cfm



Hardened centerline treatment at intersection. Source: Portland Bureau of Transportation

Hardened Centerlines

Hardened centerlines use prefabricated rubber speed bumps to deter vehicles from crossing the centerline when making left turns. Similar to curb extensions, this treatment can reduce the radius and speed of car turning movements, but maintains existing large vehicle turning movements when needed.

The cities of New York and Portland have pilot tested this treatment to reduce left-turn crashes as part of their Vision Zero programs and reported positive results. In Portland, for example, hardened centerlines with rubber speed bumps nearly eliminated sharp turns in which drivers cross the centerline (reductions ranging from 82-100%), slowed turning speeds an average of 12%, and were more durable and less expensive than a similarly-effective treatment using flexible delineator posts.[1]

Typical Application

Hardened centerlines are used at intersections to guide left-turning vehicles, reduce turning speeds, and deter turning movements that cut across the centerline.

Design Features

- **A** Flexible rubber speed bumps parallel to the centerline reduce the effective turning radius.
- **B** "Nose" extends no more than 6ft into the intersection and reduces the effective turning radius even further.[2]

Further Considerations

- The configuration varies slightly depending on whether the intersecting roadways are one-way or two-way. The treatment can be used for multiple left turn approaches at the same intersection.
- Installation can typically be completed by a municipality's public works/transportation staff.

Planning-Level Cost Estimate

- A hardened centerline kit (consisting of rubber curbs and hardware for installation at one left turn) can cost less than $1,000.

[1] Portland Bureau of Transportation, *Left Turn Calming webpage*; [2] NYC DOT: *Turn Calming Program webpage*

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Appendix C

Funding Resources

Overview

When considering possible funding sources for pedestrian projects, it is important to remember that not all construction activities or programs will be accomplished with a single funding source. It will be necessary to use several sources of funding that together will support full project completion. Funding sources can be used for a variety of activities, including: programs, planning, design, implementation, and maintenance. This appendix outlines the most likely sources of funding from the federal, state, and local government levels as well as from the private and nonprofit sectors. Note that this reflects the funding available at the time of writing. Funding amounts, cycles, and the programs themselves may change over time.

Federal Funding Sources

Federal funding is typically directed through state agencies to local governments either in the form of formula funds or discretionary grants. Federal funding typically requires a local match of five percent to 50 percent, but there are sometimes exceptions. The following is a list of possible Federal funding sources that could be used to support the construction of pedestrian facilities.

Federal STBGP-DA & TASA-DA Funds

The Surface Transportation Block Grant Program Direct Attributable (STBGP-DA) and Transportation Alternative Set Aside Direct Attributable (TASA-DA) are federal funding sources distributed by the WMPO. Member jurisdictions of the WMPO are eligible to apply for these funds through a competitive funding process that prioritizes locally administered projects in the Region. These projects are funded using the federal funding sources directly attributed to the region with a minimum 20% local match.

For more information: *https://www.wmpo.org/stp-datap-da/*

Transportation Alternatives Program (TAP) Bike/Ped Scoping Guide

In January 2020, NCDOT released the Transportation Alternatives Program (TAP) Bike/Ped Scoping Guide. This document provides detail and guidance on the Project Delivery Process and important elements to consider in bike/ped project development.

For more information: *https://connect.ncdot.gov/projects/BikePed/Documents/BikePed%20Project%20Scoping%20Guidance%20for%20Local%20Governments.pdf*

Carbon Reduction Program (CRP) Funds

The CRP provides funds for projects designed to reduce transportation emissions, such as those that shift travel mode from vehicles to walking. The WMPO administers funds for the Wilmington area. Projects require a minimum 20% local match to the federal funds.

For more information: *https://www.fhwa.dot.gov/bipartisan-infrastructure-law/crp_fact_sheet.cfm*

The Infrastructure Investment and Jobs Act (IIJA)

The following is a preliminary summary of how IIJA may affect funding sources related to pedestrian infrastructure based on what is known at the time this plan was written (Q3 2022).

FORMULA FUNDS (STATE DOTS ADMINISTER TO LOCALS)

Transportation Alternatives Program (TAP)

TAP will increase from $850 million to $1.44 billion per year. This is the largest dedicated source of funds for walking and biking projects in the US and it just got 70% bigger. The North Carolina Department of Transportation (NCDOT) administers this funding for rural areas of the state that do not have a metropolitan planning organization. The Wilmington Urban Area Metropolitan Planning Organization (WMPO) administers Transportation Alternatives Program funding on a competitive basis to local jurisdictions in its region.

Highway Safety Improvement Program (HSIP)

States where more than 15% of all fatalities involve cyclists or pedestrians (Vulnerable Road Users or VRU), will be required to spend 15% of their HSIP funding on bicycle/pedestrian projects. This includes North Carolina, where about 15% of all fatalities involve VRUs. Projects are evaluated, prioritized, and selected at the NCDOT district level based on three years of crash data (targeted funds) or systemic approved projects as outlined in the HSIP guidance.

Every state and MPO will be required to use at least 2.5% of its apportioned funding to develop planning documents that can include but are not limited to: Complete Streets standards, a Complete Streets prioritization plan, multimodal corridor studies, or active transportation plans (among other uses).

DISCRETIONARY GRANTS (US DOT ADMINISTERS TO LOCALS)

Rebuilding American Infrastructure with Sustainability and Equity (RAISE)

In the first RAISE grant cycle, nearly one in five funded grant applications involved trail development. In addition, the selection committee awarded another 21% of funding to projects focused on making roads safer for vulnerable road users like cyclists and pedestrians. Many trail and greenway projects have a chance to compete well for the RAISE program when they focus on connecting people to local and regional destinations.

Under the IIJA, the RAISE grant program will have $7.5 billion available over the next five years. Competitive applications to this program have the following in common:

1. The project can demonstrate broad community support and is a recognized local or regional priority.
2. The project explicitly considers how it will address climate change and racial equity.
3. The project documents direct and significantly favorable local or regional impact relative to the scoring criteria:

- Safety
- Environmental Sustainability
- Quality of Life
- Economic Competitiveness
- State of Good Repair
- Innovation
- Partnership

4. The project has a high benefit to cost ratio.
5. The project demonstrates readiness by providing a detailed scope of work and budget, a realistic project delivery schedule, an understanding of the environmental risks, permit requirements, and mitigation measures, and is within the public right-of-way.
6. A United States Senator or Congress member actively champions the project.

For more information on RAISE program guidelines and upcoming Notice of Funding Opportunities, see: *www.transportation.gov/RAISEgrants*

NEW: *Safe Streets for All (SS4A)*

SS4A is a new federal grant program that will award up to $5 billion over the next five years to support the US DOT's goal of zero deaths and serious injuries on our nation's roadways. Grants are available for developing safety action plans, implementing projects or programs identified in an action plan, and conducting supplemental planning activities to support or enhance an existing action plan.

MPOs, municipalities, and Tribal governments are eligible to apply. The program requires a 20% non-federal match.

Successful grant applications will demonstrate engagement with public and private stakeholders and seek to adopt innovative technologies and strategies to promote safety, including: low-cost/high-impact systemic safety improvements, equitable investment, and evidenced-based strategies. Applications should also show how proposed projects align with USDOT's mission and priorities such as equity, climate and sustainability, quality job creation, and economic strength and global competitiveness.

For more information: *https://www.transportation.gov/grants/SS4A*

NEW: *Reconnecting Communities Pilot Program*

This new program is the first-ever Federal program dedicated to reconnecting communities that were previously cut off from economic opportunities by transportation infrastructure. Funding supports planning grants and capital construction grants, as well as technical assistance, to restore community connectivity through the removal, retrofit, mitigation, or replacement of eligible transportation infrastructure facilities. The program is funded at ~$200 million per year through 2026.

For more information: *https://www.transportation.gov/grants/reconnecting-communities*

Two other new programs, the *Healthy Streets Program* and the *Active Transportation Infrastructure Investment Program*, are still subject to appropriations and may become available in 2023.

Other Federal Funding Sources

Safe Routes to School (SRTS) Program

SRTS enables and encourages children to walk and bike to school. The program helps make walking and bicycling to school a safe and more appealing method of transportation for children. SRTS facilitates the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools. Most of the types of eligible SRTS projects include sidewalks or shared-use paths. However, intersection improvements (i.e. signalization, marking/upgrading crosswalks, etc.) or off-street shared-use paths are also eligible for SRTS funds.

The North Carolina Department of Transportation's Safe Routes to School (SRTS) Program was established in 2005 through SAFETEA-LU as a federally funded program to provide an opportunity for communities to improve conditions for bicycling and walking to school. It is currently supported with Transportation Alternatives federal funding through the Surface Transportation Block Grant program established under the FAST Act. The SRTS Program has set aside $1,500,000 per year of Transportation Alternative Program (TAP) funds for non-infrastructure programs and activities over a three-year period. Funding requests may range from a yearly amount of $50,000 to $100,000 per project. Projects can be one to three years in length. Funding may be requested to support activities for community-wide, regional or statewide programs. Check the link below for information on the current funding cycle.

For more information: *https://connect.ncdot.gov/projects/BikePed/Pages/Non-Infrastructure-Alternatives-Program.aspx*

Federal Transit Administration Enhanced Mobility of Seniors and Individuals with Disabilities

This program can be used for capital expenses that support transportation to meet the special needs of older adults and persons with disabilities, including providing access to an eligible public transportation facility when the transportation service provided is unavailable, insufficient, or inappropriate to meeting these needs.

For more information: *https://www.transit.dot.gov/funding/grants/enhanced-mobility-seniors-individuals-disabilities-section-5310*

Federal Lands Transportation Program (FLTP)

The FLTP funds projects that improve transportation infrastructure owned and maintained by the following Federal Lands Management Agencies: National Park Service (NPS), U.S. Fish and Wildlife Service (FWS), USDA Forest Service, Bureau of Land Management (BLM), U.S. Army Corps of Engineers, Bureau of Reclamation, and independent Federal agencies with land and natural resource management responsibilities. FLTP funds are available for program administration, transportation

planning, research, engineering, rehabilitation, construction, and restoration of Federal Lands Transportation Facilities. Transportation projects that are on the public network that provide access to, adjacent to, or through Federal lands are also eligible for funding. Under the IIJA, $2.2 billion has been allocated to the program for FY 2022-2026.

For more information: https://flh.fhwa.dot.gov/programs/fltp/documents/FAST%20FLTP%20fact%20sheet.pdf

Federal Land and Water Conservation Fund

The Land and Water Conservation Fund (LWCF) has historically been a primary funding source of the U.S. Department of the Interior for outdoor recreation development and land acquisition by local governments and state agencies. In North Carolina, the program is administered by the Department of Environment and Natural Resources.

Since 1965, the LWCF program has built a park legacy for present and future generations. In North Carolina alone, the LWCF program has provided more than $75 million in matching grants to protect land and support more than 875 state and local park projects. More than 38,500 acres have been acquired with LWCF assistance to establish a park legacy in our state. As of August 2020, the LWCF is now permanently funded by the federal government for $900 million every year. This is hundreds of millions more per year than the fund typically receives.

For more information: https://www.ncparks.gov/more-about-us/grants/lwcf-grants

Rivers, Trails, and Conservation Assistance Program

The Rivers, Trails, and Conservation Assistance Program (RTCA) is a National Parks Service (NPS) program that provides technical assistance via direct NPS staff involvement to establish and restore greenways, rivers, trails, watersheds and open space. The RTCA program only provides planning assistance; there are no implementation funds available. Projects are prioritized for assistance based on criteria, including conserving significant community resources, fostering cooperation between agencies, serving a large number of users, encouraging public involvement in planning and implementation, and focusing on lasting accomplishments. Project applicants may be state and local agencies, tribes, nonprofit organizations, or citizen groups. National parks and other federal agencies may apply in partnership with other local organizations. This program may benefit trail development in North Carolina indirectly through technical assistance, particularly for community organizations, but is not a capital funding source.

For more information: https://www.nps.gov/orgs/rtca/index.htm

Environmental Contamination Cleanup Funding Sources

EPA's Brownfields Program provides direct funding for brownfields assessment, cleanup, revolving loans, and environmental job training. EPA's Brownfields Program

collaborates with other EPA programs, other federal partners, and state agencies to identify and leverage more resources for brownfields activities. The EPA provides assessment grants to recipients to characterize, assess, and conduct community involvement related to brownfields sites. They also provide area-wide planning grants (AWP) which provides communities with funds to research, plan, and develop implementation strategies for areas affected by one or more brownfields.

For more information: *https://www.epa.gov/brownfields/types-brownfields-grant-funding*

National Fish and Wildlife Foundation: Five Star & Urban Waters Restoration Grant Program

The Five Star & Urban Waters Restoration Grant Program seeks to develop community capacity to sustain local natural resources for future generations by providing modest financial assistance to diverse local partnerships for wetland, riparian, forest and coastal habitat restoration, urban wildlife conservation, stormwater management as well as outreach, education and stewardship. Projects should focus on water quality, watersheds and the habitats they support. The program focuses on five priorities: on-the-ground restoration, community partnerships, environmental outreach, education and training, measurable results, and sustainability. Eligible applicants include nonprofit organizations, state government agencies, local governments, municipal governments, tribes, and educational institutions. Projects are required to meet or exceed a 1:1 match to be competitive.

For more information: *http://www.nfwf.org/fivestar/Pages/home.aspx*

State and State-Administered Funding Sources

There are multiple sources for state funding of pedestrian transportation projects. However, state transportation funds cannot be used to match federally funded transportation projects, according to a law passed by the North Carolina Legislature.

NCDOT Strategic Transportation Investments (STI)

Passed in 2013, the Strategic Transportation Investments law (STI) allows NCDOT to use its funding more efficiently and effectively to enhance the state's infrastructure, while supporting economic growth, job creation and a higher quality of life. This process encourages thinking from a statewide and regional perspective while also providing flexibility to address local needs. STI also establishes a way of allocating available revenues based on data-driven scoring and local input. It is used for the State Transportation Improvement Program

(STIP), which identifies the transportation projects that will receive funding during a 10-year period. STIP is a state and federal requirement, which NCDOT updates it every two years.

STI's Quantitative Scoring Process

All independent bicycle and pedestrian projects are ranked based on a quantitative scoring process, with the following main steps:

- Initial Project Review (NCDOT Strategic Prioritization Office (SPOT))
- Review Projects and Data (NCDOT Integrated Mobility Division (IMD))
- Review Data (MPOs, RPOs, Divisions)
- Review Updates and Calculate Measures (NCDOT IMD)
- Score Projects (NCDOT SPOT)

Bicycle and Pedestrian Project Eligibility Requirements

- Minimum total project cost = $100,000.
- Eligible costs include right-of-way, preliminary engineering, and construction.
- Bicycle and pedestrian and public transportation facilities that appear in a state, regional or locally adopted transportation plan will be included as part of the proposed roadway project. NCDOT will fully fund the cost of designing, acquiring right of way, and constructing the identified facilities.

Specific Improvement Types

- Grade-Separated Bicycle Facility (Bicycle)
- Off-Road/Separated Linear Bicycle Facility (Bicycle)
- On-Road; Designated Bicycle Facility (Bicycle)
- On-Road Bicycle Facility (Bicycle)
- Multi-Site Bicycle Facility (Bicycle)
- Grade-Separated Pedestrian Facility (Pedestrian)
- Protected Linear Pedestrian Facility (Pedestrian)
- Multi-Site Pedestrian Facility (Pedestrian)
- Improved Pedestrian Facility (Pedestrian)

Bundling Projects

- Allowed across geographies and across varying project types.
- Bundling will be limited by project management requirements rather than geographic limitations.
- Any bundled project must be expected to be under one project manager/ administrative unit (must be a TAP-eligible entity).
- Makes projects more attractive for LIPs and easier to manage/let.

More Information on Prioritization 6.0

NCDOT's Prioritization Data page has training slides that explain the prioritization process: *https://connect.ncdot.gov/projects/planning/Prioritization%20Data/Forms/AllItems.aspx*

See the "Prioritization Training" folder and the following session information within:

- Session 3: Detailed information on overall scoring components, including local input points.
- Session 4: Features relevant project funding information.
- Session 7: Detailed slides explaining the bicycle and pedestrian project scoring.

High Impact/Low Cost Funds

Established by NCDOT in 2017 to provide funds to complete low-cost projects with high impacts to the transportation system including intersection improvement projects, minor widening projects, and operational improvement projects. Funds are allocated equally to each Division.

Project Selection Criteria

Each Division is responsible for selecting their own scoring criteria for determining projects funded in this program. At a minimum, Divisions must consider all of the following in developing scoring formulas:

- The average daily traffic volume of a roadway and whether the proposed project will generate additional traffic.
- Any restrictions on a roadway.
- Any safety issues with a roadway.
- The condition of the lanes, shoulders, and pavement on a roadway.
- The site distance and radius of any intersection on a roadway.
- $1.5M max per project unless otherwise approved by the Secretary of Transportation.
- Projects are expected to be under contract within 12 months of funding approval by BOT.

NCDOT Technical Review & Approval

- Division Engineer completes project scoring and determines eligibility.
- Division Engineer determines projects to be funded and requests approval of funding from the Chief Engineer. Division Engineer shall supply all necessary project information including funding request forms, project designs and cost estimates.
- The Project Review Committee will make a recommendation for further investigation or to include on the Board Agenda for action by the Secretary, NCDOT.

Incidental Projects

Bicycle and Pedestrian accommodations such as; bike lanes, wide paved shoulders, sidewalks, intersection improvements, bicycle and pedestrian safe bridge design, etc. are frequently included as "incidental" features of larger highway/roadway projects.

In addition, bicycle safe drainage grates and handicapped accessible sidewalk ramps are now a standard feature of all NCDOT highway construction. Most pedestrian safety accommodations built by NCDOT are included as part of scheduled highway improvement projects funded with a combination of federal and state roadway construction funds.

"Incidental Projects" are often constructed as part of a larger transportation project, when they are justified by local plans that show these improvements as part of a larger, multi-modal transportation system. Having a local bicycle or pedestrian plan is important, because it allows NCDOT to identify where bike and pedestrian improvements are needed, and can be included as part of highway or street improvement projects. It also helps local government identify what their priorities are and how they might be able to pay for these projects. Under the updated NCDOT Complete Streets Policy, NCDOT pays the full cost for incidental projects if the project is proposed in a locally adopted plan (see link to updated NCDOT Complete Streets Policy below).

For more information: *https://connect.ncdot.gov/projects/BikePed/Documents/Complete%20Streets%20Implementation%20Guide.pdf*

NCDOT Complete Streets Policy

There are opportunities to incorporate pedestrian improvements into STIP Projects due to the Complete Streets Policy. See Chapter 4 of this plan for more details about the policy.

NC Highway Safety Improvement Program

The purpose of the North Carolina Highway Safety Improvement Program (HSIP) is to provide a continuous and systematic process that identifies reviews and addresses specific traffic safety concerns throughout the state. The program is structured in several distinct phases:

- A system of safety warrants is developed to identify locations that are possibly deficient.
- Locations that meet warrant criteria are categorized as potentially hazardous (PH) locations.
- Detailed crash analyses are performed on the PH locations with the more severe and correctable crash patterns.
- The Regional Traffic Engineering staff performs engineering field investigations.
- The Regional Traffic Engineering staff utilizes Benefit: Cost studies and other tools to develop safety recommendations.

Depending on the cost and nature of the countermeasures, the investigations may result in requesting Division maintenance forces to make adjustments or repairs, developing Spot Safety projects, developing Hazard Elimination projects, making adjustments to current TIP project plans or utilizing other funding sources to initiate countermeasures. Selected projects are evaluated to determine the effectiveness of countermeasures.

The ultimate goal of the HSIP is to reduce the number of traffic crashes, injuries and fatalities by reducing the potential for and the severity of these incidents on public roadways.

For more information: *https://connect.ncdot.gov/resources/safety/Pages/NC-Highway-Safety-program-and-Projects.aspx*

Highway Hazard Elimination Program

The Hazard Elimination Program is used to develop larger improvement projects to address safety and potential safety issues. The program is funded with 90 percent federal funds and 10 percent state funds. The cost of Hazard Elimination Program projects typically ranges between $400,000 and $1 million. A Safety Oversight Committee (SOC) reviews and recommends Hazard Elimination projects to the Board of Transportation (BOT) for approval and funding. These projects are prioritized for funding according to a safety benefit to cost (B/C) ratio, with the safety benefit being based on crash reduction. Once approved and funded by the BOT, these projects become part of the department's State Transportation Improvement Program (STIP).

Governor's Highway Safety Program

The Governor's Highway Safety Program (GHSP) funds safety improvement projects on state highways throughout North Carolina. All funding is performance-based. Substantial progress in reducing crashes, injuries, and fatalities is required as a condition of continued funding. Permitted safety projects include checking station equipment, traffic safety equipment, and BikeSafe NC equipment. However, funding is not allowed for speed display signs. This funding source is considered to be "seed money" to get programs started. The grantee is expected to provide a portion of the project costs and is expected to continue the program after GHSP funding ends. Applications must include county level crash data. Local governments are eligible to apply.

For more information: *https://www.ncdot.gov/initiatives-policies/safety/ghsp/Pages/default.aspx*

The North Carolina Division of Parks and Recreation - Recreational Trails Program Grant

Funding from the federal Recreational Trails Program (RTP), which is used for renovating or constructing trails and greenways, is allocated to states. The North Carolina Division of Parks and Recreation and the State Trails Program manages these funds with a goal of helping citizens, organizations and agencies plan, develop and manage all types of trails ranging from greenways and trails for hiking, biking, and horseback riding to river trails and off-highway vehicle trails. Grants are available to governmental agencies and nonprofit organizations. The maximum grant amount is $250,000 and requires a 25% match of RTP funds received. Permissible uses include:

- New trail or greenway construction
- Trail or greenway renovation
- Approved trail or greenway facilities
- Trail head/ trail markers
- Purchase of tools to construct and/or renovate trails/greenways
- Land acquisition for trail purposes
- Planning, legal, environmental, and permitting costs - up to 10% of grant amount
- Combination of the above

For more information: *http://www.ncparks.gov/more-about-us/grants/trail-grants/recreational-trails-program*

NC Parks and Recreation Trust Fund (PARTF)

The Parks and Recreation Trust Fund (PARTF) provides dollar-for-dollar matching grants to local governments for parks and recreational projects to serve the general public. Counties, incorporated municipalities, and public authorities, as defined by G.S. 159-7, are eligible applicants. A local government can request a maximum of $500,000 with each application. An applicant must match the grant dollar-for-dollar, 50 percent of the total cost of the project, and may contribute more than 50 percent. The appraised value of land to be donated to the applicant can be used as part of the match. The value of in-kind services, such as volunteer work, cannot be used as part of the match. Property acquired with PARTF funds must be dedicated for public recreational use.

For more information: *https://www.ncparks.gov/more-about-us/parks-recreation-trust-fund/parks-and-recreation-trust-fund*

Clean Water Management Trust Fund

The Clean Water Management Trust Fund (CWMTF) is available to any state agency, local government, or non-profit organization whose primary purpose is the conservation, preservation, and restoration of North Carolina's environmental and natural resources. Grant assistance is provided to conservation projects that:

- enhance or restore degraded waters;
- protect unpolluted waters, and/or
- contribute toward a network of riparian buffers and greenways for environmental, educational, and recreational benefits;
- provide buffers around military bases to protect the military mission;
- acquire land that represents the ecological diversity of North Carolina; and
- acquire land that contributes to the development of a balanced State program of historic properties.

For more information: *http://www.cwmtf.net/#appmain.htm*

Urban and Community Forestry Grant

The North Carolina Division of Forest Resources Urban and Community Forestry grant can provide funding for a variety of projects that will help plan and establish street trees as well as trees for urban open space. The goal is to improve public understanding of the benefits of preserving existing tree cover in communities and assist local governments with projects which will lead to more effective and efficient management of urban and community forests.

For more information: *https://www.ncforestservice.gov/Urban/urban_grant_program.htm*

Local Funding Sources

Local governments often plan for the funding of pedestrian infrastructure or improvements through development of Capital Improvement Projects (CIP) or occasionally, through their annual Operating Budgets. CIPs should include all types of capital improvements (water, sewer, buildings, streets, etc.) versus programs for single purposes. This allows decision-makers to balance all capital needs. Typical capital funding mechanisms include the capital reserve fund, taxes, fees, and bonds. However, many will require specific local action as a means of establishing a program if it is not already in place.

Private and Nonprofit Funding Sources

Many communities have solicited funding assistance from private foundations and other conservation-minded benefactors. Below are examples of private funding opportunities.

Rails-To-Trails Conservancy

Under the Doppelt Family Trail Development Fund, RTC will award approximately $85,000 per year, distributed among several qualifying projects, through a competitive process. Eligible applicants include nonprofit organizations and state, regional, and local government agencies. Two types of grants are available - community support grants and project transformation grants. Around three to four community support grants are awarded each year, ranging from $5,000-$10,000 each. Community Support Grants support nonprofit organizations or "Friends of the Trail" groups that need funding to get trail development or trail improvement efforts off the ground. Each year, 1-2 Project Transformation Grants are awarded that range from $15,000-$50,000. The intention of these grants is to enable an organization to complete a significant trail development or improvement project. For both types of grants, applications for projects on rail-trails and rails-with-trails are given preference, but rail-trail designation is not a requirement. The trail must serve multiple user types, such as bicycling, walking, and hiking, and must be considered a trail, greenway, or shared-use path.

For more information: *http://www.railstotrails.org/our-work/doppelt-family-trail-development-fund/*

National Fish and Wildlife Foundation (NFWF)

The National Fish and Wildlife Foundation (NFWF) is a private, nonprofit, tax-exempt organization chartered by Congress in 1984. The National Fish and Wildlife Foundation sustains, restores, and enhances the Nation's fish, wildlife, plants, and habitats. Through leadership conservation investments with public and private partners, the Foundation is dedicated to achieving maximum conservation impact by developing and applying best practices and innovative methods for measurable outcomes.

The Foundation provides grants through more than 70 diverse conservation grant programs. One of the most relevant programs for pedestrian projects is Acres for America. Funding priorities include conservation of bird, fish, plants and wildlife habitats, providing access for people to enjoy outdoors, and connecting existing protected lands. Federal, state, and local government agencies, educational institutions, Native American tribes, and non-profit organizations may apply twice annually for matching grants. Due to the competitive nature of grant funding for Acres for America, all awarded grants require a minimum 1:1 match.

For more information: *http://www.nfwf.org/whatwedo/grants/Pages/home.aspx*

The Trust for Public Land

Land conservation is central to the mission of the Trust for Public Land (TPL). Founded in 1972, the TPL is the only national non-profit working exclusively to protect land for human enjoyment and well-being. TPL helps acquire land and transfer it to public agencies, land trusts, or other groups that intend to conserve land for recreation and spiritual nourishment and to improve the health and quality of life of American communities.

For more information: *http://www.tpl.org*

Land for Tomorrow Campaign

Land for Tomorrow is a diverse partnership of businesses, conservationists, farmers, environmental groups, health professionals, and community groups committed to securing support from the public and General Assembly for protecting land, water, and historic places. Land for Tomorrow works to enable North Carolina to reach a goal of ensuring that working farms and forests, sanctuaries for wildlife, land bordering streams, parks, and greenways, land that helps strengthen communities and promotes job growth, and historic downtowns and neighborhoods will be there to enhance the quality of life for generations to come.

For more information: *http://www.land4tomorrow.org/*

The Conservation Alliance

The Conservation Alliance is a nonprofit organization of outdoor businesses whose collective annual membership dues support grassroots citizen-action groups and their efforts to protect wild and natural areas. Grants are typically about $35,000 each. Funding criteria states that:

- The project should seek to secure lasting and quantifiable protection of a specific wild land or waterway. We prioritize landscape-scale projects that have a clear benefit for habitat.
- The campaign should engage grassroots citizen action in support of the conservation effort. We do not fund general education, restoration, stewardship, or scientific research projects.
- All projects must have a clear recreational benefit.

For more information: *http://www.conservationalliance.com/grants//?yearly=2020*

Blue Cross Blue Shield (BCBS) of North Carolina Foundation

BCBS does not have a traditional grant cycle and announces grant opportunities on a periodic basis. Grants can range from small-dollar equipment grants to large, multi-year partnerships.

For more information: *http://www.bcbsncfoundation.org/grants-programs/grantmaking-overview/*

Duke Energy Foundation

Funded by Duke Energy shareholders, this foundation makes charitable grants to nonprofit organizations and government agencies. Grant applicants must serve communities that are also served by Duke Energy. The grant program has several investment priorities that could potentially fund pedestrian projects. The Duke Energy Foundation is committed to making strategic investments to build powerful communities where nature and wildlife thrive, students can excel and a talented workforce drives economic prosperity for all.

For more information: *https://www.duke-energy.com/community/duke-energy-foundation*

Z. Smith Reynolds Foundation

This Winston-Salem-based Foundation is committed to improving the quality of life for all North Carolinians. The Z. Smith Reynolds Foundation is a statewide, private, family foundation that has been a catalyst for positive change in North Carolina for more than 80 years. A variety of grant programs are available.

For more information: *http://www.zsr.org/grants-programs*

Bank of America Charitable Foundation

The Bank of America Charitable Foundation supports a wide range of activities, including a focus on community greening efforts that create healthy neighborhoods and environmental sustainability through the preservation, creation or restoration of open space, parks and community gardens.

For more information: *https://about.bankofamerica.com/en-us/global-impact/charitable-foundation-funding.html*

Local Trail Sponsors

A sponsorship program for trail amenities allows smaller donations to be received from both individuals and businesses. Cash donations could be placed into a trust fund to be accessed for certain construction or acquisition projects associated with the greenways and open space system. Some recognition of the donors is appropriate and can be accomplished through the placement of a plaque, the naming of a trail segment, and/or special recognition at an opening ceremony. Types of gifts other than cash could include donations of services, equipment, labor, or reduced costs for supplies.

Corporate Donations

Corporate donations are often received in the form of liquid investments (i.e. cash, stock, bonds) and in the form of land. Local governments typically create funds to facilitate and simplify a transaction from a corporation's donation to the given locality.

Donations are mainly received when a widely supported capital improvement program is implemented.

Private Individual Donations

Private individual donations can come in the form of liquid investments (i.e. cash, stock, bonds) or land. Local governments typically create funds to facilitate and simplify a transaction from an individual's donation to the given locality. Donations are mainly received when a widely supported capital improvement program is implemented.

Fundraising/Campaign Drives

Organizations and individuals can participate in a fundraiser or a campaign drive. It is essential to market the purpose of a fundraiser to rally support and financial backing. Often times fundraising satisfies the need for public awareness, public education, and financial support.

Volunteer Work

It is expected that many citizens will be excited about the development of pedestrian projects. Individual volunteers from the community can be brought together with groups of volunteers from church groups, civic groups, scout troops and environmental groups to work on greenway development on special community workdays. Volunteers can also be used for fundraising, maintenance, and programming needs.

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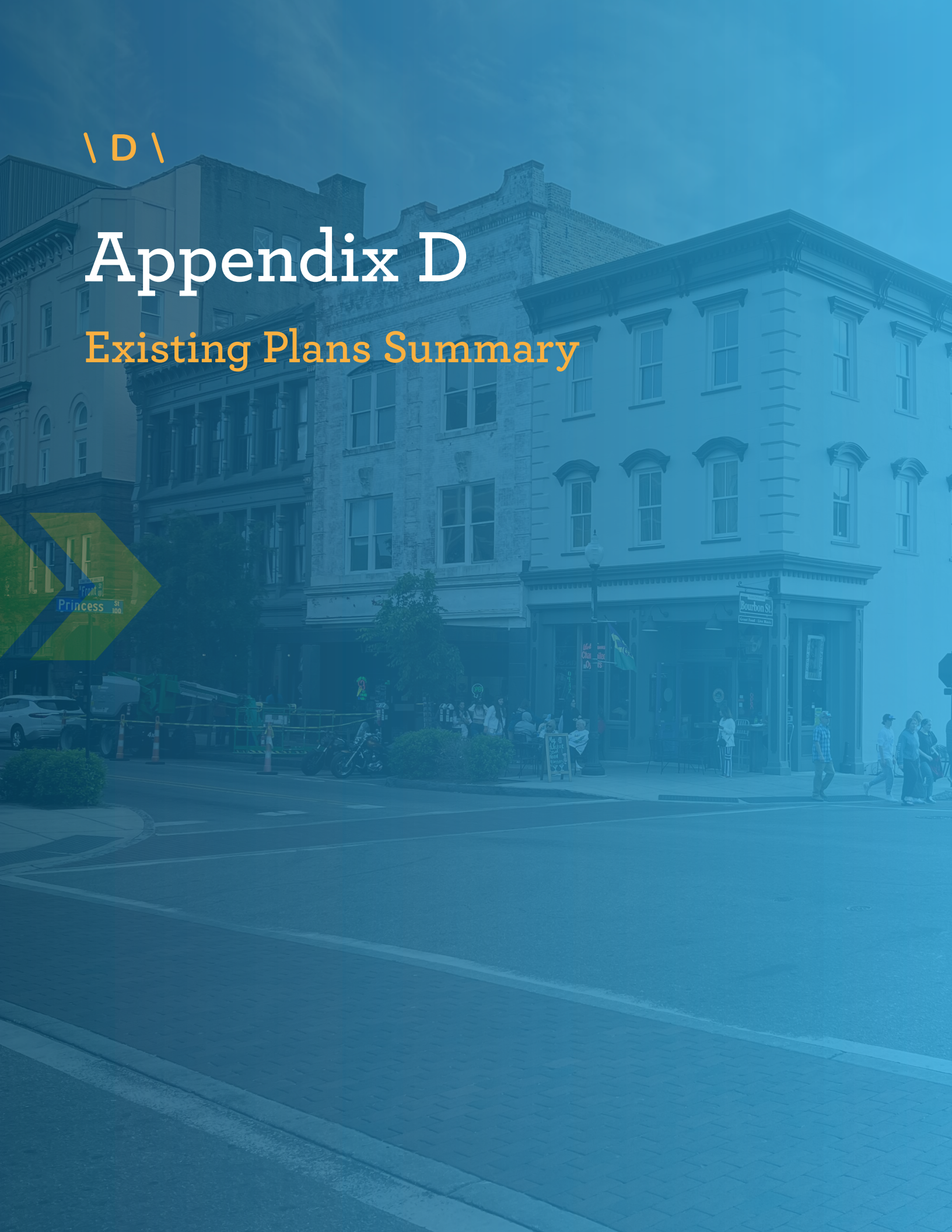
Appendix D

Existing Plans Summary



Overview

This memo provides a summary of local and regional planning documents that directly or indirectly address active transportation and public right of way planning and design in the City of Wilmington. The purpose of this memo is to provide a summary of relevant goals and recommendations that may influence the Wilmington Pedestrian Plan.

Planning Documents Reviewed

- Cape Fear Moving Forward (2020)
- Cape Fear Change in Motion (2020)
- Congestion Management Process (CMP) (2020)
- Comprehensive Transportation Plan (2016)
- Wilmington-New Hanover County Comprehensive Greenway Plan (2013)
- Walk Wilmington: A Comprehensive Pedestrian Plan (2009)
- Create Wilmington Comprehensive Plan (2016)
- Cross-City Trail Master Plan (2012)
- River to Sea Bikeway Master Plan (2013)
- Wilmington Vision 2020: A Waterfront Downtown (2004)
- Wrightsville Sound Small Area Plan (2011)
- Southside Small Area Plan (2009)
- Seagate Neighborhood Plan (2007)
- Northside Community Plan (2003)
- US 17 Business (Market St) Corridor Study (2016)
- Cape Fear Historic Byway Corridor Management Plan (2008)
- Dawson & Wooster Corridor Plan (2007)
- Wilmington Rail Trail Master Plan (2020)
- Wrightsville Avenue 2030 (2010)
- Carolina Beach Road Corridor Plan (2004)
- College Road Corridor Plan (2004)
- Oleander Drive Corridor Plan (2004)
- Rail Realignment Plan (2017)
- LDC Update (2021)
- Market Street Corridor Plan (2011)

Previous Policy and Planning Efforts

Cape Fear Moving Forward (2020)

STUDY AREA

- Cape Fear

PLAN GOALS

- Efficient: Transportation network allows for time savings, interconnected across all modes of transport.
- Multimodal: Alternative modes of transportation available for most trip types
- Safe: Promotes transportation projects that increase the safety of all users by decreasing injury and increasing user awareness.
- Environmentally and Socially Responsible: Accessible, sustainable, and equitable transportation solutions actively communicated to increase public awareness and collaboration

KEY RECOMMENDATIONS AND STRATEGIES

Resiliency Recommendations

- Identify sustainable and resilient transportation project criteria that can be used as part of the prioritization/programming process

Transportation Systems Management and Operations

- Streetscape Improvements

Transportation Demand Management Strategies

- Bicycle and Pedestrian Infrastructure
- Transit Amenities

Cape Fear Moving Forward (2020) Appendices G, L, & M

STUDY AREA

- Cape Fear

PLAN GOALS

Appendix G: Bicycle and Pedestrian Element

- Bicycle Facilities
  - » Safety, Education, and Enforcement
  - » Multimodal Connectivity
  - » Built Environment, Land Use, and Connectivity
  - » Health
  - » Economic Development
- Pedestrian Facilities
  - » Safety, Education, and Enforcement
  - » Transportation Choice
  - » Built Environment, Land Use, and Connectivity
  - » Health
  - » Economic Development

Appendix L: Transportation Systems Management and Operations Element

- Improve the safety, security, and reliability of the system by enhancing existing infrastructure to increase roadway capacity, reducing congestion, and integrating transportation and land use planning

Appendix M: Transportation Demand Management Element

- Promote more efficient travel modes in order to move more people with the same amount of roadway infrastructure.
- Spread travel demand over a longer portion of the day to better utilize available space and capacity.

KEY RECOMMENDATIONS AND STRATEGIES

Bicycle and Pedestrian Element

- Develop and maintain a safety campaign for drivers, cyclists, and pedestrians.
- Focus on improving bicycle and pedestrian safety at intersections using best practices and emerging tools.
- Give high priority to safety improvements in the vicinity of schools, public transit, commercial corridors, and other high-use bicycle and pedestrian destinations.
- Work toward addressing and improving challenging intersections and physical barriers, and consider pedestrian and bicycle movement in the planning stages for new or reconstructed facilities.
- Proactively seek new opportunities for acquisition of abandoned rights-of-way, natural waterways, utility rights-of-way, and other lands for the development of new facilities that integrate with the planned system.
- Encourage events that introduce residents to walking and bicycling, such as Walk/Bike to Work, Walk/ Bike to School, the River to Sea Bike Ride, and charity or fundraising events.
- Accommodate all types, ages, and abilities of users in a comfortable manner throughout the system, while recognizing that all modes of travel and/or level of user ability may not necessarily be accommodated on every road or path.
- Support the development and adoption of local bicycle and pedestrian plans that identify projects to create an integrated and multimodal transportation system for the region.
- Express interest in an increased availability of regional, state, and federal funding sources for bicycle and pedestrian transportation projects.
- Utilize the WMPO TDM Committee (Go Coast Committee), when appropriate, to develop projects, programs, initiatives, and events that support active transportation choices.
- Continue to support the recommendations of the WMPO BPAC.
- Seek all possible funding sources to implement programs and projects. Work with federal, state, regional, and local agencies as well as any other available public or private funding sources to secure funding for the bicycle and pedestrian system.
- Support the incentivization of public/private partnership development of bicycle and pedestrian facilities.

Transportation Systems Management and Operations Element

- Access Management
- Additional Turn Lanes

- Bus Pullouts
- Emergency Vehicle Preemption and Transit Signal Priority
- Improved Signage and Lighting
- Intersection Modifications and Geometric Design Improvements
- Motorist Assistance Program
- Pavement Markings
- Social Media and Smart Apps
- Streetscape Improvements
- Traffic Signal Timing Optimization
- Vehicle Detectors Repair/Replacement
- Traveler Information Systems and Dynamic Message Signs

Transportation Demand Management Element

- Short-Range Strategies (0-5 Years)
  - Alternative Work Schedules
  - Bicycle and Pedestrian Infrastructure
  - Bike Share
  - Carpool and Van Pool
  - Consulting for Telecommuting Opportunities
  - Development Review
  - Continued Employment of Full-Time TDM Staff
  - Personalized Commuter Plans
- Medium-Range Strategies (5-15 Years)
  - Bicycle and Pedestrian Infrastructure
  - Bus Rapid Transit (BRT)
  - Car Share
  - Employer Shuttles
  - Park and Ride Lots
  - Transit Amenities

- Long-Range Strategies (15-20 Years)
  - » Bicycle and Pedestrian Infrastructure
  - » Fixed Rail Transit
  - » High-Occupancy Vehicle (HOV) Lanes
  - » High-Occupancy Toll (HOT) Lanes
  - » Water Taxi Service

Cape Fear Change in Motion (2020)

STUDY AREA

- Cape Fear

PLAN GOALS

Vision and Desired Outcomes

- Reduce time spent in traffic
- Improved health and safety
- Equitable mobility solutions
- Improved quality of life through a walkable and bikeable community
- Decrease the need for major spending on capital projects

KEY STRATEGIES

Strategy 5: Fostering a Bicycle and Pedestrian Friendly Culture

- Create a culture that recognizes bicycling and walking as legitimate forms of transportation and prioritizes the safety of cyclists and pedestrians.

Strategy 6: Improved TDM-Focused Collaboration

- Utilize more opportunities for the TDM Coordinator to further the influence of the Go Coast program.

Strategy 7: Personalized Commuter Plans

- Assist individuals in discovering options they have to commute outside of a single occupancy vehicle.

Congestion Management Process (CMP) (2020)

STUDY AREA

- Cape Fear

PLAN GOALS

Safe

- Reduce bicycle and pedestrian crashes along congested corridors.

Efficient

- Prioritize accommodations of all modes over motorized vehicular travel time along corridors that have potential for heavy multimodal usage.
- Prioritize accommodations of all modes over reduction in delay at congested intersections where those intersections have potential for heavy multimodal usage.

Multi-Modal

- Prioritize multimodal congestion management strategies first.

KEY STRATEGIES

Reduce Demand

- The purpose of this strategy is to reduce congestion through lessening the demand for motorized vehicular capacity on the congested corridors.

Shift Mode of Trip

- The purpose of this strategy is to reduce congestion by shifting usage of the congested corridor from single-occupant vehicles to more capacity-efficient modes.

Comprehensive Transportation Plan (2016)

STUDY AREA

- Cape Fear

PLAN CONTENTS

- Contains the map for existing, needs improvement, and recommended on-road, off-road, and multi-use paths

Wilmington-New Hanover County Comprehensive Greenway Plan (2013)

STUDY AREA

- New Hanover County

PLAN GOALS

- Develop new trails that complement and expand upon existing trails.
- Create safe connections for bicycling and walking between existing and planned parks, schools, commercial and employment centers, and neighborhoods.
- Improve health and wellness of residents by offering more opportunities for physical activity through recreation and active transportation.
- Improve transportation options by offering safe and connected bicycle and pedestrian facilities; increase overall mode-share for walking and bicycling.

KEY PRINCIPLES AND ACTION STEPS

Guiding Principles

- THE WALKING AND BICYCLING ENVIRONMENT SHOULD BE SAFE.
  - » All bicycling and walking routes should be physically safe and perceived as safe by all users. Safe means minimal conflicts with external factors, such as noise, vehicular traffic and protruding architectural elements. Safe also means routes are clear and well-marked with appropriate pavement markings and directional signage.
- THE PEDESTRIAN AND BICYCLE NETWORK SHOULD BE ACCESSIBLE.
  - » Sidewalks, shared-use paths, bike routes and crosswalks should permit the mobility of residents of all ages and abilities. The pedestrian and bicycle network should employ principles of universal design. Bicyclists have a range of skill levels, and facilities should be designed with a goal of providing for inexperienced/recreational bicyclists (especially children and seniors) to the greatest extent possible.
- PEDESTRIAN AND BICYCLE NETWORK IMPROVEMENTS SHOULD BE ECONOMICAL.
  - » Pedestrian and bicycle improvements should achieve the maximum benefit for their cost, including initial cost and maintenance cost, as well as a reduced reliance on more expensive modes of transportation. Where possible, improvements in the right-of-way should stimulate, reinforce and connect with adjacent private improvements.

- THE PEDESTRIAN AND BICYCLE NETWORK SHOULD CONNECT TO PLACES PEOPLE WANT TO GO.
  - The pedestrian and bicycle network should provide continuous direct routes and convenient connections between destinations such as homes, schools, shopping areas, public services, recreational opportunities and transit. A complete network of on-street bicycling facilities should connect seamlessly to existing and proposed multi-use trails to complete recreational and commuting routes.
- THE WALKING AND BICYCLING ENVIRONMENT SHOULD BE CLEAR AND EASY TO USE.
  - Shared-use paths and crossings should allow all people to easily find a direct route to a destination with minimal delays, regardless of whether these persons have mobility, sensory, or cognitive disability impairments. All roads are legal for the use of pedestrians and bicyclists (except freeways, from which each is prohibited unless a separate facility on that right of way is provided). This means that most streets are bicycle facilities and should be designed, marked and maintained accordingly.
- THE WALKING AND BICYCLING ENVIRONMENT SHOULD BE ATTRACTIVE AND ENHANCE COMMUNITY LIVABILITY.
  - The walking and bicycling facilities should be compatible with the nature, history and character of the environment. Context and scale should be given thoughtful consideration. Good design should integrate with and support the development of complementary uses and should encourage preservation and construction of art, landscaping and other items that add value to communities. These components might include open spaces such as plazas, courtyards and squares, and amenities like street furniture, banners, art, plantings and special paving. These along with historical elements and cultural references, should promote a sense of place. Public activities should be encouraged and the municipal code should permit commercial activities such as dining, vending and advertising when they do not interfere with safety and accessibility.
- DESIGN GUIDELINES ARE FLEXIBLE AND SHOULD BE APPLIED USING PROFESSIONAL JUDGMENT.
  - This document references specific national guidelines for bicycle and pedestrian facility design, as well as a number of design treatments not specifically covered under current guidelines. Statutory and regulatory guidance may change. For this reason, the guidance and recommendations in this document function to complement other resources considered during a design process, and in all cases sound engineering judgment should be used.

- BLUEWAYS AND BLUEWAY ACCESS POINTS (FOR CANOEING AND KAYAKING) SHOULD FEATURE WAYFINDING, SAFETY AND ENVIRONMENTAL EDUCATIONAL INFORMATION.
  - » This document contains recommendations for new non-motorized water access points, including best practices for designing such sites. Further, this plan recommends wayfinding for blueway routes, and safety information for how to use blueways and monitor changing tides. Access sites should be constructed in a manner that minimizes environmental impact, and local programs should continue to focus on water quality and river clean-up outings.

Program Action Steps

- Appoint a Regional Bicycle, Pedestrian, and Trails Coordinator.
- Form a Greenways Advisory Committee
- Support establishment of a Friends of Blueways and Greenways Group
- Continue and expand the 'See Share Be Aware' campaign or other safety campaign
- Safe Routes to School Regional Plan (Connecting Schools Initiative)
- Develop Walking Maps and plan Weekend Walkabouts
- Schedule Open Street Events
- Establish a bicycle and pedestrian wayfinding system for trails and other points of interest throughout the region

Infrastructure Action Steps

- Establish Identify and secure specific funding sources for priority trail corridors
- Establish an Adopt-a-Greenway Program and an Adopt-a-Blueway Program
- Use consistent trail design standards and guidelines
- Begin priority trail and blueway projects
- Develop a long term funding strategy
- Maintain greenway and blueway facilities

Walk Wilmington: A Comprehensive Pedestrian Plan (2009)

STUDY AREA

- Wilmington

PLAN GOALS

Goal 1: Safety

- Residents and visitors of all physical abilities will be able to travel safely on foot along and across the city's roadways, trails, and sidewalks.

Goal 2: Transportation Choice

- Pedestrians, regardless of location, mobility level, age or socioeconomic status, will be able to choose a convenient and comfortable mode of travel to reach their desired destination. Pedestrians will be a strong presence on the streets of Wilmington.

Goal 3: Built Environment, Land Use, and Connectivity

- Land uses in Wilmington will provide pedestrians with walkable destinations and the built environment will enhance the pedestrian experience and encourage walking. Adjacent land uses will be connected by pedestrian facilities such as sidewalks and crosswalks so that pedestrians can safely and conveniently make trips on foot.

Goal 4: Education, Awareness and Enforcement

- People will have access to educational opportunities to learn about the benefits of walking as well as access to walking resources. Wilmington will raise awareness and enforcement of safe walking and driving practices and pedestrian and motorist rights and responsibilities.

Goal 5: Health

- Citizens will be more physically active by walking on a regular basis. Improving their health and reducing their health care costs. Creating more walking opportunities will also improve air quality, which will improve the outdoor environment.

Goal 6: Economic Development

- Tourists will be drawn to Wilmington for its comfortable walking environment. Among southern coastal cities, Wilmington will stand out because its walking routes are safe and convenient, as well as aesthetically pleasing.

KEY OBJECTIVES

Goal 1: Safety

- Objective 1.1 All transportation projects should incorporate complete streets design elements. “Complete streets” are roadways designed and operated to enable safe, attractive, and comfortable access and travel for all users. Pedestrians, bicyclists, motorists and public transport users of all ages and abilities are able to safely and comfortably move along and across a complete street. All new traffic signals should include pedestrian signal heads and marked crosswalks.
- Objective 1.2 The city will develop countermeasures to reduce the number of pedestrian crashes at identified locations. This will include using traffic calming as a tool to increase pedestrian safety and comfort.
- Objective 1.3 The city will install three or more new signalized pedestrian crossings per year. (about $150,000/year in 2008 dollars) Objective
- Objective 1.4 The city will conduct education and enforcement campaigns and will design streets to reduce motor vehicle speeds and increase safe driving and walking behaviors.
- Objective 1.5 The city will encourage schools to apply for Safe Routes to School Grants and also to participate in other Safe Routes to School programs and events.
- Objective 1.6 Provide greater awareness of pedestrian laws, rights and responsibilities to affected groups, including but not limited to law enforcement, court officials, and the general public.
- Objective 1.7 Provide a higher level of enforcement to increase pedestrian safety.

Goal 2: Transportation Choice

- Objective 2.1 The city will construct two miles (10,560 feet) of new sidewalk per year (about $422,000 in 2008 dollars).
- Objective 2.2 The city will develop strategies and design solutions to overcome barriers to pedestrian travel in Wilmington, such as arterials, bridges and missing linkages.
- Objective 2.3 Streets in Wilmington will be designed as multi-modal facilities, providing access to destinations by motor vehicle, on foot, by bicycle and by transit.
- Objective 2.4 The city will increase the provision of off-road pedestrian paths and improve connectivity to existing paths and greenways.
- Objective 2.5 The city will ensure that pedestrian facilities are maintained and repaired and are accessible for all users. This includes requiring property owners to maintain vegetation adjacent to sidewalks on a regular basis.

Goal 3: Built Environment, Land Use, and Connectivity

- Objective 3.1 Modify the city's codes, policies and ordinances to include requirements ensuring that new development is scaled and oriented to pedestrian travel, and that logical connections are provided internally and externally for pedestrians and bicyclists.

Goal 4: Education, Awareness and Enforcement

- Objective 4.1 The city will encourage more citizens to travel as pedestrians for all types of trips, including work, errands, exercise and recreation.
- Objective 4.2 The city will increase citizen participation in educational and encouragement programs and promotions.
- Objective 4.3 The city will increase awareness and understanding of pedestrian laws, rights and responsibilities by affected groups, including but not limited to law enforcement, court officials, and the general public.
- Objective 4.4 The city will conduct education and enforcement campaigns to increase safe driving and walking behaviors.
- Objective 4.5 The city will encourage more students to walk to school and other destinations, either alone or with a parent or caregiver.
- Objective 4.6 The city will encourage schools to apply for Safe Routes to School grants and also to participate in other Safe Routes to School programs and other events.

Goal 5: Health

- Objective 5.1 Increase awareness of the recommended levels of daily physical activity and the health benefits of walking.

Goal 6: Economic Development

- Objective 6.1 New streets in the Central Business District Zone and Urban Core Zone will incorporate pedestrian lighting along with vehicular lighting.
- Objective 6.2 Existing corridors and thoroughfares will be retrofitted with pedestrian lighting.
- Objective 6.3 Wilmington will continue to support the missions of Wilmington Downtown, Inc., as it aims to revitalize the historic downtown.
- Objective 6.4 Encourage the inclusion of amenities, plantings and art in pedestrian improvement projects.
- Objective 6.5 The city will produce brochures and other materials to be distributed at events in order to encourage walking and to provide information about Transportation Demand Management services.

- Objective 6.6 The city will work with the Wilmington Tree Commission to ensure that trees are included in the pedestrian environment while maintaining the pedestrian path of travel.

Create Wilmington Comprehensive Plan (2016)

STUDY AREA

- Wilmington

PLAN THEMES

Getting Around

- Diverse modes of transportation are needed for an inclusive, connected community. Regional partnerships can link greenways and other amenities. Options for pedestrian and bicycle transportation, along with other modes of transportation, should be explored as valid alternatives to automobile transportation, as well as other options for local and regional mass transit.

Unique Places, Captivating Spaces

- The built environment encompasses places and spaces created or modified by people, including buildings, parks, land use patterns, and transportation systems. Since the built environment has profound consequences for individual and community well-being, all elements of our built environment should enhance the character of our community, being functional and aesthetically appropriate, enriching the lives of visitors and residents alike.

KEY POLICIES

1.2 CITYWIDE GROWTH

- 1.2.4 Development and infrastructure investments should promote healthy communities and active lifestyles by providing enhanced bicycle and pedestrian circulation, access, and safety.

1.3 LAND USE AND TRANSPORTATION

- 1.3.3 Development should provide pedestrian and vehicular connections between and within individual development sites to provide alternative means of access along corridors.
- 1.3.4 Mixed-use development that provides a range of services within walking distance of integrated residential development should be promoted as a way to help reduce motor vehicle trips. Developments that reduce reliance on single-occupancy motor vehicles should be supported.
- 1.3.6 Transit-oriented and transit-ready development should be promoted around existing

and planned transit stations and stops.

- 1.3.8 Pedestrian-friendly and transit-supportive development patterns should be promoted along multimodal corridors and areas identified for intensive transit investments.

1.5 MIXED-USE DEVELOPMENT

- 1.5.1 Mixed-use centers should be made up of a diverse mix of uses and integrated design that avoids segregation of uses. Centers should have well-planned public spaces that bring people together and provide opportunities for active living and social interactions.
- 1.5.2 Integration and mix of uses should be provided within all "Areas of Opportunity" and "Mixed-use Centers" identified in the Growth Strategies Maps. These developments may vary in scale and intensity, but should all contribute to the city's livability, manage future growth, and provide bike, pedestrian, and transit-accessible destinations.
- 1.5.3 The development of mixed-use activity centers with multimodal transportation connections should be promoted. Convenient and accessible residential and employment should be a part of mixed-use centers.
- 1.5.4 The dedication of land for the construction of transit stations and stops within mixed-use centers should be coordinated as part of the development review and zoning process.

1.6 COMMERCIAL DISTRICTS, CORRDIORS, AND NODES

- 1.6.1 Pedestrian-oriented centers of commercial development should be encouraged at key locations along major corridors, such as the "Main Streets" identified on the Growth Strategies Maps. Auto-oriented strip commercial development should be discouraged.
- 1.6.6 Commercial infill and redevelopment should be bicycle- and pedestrian-friendly.

1.7 NEIGHBORHOOD CONSERVATION AND REVITILIZATION

- 1.7.7 Large, oversized blocks in neighborhoods and subdivisions should be avoided in favor of smaller, walkable blocks and enhanced networks that create better connections and help facilitate walking and reduce the need to drive.

2.1 LAND USE AND TRANSPORTATION COORDINATION

- 2.1.2 Safe and attractive transportation choices among all modes should be encouraged through street patterns that consider multimodal transportation alternatives and access to and circulation between adjacent neighborhoods, parks, and commercial and employment centers.
- 2.1.4 Comprehensive transportation impacts, including parking and impacts on all modes of transportation should be identified and addressed before a development or redevelopment is

implemented.

2.2 STREET SYSTEMS

- 2.2.2 New residential, commercial, and mixed-use developments that require construction or extension of roadways should include a multimodal network. The use of cul-de-sacs and dead-end streets should be minimized.
- 2.2.5 When considering closure of public streets, alleys, and other rights of way, affected city departments and utility providers should consider the integrity of the city's street network, pedestrian and vehicular safety, emergency access, the ability to provide utility services, impacts on health and safety, and the welfare of the community.

2.3 TRANSPORTATION DEMAND MANAGEMENT

- 2.3.2 An integrated, multimodal transportation system that offers safe and attractive choices among travel modes should be promoted.

2.4 STREET DESIGN, COMPLETE STREETS, AND AGE-FRIENDLY DESIGN

- 2.4.1 The majority of the city's streets should be designed as public spaces that are scaled for pedestrians and should be enhanced with appropriate street trees and landscaping.
- 2.4.2 Complete street design standards that provide mobility for all types of transportation modes and users should be promoted on all streets.
- 2.4.3 New roadway projects and major reconstruction projects should provide appropriate and adequate right-of-way for safe and convenient movement and amenities for all users, including bicyclists, pedestrians, transit riders, and motorists.
- 2.4.4 When reviewing traffic impact analyses for infill and redevelopment, level of service measurements should include all modes of transportation, including bicycles, pedestrians, and transit, in addition to automobile level of service.
- 2.4.5 Complete street amenities should be designed with all users in mind, with multimodal amenities appropriate for the type of roadway. The use of undivided multi-lane streets should be limited; raised and/or landscaped medians should be used where feasible, to provide safe landings for pedestrians and vehicle travel.

2.5 PUBLIC TRANSPORTATION

- 2.5.1 Quality transit services that enhance mobility options, meet the needs of city residents and visitors, focus on transit-dependent households, and incorporate age-friendly elements should be promoted.
- 2.5.3 The possibility of returning a vehicular/pedestrian ferry to the Wilmington region

should be explored.

- 2.5.7 The use of transit facilities should be encouraged through enhancing the bike and pedestrian network near transit stops and sufficient sidewalk infrastructure should be installed near all transit stops. Where necessary, enhancements to make sidewalks compliant with the Americans with Disabilities Act (ADA) should be prioritized.
- 2.5.9 Transit-oriented development should be encouraged. Planning for transportation, transit stop locations, public spaces, density, and land use should be coordinated, and high-density, mixed-use development patterns should be encouraged around express bus lines, the planned multimodal transportation center downtown, and any future transit stations.

2.6 BICYCLE AND PEDESTRIAN CIRCULATION

- 2.6.1 Bicycle and pedestrian circulation, access, and safety should be enhanced, especially along corridors, downtown, in activity and employment centers, within densely-developed areas, at transit stations, and near schools, libraries, and parks.
- 2.6.2 A continuous bicycle and pedestrian network should be provided within and between existing and new developments to facilitate safe and convenient travel. New subdivisions, mixed-use developments, and large-scale commercial developments should include safe pedestrian walkways or multiuse paths that allow direct links between roadways and major destinations, transit stops, and schools.
- 2.6.3 New development, redevelopment, street reconstruction, and resurfacing projects should include bicycle and pedestrian facilities as appropriate for the roadway character. Existing development should be retrofitted with connections where possible.
- 2.6.4 Where possible, and especially along identified pedestrian priority streets, tools such as protected left turns, pedestrian head start, raised crosswalks, curb extensions, medians, pedestrian refuge islands or mid-block crossings, and restricted right turns on red should be used to improve pedestrian and bicycle movements and safety.
- 2.6.5 Safe and convenient pedestrian and bicycle facilities should be maintained and should be universally accessible, adequately lit, and properly designed to reduce conflicts between motor vehicles, bicycles, and pedestrians.
- 2.6.6 Pedestrians and bicyclists should be accommodated on bridges, interchanges, and over and underpasses, where permitted by law. Bicycle lanes and wide sidewalks should be included in all new bridges and over and underpasses.
- 2.6.7 The city's greenways, blueways, and trails network should be treated as part of the city's transportation network and connections should be planned for accordingly.
- 2.6.8 Bicycle facilities such as secure racks, personal lockers, and showers should be encouraged in new and redeveloped office and employment centers to facilitate bicycling and

walking as viable alternative modes for commuting to work.

- 2.6.9 Infrastructure that encourages students to walk or bike safely to school should be supported. The city should continue to coordinate with the WMPO to partner with New Hanover County Schools, the Wilmington Police Department, and the North Carolina Department of Transportation to identify funding and opportunities to enhance walking routes to school.
- 2.6.10 Where appropriate, primary building entrances should front onto publicly accessible, easily discernible, and Americans with Disabilities Act-compliant sidewalks that lead directly from the street to the building entrance.
- 2.6.11 Wherever appropriate, roadways and rail corridors should be retrofitted with bicycle and pedestrian facilities such as multi-use paths, cycle tracks or bike lanes, bike boxes, and bike detectors.
- 2.6.12 The city should continue to coordinate with the WMPO to work with partners to identify creative funding solutions for bike and pedestrian infrastructure, including partnerships with the Cape Fear Public Utility Authority, the North Carolina Department of Transportation, parks and recreation partnerships, and public-private partnerships.

2.7 PARKING MANAGEMENT

- 2.7.2 Parking and development that encourages multiple destinations within pedestrian-connected areas should be encouraged.
- 2.7.3 A parking program and management strategies should be established at existing and planned transit stations.
- 2.7.6 Parking lots should include vehicular and pedestrian connections between and through lots. Parking facility quality should be considered equally with quantity of parking spaces. Parking lot design should minimize pedestrian conflicts, make use of appropriate landscaping, and properly manage stormwater.

2.8 TRANSPORTATION SAFETY, TRAFFIC CALMING, AND NEIGHBORHOOD TRAFFIC

- 2.8.1 Safe routes for motorists, transit riders, bicyclists, and pedestrians should be provided. The city should work with its partners to improve the multimodal system to enhance safe transportation options across modes.
- 2.8.2 Traffic calming measures should be incorporated into the design of new or retrofitted local and neighborhood streets, within schools and parks, and around pedestrian-oriented business areas. Pedestrian and bicyclists should have safe, convenient, well-marked means to cross streets.

- 2.8.3 The data necessary to assess transportation network safety performance should be collected and maintained. Ongoing education and enforcement should be supported. The safety impacts of proposed roadway capacity projects, including impacts to bicycle and pedestrian safety, should be evaluated and documented.

4.2 GREENWAYS, BLUEWAYS, TRAILS, AND CONNECTIVITY

- 4.2.1 Safety, security, ease of use, sustainability, and equity should be considered when planning, designing, and constructing new and maintaining existing greenways, blueways, and trails.
- 4.2.2 Neighborhood connectivity to trails and greenways should be facilitated. Connections between neighborhoods, shopping centers, schools, transit stops, and employment centers should function as transportation alternatives in addition to recreational amenities.
- 4.2.3 Partnerships with New Hanover County and New Hanover County Schools, health care providers, nonprofit groups, and others should be enhanced to create or improve greenways and trails in the city and the region.
- 4.2.5 Wilmington's greenway/trail network should include multi-use paths that connect other greenways, parks, and schools. New greenways should be designed to serve both recreational and transportation needs.
- 4.2.7 Public awareness of the trails/greenway network should be promoted, including an ongoing educational campaign on bike and pedestrian safety, driver awareness, bike and pedestrian rights and regulations, and the benefits of greenways, blueways, and trails as related to increased property values and health and environmental benefits.

5.1 COMMERCIAL CORRIDOR REINVESTMENT

- 5.1.2 Mixed-use redevelopment should be promoted as a means of revitalizing and enhancing economic development in commercial corridors and creating transit- and pedestrian-oriented development patterns.

5.2 NEIGHBORHOOD REINVESTMENT

- 5.2.1 In partnership with neighborhood groups, focused reinvestments to make safe, attractive, and walkable neighborhoods and attract skilled workers to Wilmington should be encouraged. A mix of housing types and price points should be encouraged to diversify neighborhoods, particularly around business clusters and schools.
- 5.2.5 Investments in public infrastructure, such as parks, schools, sidewalks, and streetscapes, should be done in a targeted manner in the neighborhoods of greatest need.

5.5 ECONOMIC DEVELOPMENT AND LAND USE

- 5.5.2 Appropriate intensification and retrofitting of existing office and retail clusters with new, interconnected, pedestrian- and bike-friendly residential and retail uses should be encouraged to provide attractive and competitive live-work designations.

6.4 AIR QUALITY

- 6.4.1 Walkable and bikeable communities, public transit, and integrated land use and transportation planning should be promoted and encouraged to help reduce motor vehicle emissions.
- 6.4.3 State, regional, and local resources should be applied to encourage clean transportation choices through a transportation demand management program.

7.1 PUBLIC ART

- 7.1.1 Public art should help create and foster community and neighborhood identity and should be part of public projects, community facilities, greenspace, and along greenways. Public art should be part of the planning process for all municipal projects.

8.1 INFRASTRUCTURE

- 8.1.2 Maintenance, repair, and enhancements of streets and sidewalks should be undertaken in an equitable manner as well as an objective evaluation of condition and need. Funding and physical maintenance should be distributed equally throughout the city and in a way that benefits all neighborhoods and parts of town and all residents and visitors.
- 8.1.4 Coordination with utilities and infrastructure partners to ensure that construction, design, and improvements to streets and sidewalks are carried out in an efficient and coordinated manner should be maintained.
- 8.1.16 The city's parking program should support alternative means of transportation, encouraging alternative energy sources, promoting downtown as a regional destination, and maximizing transportation demand management. The pedestrian experience should be considered in parking planning, siting, and design and new and existing parking decks should provide for adequate pedestrian access the parking areas.

8.4 EDUCATION

- 8.4.6 School siting and assignment policies that work to achieve diverse, walkable schools should be developed. All health impacts should be taken into account, including a health impact assessment or another methodical analysis of health impacts, when considering new locations and rehabilitation of existing school facilities.

- 8.4.7 Programs to maximize opportunities for schools that are an integral part of the surrounding neighborhood and that promote walking and biking to school should be supported. Safety and convenience of travel by foot, bike, and public transportation to and near schools should be improved by providing safe infrastructure.

9.1 UNIQUE WILMINGTON

- 9.1.4 A unified system of vehicular and pedestrian wayfinding signs, kiosks, and other environmental graphics should be created to provide directions for bicyclists, pedestrians, and vehicular travelers. Wayfinding systems should link physical and digital elements.

9.2 PUBLIC SPACE NETWORK

- 9.2.3 The appearance, identity, and safety of streets should be prioritized through the appropriate use of pedestrian elements such as sidewalks, crosswalks, street lights, landscaped areas, street furnishings, signage, and traffic signals and signals management.
- 9.2.4 Bus shelters, seating, and related elements should be provided at transit stop locations, where appropriate.
- 9.2.5 Along pedestrian priority streets, sidewalks should be designed and managed in a way that promotes pedestrian safety, efficiency, and comfort, providing adequate space for street trees, pedestrian traffic, and social activities such as sidewalk cafes.
- 9.2.6 Streets should be designed as public spaces that are scaled for pedestrians, especially along corridors designated as special character streets and pedestrian priority streets in the Growth Strategies Maps.
- 9.2.8 The design of alleys should reflect their best potential use, whether service-oriented, pedestrian pathways, or gathering places and venues. Alleys used as pathways should provide pedestrian elements, such as street lights, quality paving materials, and street furnishings (trash bins, bollards, signs, etc.).
- 9.2.9 Appropriate street tree plantings should be chosen for the function of the street and distinctive parts of the city. Trees in high pedestrian traffic areas and the Greater Downtown should be planted in tree wells with grates to protect the roots and allow safe pedestrian passage. Xeriscaping and native plants should be used where appropriate.

9.3 PEDESTRIAN-ORIENTED PLACEMAKING

- 9.3.1 Mixed-use buildings and multi-use development sites should be encouraged where appropriate. Infill development that creates a destination for existing land uses should include opportunities for cross-site pedestrian connections, shared parking arrangements and other strategies to enhance mixed-use environments.

- 9.3.2 Comfortable, safe, and convenient pedestrian places should be promoted through buildings that face the street, avoidance of deep front setbacks, and providing direct pedestrian connections and entries along the public space network.
- 9.3.3 New development should promote pedestrian-oriented uses, especially those within Mixed-use Centers delineated in the Growth Strategies Maps. Automobile-oriented uses and designs such as drive-through windows should be discouraged in these areas.
- 9.3.4 Attractive and interesting commercial streetscapes should be created by promoting active ground-floor uses, creating desirable street activities, minimizing curb cuts and driveways, and avoiding windowless facades and large gaps in the street wall.
- 9.3.5 Where appropriate, indoor uses moved outdoors, such as dining areas and small merchandise displays on walkways and plazas, should be employed to activate the streetscape, while outdoor spaces moved indoors, such as atriums and courtyards, may also be used to improve views, exposure to light, and encourage social interaction.
- 9.3.6 Pedestrian-scaled lighting should be provided to encourage a safe walking environment while providing unified character elements for pedestrian oriented streets, centers, and neighborhoods.
- 9.3.7 On-street parking should be provided along pedestrian-oriented streets to act as a buffer from vehicular traffic. Surface parking should be confined to the rear or side of buildings.
- 9.3.8 Parking decks should be encouraged in Urban Centers as identified on the Growth Strategies Maps and, where feasible, should be wrapped with active uses for the entire frontage along public streets, especially on pedestrian-priority streets. Where wrapped parking is not feasible, decks should be screened and should not be visibly distinct from the building(s) they serve.

9.5 NEIGHBORHOODS

- 9.5.2 Clear and safe pedestrian networks within, through, and between neighborhoods should be enhanced. Opportunities to connect existing neighborhoods to adjacent commercial centers and community facilities and services should be explored.

10.2 TRANSPORTATION

- 10.2.1 Downtown should be well served by the broadest range of transportation options, including bikeways, sidewalks, greenways, roadways, streetcars, and buses. Enhanced transit service, including circulators, which may be buses, rubber-tire trolleys, or modern streetcars, and car and bike sharing programs should be encouraged.
- 10.2.2 The construction of a mixed-use, multimodal transit center downtown, with bike

and pedestrian connections, should be encouraged to provide a transit hub accommodating service for passenger rail, public transit, and private transit providers.

- 10.2.3 Non-automotive circulation among downtown activities and employment centers should be encouraged and pedestrian safety should be promoted.
- 10.2.7 As redevelopment occurs throughout downtown, sidewalks should be widened, where appropriate, to enhance the downtown pedestrian experience. Along identified priority pedestrian streets, new development and infrastructure projects should enhance pedestrian and bicycle safety and such elements should be given equal priority to vehicular traffic flow.
- 10.2.8 Opportunities to extend the urban greenway system should be examined and implemented concurrent with infill and redevelopment.
- 10.2.11 Transportation demand management strategies, such as carpooling, park and ride services, and staggered work hours, should especially be encouraged and supported to downtown locations.

10.6 URBAN DESIGN

- 10.6.2 The public realm should be reinforced through the placement of main building entrances along public streets, the creation of a continuous street wall and the use of wide sidewalks and streetscape plantings. Parks, plazas, and public spaces should be surrounded by activity such as ground-floor retail and other active uses and upper-floor balconies and terraces.
- 10.6.3 Pedestrian engagement should be enhanced through the ground-floor design of all new infill and redevelopment. Such street-level enhancements may include the use of multiple building entrances, large, transparent windows, creative signage, lighting, protection from the elements via canopies, awnings, and arcades, and a high level of architectural articulation and pedestrian-scale element on all facades.

Cross-City Trail Master Plan (2012)

STUDY AREA

- Wilmington

PLAN GOALS

- The goal of the Gary Shell Cross-City Trail is to provide residents and visitors with an amenity that provides opportunities for recreational use, physical activity and alternative transportation.

River to Sea Bikeway Master Plan (2013)

STUDY AREA

- River to Sea Bikeway from Wilmington to Wrightsville Beach

PLAN GOALS

- The goal of The River to the Sea Bikeway is to provide visitors and residents with a facility that creates opportunities for basic transportation, recreational use and physical activity while connecting downtown Wilmington to Wrightsville Beach.

KEY PRINCIPLES

- Provide connectivity to established destinations;
- Provide a safe route with the least amount of conflicts;
- Minimize property impacts;
- Provide consistency with Wilmington, WMPO, Wrightsville Beach, and NCDOT planning practices and policies;
- ADA Accessible;
- In harmony with existing infrastructure;
- Represent good stewardship of the environment;
- Create a sense of place; and
- Meet all of the above criteria in a way that is politically acceptable.

Wilmington Vision 2020: A Waterfront Downtown (2004)

STUDY AREA

- Downtown Wilmington

PLAN GOALS/OBJECTIVES

- Encourages a friendly streetscape environment— Since successful American cities accommodate many modes of travel, the street network should be easily navigated by pedestrians, bicyclists and automobiles. The streetscape should provide a scale and quality of design that is interesting to the pedestrian, amenities to provide comfort, and adequate signage for locating cultural attractions, historic landmarks, and parking garages. This Plan considers the physical character of streets for their walkability and wayfinding purposes.

KEY ACTIONS

STRATEGY 1: ACTIVATE THE WATER'S EDGE

- C. Enhance Water Street as an attractive walking experience

STRATEGY 2: CONNECT PEOPLE TO THE RIVER

- A. Improve access to the Riverwalk along key pedestrian routes

STRATEGY 7: ADDRESS QUALITY OF LIFE CONCERNS

- B. Maintain adequate sidewalk clearance of at least 4 feet.

Wrightsville Sound Small Area Plan (2011)

STUDY AREA

- The planning area generally includes all properties from Bradley Creek north to the Landfall subdivision, and from the Atlantic Intracoastal Waterway (AIW) to just west of Oleander Drive and Military Cutoff Road. The area includes the Landfall Center shopping center, the nonresidential properties on the west side of Military Cutoff Road, and the residential areas between Rogers Avenue and Eastwood Road on the west side of Military Cutoff Road.

PLAN GOALS

- To provide safe and viable bicycle and pedestrian facilities throughout the area.
- To provide a convenient mix of land uses that offers options for residents while ensuring new development is compatible with the surrounding area.
- To provide a safe and efficient transportation network for all modes of travel (auto, mass transit, bike, pedestrian).

KEY STRATEGIES

3.4 BICYCLE AND PEDESTRIAN FACILITIES

- 3.4.1 Provide signalized pedestrian crossings and high-visibility crosswalks at all major intersections
- 3.4.2 Evaluate potential for sidewalks and/or a bike path along Airlie Road. Minimize tree disturbance with any future bicycle and/or pedestrian improvements.
- 3.4.3 Support the completion of the Gary Shell Cross-City Trail.
- 3.4.4 Construct sidewalks throughout the area in accordance with Walk Wilmington: A Comprehensive Pedestrian Plan.

- 3.4.5 Provide bicycle and pedestrian connections between existing residential and commercial areas
- 3.4.6 Provide a bicycle and pedestrian connection between the Gary Shell Cross-City Trail and Airlie Gardens
- 3.4.7 Support efforts to improve the safety and function of bicycle and pedestrian access to Wrightsville Beach.
- 3.4.8 Support the construction of a public walkway/pier underneath the Heidi Trask Drawbridge to provide a safe alternative for cyclists and pedestrians wishing to cross Wrightsville Avenue.
- 3.4.9 Explore the potential to acquire additional right-of-way, while protecting existing trees, along Airlie Road for bicycle and pedestrian improvements.
- 3.4.10 Implement bicycle and pedestrian improvements in accordance with the Recommended Transportation Improvements Map.

3.6 MIX OF USES

- 3.6.2 Ensure commercial uses are accessible from surrounding residential areas by establishing a network of interconnected sidewalks, foot paths and bike paths.

3.7 TRAFFIC & TRANSPORTATION

- 3.7.4 Improve transit service to other areas of the county by increasing access and making bus stop improvements.
- 3.7.6 Support the construction of a public walkway/pier underneath the Heidi Trask Drawbridge to provide a safe alternative for cyclists and pedestrians wishing to cross Wrightsville Avenue.
- 3.7.8 Support and promote interconnectivity for automobiles, cyclists and pedestrians between developments.
- 3.7.9 Address off-street parking along Airlie Road to improve safety for cyclists and pedestrians and prevent environmental impacts.

3.10 DEVELOPMENT & REDEVELOPMENT

- 3.10.7.1 Commercial Redevelopment: Landfall Center. Require bicycle and pedestrian access.
- 3.10.7.2 Commercial Redevelopment: Galleria Mall. Require bicycle and pedestrian connections to adjacent residential areas.
- 3.10.7.3 Commercial Waterfront: Airlie Road. Provide sidewalk/walkway along the east side

of Airlie Road, connecting and providing access to the existing commercial establishments. Improve safety for pedestrians crossing Airlie Road with context- sensitive signage and/or pavement markings.

- 3.10.7.4 Transition Area: Allens Lane. Encourage bicycle and pedestrian access and connections to surrounding uses.
- 3.10.8.1 —Residential Redevelopment: Westbrook Avenue & Allens Lane. Require bicycle and pedestrian access and connections to surrounding uses.
- 3.10.8.2 Residential Redevelopment: Airlie Road. Encourage bicycle and pedestrian access and connections to surrounding uses.

Southside Small Area Plan (2009)

STUDY AREA

- Stakeholder-identified area including The Bottom, Dry Pond, and Lake Forest.

PLAN OBJECTIVES

- Objective 3 – Environmental Design – Ensure development is designed in such a way that residents feel connected to and therefore safe within the community regardless of race, income, or other factors.
- Objective 14 – Transportation Infrastructure – Improve the transportation infrastructure to accommodate safe vehicular travel, access to public transit, and non-vehicular alternatives.

KEY STRATEGIES

OBJECTIVE 3 ENVIRONMENTAL DESIGN

- 3.1 Include architectural and design elements in new construction, renovation, and redevelopment projects that connect people to the community. These elements include, but are not limited to, porches, sidewalks, pedestrian-scale street lighting, and building fenestration (the arrangement of windows and doors).
- 3.2 Eliminate barriers to walking, biking, and recreating in the physical environment. Assess and inventory sidewalks, trails, street furniture, shade, commercial parking access, street connectivity, parks, and transit access. Work with the city, WAVE Transit, and other appropriate agencies to improve the quality of these resources.

OBJECTIVE 14 TRANSPORTATION INFRASTRUCTURE

- 14.1 New multi-family and mixed-use projects should be located convenient to public transit and encourage transit-oriented development (TOD) projects.

- 14.2 Install sidewalks where sufficient right-of-way exists. Sidewalks should be constructed in accordance with the Walk Wilmington Comprehensive Pedestrian Plan.

Seagate Neighborhood Plan (2007)

STUDY AREA

- Stakeholder-identified area between Oleander Drive, Wrightsville Avenue and Bradley Creek

PLAN GOALS

- To promote safer, better-maintained travel routes that accommodate vehicular and non-vehicular modes of transportation.
- To maintain adequate infrastructure to support the needs of the area while proactively addressing future needs and resources.

KEY ACTIONS

OBJECTIVE 1: REDUCE VEHICLE TRIPS

- 1.1 Incorporate sidewalks and bike paths where possible to minimize vehicle trips
- 1.2 Support developments that are designed to accommodate convenient access to public transit (there is currently a WAVE Transit bus stop on Oleander at the arboretum).
- 1.5 Install sidewalks and bike paths where sufficient right-of-way exists.

OBJECTIVE 3: SIDEWALKS AND BIKEPATHS

- 3.1 Install sidewalks and bikepaths where sufficient right-of-way exists.
- 3.2 Include sufficient pedestrian circulation to facilitate community interaction.

Northside Community Plan (2003)

STUDY AREA

- The plan area is bounded by Smith Creek to the north, Burnt Mill Creek and N. 17th Street to the east, Market Street to the south and the Cape Fear River to the west.

PLAN GOALS

- Create an attractive NorthSide community that residents and visitors can enjoy while preserving the history, character and beauty of its residential and commercial neighborhoods.
- Provide recreational, educational, vocational, cultural opportunities and community meeting space to meet the needs of everyone in the NorthSide community.

- To provide safe and efficient traffic flow and public transportation for the NorthSide community.

KEY ACTIONS

OBJECTIVE 4- STREETSCAPE ENHANCEMENT

- Implement streetscapes, landscapes and other measures on public property including signage, pedestrian-scale lighting and other amenities (curb and gutters, trash cans, bus shelters and benches) in the Northside community.

OBJECTIVE 2- EXISTING FACILITIES

- 2.5. Redevelop the Love Grove landfill into a usable public greenspace that includes reuses such as open space, habitat restoration, parks, gardens, fishing, playgrounds, and trails for pedestrians, horseback riding and bicycles.

OBJECTIVE 1- TRAFFIC CALMING

- 1.1. Provide input to Neighborhood Traffic Studies on areas in need of traffic-calming devices to slow traffic (especially between N. 8th and N. 11th Streets). Also consider installing pedestrian safety amenities.

OBJECTIVE 2- ENHANCED TRANSIT SERVICE

- Increase convenience of public transportation by adding bus stops in strategic locations and extending bus and trolley service to and from strategic locations.

OBJECTIVE 5- SIDEWALKS

- Provide sidewalks in identified priority areas

US 17 Business (Market St) Corridor Study (2016)

STUDY AREA

- Corridor (Market St)

PLAN GOALS

- Implement a road diet by reducing the travel lanes to one in each direction, thus creating space to add planted median, channelized left-turn lanes and bike lanes. The road diet project is not recommended for the proposed limits of this study due to the negative impacts to Market Street. Based on the results of this study, the road diet could successfully be implemented between 3rd Street and 16th Street, with a transition to current geometry west of 16th Street.

Market Street Corridor Study (2010)

STUDY AREA

- Corridor (Market St)

PLAN GOALS

- Integrate pedestrian and bicyclist amenities along Market Street during construction of the proposed median treatments.
- Provide an alternate network of pedestrian and cyclist amenities through neighborhoods and collector streets.

KEY POLICIES

- “Complete street" elements should be included in collector street design standards, including streets trees, sidewalks, and bicycle amenities.

Cape Fear Historic Byway Corridor Management Plan (2008)

STUDY AREA

- Corridor (Cape Fear Historic Byway)

PLAN GOALS

- Goal #1: Encourage visitors to get out of their cars and safely explore the corridor by alternative means of transportation such as on foot, bike, trolley, horse carriage and even boat.
- Goal #11: Increase pedestrian and biking safety along the byway corridor, particularly on 3rd Street.

KEY RECOMMENDATIONS

- This plan offers a number of pedestrian related recommendations meant to encourage multi-modal transportation use, including installation of crosswalks, expansion of transit services, and upgrading of sidewalks and pedestrian scale lighting.

Dawson & Wooster Corridor Plan (2007)

STUDY AREA

- Corridor (Dawson St, Wooster St)

PLAN GOALS

- Address corridor safety.

KEY RECOMMENDATIONS

- This plan includes a series of recommendations for pedestrian improvements in the short, medium, and long term. These recommendations include high visibility crosswalks, pedestrian signal heads, and bulb-outs.

Wilmington Rail Trail Master Plan (2020)

STUDY AREA

- The Wilmington and Weldon Railroad Corridor

PLAN GOALS

- Connect Wilmington Northside neighborhood to Downtown, area amenities, and other parts of Wilmington.
- Create a unique space for art, exercise, and community engagement.

KEY RECOMMENDATIONS

- The Rail Trail provides a critical link in a multimodal system that the City of Wilmington is trying to implement.
- The visual elements of a trail can considerably reshape the experience for the user. Encouraging people to use active modes of transportation is not solely accomplished by providing a physical path but by ensuring that the trail has a purpose in how it provides the connection to a given destination.
- The amenities the Rail Trail provides can transform the level of enjoyment and comfort that people experience while they are using the trail.

Wrightsville Avenue 2030 (2010)

STUDY AREA

- Corridor (Wrightsville Ave)

PLAN GOALS

- To provide a safe and efficient travel route for all users that accommodates all modes of transportation (auto, bicycle, pedestrian, public transit).

KEY STRATEGIES

OBJECTIVE: MAINTAIN ROAD FUNCTIONALITY BY IMPROVING SAFETY AND TRAFFIC FLOW ALONG THE CORRIDOR.

- Strategy 3.2.2 Minimize conflict points between vehicles and bicycles/pedestrians to improve safety for all modes of travel.

OBJECTIVE: IMPROVE THE EFFECTIVENESS OF ALTERNATIVE MODES OF TRANSPORTATION INCLUDING BICYCLE, PEDESTRIAN, AND PUBLIC TRANSIT.

- Strategy 3.2.6 Include pedestrian and bicycle facilities as a component of all transportation-related capital projects and programs when feasible.
- Strategy 3.2.7 Construct sidewalks throughout the corridor in accordance with Walk Wilmington: A Comprehensive Pedestrian Plan.
- Strategy 3.2.8 Continue to improve the River to the Sea Bikeway and Cross-City Trail bicycle and pedestrian facilities.
- Strategy 3.2.9 Install wayfinding signage along Wrightsville Avenue to direct bicyclists and pedestrians to the River to the Sea Bikeway and Cross-City Trail.
- Strategy 3.2.10 Install benches, shelters and bus pull-outs at high-volume transit stops along the corridor.
- Strategy 3.2.11 Provide half-hour bus service along the entire length of the corridor
- Strategy 3.2.12 Implements bicycle and pedestrian improvements along the corridor in accordance with the Recommended Transportation Improvements Map.

Carolina Beach Road Corridor Plan (2004)

STUDY AREA

- Corridor (Carolina Beach Rd)

KEY STRATEGIES

STRATEGIES FOR CAPITAL IMPROVEMENTS

- Secondary to the sidewalk priority areas in the Future Land Use Plan, sidewalk priority areas on Carolina Beach Road should focus on the area between Bordeaux Avenue and Independence Boulevard and at bus stops.

STRATEGIES FOR REGULATORY CHANGES

- Create a neighborhood commercial overlay district between South 3rd Street and Southern Boulevard. The purpose of the district is to return this area to its original function as a neighborhood commercial center. The emphasis will be on improving the overall aesthetics through enhanced landscaping and site and building design and on improving pedestrian amenities such as sidewalks and crosswalks. Public and private investment is necessary to be successful.

College Road Corridor Plan (2004)

STUDY AREA

- Corridor (College Rd)

KEY STRATEGIES

STRATEGIES FOR CAPITAL IMPROVEMENTS

- Create and fund a redevelopment incentive program that focuses on the Future Land Use Plan priority redevelopment areas but is also applicable to other areas. This program will provide specific standards for desired redevelopment (mix and type of uses, signage, architecture, landscaping, site design) and establish cost-sharing levels for infrastructure improvements such as deceleration lanes, traffic signals, turn lanes, medians, alleys, frontage roads, sidewalks/multi-use paths and other access management improvements that would be required for development approval. Priority redevelopment areas for College Road include the Marketplace Mall near the Market Street overpass, the commercial areas between Wilshire Boulevard and Lake Avenue, and Long Leaf Mall at the Shipyard Boulevard intersection. The commercial areas between Wilshire Boulevard and Peachtree Avenue should be the top priority.

- Secondary to the sidewalk priority areas in the Future Land Use Plan, sidewalk priority areas on College Road should be focused around shopping areas and UNCW, through new development, redevelopment, and City capital projects.
- Crosswalk priority intersections along College Road are Randall Parkway, New Centre Drive, and Lake Avenue. Enhancements to pedestrian crossings will be based on site specific engineering analysis and will potentially include:
  - Raised medians
  - Illuminated crosswalks and median refuges
  - Special markings such as striped, or "zebra," longitudinal lines or diagonal cross-hatching to increase visibility and emphasize a crossing
  - Textured crossings, using non-slip bricks or colored pavers, to increase a driver's awareness through increased noise and vibration
  - Visible signage
  - Flashing beacons

Oleander Drive Corridor Plan (2004)

STUDY AREA

- Corridor (Oleander Dr)

KEY STRATEGIES

STRATEGIES FOR CAPITAL IMPROVEMENTS

- Create and fund a redevelopment incentive program that focuses on the Future Land Use Plan priority redevelopment areas but is also applicable to other areas. This program will provide specific standards for desired redevelopment (mix and type of uses, signage, architecture, landscaping, site design) and establish cost-sharing levels for infrastructure improvements such as deceleration lanes, traffic signals, turn lanes, medians, alleys, frontage roads, sidewalks/multi-use paths and other access management improvements that would be required for development approval. Priority redevelopment areas for Oleander Drive include the Dawson/Wooster intersection, and the areas generally located around the intersections with 42nd Street, 51st Street and Hinton Avenue. The node at Hinton Avenue should be the top priority.
- Work with NCDOT to construct a separate multi-use bicycle/pedestrian crossing at the Bradley Creek Bridge. Seek grants with NCDOT when possible.

- Secondary to the sidewalk priority areas in the Future Land Use Plan, sidewalk priority areas on Oleander Drive should focus on major commercial centers (nodes) and at bus stops. When bus service is extended east of College Road, sidewalks should be prioritized to provide access from Oleander Drive to the Cape Fear Hospital and planned nodes near Hinton Avenue and Greenville Loop Road.

Rail Realignment Plan (2017)

STUDY AREA

- CSX Rail Corridor between Navassa and the Port of Wilmington

KEY GOALS

- Replace and improve the existing freight rail route between Navassa (Davis) Yard and the Port of Wilmington by creating a new, shorter route that bypasses busy streets and densely populated areas
- Post-realignment, the city will work to repurpose the existing route for public use in order to accommodate growth in both population and commercial freight activity

PROJECT STATUS

- The realignment project has three phases: 1) a screening assessment, identifying feasible alternatives to be considered in the study, 2) alternatives analysis with identification of a preferred alternative, 3) environmental review and preliminary engineering activities pursuant to NEPA.
- As of Q4 of 2020, work had begun on the economic feasibility study, which is occurring in conjunction with the ongoing environmental and engineering studies.

Wilmington Land Development Code Update (2021)

STUDY AREA

- Wilmington

PLAN GOALS

- Improve traffic conditions
- Preserve and grow the city's tree canopy
- Better manage stormwater
- Develop a more convenient, compact, and connected future city with a smarter approach to land use

KEY UPDATES

- Eliminations of parking minimums for most non-residential uses, with exceptions.
- Incentivizes the preservation & expansion of the urban tree canopy in Wilmington.
- Encourages construction of affordable housing.
- "Urban," "semi-urban," and "suburban" designations with different parking, landscaping, and setback/building requirements.
- Corridor-specific design standards on major thoroughfares.
- Incentivizes infill development & redevelopment of vacant/decaying parcels.
- Permits the construction of "middle" housing such as townhomes & duplexes in residential areas previously limited to single-family housing.

Market Street Corridor Plan (2011)

STUDY AREA

- Corridor (Market St)

KEY STRATEGIES

CONNECTIVITY

- Strategic network of connector streets (lower design speeds and multimodal amenities)
- Encourages future development to create a closely spaced/denser street network
- Encourage Complete Streets elements

ACCESS MANAGEMENT

- Limit number of driveways where possible

LANDSCAPING

- Provisions for street trees

ROADWAY IMPROVEMENTS

- Pedestrian-level improvements at all full median opening signalized intersections and at certain mid-block areas

MULTIMODAL CONSIDERATIONS

- Integrate pedestrian and bicyclist amenities along Market Street during construction of the proposed median treatments
- Provide an alternate network of pedestrian and cyclist amenities through neighborhoods and collector streets

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