

# Cape Fear TRANSPORTATION 2040



A Metropolitan Transportation Plan

Adopted November 18, 2015



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# EXECUTIVE SUMMARY

*Cape Fear Transportation 2040* is the metropolitan transportation plan for the Wilmington Urban Area in southeastern North Carolina. It has been prepared by the Wilmington Urban Area Metropolitan Planning Organization (WMPO), which is the local organization responsible for regional transportation planning. Federal law requires the preparation of this plan, and also specifies issues which the plan must consider and address. This executive summary overviews the contents of the plan.

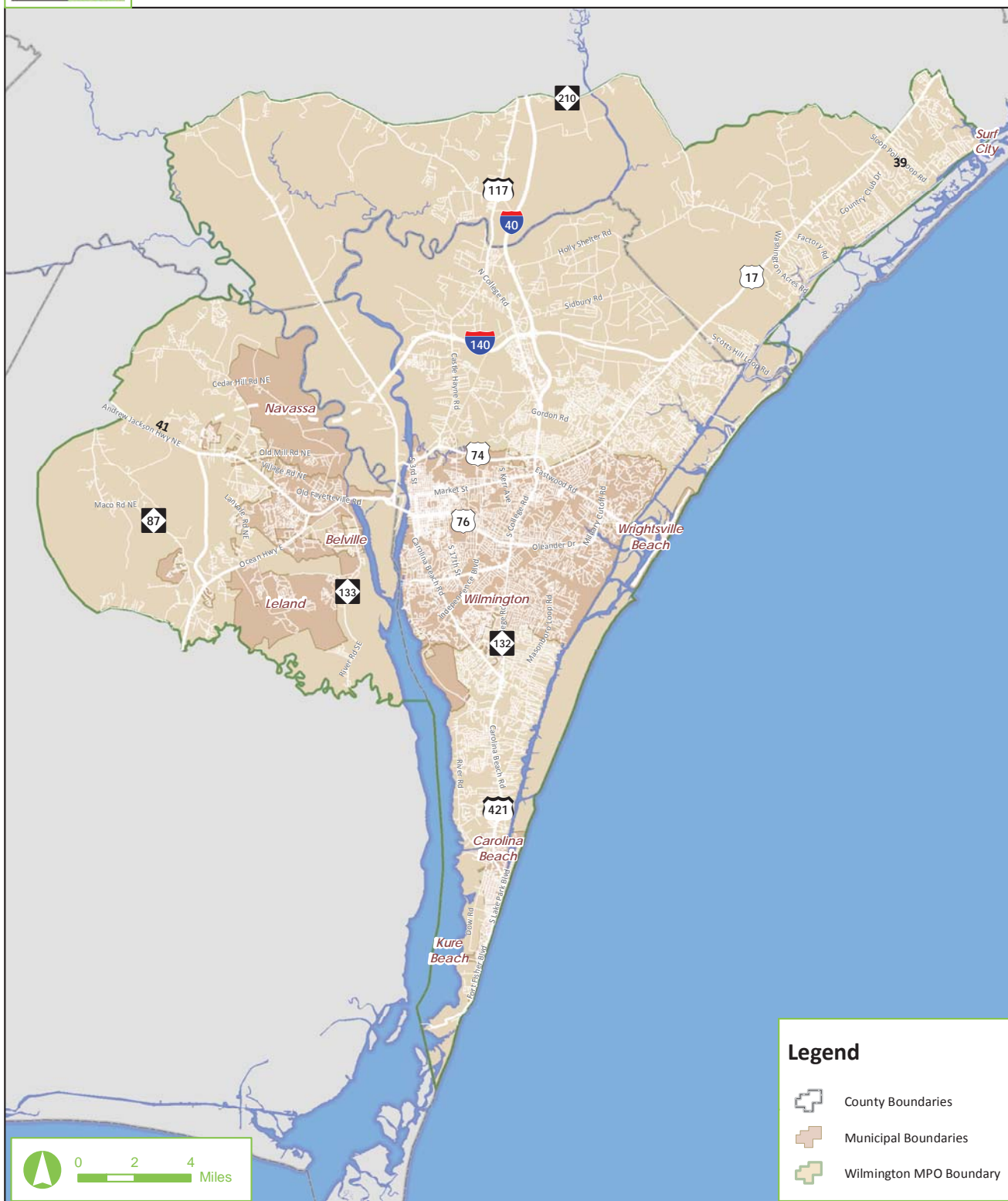


## Role of the WMPO

Federally-designated metropolitan planning organizations (MPOs) are local transportation planning agencies that are responsible for conducting regional transportation planning in a continuing, cooperative, and comprehensive manner. The WMPO is the MPO designated by the Federal Highway Administration (FHWA) for the Greater Wilmington Area to include a planning area boundary encompassing all of New Hanover County and portions of Brunswick and Pender Counties. The North Carolina Department of Transportation (NCDOT) and Cape Fear Public Transportation Authority are also part of the MPO.



## Wilmington MPO Planning Area Boundary



## Role of the MTP

The metropolitan transportation plan (MTP) is a document required by FHWA to guide regional transportation priorities and actions, and ultimately used to develop the Metropolitan Transportation Improvement Programs (MTIPs)/Statewide Transportation Improvement Programs (STIPs) which program transportation funds within MPO boundaries. MTPs have a minimum 20-year planning horizon and are intended to present a fiscally-constrained evaluation of projects and strategies that promote mobility and access for people and goods within an MPO's boundaries. MTPs must include a strong public involvement component to demonstrate that they serve the needs of the region. *Cape Fear Transportation 2040* meets or exceeds all federal requirements.

## MAP-21 and the Development of the MTP

In July 2012, passage of the Moving Ahead for Progress in the 21st Century (MAP-21) federal transportation legislation established new and revised requirements for statewide and metropolitan transportation plans and programs, as well as for the underlying transportation planning process. MAP-21 emphasizes key components to be incorporated into the metropolitan transportation plan. These include the establishment of a transparent and accountable framework for identifying capital projects and the incorporation of the eight planning factors outlined in the legislation. *Cape Fear Transportation 2040* demonstrates the application of an established methodology for the identification and prioritization of its identified projects; it incorporates a fiscally-constrained evaluation of all surface transportation modes; and it incorporates an evaluation of the eight planning factors in its analysis.

CAPE FEAR TRANSPORTATION 2040 GOALS							
		SAFE	EFFICIENT	APPROPRIATE	RESPONSIBLE	INTEGRATED	MULTI-MODAL
MAP-21 PLANNING FACTORS	Support Economic Vitality		●			●	●
	Increase Safety	●		●			●
	Increase Security	●		●			●
	Increase Accessibility						●
	Environmental Protection and Quality of Life	●	●	●	●	●	●
	Enhance System Integration and Connectivity					●	●
	Promote System Management and Operations	●	●	●		●	
	System Preservation		●	●	●		●

## Project Prioritization

Projects included in *Cape Fear Transportation 2040* have been prioritized for a limited amount of projected funding from fiscally-constrained funding sources. The WMPO used

both quantitative (objective) and qualitative (subjective) information to determine which projects represented the greatest need to match available funding sources within its boundaries. Members of the general public, elected officials, subject matter experts and planning technicians within the Greater Wilmington Area submitted project proposals for 6 modes of transportation – Aviation, Bicycle and Pedestrian, Ferry and Water Transportation, Freight and Rail, Mass Transportation, and Roadways.

All projects were evaluated using goals and objects identified for each mode of transportation. A ranked list of project needs was then used as the basis for the fiscal constraint analysis determining which projects could receive a portion of the anticipated funding in this region between 2015 and 2040.

The ranked list was then evaluated and revised by three WMPO committees: the Citizens Advisory Committee (CAC), the Technical Coordinating Committee (TCC), and the Transportation Advisory Committee (TAC). Potential alternative funding sources were also identified by these boards and used to supplement the projected amount of funding available for future projects in the plan.

## Aviation

Aviation transportation in the Wilmington area is largely dependent on the Wilmington International Airport (ILM) as the region's largest public aviation transportation facility; connecting residents, businesses, and tourists to the area. As such, the majority of planned aviation projects are coordinated and funded through financial structures managed by ILM. Working in close concert, the WMPO coordinates NCDOT's funding matches through the regional project prioritizations process based on the direction of the Transportation Advisory Committee. Larger scale, regional planning coordinated by the WMPO is also necessary to ensure multi-modal integration is addressed. Ensuring connections from ILM with freight/rail, mass transportation, and the roadway network is vital to both the commercial cargo operations and passenger enplanements at ILM.

## Fiscally-Constrained Aviation Project List

FISCALLY-CONSTRAINED AVIATION PROJECT LIST		
ID	PROJECT	CONSTRUCTION YEAR COST ESTIMATE
A-1	GA Apron Development, Phase II	\$1,497,146
A-2	Pipe Ditch in FBO #2 Area Direct to EDDB and Rehab GA Apron Ramp North (Survey, Testing, Design, Bidding and Permitting)	\$393,694
A-3	Airfield Lighting Replacement (LED)/Vault Upgrade	\$2,661,592
A-4	Extend Runway 24 - Phase I of IV	\$6,523,866
A-5	Airport Layout Plan	\$942,647
A-6	Terminal Improvements Phase I (Design)	\$942,647
A-7	Terminal Improvements Phase I (Construction)	\$11,089,968
A-8	Terminal Improvements Phase II (Design and Construction)	\$12,198,965
A-9	Rehab GA Apron Ramp North; Pipe Ditch in FBO #2 Area; Direct to EDDB (Construction)	\$5,544,984

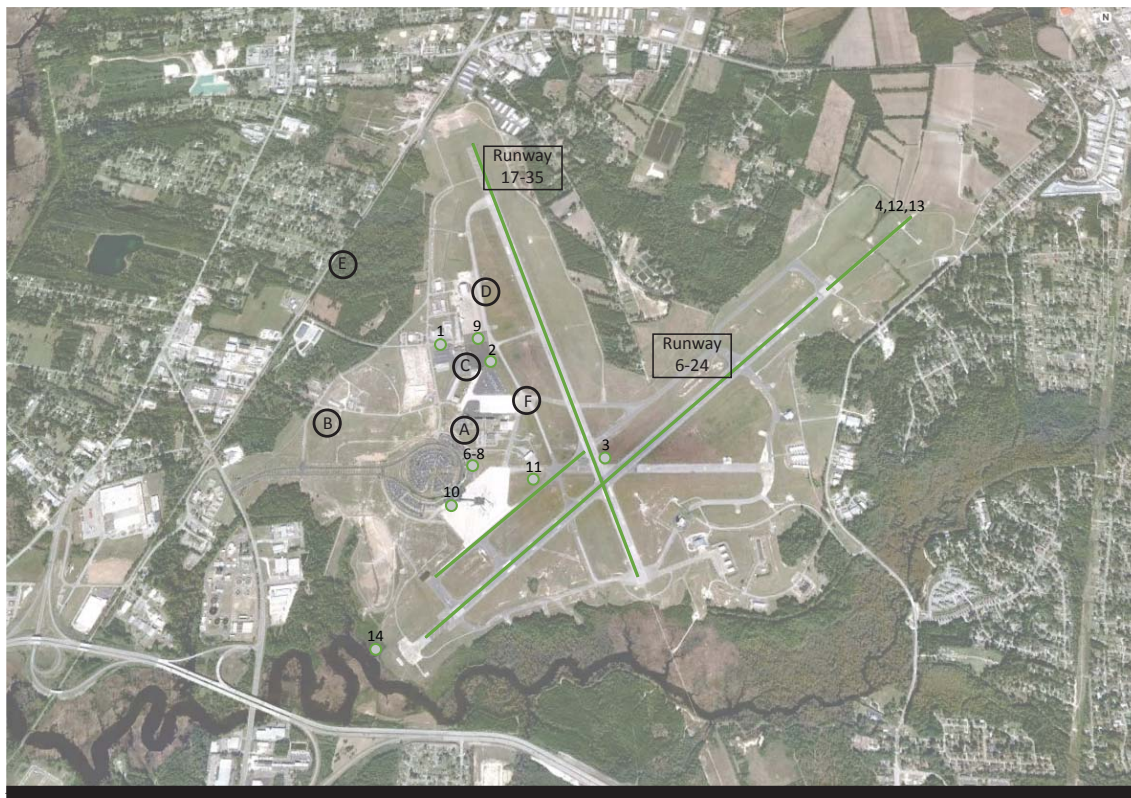


FISCALLY-CONSTRAINED AVIATION PROJECT LIST		
ID	PROJECT	CONSTRUCTION YEAR COST ESTIMATE
A-10	Outbound Bag Room Retrofit	\$332,699
A-11	Taxiway A and H Widening and Paved Shoulders	\$6,543,081
A-12	BCA/EA for Runway 24 Extension	\$332,699
A-13	Extend Runway 24 - Phase II of IV	\$6,523,866
A-14	Design and Construction of Boat Launch for Water Access	\$55,450
A-15	Map on Airport Utilities	\$5,545



## Aviation Projects with Anticipated Funding

*NOTE: Projects displayed for general location purposes only and not intended to show exact alignment. Projects still subject to federal environmental review (NEPA) process before construction.*



### Legend

Aviation Project Identification Number (A-#)

- Aviation Project
- Aviation Runway Project

Existing Aviation Facilities

- A Passenger Terminal
- B VA and Business Park Area
- C FBOs
- D Customs Facility
- E Rental Car Facility
- F Rescue Base/ARFF HQ

## Bicycle and Pedestrian

The WMPO recognizes the importance of biking and walking a part of the regional transportation system, and emphasizes its interest in creating a multi modal transportation system throughout the MTP. In addition several municipalities within the WMPO planning area maintain their own bicycle and pedestrian plans.

Two prominent factors were continuously discussed during the Bicycle and Pedestrian Subcommittee meetings: regional connectivity and overcoming existing barriers to bicycle and pedestrian activity. While developing an inventory of bicycle and pedestrian facility needs in the region, the subcommittee discussed a variety of barriers to bicycle and pedestrian transportation. These barriers vary from large bodies of water to invisible jurisdictional boundaries to roadways with high speeds and high traffic volumes. Prominent in the discussion of overcoming bicycle and pedestrian barriers in the region were discussions about opportunities to connect across bodies of water such as the Cape Fear River and the Atlantic Intracoastal Waterway. Although the region has shown many successes in bicycle and pedestrian facilities in the recent years, there are still gaps in the existing bicycle and pedestrian system, and an abundance of opportunity for new facilities. Survey results and trends show an increase in demand for new bicycle and pedestrian facilities. Other modes of transportation also place demand for additional bicycle and pedestrian facilities. For example, most people who use mass transportation either walk or bike to their bus stops. Thus, a robust bicycle and pedestrian network is essential for the health of a mass transportation system. Bicycle and pedestrian facilities are important not only in and of themselves, but they support the health and operations of other transportation modes. Thus the expansion of our bicycle and pedestrian networks is critical for the success of our overall transportation network.

## Fiscally-Constrained Bicycle and Pedestrian Project List

FISCALLY-CONSTRAINED BICYCLE AND PEDESTRIAN PROJECT LIST				
ID	PROJECT	FROM	TO	CONSTRUCTION YEAR COST ESTIMATE
BP-1	S. 17th Street	Hospital Plaza	INDEPENDENCE BLVD	\$1,153,357
BP-2	Peachtree Ave	Park Ave	MacMillan Ave	\$272,698
BP-3	N. College Rd.	New Town Rd	Danny Pence Dr	\$223,863
BP-4	Wooster St.	S. 8th Street	Oleander Dr	\$198,146
BP-5	WILSHIRE BLV	WRIGHTSVILLE AVE	KERR AVE	\$2,137,450
BP-6	COLLEGE RD & WILSHIRE BLVD	N/A	N/A	\$83,175
BP-7	5TH AVE	ANN ST	GREENFIELD LAKE PARK	\$2,240,065
BP-8	COLLEGE RD	HURST DR	RANDALL PKWY	\$1,336,956
BP-9	5TH AVE	RAIL LINE NORHT OF CAMBELL ST	ANN ST	\$1,018,329
BP-10	WILSHIRE BLV	KERR AVE	MACMILLAN AVE	\$430,074
BP-11	OLEANDER DR & PINE GROVE DR	N/A	N/A	\$83,175

FISCALLY-CONSTRAINED BICYCLE AND PEDESTRIAN PROJECT LIST				
ID	PROJECT	FROM	TO	CONSTRUCTION YEAR COST ESTIMATE
BP-12	COLLEGE RD	WRIGHTSVILLE AVE	WILSHIRE BLVD	\$689,727
BP-13	COLLEGE RD & OLEANDER DR	N/A	N/A	\$83,175
BP-14	23RD ST	ONE TREE HILL WAY	PRINCESS PLACE DR	\$1,966,542
BP-15	N COLLEGE RD	NE NORTHCHASE PKWY	NEW VILLAGE WAY	\$1,878,598
BP-16	NEW CENTRE DR	MARKET ST	COLLEGE RD	\$1,195,422
BP-17	MARKET ST & GORDON RD	N/A	N/A	\$83,175
BP-18	CAROLINA BEACH RD & FRONT ST/ BURNETT BLV	N/A	N/A	\$83,175
BP-19	INDEPENDENCE BLVD EXTENSION	RANDALL PKWY	SOUTH OF MLK PKWY	\$4,361,533
BP-20	HARPER AVE	DOW RD	S 3RD ST	\$2,246,333
BP-21	COLLEGE RD	RANDALL PKWY	NEW CENTRE DR	\$1,230,756
BP-22	MILITARY CUTOFF RD & EASTWOOD RD	N/A	N/A	\$83,175
BP-23	DOW RD	CLARENDON AVE	LAKE PARK BLVD	\$2,307,679
BP-24	HOSPITAL PLAZA DR PATH	LAKESHORE DRIVE	S 17TH ST	\$543,289
BP-25	NEW CENTRE DR	COLLEGE RD	PROPOSED TRAIL TO CLEAR RUN DR	\$1,063,130
BP-26	SHIPYARD BLVD	RIVER RD	CAROLINA BEACH RD	\$2,102,080
BP-27	N COLLEGE RD	NEW VILLAGE WAY	BAVARIAN LN	\$1,360,529
BP-28	COLLEGE RD & NEW CENTRE DR	N/A	N/A	\$83,175
BP-29	Medical Center Dr	CAROLINA BEACH RD	S 17TH ST	\$2,519,043
BP-30	RACINE DR	RANDALL DR	EASTWOOD RD	\$2,210,251
BP-31	SHIPYARD BLVD	INDEPENDENCE BLVD	LONGSTREET DR	\$486,828
BP-32	SHIPYARD BLVD & INDEPENDENCE BLVD	N/A	N/A	\$83,175
BP-33	SHIPYARD BLVD	S 17TH ST	INDEPENDENCE BLVD	\$2,050,650
BP-34	Cape Fear Boulevard	Dow Road	Lake Park Boulevard	\$2,516,182
BP-35	EASTWOOD RD & WRIGHTSVILLE AVE	N/A	N/A	\$97,858
BP-36	SHIPYARD BLVD	CAROLINA BEACH RD	S 17TH ST	\$2,898,275
BP-37	Village Rd NE A	WAYNE ST	LOSSEN LN	\$3,680,881
BP-38	BURNT MILL CREEK PATH	METTS AVE	MARKET ST	\$678,489
BP-39	EASTWOOD RD & CARDINAL DR	N/A	N/A	\$97,858
BP-40	S 17TH ST	INDEPENDENCE BLVD	SHIPYARD BLVD	\$1,822,663
BP-41	BURNT MILL CREEK PATH	COLONIAL DR	METTS AVE	\$1,140,677

FISCALLY-CONSTRAINED BICYCLE AND PEDESTRIAN PROJECT LIST				
ID	PROJECT	FROM	TO	CONSTRUCTION YEAR COST ESTIMATE
BP-42	COLLEGE RD	BLUE CLAY RD	NORTHCHASE PKWY	\$1,832,135
BP-43	INDEPENDENCE BLVD	RIVER RD	CAROLINA BEACH RD	\$4,342,456
BP-44	INDEPENDENCE BLVD	CAROLINA BEACH RD	S 17TH ST	\$2,660,884
BP-45	WRIGHTSVILLE AVE & AIRLIE RD/OLEANDER DR	N/A	N/A	\$97,858
BP-46	EASTWOOD RD	CARDINAL DR	RACINE DR	\$1,061,222
BP-47	US 17 & OLDE WATERFORD WY/ PLOOF RD SE	N/A	N/A	\$131,513
BP-48	US 17 Frontage Path	PLOOF RD	OCEAN GATE PLAZA	\$816,352
BP-49	BURNT MILL CREEK PATH	MARKET ST	ARCHIE BLUE PARK	\$5,890,806
BP-50	17TH ST & SHIPYARD BLVD	N/A	N/A	\$131,513
BP-51	FORT FISHER BLV	E AVE	N AVE/SEVENTH AVE	\$2,132,730
BP-52	OLEANDER DR & GREENVILLE LP RD/ GREENVILLE AVE	N/A	N/A	\$131,513
BP-53	W Gate Park Connector	WEST GATE DR	END	\$2,554,395
BP-54	K AVE & 421	N/A	N/A	\$131,513
BP-55	VILLAGE RD	WAYNE ST NE	OAKMONT CT NE	\$1,050,755
BP-56	Old Fayetteville Rd NE	LANVALE RD	PICKETT RD	\$3,888,048
BP-57	PINE GROVE RD & GREENVILLE LP RD	N/A	N/A	\$131,513
BP-58	Village Rd Connector	LELAND SHOOL RD	LINCOLN RD NE	\$607,250
BP-59	US 17 & W GATE DR/ GRANDIFLORA DR	N/A	N/A	\$152,460
BP-60	SEVENTH AVE & K AVE	N/A	N/A	\$152,460
BP-61	US 17 & PROVISION PKWY	N/A	N/A	\$152,460
BP-62	MARKET ST & MIDDLE SOUND LOOP RD	N/A	N/A	\$152,460
BP-63	Bridge Barrier Rd	GREENWAY PLAN PATH	OLD DOW RD	\$43,364
BP-64	GREENVILLE AVE	OLEANDER DR	PARK AVE	\$393,276
BP-65	US 17/MARKET ST & PORTERS NECK RD	N/A	N/A	\$131,513
BP-66	N AVE & FORT FISHER BLVD	N/A	N/A	\$131,513
BP-67	N AVE	FORT FISHER BLVD	ATLANTIC AVE	\$68,031

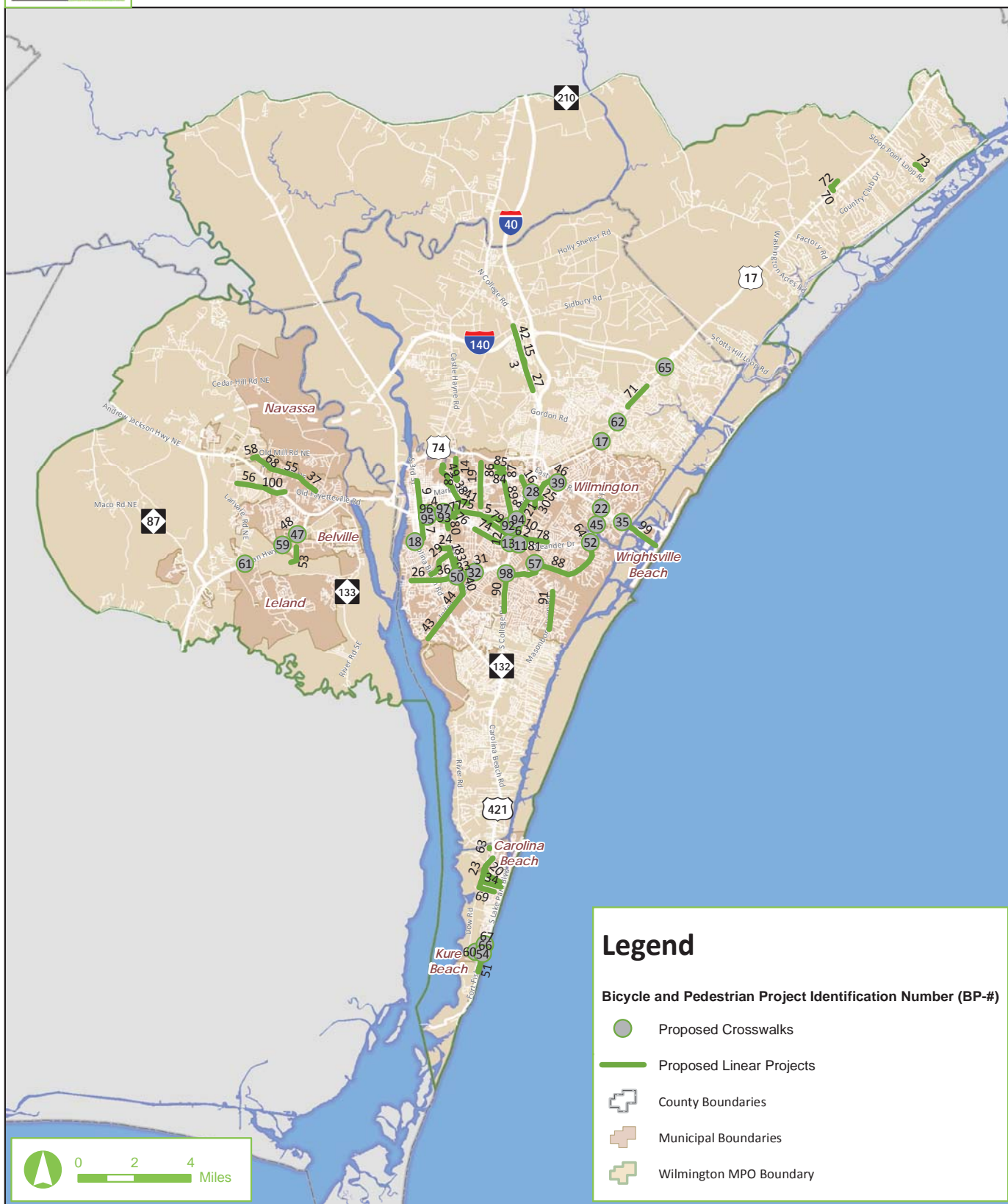


FISCALLY-CONSTRAINED BICYCLE AND PEDESTRIAN PROJECT LIST				
ID	PROJECT	FROM	TO	CONSTRUCTION YEAR COST ESTIMATE
BP-68	VILLAGE RD NE	WAYNE RD	OLD MILL RD	\$1,813,447
BP-69	Clarendon Ave	Dow Rd.	Lake	\$1,847,792
BP-70	JENKINS RD	US17	ST JOHNS CHURCH RD	\$345,352
BP-71	MARKET ST	Bayshore Dr	Marsh Oaks Dr.	\$4,146,552
BP-72	ST JOHNS CHURCH RD	Jenkins	End	\$750,600
BP-73	MASTER LN	Doral Dr	Sloop Point Loop Rd.	\$715,432
BP-74	Oleander Drive	Hawthorne Road	42nd Street	\$704,579
BP-75	Wrightsville Ave	Castle Street	Independence Blvd	\$193,805
BP-76	Oleander Drive	Wooster Street	Mimosa Place	\$248,481
BP-77	Dawson Street	Wrightsville Ave	Oleander Drive	\$47,033
BP-78	Wrightsville Ave	College Rd.	Hawthorne Dr	\$1,263,801
BP-79	Wrightsville Ave	44th Street	Independence Blvd	\$1,097,483
BP-80	17th Street	Wooster St	Greenfield St	\$261,494
BP-81	Oleander Drive	Pine Grove Drive	College Road	\$197,164
BP-82	N. 23rd St	Princess Place Dr	Belvedere Dr	\$54,273
BP-83	Delaney Ave	Wellington Ave	Glen Mead Rd	\$192,775
BP-84	McClelland Drive	Saint Rosea Rd	Kerr Ave	\$653,784
BP-85	Fairlawn Drive	Barclay Hills Drive	Kerr Ave	\$934,306
BP-86	Clover Rd	Fairlawn Drive	McClelland Drive	\$455,517
BP-87	Gleason Rd	Fairlawn Drive	McClelland Drive	\$498,195
BP-88	Greenville Loop Trail	College Rd.	Oleander Drive	\$7,605,563
BP-89	Kerr Ave Trail	Randall Parkway	College Road	\$1,006,347
BP-90	Central College Trail	Holly Tree Rd.	S. 17th Street	\$1,633,850
BP-91	Masonboro Loop Trail	Pine Grove Drive	Navaho Trail	\$3,307,186
BP-92	Kerr Ave & Wilshire Blvd	N/A	N/A	\$38,815
BP-93	16th St. & Dawson St.	N/A	N/A	\$83,175
BP-94	College & Hurst/Hoggard	N/A	N/A	\$38,815
BP-95	8th St. & Dawson St.	N/A	N/A	\$55,450
BP-96	8th St. & Wooster St.	N/A	N/A	\$55,450
BP-97	17th St. & Dawson St.	N/A	N/A	\$83,175
BP-98	Holly Tree Rd. & S. College Rd.	N/A	N/A	\$138,625
BP-99*	CAUSEWAY DR	AIRLIE RD	WAYNICK BLVD	\$18,910,848
BP-100*	Old Fayetteville Rd B	PICKETT RD	BASIN ST	\$6,276,778
* Projects anticipated to receive funding from alternative funding mechanisms				



## Bicycle and Pedestrian Projects

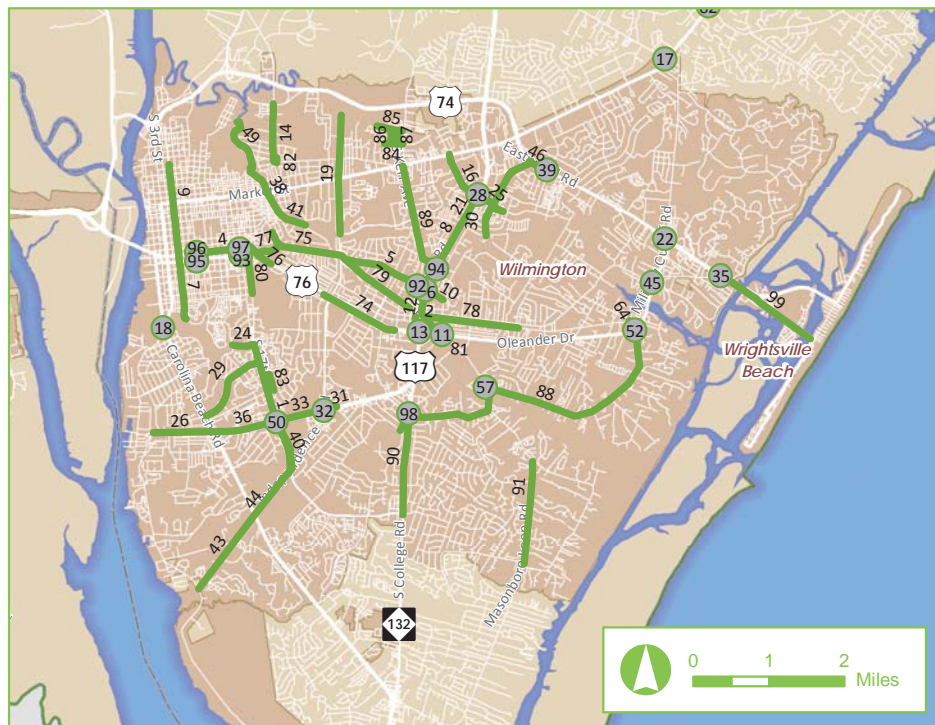
NOTE: Projects displayed for general location purposes only and not intended to show exact alignment.  
Projects still subject to federal environmental review (NEPA) process before construction





## Bicycle and Pedestrian Projects

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### Wilmington

#### Bike/Ped Project ID# (BP-#)

- Proposed Crosswalks
- Proposed Linear Projects
- County Boundaries
- Municipal Boundaries
- Wilmington MPO Boundary



### Leland, Belville, & Navassa

#### Bike/Ped Project ID (BP-#)

- Proposed Crosswalks
- Proposed Linear Projects
- County Boundaries
- Municipal Boundaries
- Wilmington MPO Boundary



## Ferry and Water Transportation

Capital improvements to the ferry and water transportation network in the Greater Wilmington Area are largely dependent on the availability of funds from the state. As such, the majority of ferry and water transportation projects included in this element are coordinated and funded through financial structures managed by NCDOT with input from the Wilmington MPO. Larger scale, regional planning coordinated by the WMPO is also necessary to ensure multi-modal integration is addressed. Further expansion of the existing ferry routes will require the development of strategic public investments or private partnerships in order to connect residents, businesses, and tourists within and to the region. Furthermore, future years may see an increasing use for the ferry and water transportation system to provide support to regional emergency management operations. The potential use of water vessels and temporary barges at strategic locations should be explored for use in emergency management and natural disaster planning and preparation.



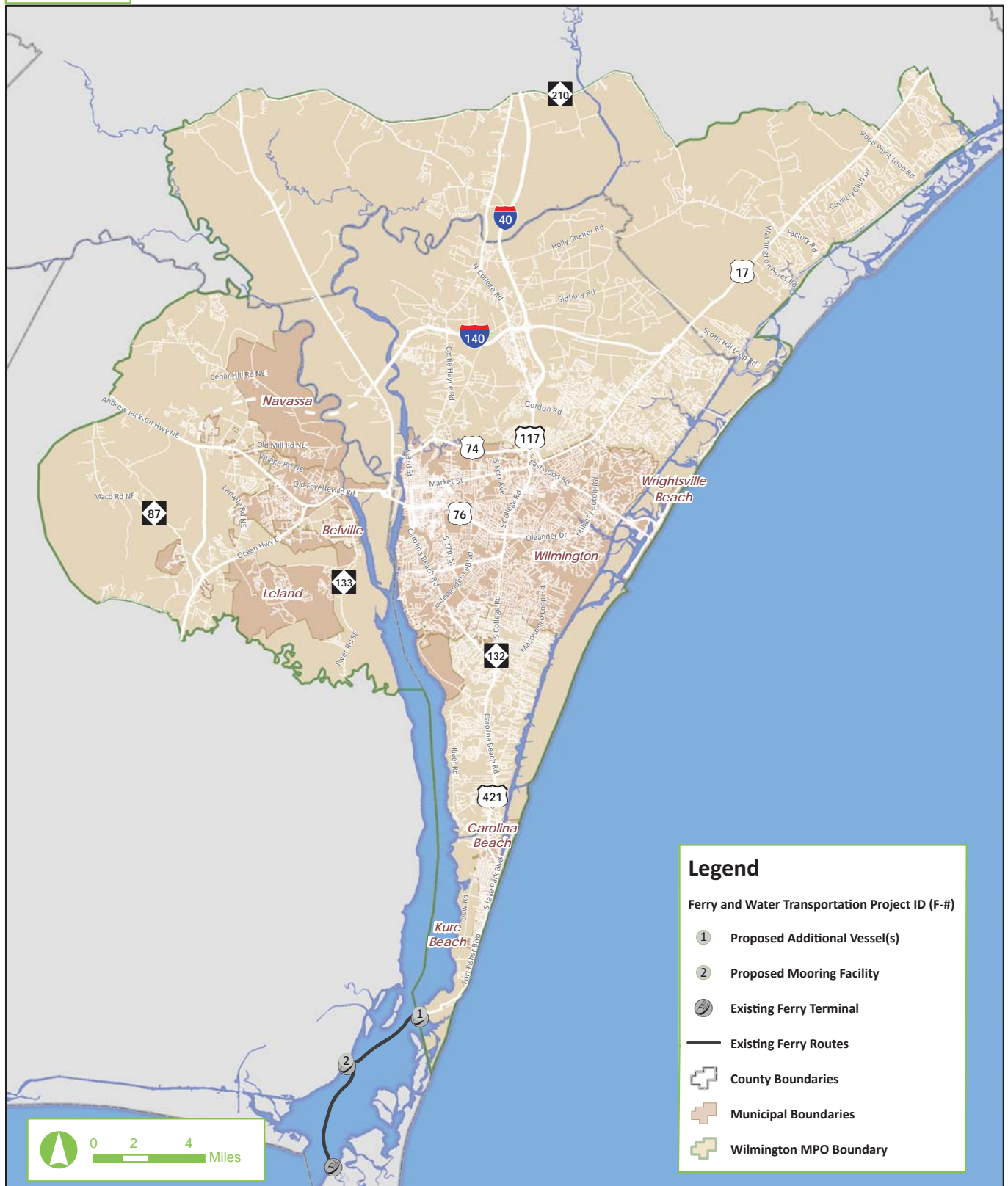
## Fiscally-Constrained Ferry and Water Transportation Project List

FISCALLY-CONSTRAINED FERRY AND WATER TRANSPORTATION PROJECT LIST				
ID	PROJECT	FROM	TO	CONSTRUCTION YEAR COST ESTIMATE
F-1	New river class vessel (Southport to Ft. Fisher)	Southport	Ft. Fisher	\$13,307,961
F-2	Southport Additional Mooring Facilities	US421	US74/76 Andrew Jackson Highway	\$1,663,495



## Ferry and Water Transportation Projects with Anticipated Funding

NOTE: Projects displayed for general location purposes only and not intended to show exact alignment.  
Projects still subject to federal environmental review (NEPA) process before construction.



## Freight/Rail

Freight movement is a critical element of an advanced industrial economy and the ease of freight movement is one component of a region's economic competitiveness for attracting and retaining various types of industry and employment centers. Freight movement can also have an impact on a region's quality of life, particularly with the need to ensure heavy truck/rail traffic has suitable routes to/from the national highway, regional rail nodes, and ports remains in balance with the needs of non-industrial components of the community. This freight/rail element outlines proposals for policies and projects that will capitalize on economic development opportunities for the WMPO and those that will mitigate potential conflicts and externalities from freight movements on the larger community and transportation network.



## Fiscally-Constrained Freight/Rail Project List

FISCALLY-CONSTRAINED FREIGHT/RAIL PROJECT LIST			
ID	PROJECT TYPE	PROJECT	CONSTRUCTION YEAR COST ESTIMATE
FR-1	Truck/Roadway	Shipyards Boulevard eb bus pullout, bus stop, and sidewalk	\$135,000
FR-2	Truck/Roadway	Front Street widening and redesign	\$17,450,892
FR-3	Rail	Front Street lead railroad signalization and gates	\$998,097
FR-4	Rail	Study at-grade rail crossing conflicts on WTRY and spur lines near Port of Wilmington (multiple locations)	\$391,432
FR-5	Rail	US421 Railroad crossing safety improvements south of I-140/Dan Cameron Bridge	\$521,909
FR-6	Rail	US421 Railroad extension from Invista to Pender Commerce Park	\$5,694,698
FR-7	Rail	At-grade rail crossing conflicts on NCDOT & CSX lines (multiple locations)	\$10,890,646
FR-8	Truck/Roadway	Burnett Boulevard widening to allow for queuing at north gate of NC Port of Wilmington from Carolina Beach Road to Myers Street	\$2,628,506
FR-9	Truck/Roadway	Front Street & Burnett Boulevard turn lanes improving sb and nb truck access	\$408,567
FR-10	Truck/Roadway	"Carolina Beach Road and Shipyards Boulevard wb right turn improvements"	\$1,315,130
FR-11	Truck/Roadway	Shipyards Boulevard eb at Carolina Beach Road nb left turn additional queuing	\$306,864
FR-12	Truck/Roadway	Shipyards Boulevard median closure at Rutledge Drive	\$43,838
FR-13	Truck/Roadway	Shipyards Boulevard speed sensors and warning activation at NC Port of Wilmington	\$175,351
FR-14	Truck/Roadway	Cape Fear Crossing - Funded Portion	\$158,021,483
* Projects anticipated to receive funding from alternative funding mechanisms			



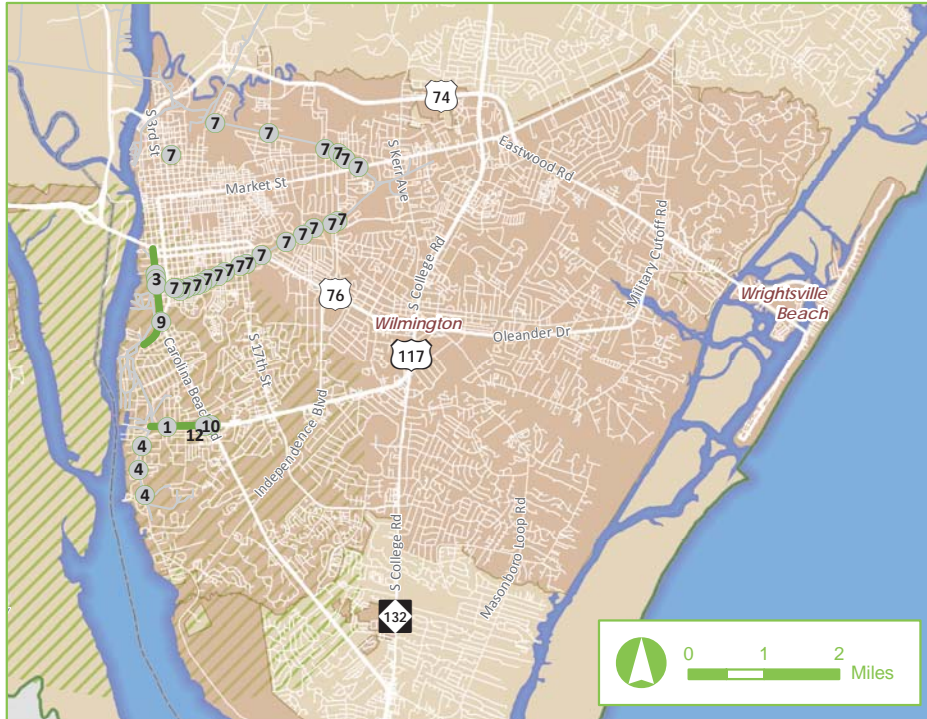
**Legend**

- Freight/Rail Project Identification Number (FR-#)
- Proposed Freight/Rail Intersection Project
- Proposed Freight/Rail Project
- FR-14 Cape Fear Crossing Study Area (Partial Anticipated Funding)
- Railroads
- County Boundaries
- Municipal Boundaries
- Wilmington MPO Boundary



## Freight/Rail Projects with Anticipated Funding

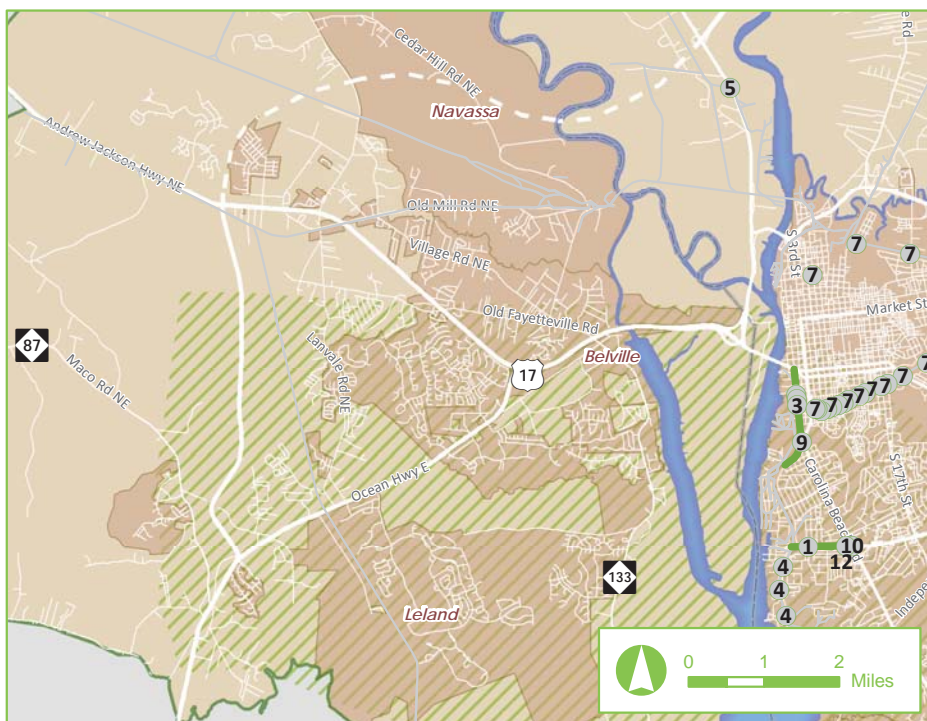
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### Wilmington

Freight/Rail Project Identification Number (FR-#)

- Proposed Freight/Rail Intersection
- Proposed Freight/Rail Project
- FR-14 Cape Fear Crossing Study Area (Partial Anticipated Funding)
- Railroads
- County Boundaries
- Municipal Boundaries
- Wilmington MPO Boundary



### Leland, Belville, & Navassa

Freight/Rail Project Identification Number (FR-#)

- Proposed Freight/Rail Intersection
- Proposed Freight/Rail Project
- FR-14 Cape Fear Crossing Study Area (Partial Anticipated Funding)
- Railroads
- County Boundaries
- Municipal Boundaries
- Wilmington MPO Boundary



## Mass Transportation

The mass transportation element outlines projects and policies that would result in increased ridership and improved service to both transit-dependent populations and choice ridership populations. This element includes a heavy emphasis on increasing the comfort and safety of riders in accessing public transportation. Most mass transportation users are also pedestrians at some point in their travels; therefore enhancements to the pedestrian network are critical to improving the experience of mass transportation users and critical to the enticement of new riders.

By increasingly serving choice riders and a larger segment of the population, mass transportation will see broader community support. When broadly utilized, mass transportation is one of the most efficient modes of transportation and can be one of the most cost-effective infrastructure investments a community can make. In the Greater Wilmington area, mass transportation is most heavily utilized by transit-dependent riders. However, there is great opportunity to expand ridership and increase the attractiveness of mass transportation to choice rider populations. The benefits of increasing mass transportation ridership extend beyond the financial return to local public transportation providers. Benefits of increased mass transportation ridership include mitigating increases in community congestion and environmental degradation. Increased mass transportation ridership captures a percentage of the trips that would have otherwise been made by single-occupant vehicles. By mitigating congestion, improved mass transportation service can also reduce the need to increase capacity on the roadway network.

### Fiscally Constrained Mass Transportation Project List

FISCALLY-CONSTRAINED MASS TRANSPORTATION PROJECT LIST			
ID	PROJECT TYPE	PROJECT	CONSTRUCTION YEAR COST ESTIMATE
MT-1	PARK & RIDE	US17 at Brunswick Forest	\$3,000
MT-2	PARK & RIDE	Mt. Misery at US74/76	\$3,000
MT-3	PARK & RIDE	Leland Town Hall	\$3,000
MT-4	AMENITY	Town Hall Drive (Leland)	\$15,000
MT-5	ADDITIONAL SERVICE	Airport Boulevard service to ILM	0
MT-6	STOP ACCESS	Oleander Drive & Independence Boulevard	\$83,175
MT-7	AMENITY	Oleander Drive at Whole Foods	\$16,635
MT-8	EXPRESS ROUTE	Downtown Wilmington to Forden Station	\$510,139
MT-9	EXPRESS ROUTE	Downtown Wilmington to Mayfaire	\$510,139
MT-10	PARK & RIDE	Mayfaire Shopping Center	\$3,327
MT-11	AMENITY	Lake Avenue at South College Road	\$16,635
MT-12	STOP ACCESS	College Road & Sanders Road	\$83,175
MT-13	PARK & RIDE	"Carolina Beach Road at S College Road (Monkey Junction)"	\$16,635
MT-14	AMENITY	S College Road at Randall Parkway	\$16,635
MT-15	AMENITY	S 17th St at Glen Meade Road	\$16,635

FISCALLY-CONSTRAINED MASS TRANSPORTATION PROJECT LIST			
ID	PROJECT TYPE	PROJECT	CONSTRUCTION YEAR COST ESTIMATE
MT-16	AMENITY	N College Road at Danny Pence Drive	\$16,635
MT-17	AMENITY	Carolina Beach Road at Harris Teeter	\$16,635
MT-18	AMENITY	US17 at NC210	\$16,635
MT-19	ADDITIONAL SERVICE	Market Street from College Road to Porter's Neck Walmart	\$510,139
MT-20	AMENITY	S College Road at University Drive	\$16,635
MT-21	AMENITY	17th Street at Food Lion Plaza	\$16,635
MT-22	AMENITY	17th Street at Doctors Circle	\$16,635
MT-23	STOP ACCESS	Shipyards Boulevard & 17th Street	\$83,175
MT-24	STOP ACCESS	17th Street at Hospital Plaza Drive	\$83,175
MT-25	STOP ACCESS	College Road at Hurst Drive	\$83,175
MT-26	STOP ACCESS	College Road at New Center Drive	\$83,175
MT-27	STOP ACCESS	College Road at University Drive	\$83,175
MT-28	AMENITY	Independence Boulevard at Canterbury Drive	\$16,635
MT-29	AMENITY	Market Street at Kerr Avenue	\$16,635
MT-30	AMENITY	Market Street at Covil Avenue	\$16,635
MT-31	AMENITY	Independence Boulevard at Independence Mall (northbound)	\$16,635
MT-32	AMENITY	Independence Boulevard at Park Avenue	\$16,635
MT-33	AMENITY	Independence Boulevard at Independence Mall (southbound)	\$16,635
MT-34	STOP ACCESS	Market Street at Cinema Drive	\$83,175
MT-35	STOP ACCESS	"Carolina Beach Road at Antoinette Drive (Monkey Junction)"	\$83,175
MT-36	PARK & RIDE	Carolina Beach Road at Snow's Cut Bridge	\$3,327
MT-37	PARK & RIDE	I-40 at Cape Fear Community College North Campus	\$3,327
MT-38	PARK & RIDE	Market Street at Middle Sound Loop Road	\$3,327
MT-39	PARK & RIDE	US17 at NC210	\$3,327
MT-40	PARK & RIDE	Barclay West	\$3,327
MT-41	PARK & RIDE	Fairfield Park	\$3,327
MT-42	AMENITY	College Road at University Drive	\$16,635
MT-43	AMENITY	17th Street at Hospital Plaza Drive	\$16,635
MT-44	AMENITY	Gordon Road at Food Lion Plaza	\$16,635
MT-45	AMENITY	Shipyards Boulevard at Commons Drive	\$16,635
MT-46	AMENITY	Monkey Junction Transfer Station	\$16,635
MT-47	AMENITY	N Lake Park Boulevard at Town Hall	\$16,635
MT-48	AMENITY	Shipyards Boulevard at 41st Street	\$16,635
MT-49	AMENITY	41st Street at Hoggard High School	\$16,635
MT-50	STOP ACCESS	Shipyards Boulevard at 41st Street	\$83,175
MT-51	PARK & RIDE	Market Street at Porters Neck Road	\$3,327
MT-52	AMENITY	Carolina Beach Road at Medical Center Drive	\$16,635
MT-53	AMENITY	Carolina Beach Road at Roses	\$16,635
MT-54	STOP ACCESS	Market Street & Lullwater Drive	\$83,175
MT-55	AMENITY	Nixon Street at 8th Street	\$16,635
MT-56	AMENITY	Downtown Transfer Station	\$16,635
MT-57	AMENITY	College Road at Wilshire Boulevard	\$19,572

FISCALLY-CONSTRAINED MASS TRANSPORTATION PROJECT LIST			
ID	PROJECT TYPE	PROJECT	CONSTRUCTION YEAR COST ESTIMATE
MT-58	AMENITY	Eastwood Road at Rogersville Road	\$19,572
MT-59	AMENITY	Carolina Beach Road at Independence Boulevard	\$19,572
MT-60	AMENITY	Carolina Beach Road at Tennessee Avenue	\$19,572
MT-61	AMENITY	West Gate Drive at Walmart	\$19,572
MT-62	AMENITY	Halyburton Memorial Parkway at Ballfields	\$19,572
MT-63	AMENITY	Independence Boulevard at Converse Drive	\$19,572
MT-64	AMENITY	Princess Place Drive at N 25th Street	\$19,572
MT-65	AMENITY	Carolina Beach Road at Southern Boulevard	\$19,572
MT-66	AMENITY	Market Street at Lullwater Drive	\$19,572
MT-67	AMENITY	Oleander Drive at Hawthorne Drive	\$19,572
MT-68	AMENITY	College Road at Kmart	\$19,572
MT-69	AMENITY	Randall Parkway at Brailsford Drive	\$19,572
MT-70	AMENITY	Military Cutoff Road at Old Macumber Station Road	\$19,572
MT-71	AMENITY	Carolina Beach Road at Silva Terra Drive	\$19,572
MT-72	AMENITY	17th Street at John D Barry Drive	\$19,572
MT-73	AMENITY	Village Road at Food Lion	\$19,572
MT-74	AMENITY	Front Street at Harnett Street	\$19,572
MT-75	PARK & RIDE	US17 at Sidbury Road	\$3,914
MT-76	AMENITY	Market Street at 16th Street	\$19,572
MT-77	AMENITY	Sigmon Road at Walmart	\$19,572
MT-78	AMENITY	Oleander Drive at Giles Avenue	\$19,572
MT-79	AMENITY	Wrightsville Avenue at Jones Road	\$19,572
MT-80	AMENITY	Wilshire Boulevard at Berkshires at Pecan Cove	\$19,572
MT-81	AMENITY	Wilshire Boulevard at Kerr Avenue	\$19,572
MT-82	AMENITY	Mt. Misery Road at Food Lion	\$19,572
MT-83	AMENITY	Village Road at S Navassa Road	\$19,572
MT-84	AMENITY	Carl Winner Avenue at Carolina Beach Avenue	\$19,572
MT-85	AMENITY	10th Street at Meares Street	\$19,572
MT-86	AMENITY	Greenfield Street at 13th Street	\$19,572
MT-87	AMENITY	Wrightsville Avenue at Cape Fear Memorial Hospital	\$19,572
MT-88	AMENITY	Front Street at Ann Street	\$19,572
MT-89	PARK & RIDE	I-40 at Holly Shelter Road	\$3,914
MT-90	PARK & RIDE	Forden Station	\$3,914
MT-91	PARK & RIDE	Downtown Transfer Station	\$3,914
MT-92	AMENITY	New Hanover County Government Center Drive	\$19,572
MT-93	AMENITY	New Center Drive at Bob King Buick	\$19,572
MT-94	AMENITY	17th Street at Little John Circle	\$19,572
MT-95	AMENITY	Cypress Grove Drive at Doctors Circle	\$19,572
MT-96	AMENITY	Medical Center Drive at Delaney Radiologists	\$19,572
MT-97	AMENITY	Wellington Avenue at Silver Stream Lane	\$19,572
MT-98	AMENITY	Wellington Avenue at Troy Drive	\$19,572
MT-99	AMENITY	Wellington Avenue at Flint Drive	\$19,572
MT-100	AMENITY	Wellington Avenue at 17th Street	\$19,572

FISCALLY-CONSTRAINED MASS TRANSPORTATION PROJECT LIST			
ID	PROJECT TYPE	PROJECT	CONSTRUCTION YEAR COST ESTIMATE
MT-101	AMENITY	Main Street at Church Street (Navassa)	\$19,572
MT-102	AMENITY	4th Street at ABC Alley	\$19,572
MT-103	AMENITY	Front Street at Castle Street (northbound)	\$19,572
MT-104	AMENITY	Front Street at Castle Street (southbound)	\$19,572
MT-105	STOP ACCESS	Dawson Street at 17th Street	\$97,858
MT-106	STOP ACCESS	Wooster Street at 17th Street	\$97,858
MT-107	STOP ACCESS	Wooster Street at 3rd Street	\$97,858
MT-108	STOP ACCESS	Dawson Street at 3rd Street	\$97,858
MT-109	PARK & RIDE	I-140 at Castle Hayne Road	\$3,914
MT-110	AMENITY	Princess Place Drive at Montgomery Avenue	\$19,572
MT-111	AMENITY	Marion Drive at Rutledge Drive	\$19,572
MT-112	AMENITY	Nixon Street at 5th Street	\$19,572
MT-113	AMENITY	16th Street at Wright Street	\$19,572
MT-114	AMENITY	16th Street at Kidder Street	\$19,572
MT-115	AMENITY	5th Street at Ann Street	\$19,572
MT-116	AMENITY	5th Street at Dawson Street	\$19,572
MT-117	AMENITY	5th Street at Castle Street	\$19,572
MT-118	AMENITY	Dawson Street at 9th Street	\$19,572
MT-119	AMENITY	Wilmington Multimodal Transportation Center	\$12,147,304
MT-120	AMENITY	US117/NC133 at Old Blossom Ferry Road	\$19,572
MT-121	AMENITY	US421 at Blueberry Road	\$19,572
MT-122	STOP ACCESS	Dawson Street & 16th Street	\$97,858
MT-123	STOP ACCESS	Wooster Street & 16th Street	\$113,444
MT-124	STOP ACCESS	Dawson Street at 8th Street	\$113,444
MT-125	STOP ACCESS	Wooster Street 8th Street	\$113,444
MT-126	PARK & RIDE	I-140 at Cedar Hill Road	\$4,538
MT-127	PARK & RIDE	I-140 at US421	\$4,538
MT-128	PARK & RIDE	US421 at Cowpens Landing Road	\$4,538
MT-129	PARK & RIDE	Terminus of Independence Boulevard	\$4,538
MT-130	PARK & RIDE	US17/74/76 at River Road (NC133)	\$3,327
MT-131	PARK & RIDE	Galleria Mall	\$3,327
MT-132	PARK & RIDE	US17 at Walmart	\$3,327
MT-133	PARK & RIDE	I-140 at US74/76	\$3,914
MT-134	PARK & RIDE	River Road (NC133)	\$3,914

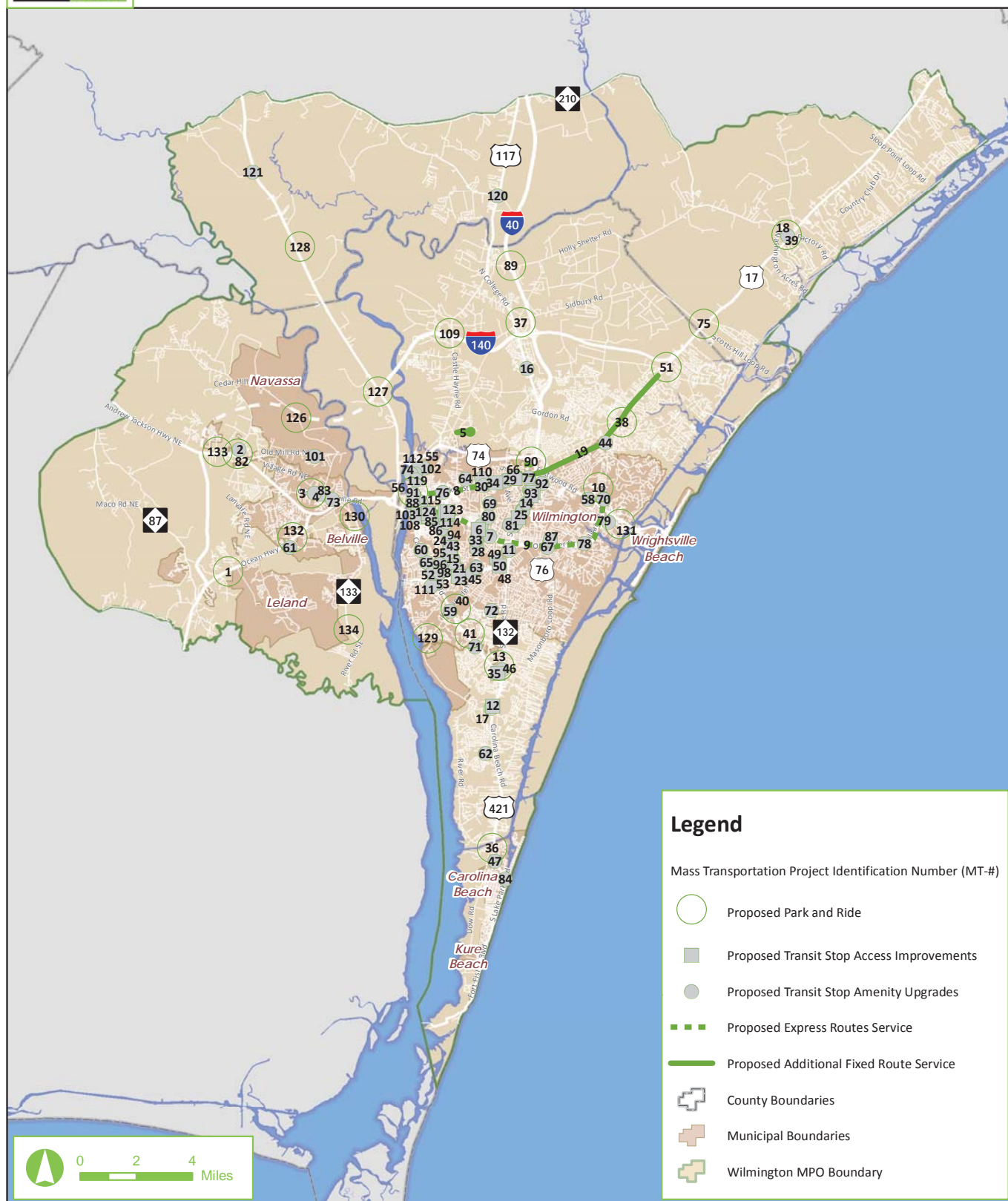






## Mass Transportation Projects with Anticipated Funding

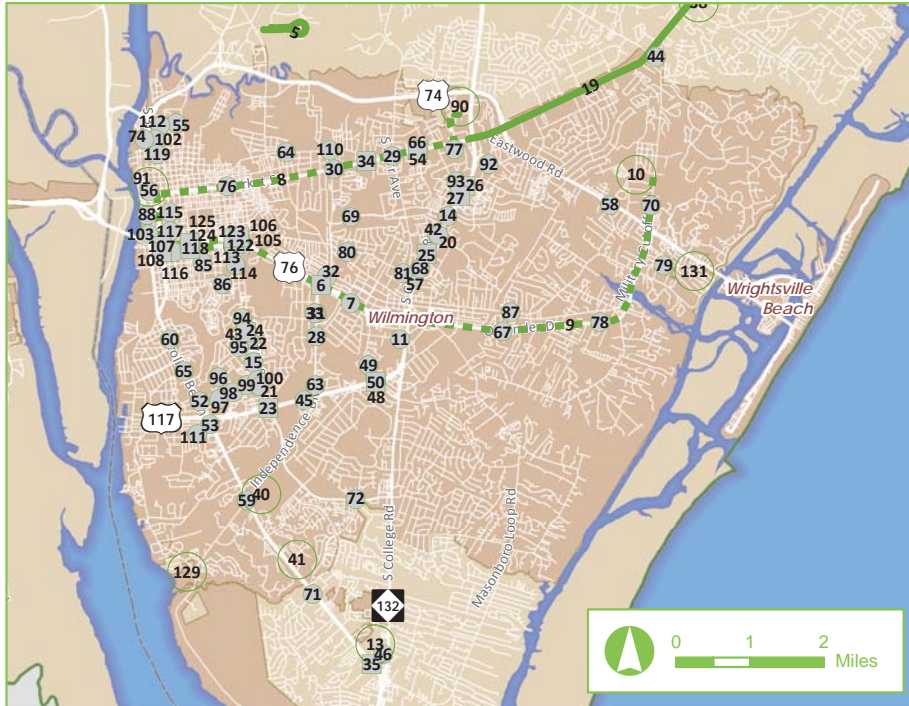
NOTE: Projects displayed for general location purposes only and not intended to show exact alignment.  
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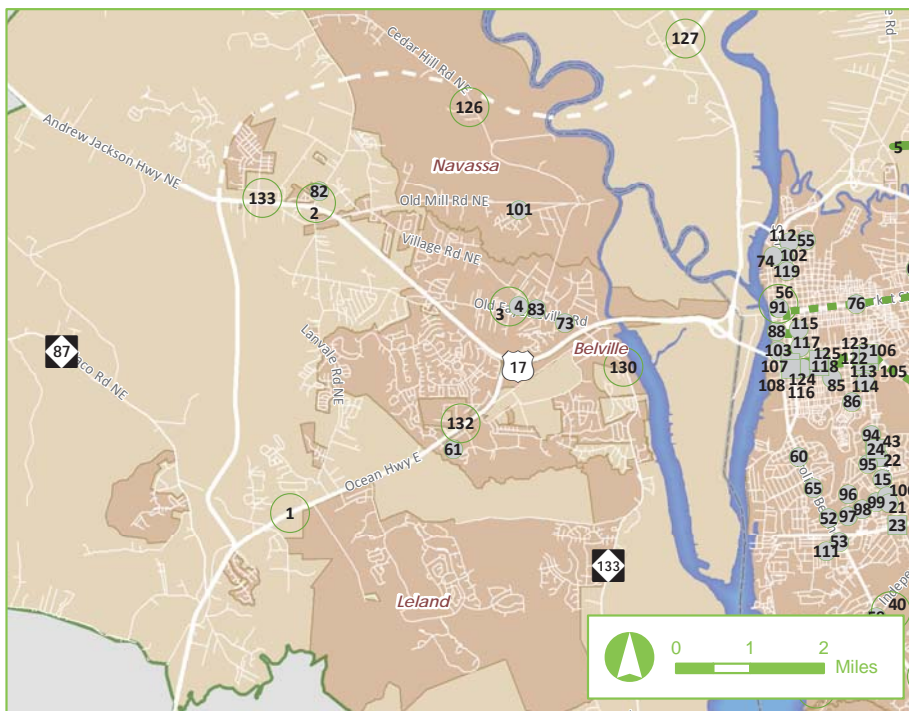
## Mass Transportation Projects with Anticipated Funding

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### Wilmington

- Mass Transportation Project Id (MT-#)
- Park and Ride
  - Transit Stop Access Improvements
  - Transit Stop Amenity Upgrades
  - Express Routes Service
  - Additional Fixed Route Service
  - County Boundaries
  - Municipal Boundaries
  - Wilmington MPO Boundary



### Leland, Belville, & Navassa

- Mass Transportation Project Id (MT-#)
- Park and Ride
  - Transit Stop Access Improvements
  - Transit Stop Amenity Upgrades
  - Express Routes Service
  - Additional Fixed Route Service
  - County Boundaries
  - Municipal Boundaries
  - Wilmington MPO Boundary

## Roadways

Demand on our existing roadways will only increase over time, but some of this demand is from new users. Our roadway network needs additional capacity to carry an anticipated increase in regional vehicle miles travelled (VMT), but also in order to carry new user types such as increased bus service, additional freight, bicycle transportation and the facilitation of pedestrian movements. Trends indicate that in the future people and goods will move through a more diverse array of transportation modes. The further development of the roadway network should facilitate future movements through facilitating mode choice, increased connectivity, and improved balance between access and mobility. The thoughtful further development of the roadway network is critical for the Wilmington Urban Area to be able to mitigate traffic increases and facilitate additional choice in order to increase the quality of life and economic development opportunities in the Wilmington Urban Area.

### Fiscally-Constrained Roadways Project List

FISCALLY-CONSTRAINED ROADWAYS PROJECT LIST					
ID	PROJECT	FROM	TO	CONSTRUCTION YEAR COST ESTIMATE	TIP #
R-1	Kerr Avenue Widening	Randall Parkway	US 74/Martin Luther King Jr. Parkway	\$44,309,966	U-3338
R-2	I-140 Wilmington Bypass	US421	US 74/76 Andrew Jackson Highway	\$163,930,000	R-2633
R-3	Military Cutoff Road Extension	US 17BUS/Market Street	US 17/Wilmington Bypass	\$178,917,855	U-4751
R-4	NC 133/Castle Hayne Road Widening	US74/Martin Luther King Jr Parkway	Holly Shelter Road	\$226,458,655	U-2724
R-5	US117/NC132/College Road Widening	Gordon Road	US421/Carolina Beach Road	\$113,482,764	U-5702
R-6	Gordon Road Widening	NC 132 Interchange	US 17BUS/Market Street	\$35,167,338	U-3831
R-7	US117/NC132/College Road Widening	US117/Shipyard Boulevard	Wilshire Boulevard	\$24,524,536	U-5702
R-8	US421/Carolina Beach Road Widening	Piner Road	Sanders Road	\$16,788,067	U-5790
R-9	US17BUS/Market Street Road Diet	17th Street	Covil Avenue	\$13,904,312	U-5869
R-10	US17BUS/Market Street Access Management	Military Cutoff Road	Porters Neck Road	\$9,453,686	U-4902
R-11	US17BUS/Market Street Access Management	US 74/Martin Luther King Jr Parkway	Military Cutoff Road	\$4,403,609	U-4902
R-12	US17 Superstreet	Washington Acres Road	Sloop Point Road	\$61,372,712	U-5732
R-13	US117/NC132/College & US76/Oleander Intersection	US 117/NC132/College Road	US76/Oleander Drive	\$37,981,128	U-5704



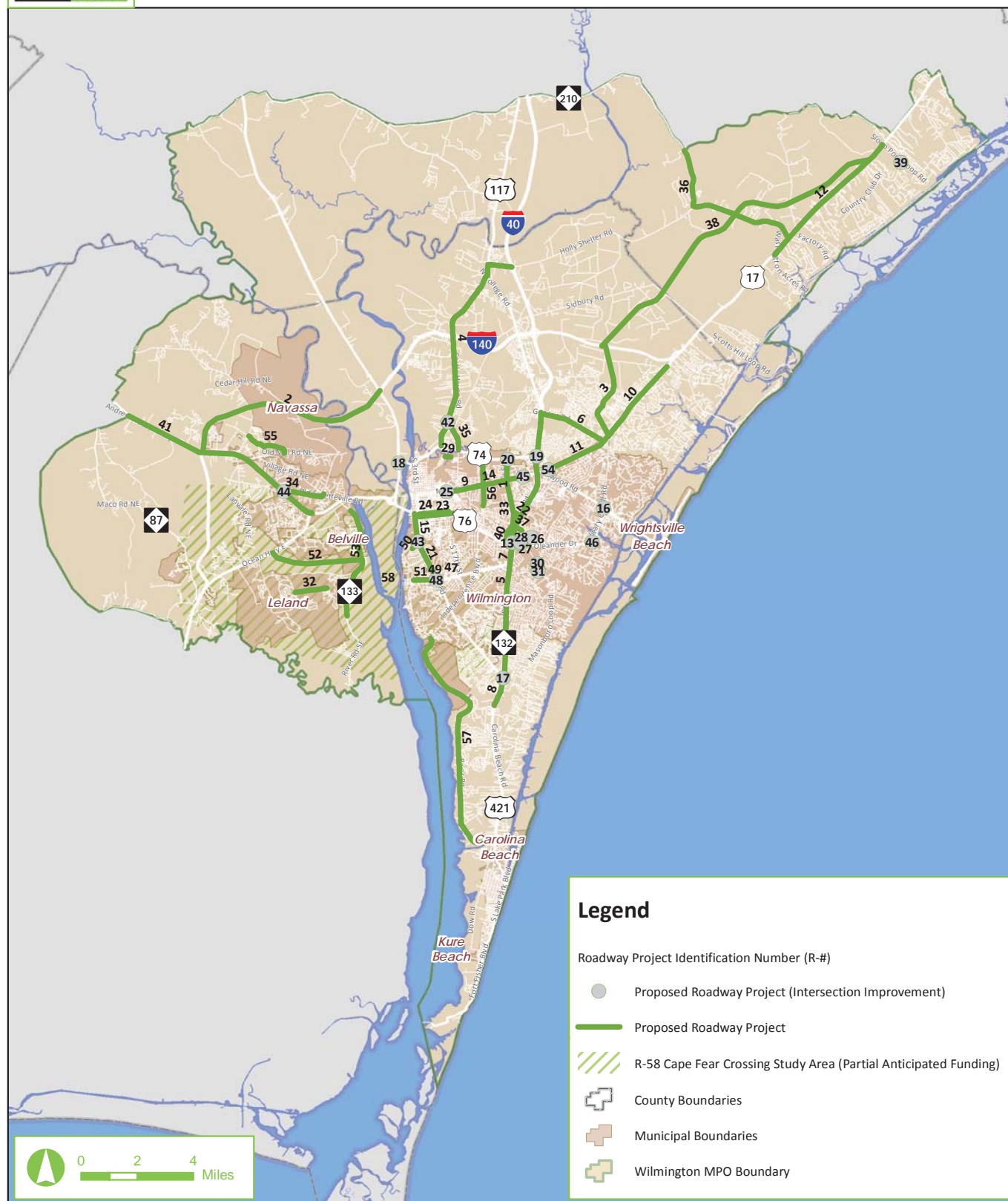
FISCALLY-CONSTRAINED ROADWAYS PROJECT LIST					
ID	PROJECT	FROM	TO	CONSTRUCTION YEAR COST ESTIMATE	TIP #
R-14	US17BUS/Market Street Access Management	Colonial Drive	New Centre Drive	\$6,860,680	U-4902
R-15	US421/Front Street Widening	US 76/421/ Cape Fear Memorial Bridge	US421/Burnett Boulevard	\$17,450,892	U-5734
R-16	US74/Eastwood Road & Military Cutoff Road	US74/Eastwood Road	Military Cutoff Road	\$44,030,537	U-5710
R-17	Carolina Beach Road & College Road Flyovers	US 421/Carolina Beach Road	US117/NC132/ College Road	\$23,445,141	U-5790
R-18	Isabel Holmes Bridge Flyovers	US 17	US421	\$27,179,344	U-5731
R-19	US117/NC132/College & MLK Pkwy Intersection	US117/NC132/ College Road	US74/Martin Luther King Jr. Parkway	\$44,030,537	U-5792
R-20	Kerr Avenue/MLK Jr Pkwy Intersection	Kerr Avenue	US74/Martin Luther King Jr. Parkway	\$36,394,018	U-3338
R-21	US421/Carolina Beach Road Upgrade	US421/Burnett Boulevard	US117/Shipyard Boulevard	\$4,768,686	U-5729
R-22	Hurst Drive Extension	Kerr Avenue	Riegel Road	\$4,768,686	N/A
R-23	Dawson Street Streetscape	US17BUS/ South 3rd Street	US76/Oleander Drive	\$609,948	N/A
R-24	Wooster Street Streetscape	US17BUS/ South 3rd Street	US76/Oleander Drive	\$609,948	N/A
R-25	US17BUS/Market Street & 17th Street Intersection	US17BUS/ Market Street	South 17th Street	\$1,774,395	N/A
R-26	Wrightsville Avenue & Wallace Avenue Roundabout	Wrightsville Avenue	Wallace Avenue	\$1,663,495	N/A
R-27	Oleander Drive & Pine Grove Intersection	US76/ Oleander Drive	Pine Grove Drive	\$2,328,893	N/A
R-28	Pine Grove Drive & MacMillan Avenue Intersection	Pine Grove Drive	Macmillan Avenue	\$2,772,492	N/A
R-29	Love Grove Additional Access	Nixon Street	King Street	\$6,764,880	N/A
R-30	Pine Grove Drive & Greenville Loop Road Roundabout	Pine Grove Drive	Greenville Loop Road	\$1,663,495	N/A
R-31	Pine Grove Drive & Holly Tree Road Roundabout	Pine Grove Drive	Holly Tree Road	\$1,663,495	N/A
R-32	Rice Gate Way Extension	Rice Gate Way	Mallory Creek Road	\$12,741,553	N/A
R-33	Kerr Avenue Widening	Patrick Avenue	Wrightsville Avenue	\$86,267,237	N/A





## Roadway Projects with Anticipated Funding

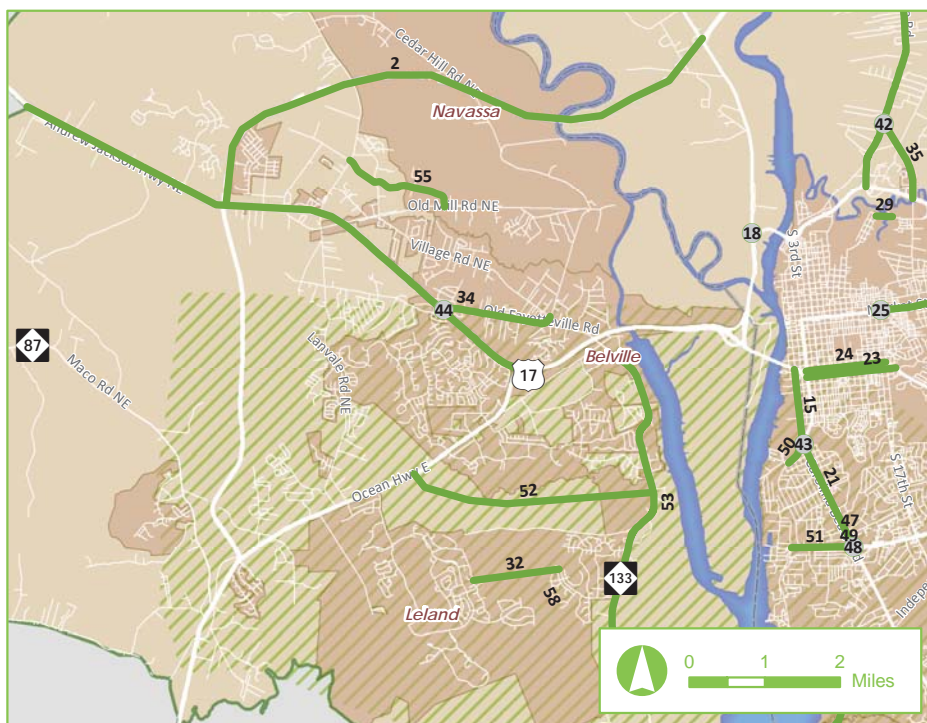
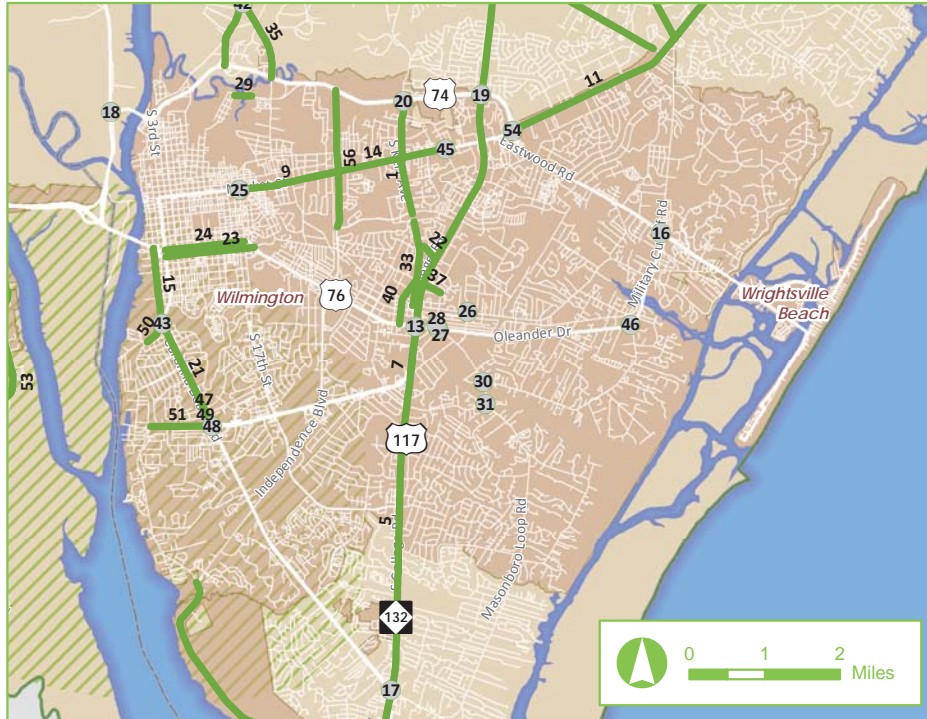
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## Roadway Projects with Anticipated Funding

NOTE: Projects displayed for general location purposes only and not intended to show exact alignment. Projects still subject to federal environmental review (NEPA) process before construction.



FISCALLY-CONSTRAINED ROADWAYS PROJECT LIST					
ID	PROJECT	FROM	TO	CONSTRUCTION YEAR COST ESTIMATE	TIP #
R-34	Old Fayetteville Road Widening	Village Road	US74/76/Andrew Jackson Highway	\$26,988,212	N/A
R-35	N 23rd Street Widening	NC133/Castle Hayne Road	US74/Martin Luther King Jr Parkway	\$13,147,430	N/A
R-36	NC210 Improvements	Island Creek/ NC210	US17	\$4,273,066	N/A
R-37	Wilshire Boulevard Extension	US117/132/ College Road	MacMillan Avenue	\$3,114,227	N/A
R-38	Hampstead Bypass	Porters Neck Road	Sloop Point Road	\$343,328,798	R-3300
R-39	Country Club/Doral Drive and Sloop Point Loop Road	Country Club Drive/Doral Drive	Sloop Point Loop Road	\$975,620	N/A
R-40	Kerr Avenue Extension	Wrightsville Avenue	US76/Oleander Drive	\$14,628,777	N/A
R-41	I-74 Upgrade	US17/74/76	WMPO Boundary	\$59,886,935	R-4462
R-42	NC133/Castle Hayne Road & 23rd Street Roundabout	NC133/ Castle Hayne Road	N 23rd Street	\$1,358,967	N/A
R-43	Front Street & Carolina Beach Road Intersection	US421/Burnett Boulevard/ Front Street	US421/Carolina Beach Road	\$408,567	N/A

### High Priority

- Alternative Work Schedules
- Carpool/Vanpool
- Development Review
- Park & Ride Lots
- Full-Time TDM Coordinator
- Transit Amenities
- Bicycle & Pedestrian Infrastructure
- Commuter Transit Routes
- Transit Oriented Development\*
- Trip Reduction Ordinance\*
- Trip Reduction Program for Large Mixed Use Developments\*

### Medium Priority

- Bicycle Sharing Program
- Car Share
- Employer Transportation Coordinator

### Low Priority

- Consulting Services for Telecommuting
- Employer Shuttles
- Transportation Management Districts
- High Occupancy Vehicle (HOV) Lanes\*
- Toll and Express Toll (HOT) Lanes\*
- Light Rail\*
- Water Taxi Service\*

\*= only a long-range TDM strategy



FISCALLY-CONSTRAINED ROADWAYS PROJECT LIST					
ID	PROJECT	FROM	TO	CONSTRUCTION YEAR COST ESTIMATE	TIP #
R-44	Old Fayetteville Road Interchange	Old Fayetteville Road	US74/76/Andrew Jackson Highway	\$11,646,941	U-3337
R-45	New Centre Drive & Market Street Intersection	New Centre Drive	US17BUS/Market Street	\$815,380	N/A
R-46	Greenville Avenue & Oleander Drive Intersection	Greenville Avenue	US76/Oleander Drive	\$408,567	N/A
R-47	Shipyard Boulevard Access Management (F/R)	US421/ Carolina Beach Road	Rutledge Drive	\$43,838	N/A
R-48	Carolina Beach Road & Shipyard Boulevard Intersection (wb right turn) (F/R)	US421/ Carolina Beach Road	US117/Shipyard Boulevard	\$1,315,130	N/A
R-49	Shipyard Boulevard Widening (F/R)	US421/ Carolina Beach Road	US117/Shipyard Boulevard	\$306,864	N/A
R-50	Burnett Boulevard Widening (F/R)	US421/ Carolina Beach Road	Myers Street	\$2,628,506	N/A
R-51	Shipyard Boulevard Speed Sensors and Warning activation at NC Port of Wilmington (F/R)	US421/ Carolina Beach Road	River Road	\$175,351	N/A
R-52	US17 to NC133 Connection	US17	NC133	\$16,366,064	N/A
R-53	NC 133/River Road Widening	US17/74/76	Rabon Way SE	\$38,150,598	N/A
R-54	Market Street/MLK Jr. Pkwy Flyovers	US74/Martin Luther King Jr. Parkway	US74/Eastwood Road	\$31,508,309	N/A
R-55	Magnolia Drive Extension	Mount Misery Road	Old Mill Road	\$8,909,680	N/A
R-56*	Independence Boulevard Extension	Randall Parkway	US74/Martin Luther King Jr. Parkway	\$196,640,913	U-4434
R-57*	River Road Widening	Independence Boulevard	US421/Carolina Beach Road	\$187,201,953	N/A
R-58*	Cape Fear Crossing - Funded Portion	US17	US421/Carolina Beach Road	\$158,021,483	U-4738
* Projects anticipated to receive funding from alternative funding mechanisms					

## Transportation Demand Management and Transportation Systems Management

Also included in the plan were strategies for several initiatives that did not include lists of projects. These included transportation demand management and transportation systems management initiatives.



## Transportation Demand Management

Transportation demand management (TDM) is described in this plan as an effort to mitigate the growth in traffic congestion. It is also described as the “flip-side” of infrastructure, as it is generally programmatic with an effort to reduce the demand on existing and new infrastructure. Trends are showing that future generations will be more interested in TDM programs rather than commuting habits that apply stress to our infrastructure. If trends continue to fall as they have in the previous years, the TDM strategies listed in the TDM Element will provide the transportation alternatives that younger generations are seeking. These Strategies include the following:

## Transportation Systems Management

Transportation Systems Management is the process of optimizing the existing transportation system and infrastructure. TSM focuses on enhancing the existing infrastructure to increase roadway capacities, to integrate transportation and land use planning, and to reduce congestion within the Wilmington Urban Area. TSM is an opportunity to target improvements that increase capacity, efficiency and utilization of the existing infrastructure. TSM strategies discussed in this element include the following:

- Optimizing Signal Timing and Operations
- Geometric Design
- Intersection Modifications
- Access Management Initiatives
- Additional Turn Lanes
- Motorist Assistance Program
- Pavement Markings
- Signs and Lighting Upgrade
- Streetscape Improvements
- Tourist Transportation Plan
- Traffic Signal Timing Optimization
- Variable/Dynamic Message Signs
- Vehicle Detectors Repair/Replacement

## Funding

A significant component of the MTP is identifying revenues to fund the proposed projects in the plan, otherwise referred to as “fiscal constraint.” In 2013, North Carolina enacted the Strategic Transportation Investment (STI) legislation that requires transportation officials “...to use existing resources more efficiently and effectively and to help us move forward more quickly with important [transportation] projects...” The STI considers past trends and expected future growth as part of its funding criteria for allocating transportation dollars throughout the state. As a result, the WMPO adopted revenue assumptions that align with the STI legislation.

Transportation projects included in the 2040 MTP are funded, primarily by the United States Department of Transportation (USDOT) and NCDOT.

## Public Involvement

Public involvement was a key component of developing the MTP, and the transportation planning process generally. Many public outreach opportunities were provided during the 2040 MTP update process, including public open houses, public surveys, presentations, and specific activities to engage traditionally underserved populations. In addition, the WMPO built a specific website to address the development of *Cape Fear Transportation 2040* to allow for additional public comment (<http://transportation2040.org>).

More specifically, the Citizens Advisory Committee (CAC) guided the development of a three-pronged approach to soliciting and integrating public input for the development of *Cape Fear Transportation 2040*.

1. **Initial Outreach Efforts** – Before defining the transportation needs for the Greater Wilmington Area; CAC directed staff to develop methods that would reach the broad spectrum of people in the Greater Wilmington Area (1) to educate them on the development of *Cape Fear Transportation 2040* and (2) to solicit feedback on current and future transportation needs.
2. **Outreach Efforts to Solicit Proposal Feedback** – Before finalizing the draft plan; CAC directed staff to develop methods that would reach the broad spectrum of people in the Greater Wilmington Area (1) to solicit general feedback on the draft plan and (2) to ascertain whether the draft plan represented the desired projects within the fiscal constraint of the document.
3. **Ongoing Public Outreach Efforts** – The CAC also directed that there be opportunities for the general public to learn about the development of *Cape Fear Transportation 2040* and to provide feedback throughout its development.

## Environmental Justice

Environmental Justice (EJ) is a process that ensures federal resources are being directed to projects of all modes in a manner that does not unreasonably burden, or deny the benefits of a transportation investment to specific communities based on ethnicity, race, or income.

Environmental justice within the WMPO MTP is based on three fundamental principles derived from guidance issued by the USDOT:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

Projects included in *Cape Fear Transportation 2040* were assessed for their collective impact on environmental justice. The WMPO also carried out specific outreach activities during the development of *Cape Fear Transportation 2040* to engage traditionally underserved populations throughout the planning process.

## Conclusion

The WMPO's 2040 Metropolitan Transportation Plan (MTP) provides a framework for transportation planning, while specifically addressing the following challenges:

- An increase in population and physical area of the MPO due to the expansion of the Wilmington region
- New federal transportation legislation enacted in 2012, Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21);
- New state transportation legislation enacted in 2013, STI
- Investing in a sustainable transportation system that provides mobility choices, maximizes opportunities for the movement of people and goods, and benefits all segments of the population

A new MTP update is required five years after the approval date of the 2040 MTP; however, much could happen within that 5 year time frame. Any number of potential situations could trigger amendments to the MTP, which would have to be approved by the Transportation Advisory Committee (TAC) in consultation with the Federal Highways Administration (FHWA) and the NCDOT.

The WMPO's commitment to investing in transportation infrastructure has helped the area attract a diverse population and cope with the continuing growth in the region. The WMPO recognizes the importance of remaining engaged with its regional partners as it plans future transportation needs and invests in all areas of its transportation network in order to maintain the desirability of the region as a place to live and work.

## Endnotes

1 CAM= Congestion & Access Management, EE= Economic Development, S= Safety; More detailed Purpose & Need Information is available in Appendix F

2 This represents the full cost of the project. In this planning document, the project is only anticipated to receive partial funding through anticipated funding sources as is noted in the Financial Analysis Element

<sup>3</sup> This represents the full cost of the project. In this planning document, the project is only anticipated to receive partial funding through anticipated funding sources as is noted in the Financial Analysis Element





# INTRODUCTION

*Cape Fear Transportation 2040* is the metropolitan transportation plan for the Wilmington Urban Area in southeastern North Carolina. It has been prepared by the Wilmington Urban Area Metropolitan Planning Organization (WMPO), which is the local organization responsible for regional transportation planning. Federal law requires the preparation of this plan, and also specifies issues which the plan must consider. This document summarizes the various plan elements. The technical appendices that accompany this plan provide additional detail and are referenced throughout.

*Cape Fear Transportation 2040* details how transportation needs should be addressed over the next twenty-five years. The plan calls for mobility and access for people and goods, efficient system performance and preservation as well as an improved quality of life for those living and traveling throughout the WMPO planning area. The plan establishes goals and objectives for the improvement of travel conditions within the WMPO planning area and makes specific recommendations for transportation projects and funding sources to match the growth expected in the Greater Wilmington region. A core group of citizens - the Citizens Advisory Committee (CAC) – was responsible for shaping the goals, objectives and overall trajectory of this plan. The CAC was responsible for ensuring that the plan was developed with input from the broad spectrum of the public.

This plan is the guiding document for future transportation investments in the Greater Wilmington Area. In accordance with federal regulations, the plan must be fiscally-constrained. In other words, the plan must identify funding sources for all of the proposed projects. The plan considers all modes of transportation including: aviation, bicycle and pedestrian, ferry and water transportation, freight/rail, mass transportation, and roadways. Over the past decade, the WMPO area has experienced a significant amount of change, both economically and demographically. Such changes are expected to continue into the future. To meet federal requirements, the WMPO will regularly update the plan.

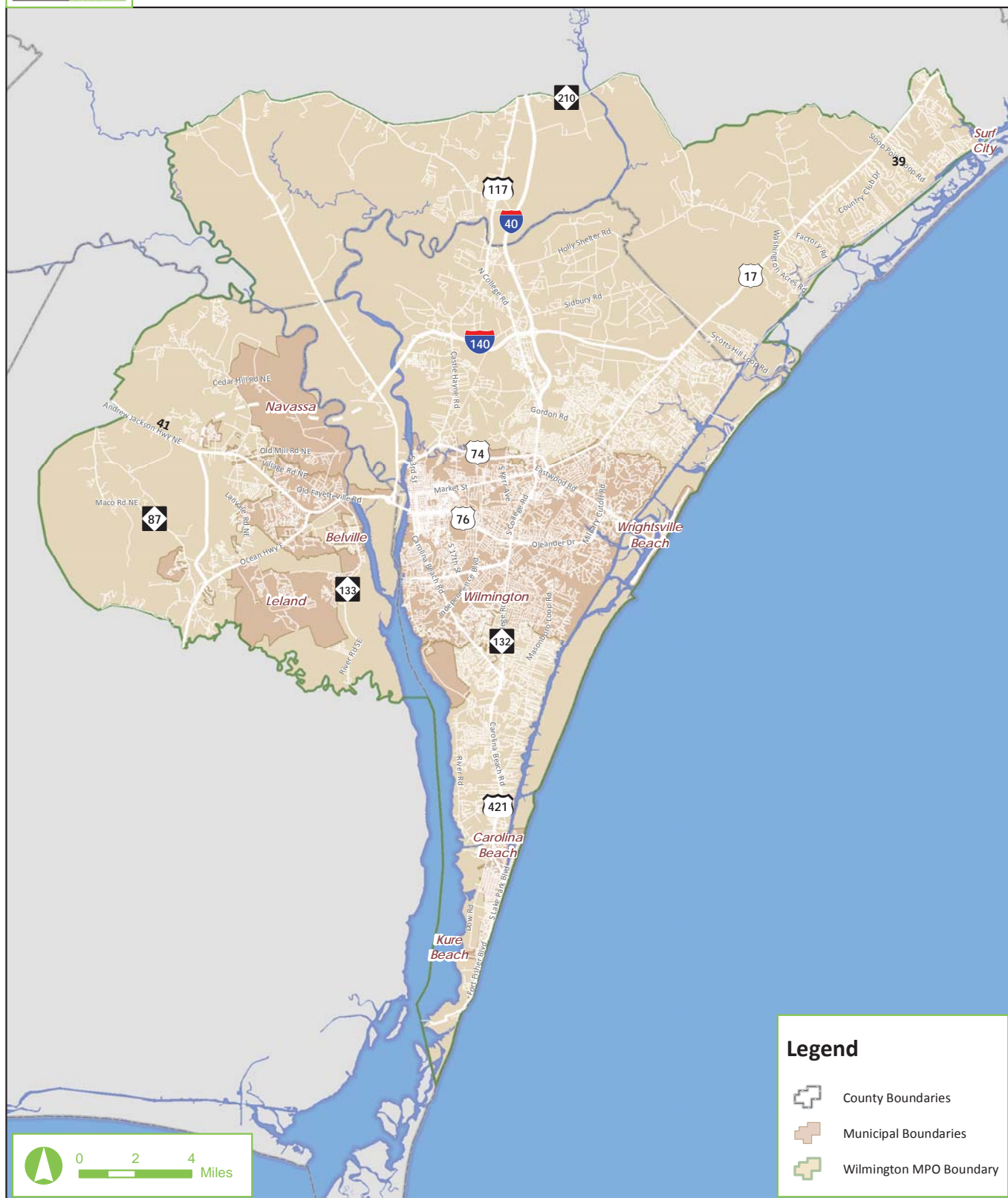
## **Cape Fear Transportation 2040 Study Area Boundary**

WMPO is a metropolitan planning organization (MPO). MPOs are local agencies that are responsible for regional transportation planning. In order to be part of the federal transportation planning process and to receive federal transportation funds, an urban area with a population over 50,000 must have an MPO. Each MPO has a range of duties including the production of the long range transportation plan for its area. The overall aim of these federal requirements is to ensure continuing, cooperative, and comprehensive transportation planning for urban areas, and MPOs are central to that process.

The map on the following page shows the planning area boundary covered by the WMPO.



## Wilmington MPO Planning Area Boundary



A myriad of datasets and maps were used to identify, analyze and project future key planning issues facing the region. While this plan focuses on transportation issues, a multitude of other regional datasets were studied. Data covering, employment, population, environmental factors, land use factors, social factors, traffic congestion, traffic safety and other datasets were utilized (See the *Greater Wilmington Area Profile Element* for more information). The synthesis and analysis of this data was instrumental in the preparation of this plan.

## Purpose of Metropolitan Transportation Plan Creation



A transportation plan is essential for building an effective and efficient transportation system. The implementation of any transportation project (to include building a new road, constructing bicycle lanes, etc.) often requires several years to complete from concept to construction.

Once a community determines that a project is needed, there are many detailed steps to be completed to include: the identification of funding; the analysis of environmental impacts; project designs; the purchase of right-of-way (if necessary); etc. Project construction is only completed as a final step, oftentimes years after the original need is identified. In southeastern North Carolina, a roadway project often takes 10-15 years from planning to construction.

In order for a project to be funded the process always begins with the regional transportation plan. In fact, this basic planning concept is so important, that federal regulations require that a project must be identified in a metropolitan transportation plan in order for it to receive federal funding and obtain federal approvals. Federal regulations not only require a metropolitan transportation plan, the regulations stipulate the contents of the plan and the process used in its development. Federal law specifies the elements and processes that must feed into each metropolitan transportation plan. The law changes periodically. The most recent law is the Moving Ahead for Progress in the 21st Century Act (MAP-21). According to MAP-21, the plan must have:

- A vision that meets community goals.
- A multi-modal approach that includes not only highway projects, but provides for other modes such as public transportation, walking, and bicycling.
- A minimum 20-year planning horizon.
- A financial plan that balances revenues and costs to demonstrate that the plan is financially responsible and constrained.
- A public involvement process that meets federal guidelines, and is sensitive especially to those groups traditionally left out of the planning process.

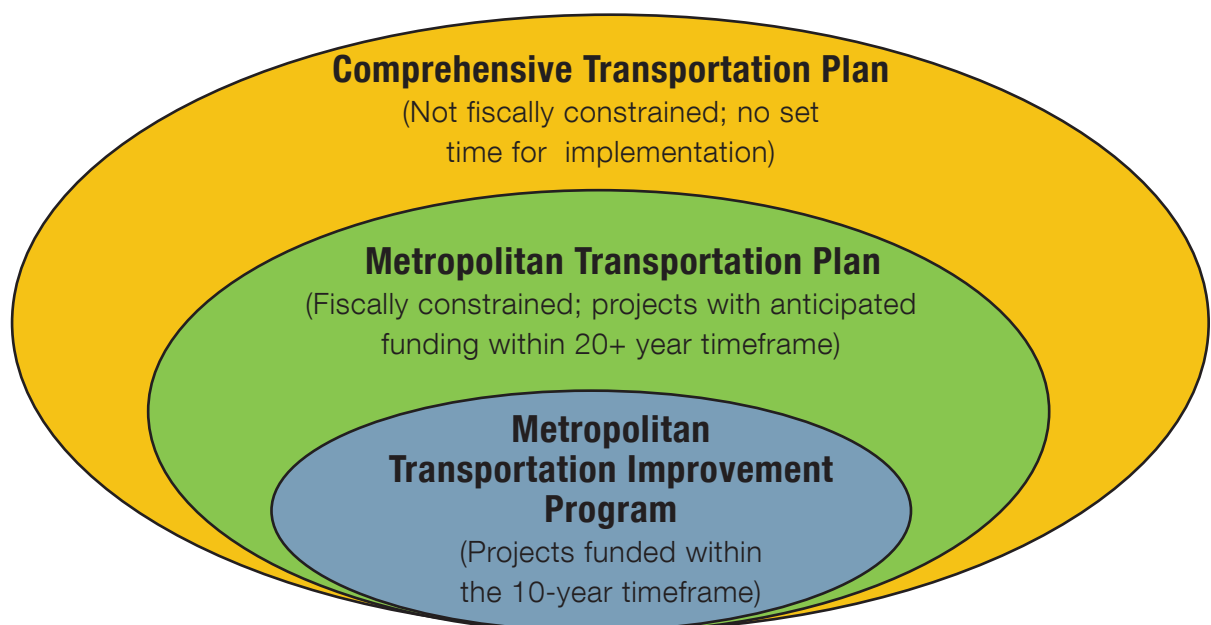
Regions like the Greater Wilmington Area must develop these plans every five years per federal regulations, and must formally amend these plans if regionally significant transportation investments are added, deleted or modified.

## Metropolitan Transportation Plans and Comprehensive Transportation Plans

Metropolitan areas in North Carolina have two distinct but related types of transportation plans:

1. **Metropolitan Transportation Plans (MTPs)** are “fiscally-constrained.” They show the new and expanded transportation facilities that are anticipated to be funded by an identified planning horizon within an MPO’s planning area boundary. MTPs are typically produced by the MPOs they serve in cooperation with local planning partners, NCDOT, and FHWA.
2. **Comprehensive Transportation Plans (CTPs)** are “needs-based.” They show all the existing and new transportation facilities and activities that are needed to meet the growth and mobility aspirations of citizens within an MPO’s planning area boundary over the long term. The CTP has no defined future date by which the facilities and services would be provided, nor is it constrained by a community’s ability to pay for facilities and services. CTPs are typically produced by NCDOT in cooperation with the MPO for which the plan is created. A list of Potential Comprehensive Transportation Plan Projects was generated during the development of *Cape Fear Transportation 2040* and is listed in the appendix of this document.

*Cape Fear Transportation 2040* is the WMPOs the metropolitan transportation plan (MTP). This MTP shows which projects can be achieved by 2040 with anticipated funding. The projects in an MTP are a subset of the projects in a CTP. The figure below shows the relationship between the MTP and CTP, and also the plans’ relationship to the Metropolitan Transportation Improvement Program (MTIP). The MTIP is the program of projects that serves as the main implementing document of the MTPs for those projects funded through federal sources. The WMPO’s CTP is still under development as of the adoption of this plan.



## Use of Metropolitan Transportation Plans

Metropolitan transportation plans are used for several important decisions, including:

**Programming projects.** Only projects that appear in a Metropolitan Transportation Plan may be included in the Metropolitan Transportation Improvement Program (MTIP) for funding.

**Aligning other planning efforts with future transportation facilities.**

The state and local governments use Metropolitan Transportation Plans to help guide new development towards appropriate orientation with planned transportation facilities.

**Designing local road networks.** Metropolitan Transportation Plans chiefly address larger transportation facilities with regional impact. Communities can then use these “backbone” projects to plan the finer grain of local streets and other transportation facilities that connect to these larger facilities.

**Identifying key plans and studies.** State, regional and local agencies use this plan to outline more detailed plans and studies that will be undertaken leading to future projects and investments.

In summary the comprehensive transportation plan (CTP) outlines all of the transportation planning efforts the region would eventually like to implement. The metropolitan transportation plan (MTP) outlines the transportation planning efforts that are fiscally-constrained to implement by the horizon of the plan (for *Cape Fear Transportation 2040*, this horizon year is 2040). The Metropolitan Transportation Improvement Program (MTIP) outlines efforts also included in the MTP that are planned to be implemented over the next 10 years that involve state or federal funding. This plan will be used by local, state and federal agencies to allocate resources for specific aviation, bicycle and pedestrian, ferry and water transportation, freight/rail, mass transportation, roadway, TDM, and TSM investments, to ensure that land is preserved for these investments, and to match land use and development decisions with planned infrastructure investments. Finally, *Cape Fear Transportation 2040* includes lists of projects guiding the future transportation infrastructure priorities within the region for the next 25 years.





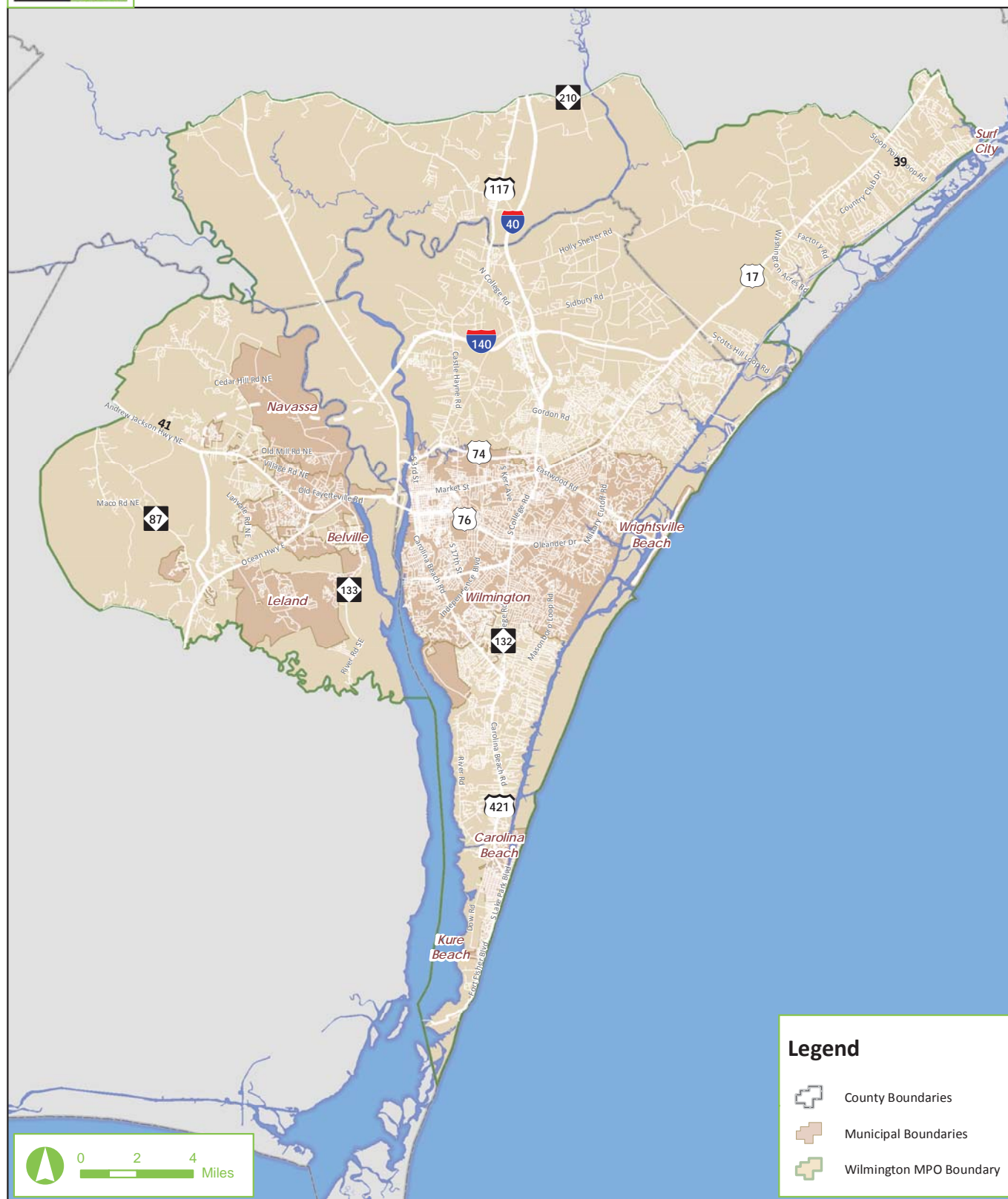
# GREATER WILMINGTON AREA PROFILE

## Wilmington Urban Area Study Boundary

The Wilmington Urban Area encompasses more than four hundred square miles of southeastern North Carolina including all of New Hanover County and portions of Brunswick and Pender Counties. In the process of developing recommendations for *Cape Fear Transportation 2040* stakeholders (to include mode-specific subcommittees staffed with subject matter experts, the Citizens Advisory Committee, the Technical Coordinating Committee, the Transportation Advisory Committee, and the general public) reviewed multiple sets of data and background information about the Wilmington Urban Area in order to develop the recommendations included this plan. This element outlines key datasets reviewed for the development of *Cape Fear Transportation 2040*.



## Wilmington MPO Planning Area Boundary



## Socioeconomic Conditions

Recent statistics from the U.S. Census Bureau ranked the Wilmington Metropolitan Statistical Area (MSA) as the second fastest growing MSA in North Carolina based upon an observed population growth from July 2012 through July 2013, reporting a July 2013 population estimate at 268,601. During the same time period, Brunswick County was the fastest-growing county in the state with a population of 383,902 in July 2013. It is important to note that the Wilmington MSA does not correlate exactly with WMPO boundaries as it includes a larger portion of Pender County than that which falls in the WMPO boundaries, and does not include any portion of Brunswick County. Due to a change in geographic reporting with the 2010 decennial census, Brunswick County now falls in the Myrtle Beach MSA for statistical purposes (New Hanover County is included in the Wilmington MSA). If the Wilmington MSA correlated more closely with the WMPO boundaries, it would be the fastest growing MSA in the state.

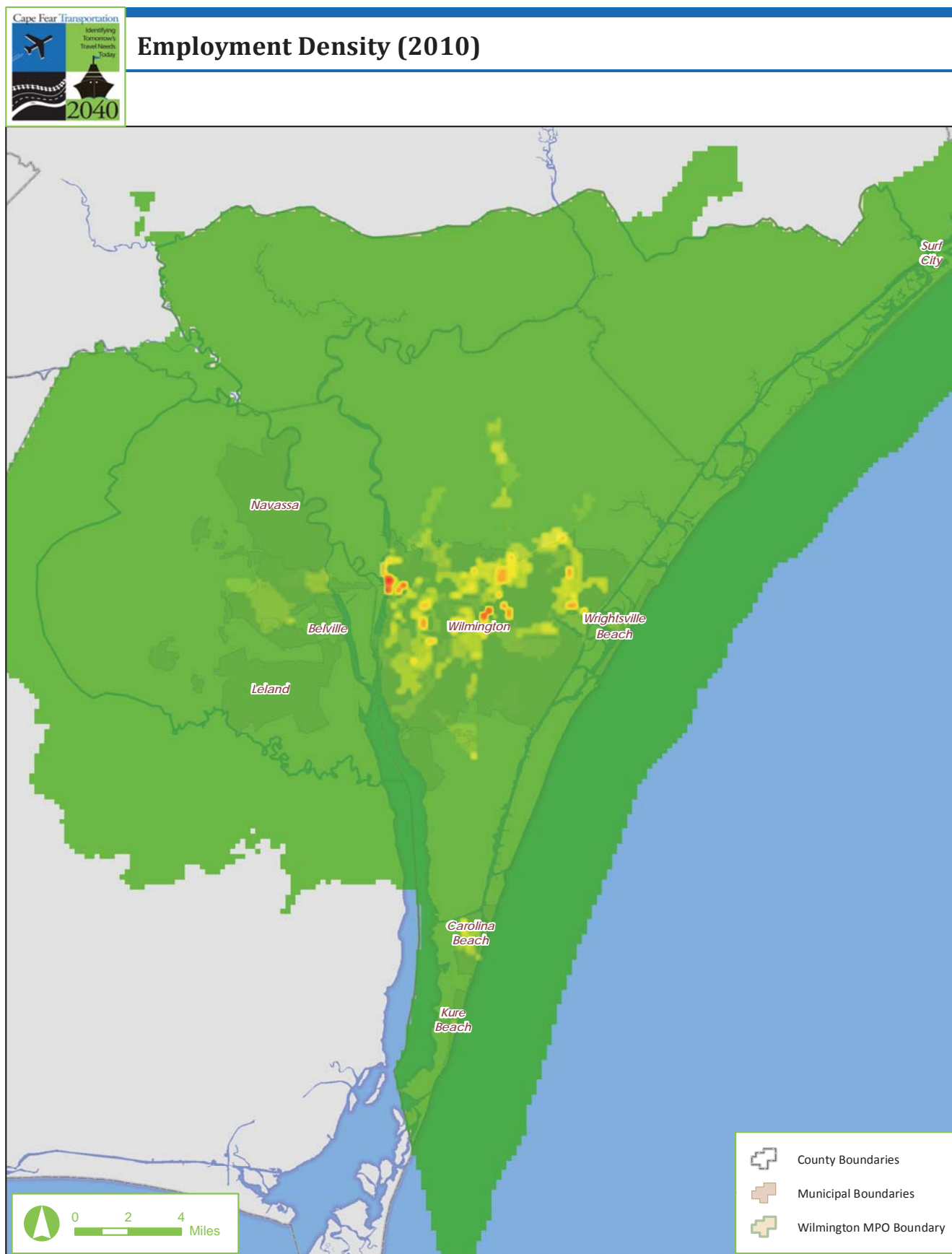
## WMPO Socioeconomic Estimates and Projections

The WMPO and NCDOT cooperatively maintain a regional travel demand model for the Wilmington Urban Area and routinely update population and employment data to ensure that the model accurately depicts current and anticipated socioeconomic conditions. Maintaining accurate socioeconomic data is critical to ensure that the travel demand model appropriately reflects current and future transportation network operations.

NCDOT developed base year (2010) and future year (2040) household, employment and population estimates for the WMPO based on its statewide travel demand model. Using the future year projections, the WMPO worked with local land use planners and other subject matter experts to disaggregate the future year projections to smaller geographies called transportation analysis zones (TAZs). This was the basis for the maps on the following pages describing base year and future year population, household and employment density.



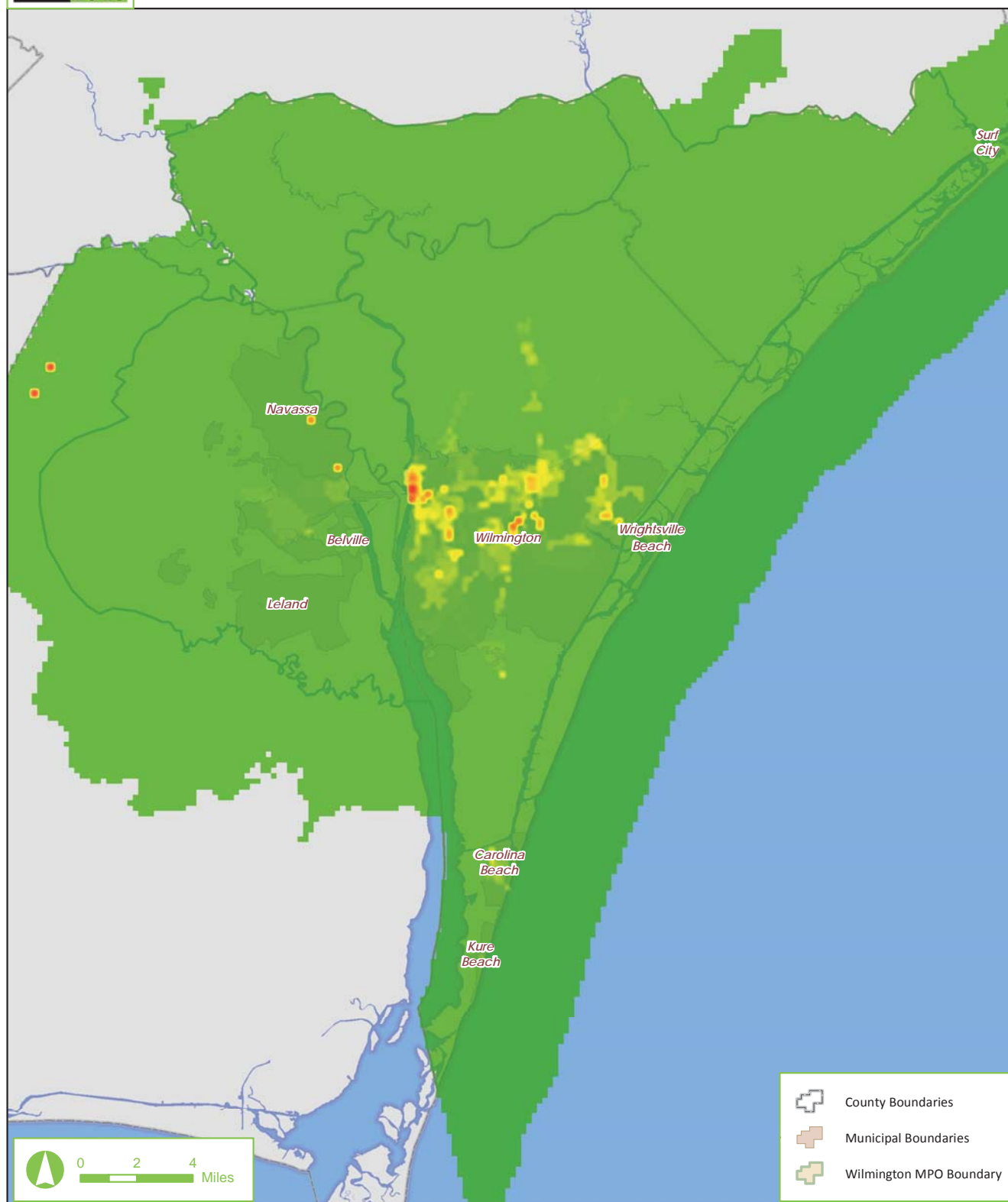
Rapid growth and development  
in Brunswick County.





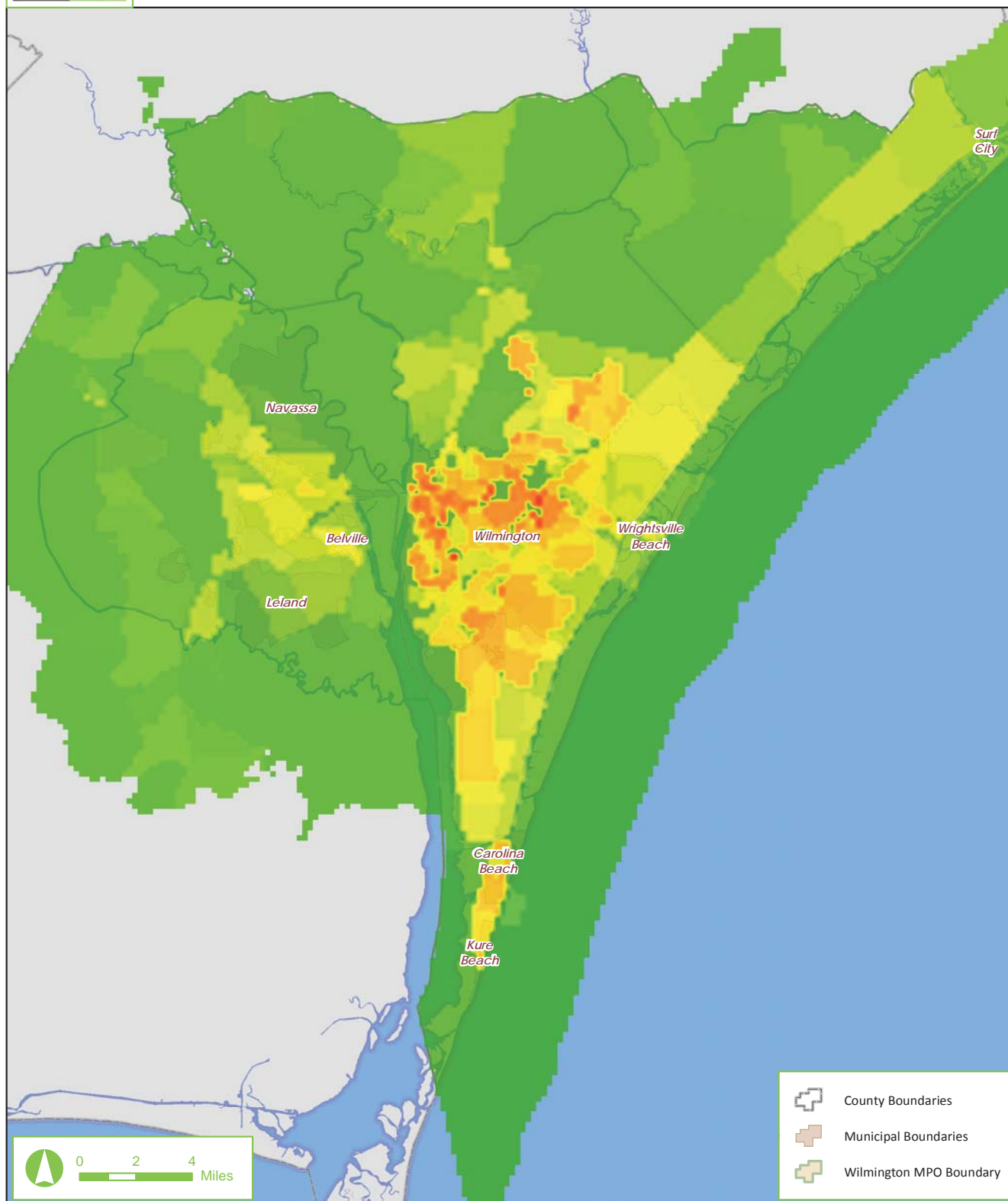


## Employment Density (2040)



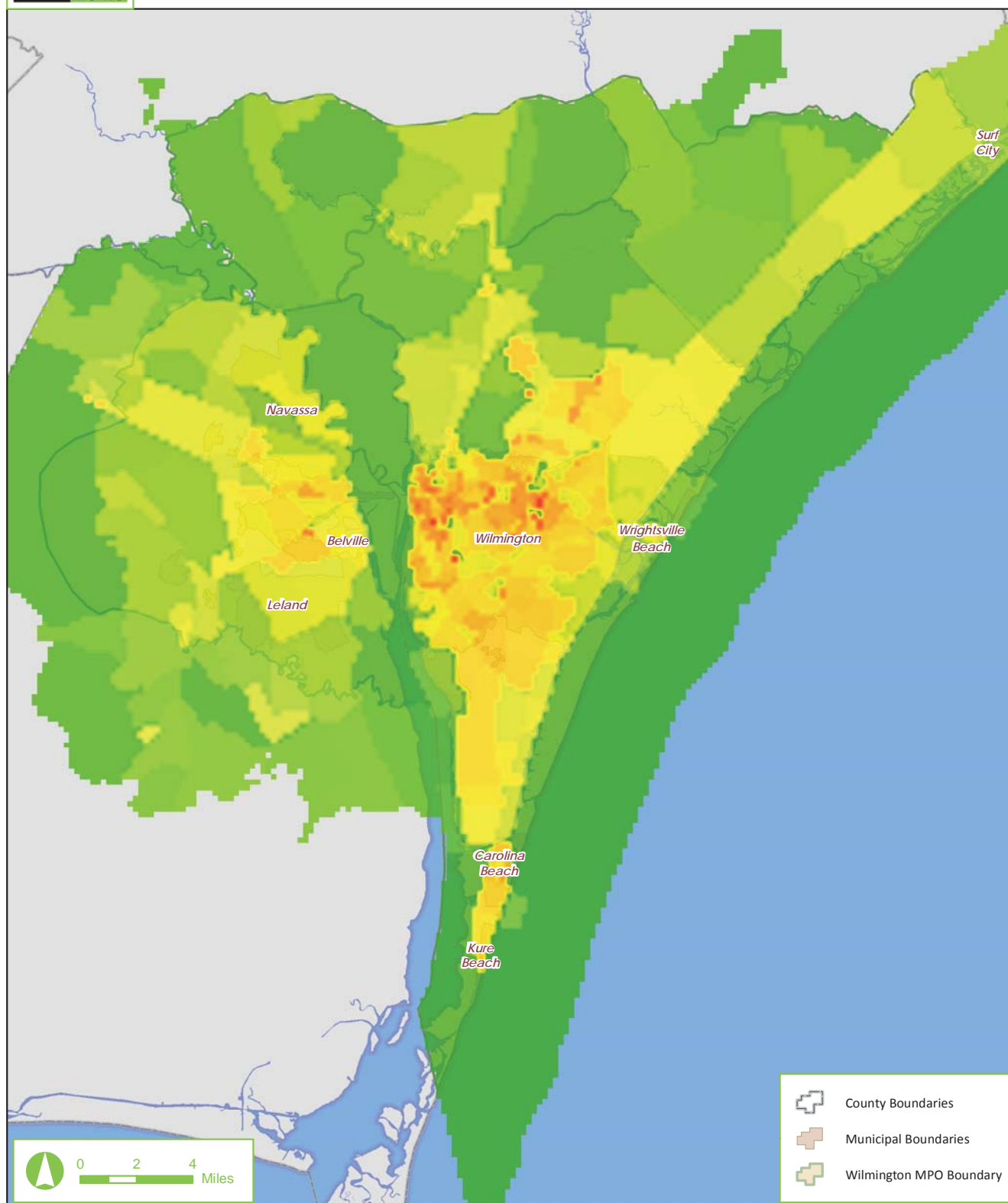


## Population Density (2010)





## Population Density (2040)



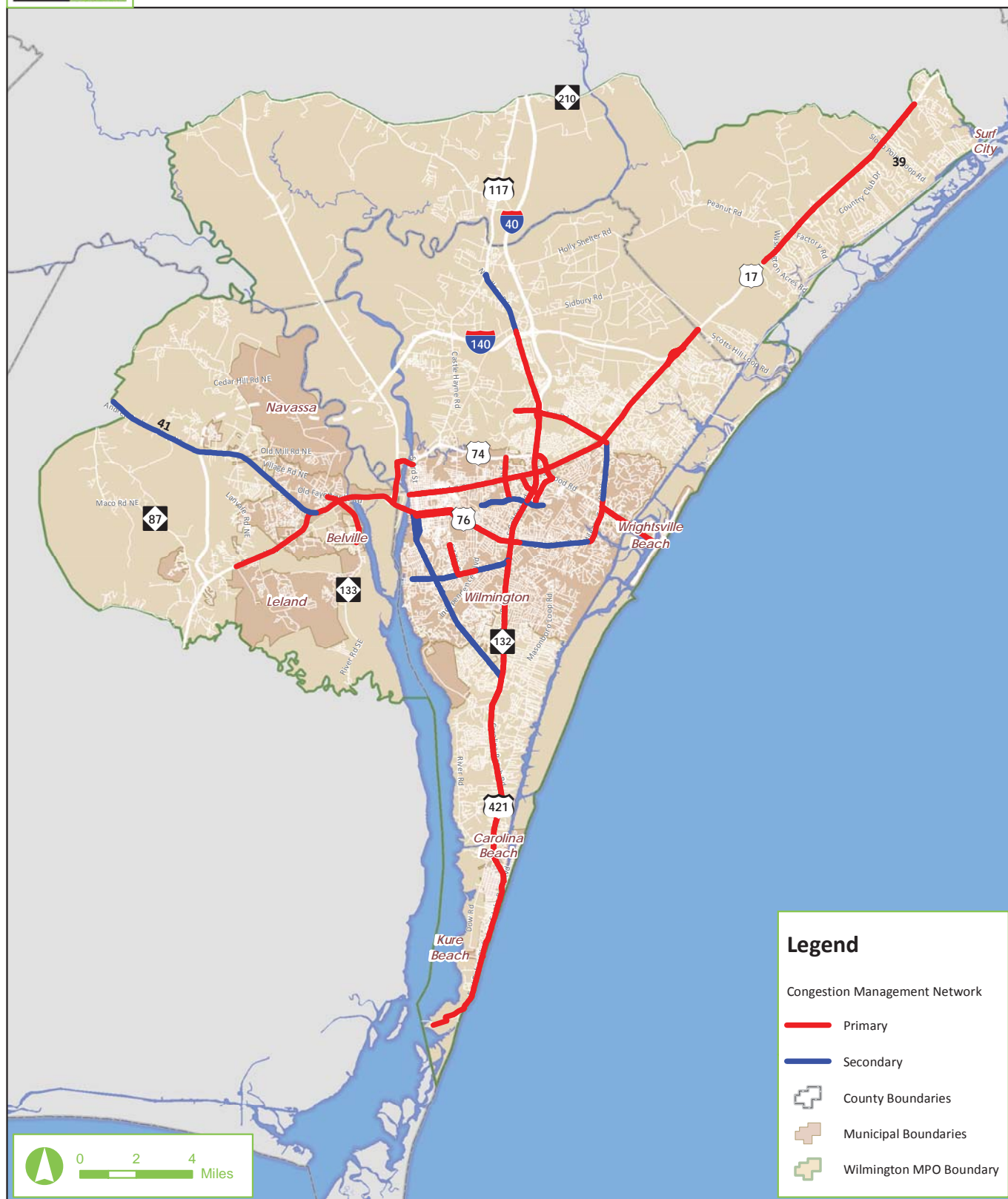
## **WMPO Congestion Management Process**

As of 2012, the Wilmington MPO was designated as a TMA and, as such, was required to use an adopted Congestion Management Process (CMP) to evaluate and manage congestion in a regionally-agreed upon manner. The WMPO convened a Congestion Management Steering Committee in order to guide the development and evaluate the progress of the WMPO CMP. As part of this process, the WMPO CMP Committee identified corridors that should be monitored for congestion. The Wilmington MPO has begun collecting congestion data to be published in a CMP report on a biennial basis. The CMP Steering Committee will use these biennial reports to evaluate congestion in the region and to analyze potential strategies to mitigate congestion. CMP strategies will also be used to evaluate the update to this plan. The CMP Network map shows the facilities that the CMP Committee agreed to study and monitor through the congestion management process.





## WMPO Congestion Management Network



## **Other Datasets**

Other datasets were reviewed in the development of the recommendations in this plan to include the results of the *Cape Fear Transportation 2040 Survey* (which can be found in the Public Involvement Element), projects included in *Cape Fear Commutes 2035* and other WMPO-adopted plans, existing projects from NCDOT's Prioritization 3.0 Process, and mode-specific datasets. Of note, project recommendations were developed after analysis of geographic features to include hydrological features, environmental features, and cultural features (See the *Environmental Analysis Element*).

# PUBLIC INVOLVEMENT ELEMENT

## Cape Fear Transportation 2040 Public Involvement Process Guidance

The Transportation Advisory Committee (TAC), which acts as the governing board of the Wilmington Urban Area Metropolitan Planning Organization, recognized that there was a need for a separate committee devoted to guiding the development of the region's metropolitan transportation plan. In light of this, the TAC appointed a Citizen's Advisory Committee (CAC) to ensure that the metropolitan transportation plan would be developed with robust public input and would meet the vision of the citizens of the region.

The CAC has been in place since 2008 and in this capacity they successfully guided the development of the award-winning *Cape Fear Commutes 2035*, which was the Greater Wilmington Area's metropolitan transportation plan from December 2010 until the adoption of this plan in December of 2015. The TAC appointed one CAC member to represent each of its member jurisdictions. The CAC members who guided the development of *Cape Fear Transportation 2040* are listed below along with the jurisdictions they were appointed to represent:

- Howard Loving, (*Chair*) *North Carolina Board of Transportation*
- Eric Coffey, *New Hanover County*
- Al Freimark, *Pender County*
- David Hollis, *Brunswick County*
- John Melia, *City of Wilmington*
- Scott Cromartie, *City of Wilmington*
- Jim Smith, *Town of Wrightsville Beach*
- Steve Stanton, *Town of Carolina Beach*
- John Ellen, *Town of Kure Beach*
- Terry Obrock, *Town of Leland*
- Stuart Smith, *Town of Belville*
- Ernest Mooring, *Town of Navassa*
- Howard Capps, *Cape Fear Public Transportation Authority*

Although individual CAC members were appointed to represent particular jurisdictions or entities, the group took great efforts to ensure that the plan was being developed to meet the needs of the region as a whole in a continuing, cooperative, and comprehensive manner. While WMPO staff prepared processes and documents to meet requirements of the Federal Highway Administration (FHWA) for the development of the plan; it was CAC that provided direction to ensure that *Cape Fear Transportation 2040* was being developed in a manner that reflected the desires of the community. The CAC met monthly to track progress and to ensure the plan respectfully integrated the needs of the multiple transportation modes with fiscal and environmental constraints.

## **Cape Fear Transportation 2040 Vision Statement and Goals**

The CAC developed the following vision statement and goals to guide the development of the entire plan.

### **Vision Statement:**

“Plan for a safe, efficient, appropriate, responsible, integrated, multi-modal transportation system throughout the Wilmington Urban Area over the next 25 years.”

### **Goals:**

- Safe – reduces injuries and improves the sense of safety for all users
- Efficient – moves the most people and goods in a cost-effective manner, while using the least amount of resources
- Appropriate – contributes to the quality of life and character of the region through proper design
- Responsible – protects existing investments and limits environmental and social impacts
- Integrated – links with other transportation and land use plans as well as future infrastructure investments
- Multimodal – provides a choice of modes for most trips

## **CAC’s Public Involvement Strategy**

The CAC implemented a three-pronged approach to soliciting and integrating public input for the development of *Cape Fear Transportation 2040*.

1. *Initial Outreach Efforts* – Before defining the transportation needs for the Greater Wilmington Area; CAC directed staff to develop methods that would reach the broad spectrum of people in the Greater Wilmington Area (1) to educate them on the development of Cape Fear Transportation 2040 and (2) to solicit feedback on current and future transportation needs.
2. *Outreach Efforts to Solicit Proposal Feedback* – Before finalizing the draft plan; CAC directed staff to develop methods that would reach the broad spectrum of people in the Greater Wilmington Area (1) to solicit general feedback on the draft plan and (2) to ascertain whether the draft plan represented the desired projects within the fiscal constraint of the document.
3. *Ongoing Public Outreach Efforts* – The CAC also directed that there be opportunities for the general public to learn about the development of *Cape Fear Transportation 2040* and to provide feed-back throughout its development.

Methods used to achieve each of these three efforts are described in more detail in the following sections of this element.



## Initial Outreach Efforts

In order to identify the transportation needs of the community, the CAC directed staff to solicit broad public input primarily through a survey in the Spring of 2013.

### Kickoff

CAC directed WMPO staff to organize a kick-off event for the development of Cape Fear Transportation 2040 and the opening of the *Cape Fear Transportation 2040* Survey. The WMPO organized a kick-off on Tuesday, May 21, 2013 in the Oleander Room at the Northeast Public Library (1241 Military Cut-off Road). The speakers at the kickoff included CAC Chair Howard Loving, TAC Chair Laura Padgett, and TAC Member Michael Lee. The kickoff included information about the development of the project, its importance, the launch of the website, and the launch of a video enticing public participation. The event was well-attended by the media and the public with 50 people signing-in.

### Toolkit Distribution

Staff developed an outreach toolkit to advertise the survey and educate the public on the planning process. CAC then developed a large inventory of media outlets and other public, private, and non-profit entities to reach out to. CAC members and WMPO staff contacted each organization on the list to determine how to educate their respective members/staff and/or contacts about opportunities to get involved with *Cape Fear Transportation 2040*, specifically to complete the survey. Our toolkit of materials included the *Cape Fear Transportation 2040* website and link to complete the survey as well as other materials designed to advertise the survey to include posters, fliers, brochures, a template email, a letter, and a PowerPoint presentation

### Advertisement

In addition to the toolkit of outreach materials, additional advertisement strategies were utilized. These strategies include:

- Advertisements in newspapers as per the WMPO Public Involvement Policy
- Advertisements on television
- Press Release and subsequent print & radio Interviews
- Providing a link on WMPO member websites



News media coverage of public outreach.

## Open Houses

CAC directed staff to host open houses to educate the public on how they could be involved in the plan development process and to solicit feedback on the *Cape Fear Transportation 2040 Survey*. The open houses were held throughout the region to reach a broad spectrum of the citizens. Each open house was handicapped and transit accessible (with the exception of the Carolina Beach and Pender County locations because at the time these jurisdictions did not have fixed-route transit service). Attendees were presented with a rolling PowerPoint Presentation which related background information about the development of the plan. Attendees were encouraged to engage in the plan development through maps provided for their input on where they saw transportation needs in the community, as well as an opportunity to participate in the *Cape Fear Transportation 2040 Survey*. The initial outreach open house schedule was as follows:

- Tuesday, September 17, 2013 *Leland Town Hall 6-7:30PM*
- Wednesday, September 18, 2013 *Carolina Beach Town Hall 6-7:30PM*
- Monday, September 23, 2013 *Forden Station 1-4PM*
- Monday, September 23, 2013 *Halyburton Park 6-7:30PM*
- Tuesday, September 24, 2013 *Pender County Library, Hampstead Branch 6-7:30PM*

## Survey

The CAC directed staff to create a short survey about transportation issues and services in the Greater Wilmington Area. The two main goals of the survey were (1) to get broad public participation and (2) to receive responses which illuminated residents' and employees' travel needs in order to develop projects and policies in *Cape Fear Transportation 2040* to support the needs of the community. The survey was open to the public from May 21, 2013 (the date of the kickoff) to November 30, 2013 and the WMPO received 4,165 responses. The survey was published in English and Spanish and was distributed through all of the mechanisms described in this section. Information about survey responses is detailed towards the end of the *Public Involvement Element*.

## Outreach Efforts to Solicit Proposal Feedback



In order to provide local organizations, member jurisdictions, and the general public an opportunity to review and provide feedback on the draft *Cape Fear Transportation 2040* recommendations before creating a final report, the CAC directed staff to solicit broad public input on the draft proposal from April 1, 2015 to April 30, 2015.

## **Advertisement**

After the draft fiscally-constrained project lists were developed, CAC members accompanied WMPO Staff to give presentations soliciting input from WMPO member jurisdictions. These presentations were made at the regularly scheduled open public meetings for each member jurisdiction so as to inform the decision-making boards and the interested public about the opportunity to review and provide comments on the draft proposal. The schedule of these presentations is below:

- Town of Belville Board of Commissioners Meeting *Monday, February 23, 2015*
- Town of Carolina Beach Council Meeting *Tuesday, March 10, 2015*
- Town of Wrightsville Beach Board of Alderman Meeting *Thursday, March 12, 2015*
- New Hanover County Commissioners Meeting *Monday, March 16, 2015*
- Brunswick County Commissioners Meeting *Monday, March 16, 2015*
- Pender County Commissioners Meeting *Monday, March 16, 2015*
- Town of Navassa Council Meeting *Monday, March 16, 2015*
- City of Wilmington Council Meeting *Tuesday, March 17, 2015*
- Town of Leland Council Meeting *Thursday, March 19, 2015*
- Town of Kure Beach Council Meeting *Monday, March 23, 2015*
- Cape Fear Public Transportation Authority *Thursday, March 26, 2015*

The availability for public review and comment on the draft proposal was also advertised through a press release, newspaper advertisements, and through local member jurisdictions' websites.

## **Comment Sheet**

Under the direction of CAC, WMPO staff produced a 7-question comment form that both provided an opportunity for open-ended evaluation of the planning effort and guided public input to review and comment on the project lists. Information about comment form responses is detailed towards the end of the *Public Involvement Element*.

## **Open Houses**

A series of seven open houses were held to gather public input regarding the draft plan and project list. The open house dates and locations are as follows:

- Thursday, April 2, 2015 *Forden Station 1-3PM*
- Tuesday, April 7, 2015 *Hillcrest Community Center 4-6PM*
- Monday, April 13, 2015 *Halyburton Memorial Park 4-6PM*
- Tuesday, April 14, 2015 *Carolina Beach Town Hall 4-6PM*
- Thursday, April 16, 2015 *Leland Town Hall 4-6PM*
- Thursday, April 23, 2015 *Pender County Hampstead Annex 4-6PM*
- Monday April 27th *Bradley Creek Elementary School 4-6PM*

## Website subpage

All the materials available at the public open houses were also available online for review and comment via <http://transportation2040.org> as a “virtual open house”. Website viewers were encouraged to review maps, project lists, and the draft plan and to provide comment via an online version of the comment sheet from April 1, 2015 through April 30, 2015.

## Ongoing Public Outreach Efforts

### Website

CAC directed staff to create, update, and maintain a website for the development of *Cape Fear Transportation 2040* and to have the website available for the public’s reference from the date of the plan kickoff (May 21, 2013) through the plan’s adoption (December 9, 2015). The website contained plan background information, a resource center, information on how to get involved with the planning process, and contact information for the WMPO. The website also directed the public to any available online surveys or comment forms relevant to the plan’s development.

### CAC, TCC & TAC Meetings

WMPO staff presented updates on the plan’s development and progress at regularly scheduled and advertised open public meetings for the WMPO’s CAC, the TCC (Technical Coordinating Committee) and the TAC (Transportation Advisory Committee). TAC meetings provide an opportunity for public comment as part of the regular agenda.

## Cape Fear Transportation 2040 Survey Results

### Question 1

THE PERCENTAGE OF TRIPS I CURRENTLY MAKE TO WORK/SCHOOL:					
ANSWER OPTIONS	0%	1 %-25%	25%-50%	+50%	RESPONSE COUNT
In a private vehicle	402	130	157	3281	3970
In a carpool/vanpool	1776	172	49	37	2034
Using public transportation	1886	72	34	91	2083
By bicycle	1710	286	88	93	2177
Walking	1707	286	70	74	2137
ANSWERED QUESTION					4102
SKIPPED QUESTION					63



**Question 2**

THE PERCENTAGE OF TRIPS I CURRENTLY MAKE TO RUN ERRANDS:					
ANSWER OPTIONS	0%	1%-25%	25%-50%	+50%	RESPONSE COUNT
In a private vehicle	56	107	264	3621	4048
In a carpool/vanpool	1582	206	91	30	1909
Using public transportation	1762	63	40	70	1935
By bicycle	1379	574	147	64	2164
Walking	1285	684	113	36	2118
ANSWERED QUESTION					4143
SKIPPED QUESTION					22

**Question 3**

MY CHILDREN CURRENTLY USE THE FOLLOWING TRANSPORTATION OPTIONS TO GET TO SCHOOL AND ACTIVITIES:		
ANSWER OPTIONS	RESPONSE %	RESPONSE COUNT
Private vehicle	32.7%	1334
Bike	4.7%	192
Carpool/vanpool	4.3%	175
School bus	12.0%	488
Walk	4.9%	201
Not applicable	61.2%	2493
ANSWERED QUESTION		4075
SKIPPED QUESTION		90

**Question 4**

IN THE FUTURE, TO GET TO WORK/SCHOOL, I WOULD PREFER TO:				
ANSWER OPTIONS	MORE OFTEN	LESS OFTEN	THE SAME AMOUNT	RESPONSE COUNT
Drive a car	281	1232	1818	3331
Use a carpool/vanpool	493	297	1084	1874
Use public transportation	1051	265	945	2261
Ride a bicycle	1293	229	806	2328
Walk	900	237	927	2064
ANSWERED QUESTION				3870
SKIPPED QUESTION				295

## Question 5

IN THE FUTURE, TO RUN ERRANDS, I WOULD PREFER TO:				
ANSWER OPTIONS	MORE OFTEN	LESS OFTEN	THE SAME AMOUNT	RESPONSE COUNT
Drive a car	341	1201	1967	3509
Use a carpool/vanpool	292	346	1183	1821
Use public transportation	943	287	949	2179
Ride a bicycle	1507	220	730	2457
Walk	1219	212	787	2218
ANSWERED QUESTION				4026
SKIPPED QUESTION				139

## Question 6

IF IT WERE SAFE AND CONVENIENT, I WOULD ENCOURAGE MY CHILDREN TO USE THE FOLLOWING TRANSPORTATION OPTIONS MORE OFTEN:		
ANSWER OPTIONS	RESPONSE %	RESPONSE COUNT
Private vehicle	10.3%	412
Bike	31.1%	1238
Carpool/vanpool	8.4%	335
School bus	13.3%	531
Walk	25.5%	1015
Not applicable	54.2%	2160
ANSWERED QUESTION		3982
SKIPPED QUESTION		183

## Question 7

I WOULD TAKE THE BUS MORE OFTEN IF THE FOLLOWING FACTORS WERE PRESENT: (CHOOSE 3)		
ANSWER OPTIONS	RESPONSE %	RESPONSE COUNT
Park and Ride was available	29.3%	1096
Access to bus stops (sidewalks, etc.)	32.3%	1209
More frequent bus service	39.7%	1487
Express routes along major roads	32.6%	1219
Amenities (benches, shelters, etc.)	25.6%	957
Nothing will result in me riding the bus	37.8%	1415
Other (please specify)	11.7%	437
ANSWERED QUESTION		3741
SKIPPED QUESTION		424

**Question 8**

I WOULD ENCOURAGE MY SCHOOL-AGED CHILDREN TO TAKE THE SCHOOL BUS MORE OFTEN IF THE FOLLOWING FACTORS WERE PRESENT: (CHOOSE 3)		
ANSWER OPTIONS	RESPONSE %	RESPONSE COUNT
Less time on bus	22.9%	687
Add a bus monitor	22.3%	668
Drop-off and pick-up closer to home	20.7%	621
Drop-off and pick-up at better times	15.3%	457
Nothing will result in my children riding the bus	17.4%	520
My children already ride the bus	10.9%	326
Other (please specify)	40.3%	1206
ANSWERED QUESTION		2995
SKIPPED QUESTION		1170

**Question 9**

I WOULD CARPOOL/VANPOOL MORE OFTEN IF THE FOLLOWING FACTORS WERE PRESENT: (CHOOSE 3)		
ANSWER OPTIONS	RESPONSE %	RESPONSE COUNT
Information about others participating	32.4%	1139
Park and Ride lots	26.8%	943
Priority parking for carpools/vanpools	18.7%	659
Free emergency rides	12.1%	425
Special traffic lanes for car/vanpools	17.1%	602
Nothing will result in carpooling/vanpooling	47.4%	1666
Other (please specify)	8.2%	289
ANSWERED QUESTION		3515
SKIPPED QUESTION		650

**Question 10**

I WOULD BICYCLE MORE OFTEN IF THE FOLLOWING FACTORS WERE PRESENT: (CHOOSE 3)		
ANSWER OPTIONS	RESPONSE %	RESPONSE COUNT
More off-road multi-use paths	61.9%	2281
More on-road bike lanes	46.9%	1727
More information about bike routes	29.5%	1086
Showers and changing rooms at work	19.2%	709
Bike share/bike rental	10.3%	380
I already bicycle as often as possible	8.3%	304
Nothing will result in me riding a bike	23.0%	848
Other (please specify)	10.0%	369
ANSWERED QUESTION		3684
SKIPPED QUESTION		481

## Question 11

I WOULD WALK MORE OFTEN IF THE FOLLOWING FACTORS WERE PRESENT: (CHOOSE 3)		
ANSWER OPTIONS	RESPONSE %	RESPONSE COUNT
More sidewalks and multi-use paths	61.8%	2267
Safe intersection crossings	53.8%	1971
Safe connections from homes to stores, offices, etc.	47.8%	1753
Information about walking routes	16.9%	620
Showers and changing rooms at work	9.4%	343
I already walk as often as possible	13.7%	503
Nothing will result in me walking	18.9%	693
Other (please specify)	6.4%	234
ANSWERED QUESTION		3666
SKIPPED QUESTION		499

## Question 12

WE SHOULD INVEST TRANSPORTATION DOLLARS IN: (CHOOSE 3)		
ANSWER OPTIONS	RESPONSE %	RESPONSE COUNT
Bicycle/pedestrian facilities	32.2%	1198
Bicycle/pedestrian safety corridors	54.6%	2033
Public transportation	39.9%	1486
Improving existing roads - quality	50.6%	1884
Improving existing roads - safety	56.1%	2086
Building new roads	21.7%	809
Beautifying roads	12.8%	476
Park and Ride lots	16.2%	602
ANSWERED QUESTION		3721
SKIPPED QUESTION		444

## Question 13

MY TOP 3 TRAVELING PRIORITIES ARE:		
ANSWER OPTIONS	RESPONSE %	RESPONSE COUNT
Safety	81.9%	3064
Travel time	67.7%	2533
Convenience	68.5%	2564
Cost	32.1%	1201
Health benefits	13.5%	505
Comfort	14.5%	543
Environmental impact	19.5%	730
ANSWERED QUESTION		3741
SKIPPED QUESTION		424



**Question 14**

I WOULD RATHER: (CHOOSE 1)		
ANSWER OPTIONS	RESPONSE %	RESPONSE COUNT
Pay a toll	17.1%	633
Wait in traffic	11.9%	441
Depends on my destination/time/schedule/finances	71.0%	2627
ANSWERED QUESTION		3701
SKIPPED QUESTION		464

**Question 15**

I SUPPORT THESE 3 REVENUE SOURCES THE MOST:		
ANSWER OPTIONS	RESPONSE %	RESPONSE COUNT
Higher gas tax	16.5%	601
Higher sales tax	13.5%	494
Higher property tax	6.0%	219
Tolls	30.3%	1106
User fees	28.5%	1038
Impact fees on development	40.8%	1489
Higher motor vehicle registration	19.5%	711
Mileage fee for use of roadway	11.9%	434
None of the above - existing facilities have excess capacity and can accomodate population and industry growth	33.9%	1236
ANSWERED QUESTION		3647
SKIPPED QUESTION		518

**Question 16**

LIST YOUR IDEAS FOR SPECIFIC NEW TRANSPORTATION PROJECTS IN THE CAPE FEAR AREA (E.G. ADD TWO LANES TO SMITH ROAD BETWEEN STREET A AND STREET B).	
	1903
ANSWERED QUESTION	1903
SKIPPED QUESTION	2262

**Question 17**

IN WHAT ZIP CODE IS YOUR HOME LOCATED? (ENTER 5-DIGIT ZIP CODE; FOR EXAMPLE, 00544 OR 94305)	
ANSWER OPTIONS	RESPONSE COUNT
	3474
ANSWERED QUESTION	3647
SKIPPED QUESTION	691

## Question 18

WHAT IS YOUR GENDER?		
ANSWER OPTIONS	RESPONSE %	RESPONSE COUNT
Female	58.5%	2128
Male	41.5%	1507
ANSWERED QUESTION		3635
SKIPPED QUESTION		530

## Question 19

WHAT IS YOUR RACE? MARK ONE OR MORE.		
ANSWER OPTIONS	RESPONSE %	RESPONSE COUNT
White	87.0%	3132
Black or African American	5.6%	202
Hispanic	1.0%	35
Asian American	0.4%	14
Native Hawaiian or Other Pacific Islander	0.2%	8
American Indian or Alaska Native	0.5%	19
Multiple races	2.9%	105
Other	2.3%	83
ANSWERED QUESTION		3598
SKIPPED QUESTION		567

## Question 20

WHAT IS YOUR RACE? MARK ONE OR MORE.		
ANSWER OPTIONS	RESPONSE %	RESPONSE COUNT
\$0 - \$25,000	10.6%	362
\$25,000 - \$50,000	24.1%	822
\$50,000 - \$75,000	24.2%	823
\$75,000 - \$100,000	18.1%	616
Over \$100,000	23.0%	784
ANSWERED QUESTION		3407
SKIPPED QUESTION		758

**Question 21**

WHAT IS YOUR AGE?		
ANSWER OPTIONS	RESPONSE %	RESPONSE COUNT
Under 18	0.2%	8
18 to 29	13.1%	475
30 - 39	19.3%	701
40 - 49	21.5%	780
50 - 64	31.9%	1156
Over 64	13.9%	504
ANSWERED QUESTION		3624
SKIPPED QUESTION		541

**Question 22**

CHECK ALL THAT APPLY:		
ANSWER OPTIONS	RESPONSE %	RESPONSE COUNT
I am a resident of the area	92.9%	3419
I am a tourist visiting the area	0.4%	13
I am a part-time resident	3.3%	123
I am a student	12.5%	459
I do not live here but I work here	3.2%	119
ANSWERED QUESTION		3682
SKIPPED QUESTION		483





# FINANCIAL ANALYSIS ELEMENT

## Introduction

Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21), the current federal surface transportation funding and authorization bill first passed on June 29, 2012 requires a financial plan as a part of a Metropolitan Planning Organization's (MPO) Metropolitan Transportation Plan (MTP). The financial plan shows proposed investments that are realistic in the context of reasonably anticipated future revenues over the life of the *WMPO MTP*. Meeting this test is referred to as "financial constraint." The mix of recommendations proposed to meet the WMPO's metropolitan transportation needs over the next 25 years is consistent with funding forecasts. The financial plan details both proposed investments toward these recommendations and funding forecasts over the life of the plan.

## MAP-21 and STI Changes

MAP-21 replaced the previous federal surface transportation bill called the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). SAFETEA-LU provided federal funding from 2005 to 2009 and was renewed until MAP-21 was passed in 2012. MAP-21 includes consolidations of several funding programs, such as the Transportation Alternatives Program (combining the Transportation Enhancements, Safe Routes to Schools, and Recreational Trails programs) and several transit funding sources.

The North Carolina Department of Transportation (NCDOT) also recently changed transportation laws which govern how federal and state transportation dollars are spent throughout the state. Prior to the passing of the Strategic Transportation Investments (STI) Law (House Bill 817) in 2013 and the subsequent implementation of the Strategic Mobility Formula, the Equity Formula was NCDOT's method for allocating funding to transportation projects in North Carolina. The Equity Formula's funding distributions were based on a region's population (50%) and the number of intrastate highway miles in the region (25%). The remaining 25% was equally distributed amongst all regions. In contrast, the Strategic Mobility Formula is performance-based and awards funding for the highest-scoring projects at the division, regional, and statewide tiers. Prioritization 3.0 (P3.0) and subsequent NCDOT Prioritization Processes to date are the result of the Strategic Mobility Formula's evaluation of each project submitted to NCDOT.

Funding projections in this Financial Element are based on historical funding levels, which are based on the Equity Formula. While the Strategic Mobility Formula is expected to change funding levels in the future, it has not been in place long enough to use as a basis for projecting future funding for the WMPO. The funding projections in this chapter are based on the best available information and have been created in consultation with NCDOT.

## **Financial Plan Development**

The purpose of a financial plan is to compare the anticipated level of funding with the total cost of projects recommended as part of the MTP. In nearly all urban regions in the United States, the total cost of desired projects exceeds expected funding levels, necessitating a process by which projects are prioritized and matched to available funding. The WMPO MTP process initially identified a need for approximately \$11 billion in capital transportation improvements across all travel modes. However, only \$3.7 billion in funding can be reasonably expected over the life of the plan and adjustments had to be made to the project lists included in this plan to meet “financial constraint”.

The WMPO and Kimley-Horn coordinated with member jurisdictions and subject matter experts to develop the financial plan, matching the available funding to project costs to produce a financially constrained MTP. A discussion of the financial analysis conducted for this plan follows and additional information can be found in Appendix E.

## **Funding Development**

Revenue forecasts were developed after conducting a review of previous state and local expenditures, current funding trends, and likely future funding levels. The revenue forecasts involved consultation with WMPO, NCDOT, Wave Transit, and the Wilmington International Airport. All dollar figures discussed in this section initially were analyzed in current year dollars (i.e. 2014) and then inflated to reflect projected year of funding or implementation. Based on current statewide standards and applicable local forecasts, an annual inflation rate of 3% was used to forecast costs and funding.

## **Cost Development**

The majority of the cost estimates for roadway projects included in this plan were estimated using NCDOT’s web-based tool called SPOT Online (the P3.0-version). Kimley-Horn proposed adjustments to these cost estimates to reflect their local knowledge of the projects and to account for impacts not captured by SPOT Online. Cost estimates were further calibrated by comparing NCDOT cost estimates included in previous versions of the STIP.

Bicycle and pedestrian project cost estimates were also based on values shown in SPOT Online which were further reviewed and verified by Kimley-Horn through comparison with previously approved facility construction costs and information from the North Carolina Department of Environment and Natural Resources (NCDENR). Initial transit cost estimates were provided by Wave Transit. Initial aviation project cost estimates came from the Wilmington International Airport’s capital improvement plan. The WMPO coordinated with NCDOT to develop cost estimates for the freight, rail, and ferry projects. Kimley-Horn reviewed and appropriately verified or modified the initial cost estimates for every project before it was included in this plan.

Cost estimates were developed for the current year and adjusted by 3% to reflect a reasonable expectation of inflation during the financial constraint process.

## Financial Constraint

The financial constraint process seeks to match anticipated funding to the highest priorities identified through the MTP development process. To accomplish financial constraint, the 25-year planning timeframe of this document was broken into a series of 5 five-year funding bands (2015-2020, 2021-2025, 2026-2030, 2031-2035, 2036-2040). A projected amount of transportation funding available for each mode in the study area was developed for each of the five funding bands. The funding projections for each mode were developed to reflect funding sources available particular to each mode and a 3% annual inflation rate. Project cost estimates were also adjusted to the appropriate year to reflect the assumed 3% annual inflation rate.

## Modal Financial Planning

Table 1 below shows the total funding projections and the combined costs of recommended projects over the life of the plan for each transportation mode. The financial analysis assumes that all available operations and maintenance funding will be utilized for each of the modes.

TABLE 1. MTP FINANCIAL CONSTRAINT 2015-2040

MODE	CAPITAL			OPERATIONS & MAINTENANCE		
	FUNDING	COSTS	BALANCE	FUNDING	COSTS	BALANCE
Roadways	\$1,900,460,829	\$1,897,086,664	\$3,374,165	\$485,918,188	\$485,918,188	\$0
Bicycle and Pedestrian Transportation	\$114,789,757	\$113,277,086	\$1,512,671	\$11,543,052	\$11,543,052	\$0
Mass Transportation	\$84,590,015	\$82,588,164	\$2,001,851	\$274,911,047	\$274,911,047	\$0
Ferry	\$37,734,981	\$14,971,457	\$22,763,524	\$187,902,959	\$187,902,959	\$0
Aviation	\$206,764,921	\$50,926,494	\$155,838,427	\$295,526,593	\$295,526,593	\$0
Rail	\$39,995,582	\$18,496,783	\$21,498,799	n/a	n/a	n/a

## Funding Projections

The following tables, separated by mode, show the anticipated funding over the life of the plan. The tables show capital funding projections as well as operation and maintenance funding projections. Descriptions of individual funding sources are included in Appendix E.

## Roadways Funding

TABLE 2. ROADWAYS CAPITAL FUNDING FORECAST 2015-2040

FEDERAL					STATE		LOCAL		TOTAL
HSIP	HIGHWAY TRUST FUNDS	NHP	STP	STPDA	NHP MATCH	STP MATCH	STPDA MATCH	CoW BOND	
\$23,009,262	\$781,200,833	\$638,990,944	\$182,852,252	\$27,157,391	\$159,747,736	\$45,713,063	\$6,789,348	\$35,000,000	\$1,900,460,829

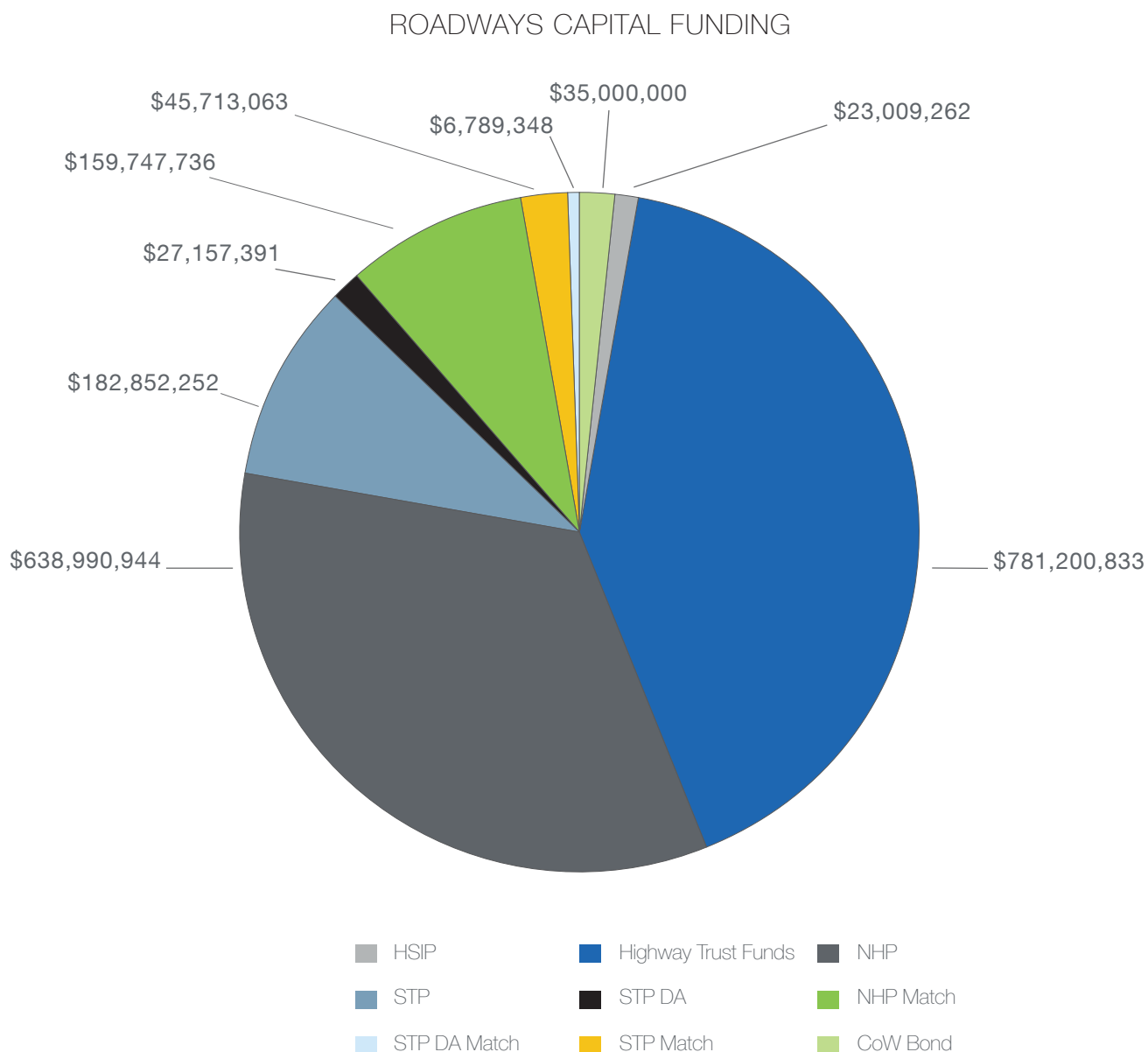
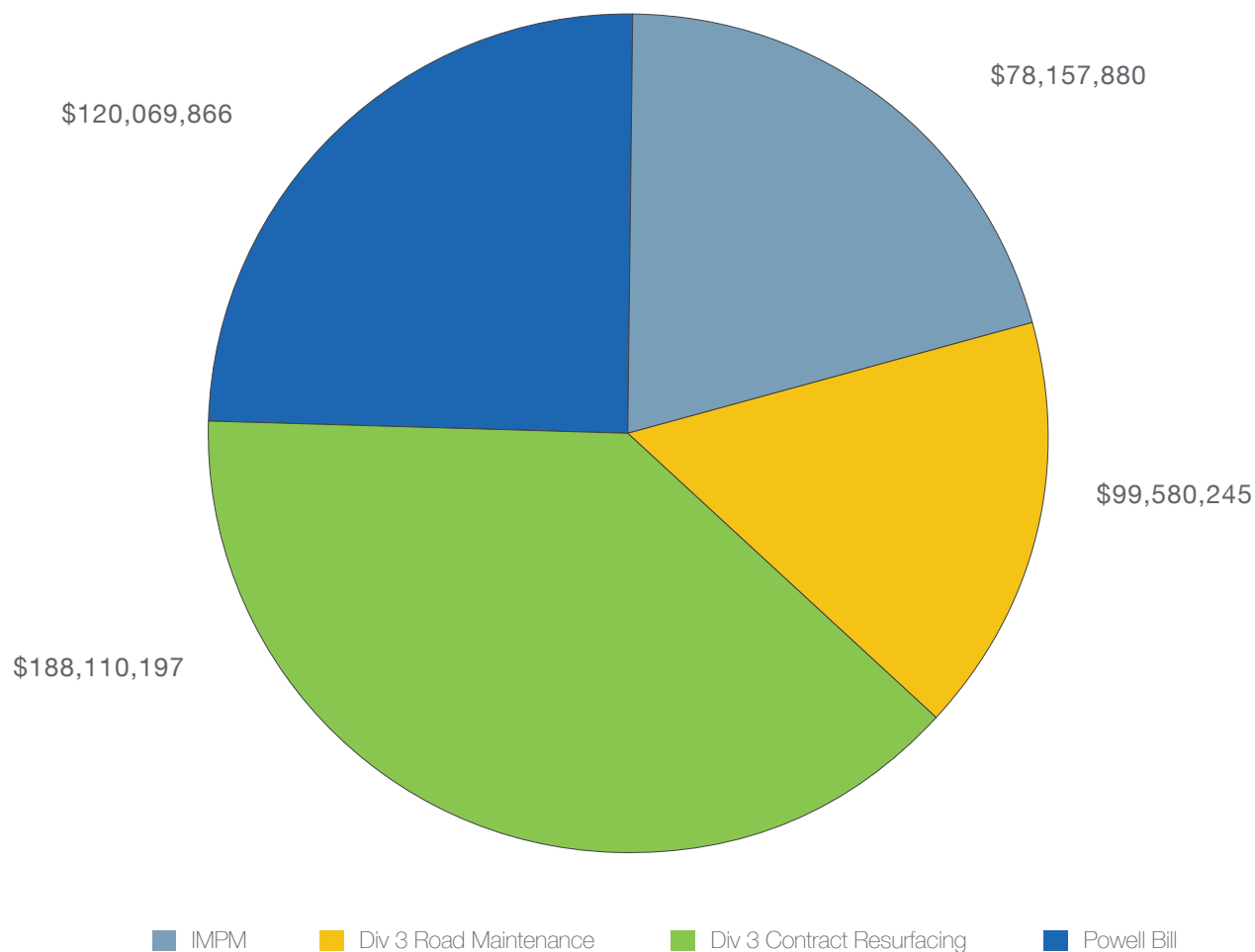




TABLE 3. ROADWAYS OPERATIONS AND MAINTENANCE FUNDING FORECAST 2015-2040

FEDERAL	STATE			TOTAL
IMPM	Div 3 Road Maintenance	Div 3 Contract Resurfacing	Powell Bill	
\$78,157,880	\$99,580,245	\$188,110,197	\$120,069,866	\$485,918,188

## ROADWAYS O&amp;M FUNDING



## Bicycle and Pedestrian Transportation Funding

TABLE 4. BICYCLE AND PEDESTRIAN TRANSPORTATION  
CAPITAL FUNDING FORECAST 2015-2040

TAP	STPDA	TAPDA	LOCAL MATCH	CoW BOND	TOTAL
WMPO SHARE OF STATE COMPETITIVE					
\$22,004,871	\$45,262,318	\$8,564,616	\$18,957,951	\$20,000,000	\$114,789,757

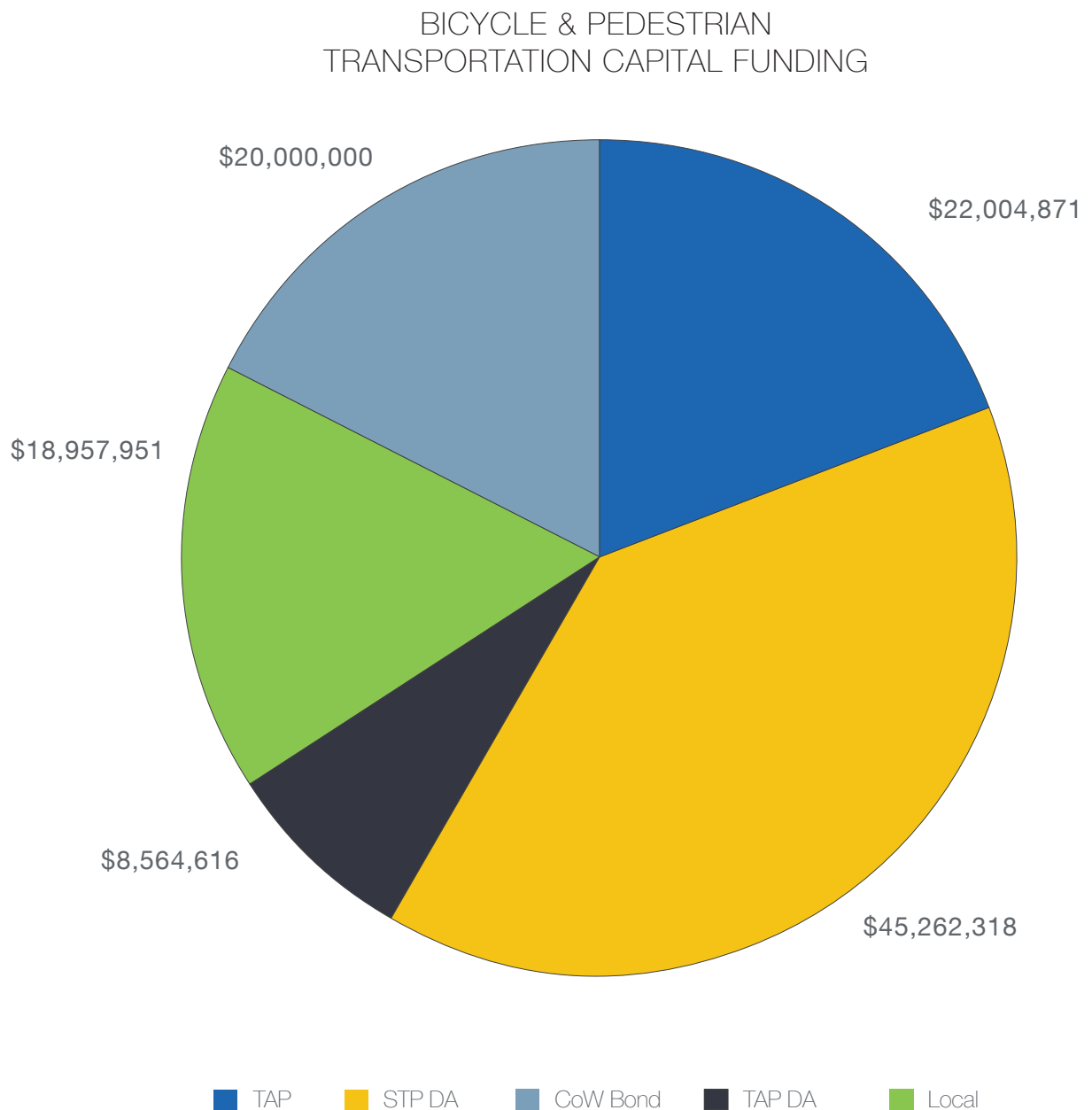
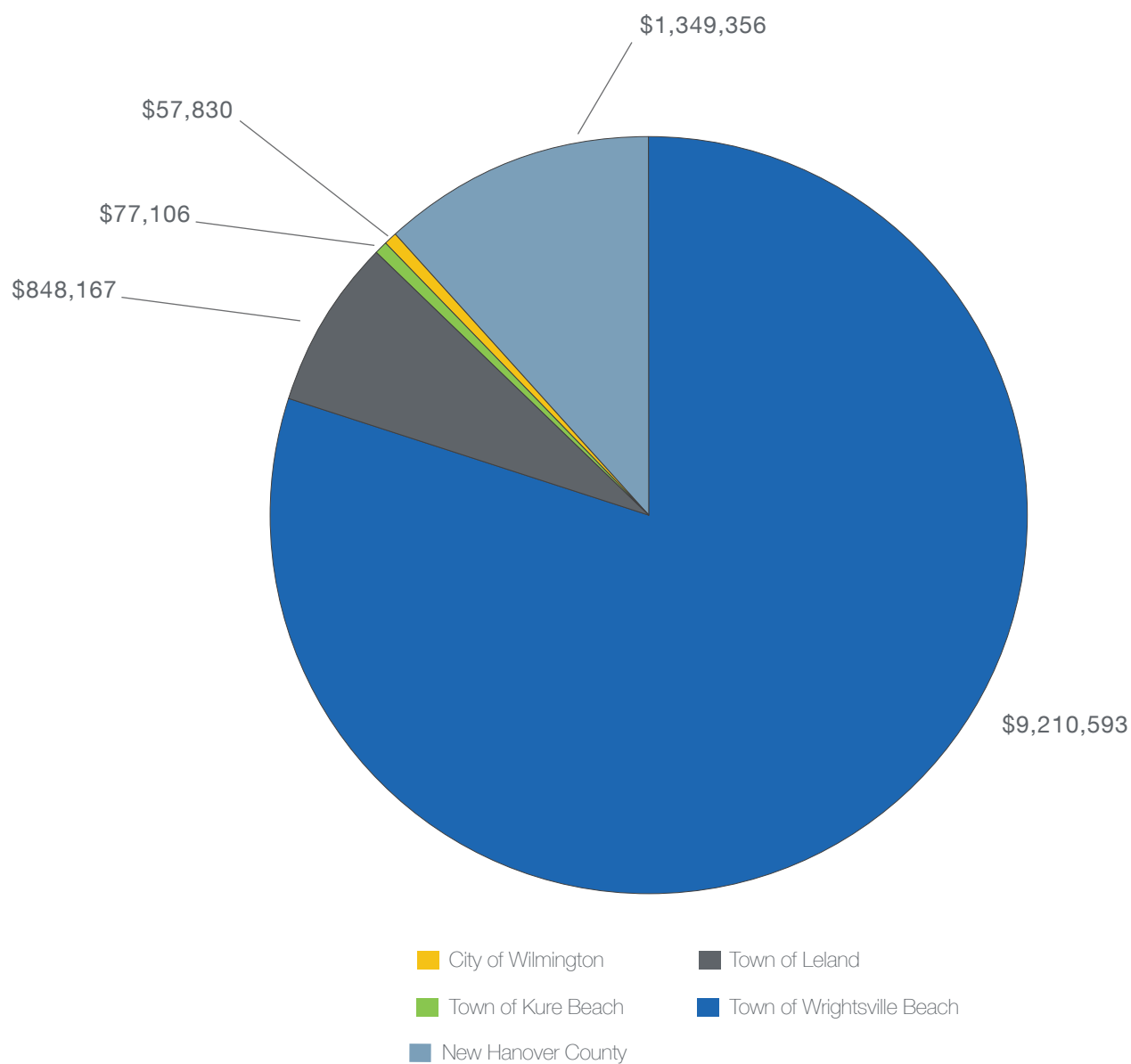


TABLE 5. BICYCLE AND PEDESTRIAN TRANSPORTATION OPERATIONS AND  
MAINTENANCE FUNDING FORECAST 2015-2040

CITY OF WILMINGTON			TOWN OF LELAND		TOWN OF KURE BEACH	TOWN OF WRIGHTSVILLE BEACH	NEW HANOVER COUNTY	TOTAL
TRAILS	SIDEWALKS	BIKE LANES	TRAILS	SIDEWALKS				
\$1,825,372	\$3,855,304	\$3,529,917	\$77,106	\$771,061	\$77,106	\$57,830	\$1,349,356	\$11,543,052

BIKE & PEDESTRIAN TRANSPORTATION  
O&M FUNDING

## Mass Transportation Funding

TABLE 6. MASS TRANSPORTATION CAPITAL FUNDING FORECAST 2015-2040

FEDERAL TRANSIT ADMINISTRATION				NCDOT	LOCAL	TOTAL
SECTION 5307	SECTION 5310	SECTION 5311 CTP	SECTION 5339	STATE MATCH	LOCAL MATCH	
\$491,551	\$896,358	\$1,503,569	\$64,780,533	\$6,767,201	\$10,150,802	\$84,590,015

MASS TRANSPORTATION CAPITAL FUNDING

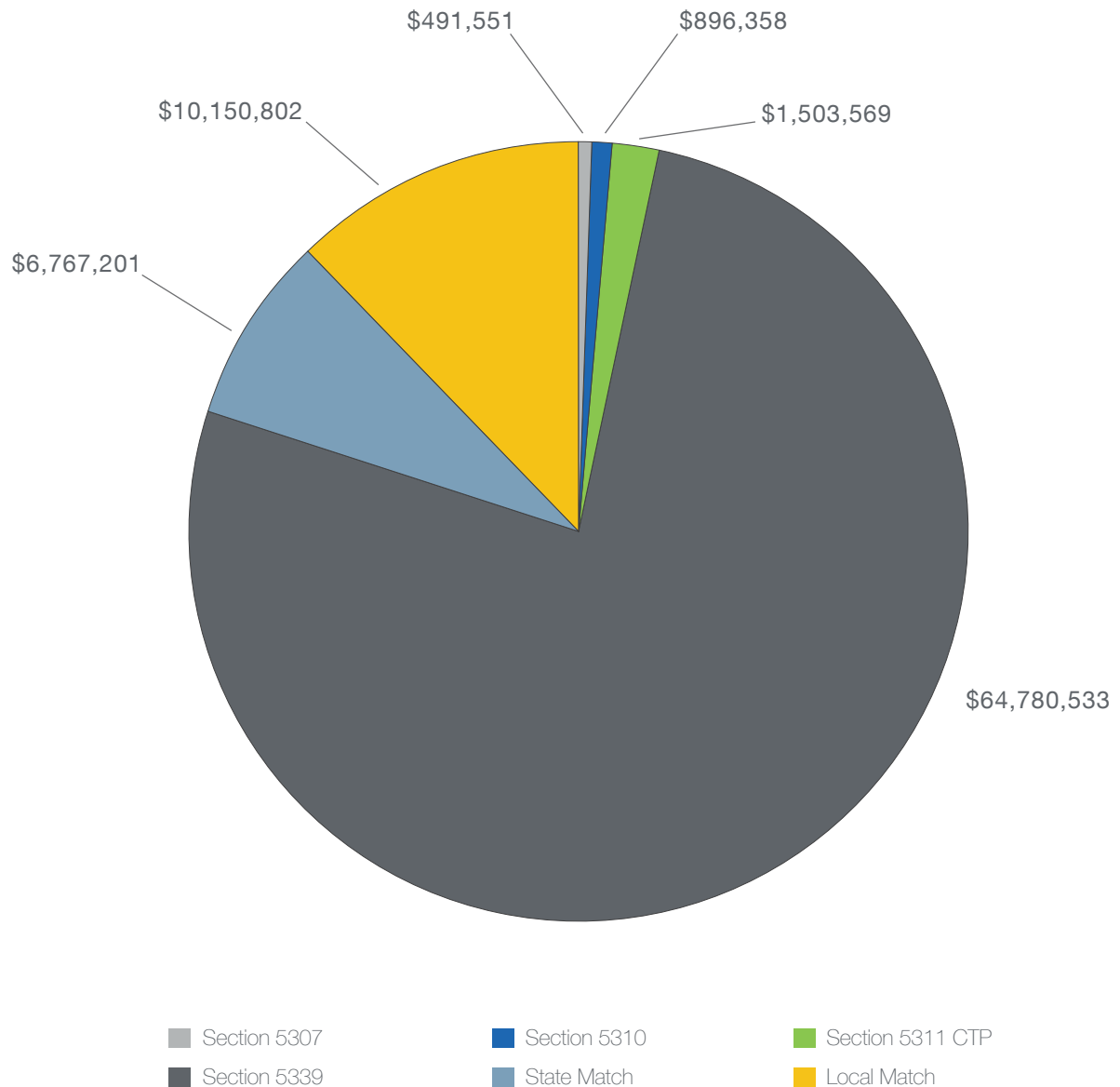


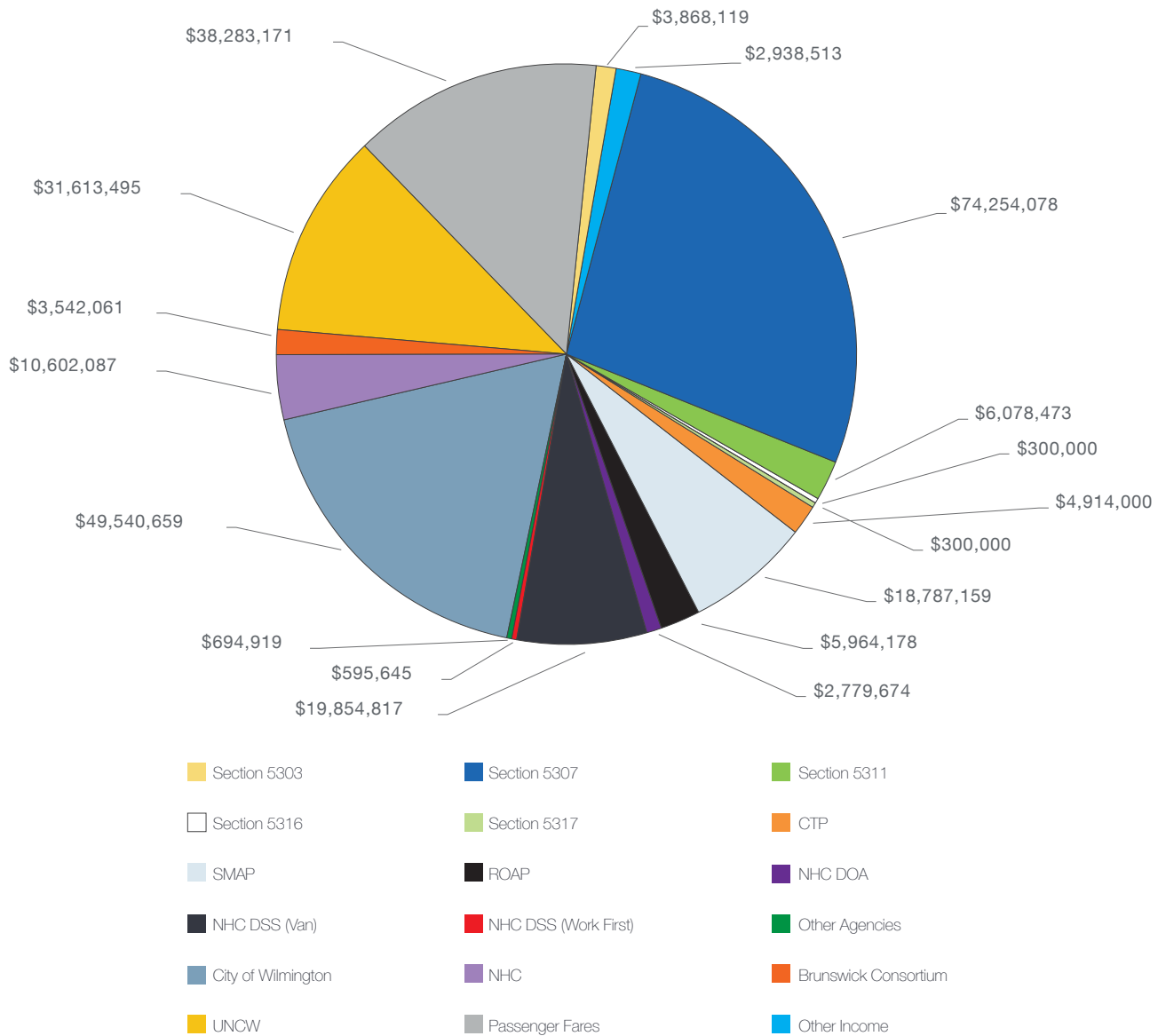
TABLE 7. MASS TRANSPORTATION OPERATIONS AND MAINTENANCE  
FUNDING FORECAST 2015-2040

FEDERAL TRANSIT ADMINISTRATION					NCDOT		
SECTION 5303	SECTION 5307	SECTION 5311	SECTION 5316	SECTION 5317	CTP	SMAP	ROAP
\$3,868,119	\$74,254,078	\$6,078,473	\$300,000	\$300,000	\$4,914,000	\$18,787,159	\$5,964,178

LOCAL								WAVE	OTHER INCOME	TOTAL
NHC DOA	NHC DSS (Van)	NHC DSS (Work First)	OTHER AGENCIES	CITY OF WILMINGTON	NHC	BRUNSWICK CONSORTIUM	UNCW	PASSENGER FARES		
\$2,779,674	\$19,854,817	\$595,645	\$694,919	\$49,540,659	\$10,602,087	\$3,542,061	\$31,613,495	\$38,283,171	\$2,938,513	\$274,911,047

MASS TRANSPORTATION O&amp;M FUNDING





## Ferry Funding

TABLE 8. FERRY CAPITAL FUNDING FORECAST 2015-2040

FBP	TOLL REVENUES	REGIONAL STI	TOTAL
\$7,190,138	\$29,178,043	\$1,366,800	\$37,734,981

FERRY CAPITAL FUNDING

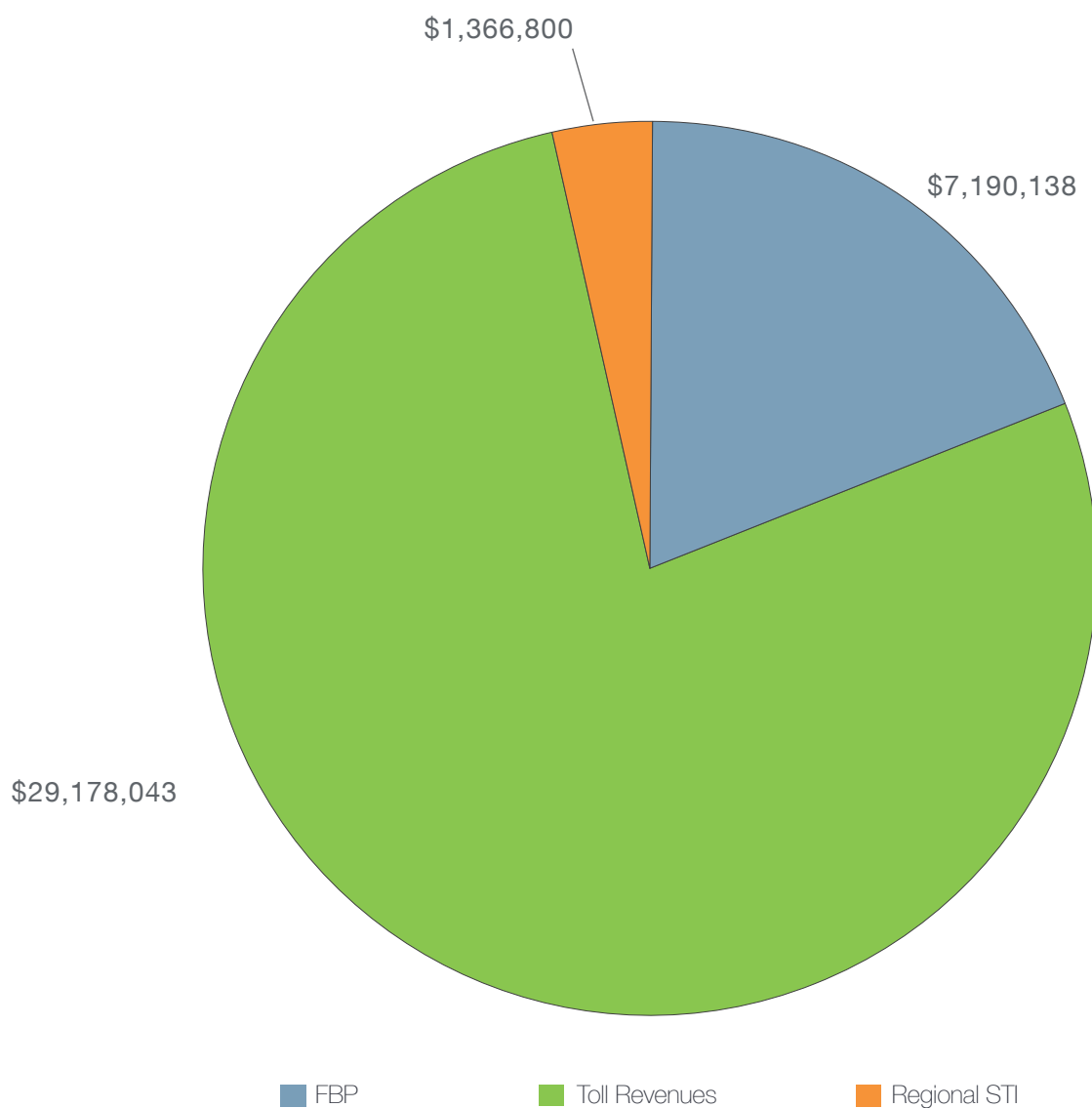


TABLE 9. FERRY OPERATIONS AND MAINTENANCE FUNDING FORECAST 2015-2040

HIGHWAY FUND
\$187,902,959

**Aviation Funding**

TABLE 10. AVIATION CAPITAL FUNDING FORECAST 2015-2040

AIP ENTITLEMENT	STATE MATCH	CFC	PFC	ILM MATCH	TOTAL
\$83,200,000	\$19,276,521	\$22,093,557	\$73,874,843	\$8,320,000	\$206,764,921

AVIATION CAPITAL FUNDING

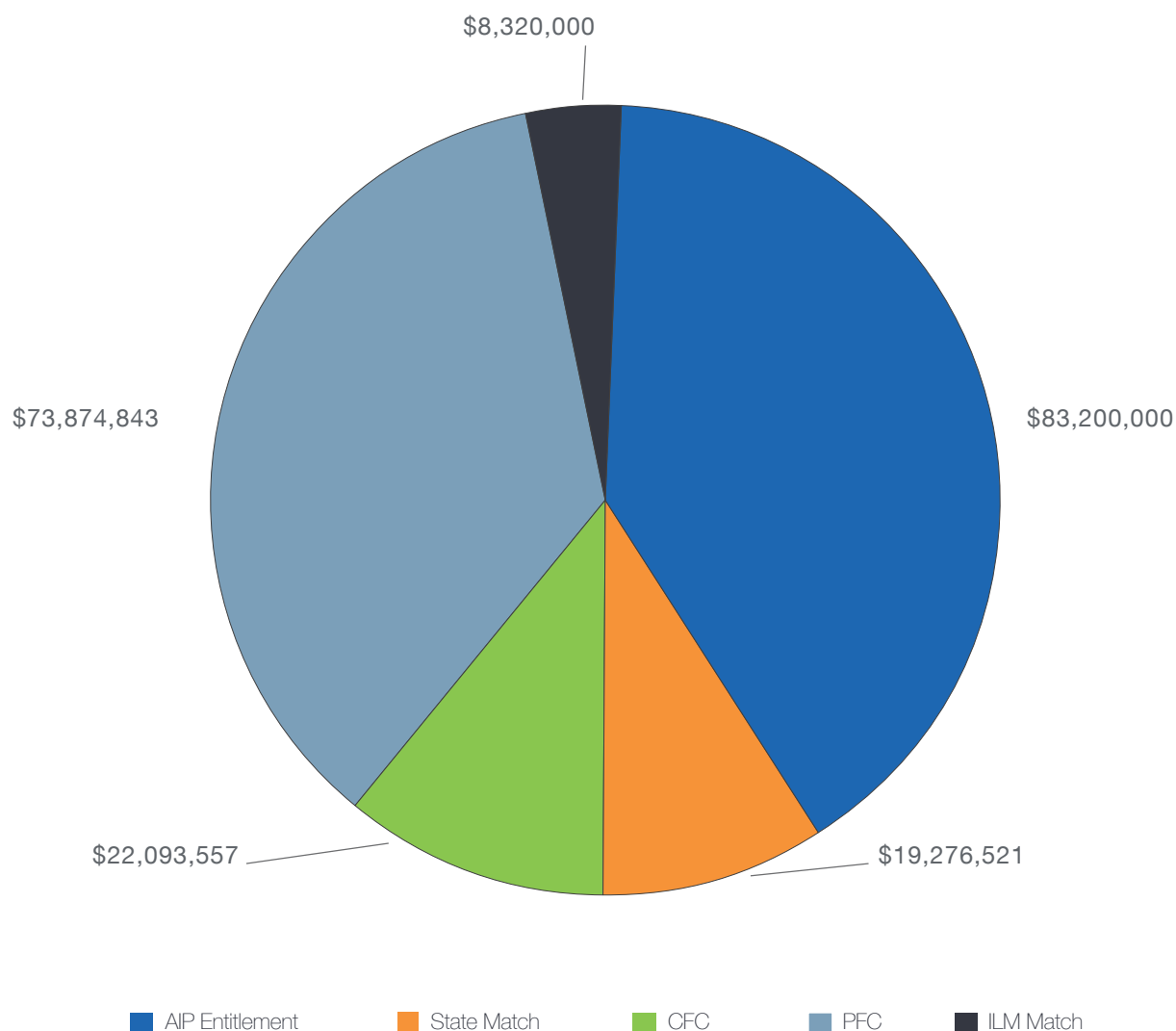


TABLE 11. AVIATION OPERATIONS AND MAINTENANCE FUNDING FORECAST 2015-2040

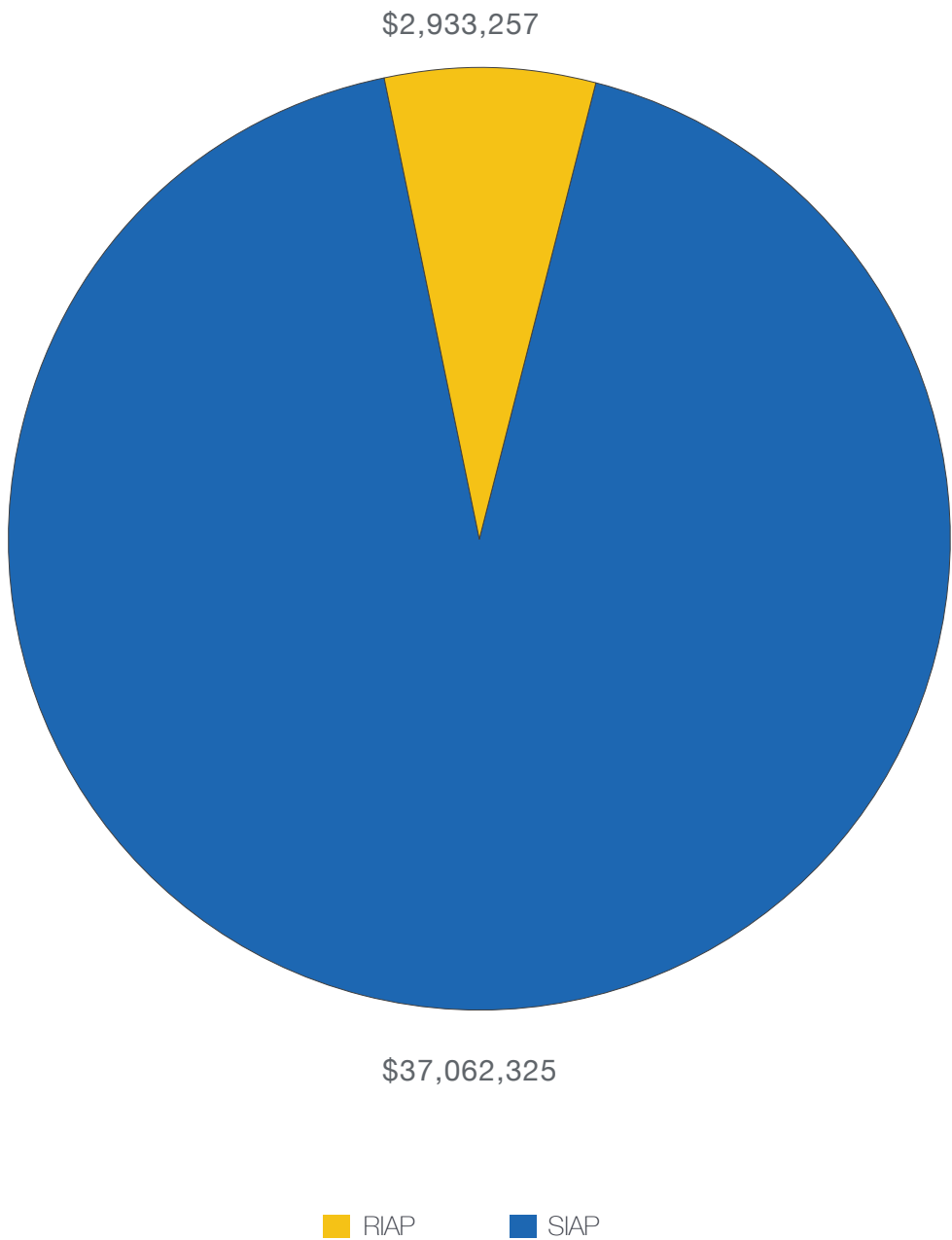
AIRPORT REVENUES
\$295,526,593

Freight and Rail Funding

TABLE 12. RAIL CAPITAL FUNDING FORECAST 2015-2040

FR&RCSI		TOTAL
RIAP	SIAP	
\$2,933,257	\$37,062,325	\$39,995,582

FREIGHT AND RAIL CAPITAL FUNDING



## Alternative Funding Sources

Historical recurring federal, state, and local revenues alone will not sufficiently fund a systematic program to construct transportation projects in the WMPO area. Through the development of the MTP, the WMPO identified and considered a range of alternative funding mechanisms that could potentially supplement the transportation funding anticipated to be available through traditional sources. A wide variety of these mechanisms were identified, including those currently in place elsewhere in North Carolina as well as mechanisms being considered in other parts of the country. Each alternative funding mechanism was explored in greater detail through discussions with the TCC and TAC. Based on these discussions, a subset of preferred alternative funding mechanisms were identified and evaluated to determine potential future funding levels. The assessment of alternative funding sources provides WMPO with information for further consideration and study in the future. Projects that could potentially be funded through these funding mechanisms are noted with an asterisk in their respective project lists.

### Quarter-Cent Local Option Sales Tax

The local option sales tax is implemented at the county level and typically requires a voter referendum. While several different types of local option sales tax exist, only one may be enacted at a time. Since 2007, North Carolina counties (but not cities) have had the option to increase the sales tax by a quarter of a penny, pending voter referendum, to fund transportation improvements, per North Carolina General Statute 105-535. From November 2007 to November 2012, 90 referendums had been held in 59 counties, and 25 were approved while 65 failed. On May 4th, 2010, New Hanover County voters approved the quarter-cent sales tax referendum, and the sales tax took effect on October 1st. The tax does not apply to groceries, prescription drugs, gasoline, automobile purchases, and utilities. Sales tax revenues can be used to fund any county-maintained service. Additional legislative authority and a new voter referendum would be needed to implement an additional quarter-cent local option sales tax in New Hanover County. Pender County can anticipate generating \$800,000 if they implement the quarter-cent local option sales tax.

A discussion follows of the alternative funding mechanisms that were used in the development of this plan along with a brief description of the implementation steps required for each mechanism. This section concludes with a description of how these mechanisms are anticipated to affect revenue projections in this plan. Additional discussion can be found in Appendix E.

### Quarter-Cent Local Option Sales Tax for Transit

Similar to the quarter-cent local option sales tax, the quarter-cent local option sales tax is implemented at the county level and requires a voter referendum and county approval. Only counties that operate mass transportation systems can consider this sales tax, and the revenues must be used to finance, construct, operate, and maintain the transit system. The enabling legislation for this sales tax can be found in North Carolina General

Statute (N.C. G.S.) 105-506. Currently, Durham, Mecklenburg, and Orange Counties are the only counties in North Carolina that have enacted a quarter-cent local sales tax for transit. Improvements eligible for funding through this revenue source can also include projects supportive of the transit system, such as supporting bicycle and pedestrian infrastructure and signal system improvements. New Hanover County can expect to generate anywhere from \$8 million to \$10 million for transit if it were to implement this local option sales tax.

### **Vehicle Registration Fees**

N.C. G.S. 105-570 enables county vehicle registration taxes. Durham and Orange Counties currently charge an annual \$10 vehicle registration fee for all vehicles registered in those counties to fund the financing, construction, operation, and maintenance of transit. Following a successful vote by the board of county commissioners, a county that operates a transit system can charge a maximum of \$7 for every registered vehicle with some exceptions (as noted in Durham and Orange Counties). New Hanover County could generate approximately \$1 million annually with a \$7 vehicle registration fee. However, Wave Transit's request in 2013 for the implementation of a vehicle registration fee in New Hanover County was not approved. Wave Transit may consider developing a capital improvement program (CIP) which would clearly define projects that may be funded with the revenues from a vehicle registration fee for transit.

### **Motor Vehicle License Tax**

Municipalities can levy an annual general motor vehicle tax up to \$5 based on N.C. G.S. 20-97. The revenues collected from a motor vehicle license tax can be used for any public purpose. Additionally, municipalities that operate a mass transportation system may levy an additional tax up to \$5. Revenues from this motor vehicle license tax must be used for the financing, constructing, operating, and maintaining of the transit system. The City of Wilmington could expect to collect \$360,000 annually with a \$5 motor vehicle license tax.

### **Vehicle Rental Tax**

Counties in North Carolina are able to levy taxes on the gross receipts of passenger vehicle rentals at the rate of 1.5%, according to N.C. G.S. 153A-156. Rented passenger vehicles to be taxed include traditional passenger vehicles, cargo vehicles, and trailers and semitrailers. Rentals of heavy equipment, defined as earthmoving, construction, or industrial equipment that is mobile and weighs at least 1,500 pounds, can be taxed at 1.2% per N.C. G.S. 153A-156.1.



## Statewide Auto Parts Tax

Across the state of North Carolina, the tax on auto part sales generates \$7.9 million annually. An estimate of revenue based on population indicates that the WMPO region could obtain up to \$184,000 per year.

## Transportation Bonds

Transportation bonds require voter approval and allow municipalities to sell bonds to investors, generating funds for transportation projects sooner. Authorized N.C. G.S. 159-43, the investors are typically paid back via a property tax increase. Transportation bonding is a common funding mechanism that has been successful in North Carolina. A\$14 million bond referendum was passed by voters in 2006 to fund five transportation projects in the City of Wilmington with no impact on property tax rates. More recently, a\$44 million bond referendum was passed that will fund several transportation projects in Wilmington. This bond increased the property tax rate by 2 cents. A\$75 million bond referendum was passed by Raleigh voters in October 2013 to fund 18 projects including 14 roadway projects. This bond increased the property tax rate per\$100 of valuation by 1.12 cents. The previous transportation bond referendum to pass in Raleigh was in 2011 for \$37 million, which is currently funding seven projects.

## Tolling

Toll fees are direct charges to road users who have chosen to use the toll facility. The Turnpike Authority was created via N.C. G.S. 136-89, and is authorized to study, plan, develop, construct, operate, and maintain up to nine projects, which currently include the Triangle Expressway, Complete 540 Triangle Expressway Southeast Extension, Monroe Bypass, Mid-Currituck Bridge, Garden Parkway, and Cape Fear Crossing. The Cape Fear Crossing project is an approximately 9.5-mile proposed toll road from the US 17 Bypass in Brunswick County to US 421 near Wilmington. The only active tolling system in North Carolina is the Triangle Expressway, which opened completely in December 2012. According to NCTA's 2013 Third Quarter Operations Statistics Report, tolls along the Triangle Expressway saw 16.7 million transactions in the first nine months of 2013, generating approximately\$8.3 million in toll revenues. Despite the success of the Triangle Expressway, significant opposition to tolls exists in other areas of North Carolina, specifically regarding plans to toll I-77 and I-95. House Bill 267 proposes to set the following restrictions on NCTA's authority to collect tolls on interstate highways: the USDOT must grant permission by permit, NCTA must continue to maintain at least the same number of general purpose non-toll lanes, and the toll revenues must be used to increase capacity on, rebuild, repair, or maintain the interstate corridor on which the tolls were collected include ingress/egress roads. Senate Bill 218, if passed, would prohibit tolls on I-95 for ten years and require approval of the General Assembly for tolling after the ten years.

## Revenue Projections

The financial plan development included high-level estimations of funding projections that may be anticipated for each of the alternative funding mechanisms by locality, summarized below in Table 13. The table does not include anticipated funding for transportation bonds or revenue projections for tolling, as these funding sources are project-specific. Although the plan will begin implementation in 2015, it is anticipated that a “lag time” of a few years will be required for the implementation of the alternative funding mechanisms listed in this section. For the purposes of this plan, it is anticipated that alternative funding mechanisms will be available as noted below from 2018. The WMPO region can expect to generate \$505,655,000 towards executing additional transportation projects from 2018 to 2040 if each of the alternative funding sources listed in Table 13 are successfully implemented.

TABLE 13. ANNUAL ALTERNATIVE FUNDING PROJECTIONS

FUNDING SOURCE	ANNUAL REVENUE PROJECTION
Quarter-Cent LOST	\$9,800,000
Quarter-Cent LOST for Transit	\$9,000,000
Vehicle Registration Fee	\$1,000,000
Motor Vehicle License Tax	\$101,000
Vehicle Rental Tax	\$1,900,000
Statewide Auto Part Tax	\$184,000
Total	\$21,985,000

# AVIATION ELEMENT

## Trends

Wilmington International Airport (ILM) is the region's largest public airport, providing multiple aviation services in the WMPO study area. ILM accommodates three types of aviation operations: commercial aviation (air carrier and air taxi), general aviation (private/company aircraft), and military aircraft. Over the past several years the commercial aviation industry has experienced a dramatic change. The number of domestic air carriers has reduced from 21 companies down to 8 today with consolidations, mergers and bankruptcies. Air carriers' new business strategy is to focus on positive bottom lines through reduced costs. The downturn in the economy over the past decade has also impacted general aviation activities in that many private aircraft owners could not justify the cost of maintaining and operating a private and/or corporate aircraft. Some owners sold their aircrafts while others reduced flying hours. Nevertheless, in the last few years the general aviation industry is showing signs of modest recovery. Unlike the commercial and general aviation sectors, the military aircraft usage of ILM stayed constant through difficult economic times due to the need for continued training of military units in the surrounding region.

## Existing Conditions

Wilmington International Airport (ILM) is a key economic engine for its 8.5 county catchment area (where the bulk of ILM passengers live) and a significant regional asset for the WMPO community. As a commercial airport, Wilmington International Airport ranks fourth in the state of North Carolina for most enplanements (passengers boarding an airplane) behind Charlotte-Douglas International Airport (CLT), Raleigh-Durham International Airport (RDU), and Piedmont Triad International Airport (GSO). Since 2003, ILM has experienced a decline in total air traffic operations. This is consistent with national trends. Between 2003 and 2013, ILM averaged over 74,000 aircraft operations annually.

Surprisingly, this phenomenon of reduced air traffic operations was not accompanied by a proportional decrease in enplanements. During the past 5 years air carriers have reduced the number of departures from ILM by 14.2% while only reducing available seats by 9.7%. This can be attributable to the change in the type of aircraft that are making flights to and from ILM through the replacement of the 50 seat regional jets with 60 and 90 seat planes. Considering the current economic environment in aviation, ILM has done well to mitigate the reduction in total enplanements. In fact, the population in ILM's catchment area continues to grow. The global economy and improved technology have made the region a popular location for new companies. Into the future, the demand for air service at ILM looks very promising. In 2013, ILM commissioned a Terminal Capacity Study to develop a plan for expanding the facility to accommodate additional demand for air carrier service.

General aviation operations are more dynamic than commercial aviation operations. ILM has experienced a sharp decline in general aviation since the recession in 2008. Since 2003, both itinerant and local flight volumes have decreased but local flights have reduced at a more aggressive rate. The primary factors for the decline of general aviation are all related to the downturn in the economy to include: high fuel costs, declining pilot population, declining student pilot population, costs associated with the aging of aircraft, and the rapid decline in the manufacturing of new general aviation aircraft. Despite this trend, general aviation operations are forecast to grow over the next 20 years.



Wilmington International Airport also receives military aircraft. The military activity is significant and volumes have been consistent in the last decade due to ILM's proximity to Camp Lejeune and Naval Air Station Cherry Point. The presidential fleet and Coast Guard aircraft also frequent ILM for training operations.

ILM is designated as an international airport because it provides a Port of Entry through the International Arrivals Facility, which is a separate facility from the domestic passenger terminal. 2007 represented the peak of customs activity with over 16,673 people cleared through customs. On average, 24 people are cleared daily through ILM and during holiday peak seasons, 20 to 30 passengers may be cleared per hour. Similarly in 2007, 3,013 planes were cleared through ILM customs and, during peak seasons, up to 50 planes are cleared hourly. In November 2008, ILM opened a new, state of the art facility for Customs and Border Protection. International activities predominantly include private and corporate aircraft traveling to and from the Caribbean. ILM's strategic plan includes scheduled international flights similar to the domestic air carrier flights. Currently ILM is marketing the facility to air carriers for scheduled flights and seasonal charter opportunities.

ILM is aggressively promoting and receiving interest in nearly 230 acres of available landside area for development as business office, air cargo, and commercial purposes; for both aviation and non-aeronautical companies. Beyond the financial incentives, the airport reports strong interest in business park development, in part because of the CSX Railway located between the airport and Blue Clay Road. Hall Drive provides a track crossing from Blue Clay Road into the ILM Business Park.

Air cargo is not a significant aspect of the current operations at ILM. Existing air cargo infrastructure includes separate aircraft parking areas for freight and package operators. At present, there are no freight-forwarding or distribution cargo facilities located on the airport complex. Cargo operators truck in the cargo from nearby distribution facilities. The commercial air carrier planes also carry smaller belly-cargo shipments which arrive at the domestic terminal.

## Aviation Element Development

In order to analyze and propose recommendations for the development of aviation in the Wilmington Urban Area, the WMPO contacted subject matter experts in the aviation field to form an Aviation Subcommittee. Specifically, the WMPO worked with the following organizations to develop the recommendations in this element:

- Wilmington International Airport
- WMPO Citizens Advisory Committee

During Aviation Subcommittee meetings, WMPO staff initiated group discussions by presenting pertinent facts, relevant information and public survey results related to the current and future state of aviation throughout the Wilmington Urban Area.<sup>1</sup>

Under the direction of the WMPO's Citizens Advisory Committee, MPO staff worked with the Aviation Subcommittee to develop recommendations for the following components of this element:

- Guiding aviation goals and objectives to develop this element
- A list of aviation projects needed in the Wilmington Urban Area
- Policies to guide action on aviation in the Wilmington Urban Area

Recommendations from the Aviation Subcommittee were presented to the CAC, TCC, and TAC for further review and modification before being incorporated into *Cape Fear Transportation 2040*.<sup>2</sup> Public input was also critical to the development of this element and is further discussed in the *Public Involvement Element*.

## Goals and Objectives

Goals and objectives for the development of this element were created over a series of Aviation Subcommittee meetings and serve three distinct purposes within this element. Goals and objectives guide the overall development of this element. Goals and objectives were also used as the criteria on which to base the scoring of aviation projects in order to help determine which aviation projects were of greatest funding priority. Finally, goals and objectives guided the development of aviation policies which will ultimately be used to guide action on aviation issues in the Wilmington Urban Area.

Because goals and objectives served such a critical role in the development of the aviation element, each goal and objective was reviewed by CAC, TCC, and TAC before being utilized in the process for the development of *Cape Fear Transportation 2040*.

The goals and objectives for aviation are as follows:

### Goal A: Economic Development

#### **Objectives:**

1. Prioritize projects that increase mode choice for shift workers at the potential ILM Business Park



2. Prioritize projects that improve aviation service for business travelers
3. Prioritize projects that provide freight rail service to ILM
4. Prioritize projects that serve the needs particular to key industries (film, pharma, military)

## Goal B: Regional Accessibility

### **Objectives:**

1. Prioritize projects that allow for non-stop service to business centers and/or hubs
2. Prioritize projects that maximize the market share of ILM in the WMPO
3. Prioritize projects that serve the needs particular to key industries (film, pharma, military)
4. Prioritize roadway network projects that support the development of ILM Business Park to include accommodations necessary for truck/rail freight transportation to/from site
5. Prioritize projects that support international cargo operations through ILM
6. Prioritize the reinstatement of the Wallace to Castle Hayne corridor for freight rail service



## Goal C: Physical Infrastructure

### **Objectives:**

1. Prioritize projects that maximize the market share of ILM in the WMPO
2. Prioritize roadway network projects that support the development of ILM Business Park to include accommodations necessary for truck/rail freight transportation to/from site
3. Prioritize the reinstatement of the Wallace to Castle Hayne corridor for freight rail service
4. Prioritize projects that provide freight rail service to ILM
5. Prioritize projects that serve the needs of particular to key industries (film, pharma, military)

**Goal D: Modal Integration****Objectives:**

1. Prioritize projects that provide freight rail service to ILM
2. Prioritize roadway network projects that support the development of ILM Business Park to include accommodations necessary for truck/rail freight transportation

**Aviation Prioritization Process**

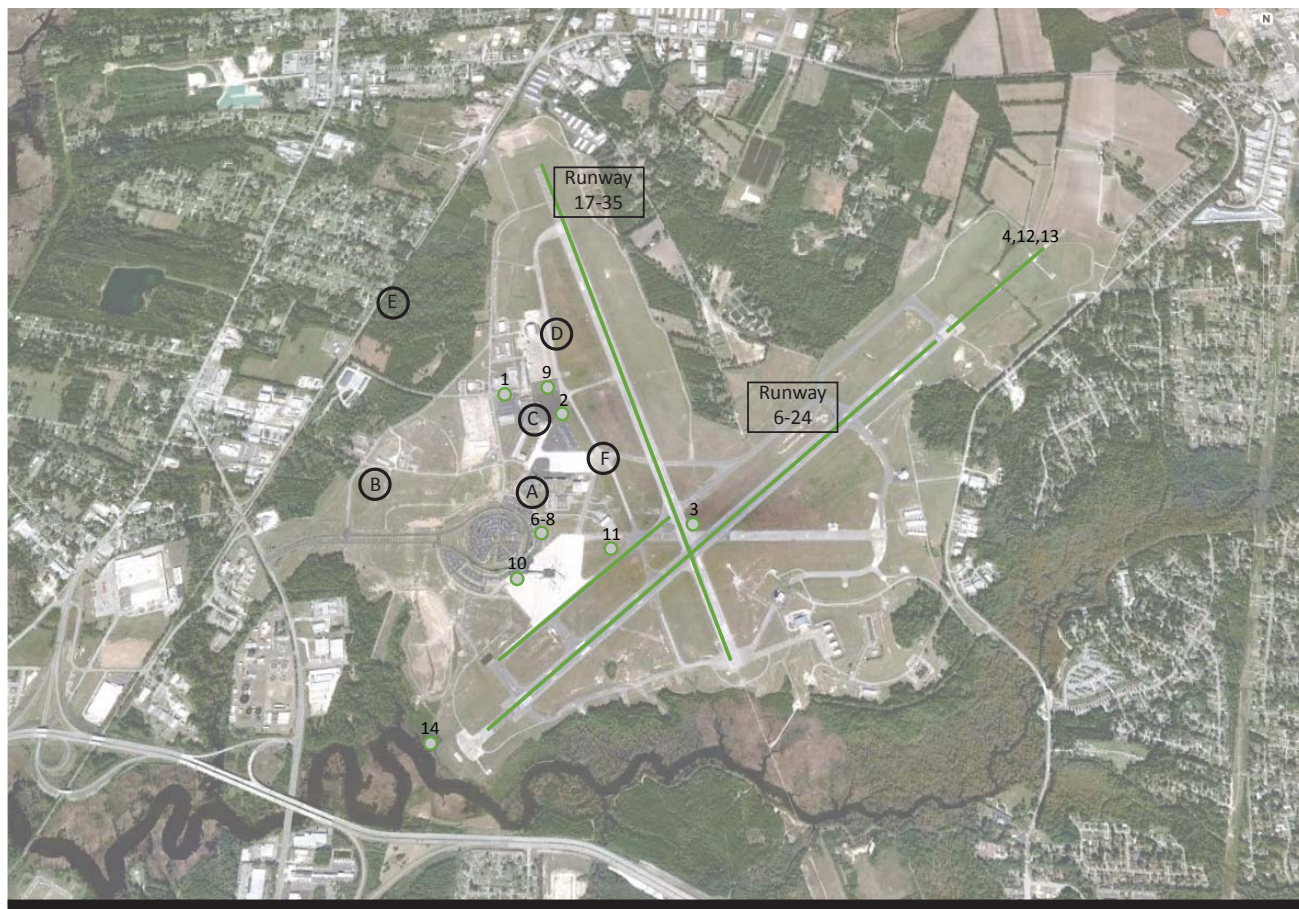
The list of needed aviation projects was quantitatively scored and ranked based on the goals and objectives identified in this element. This ranked list was then evaluated and revised by the Wilmington MPO's CAC, TCC, and TAC as is noted in the matrix below.<sup>3</sup> A ranked list of aviation project needs was the basis for the fiscal constraint analysis determining which projects are anticipated to receive funding in this region between 2015 and 2040, as is discussed below.<sup>4</sup>

FISCALLY-CONSTRAINED AVIATION PROJECT LIST		
ID	PROJECT	CONSTRUCTION YEAR COST ESTIMATE
A-1	GA Apron Development, Phase II	\$1,497,146
A-2	Pipe Ditch in FBO #2 Area Direct to EDDB and Rehab GA Apron Ramp North (Survey, Testing, Design, Bidding and Permitting)	\$393,694
A-3	Airfield Lighting Replacement (LED)/Vault Upgrade	\$2,661,592
A-4	Extend Runway 24 - Phase I of IV	\$6,523,866
A-5	Airport Layout Plan	\$942,647
A-6	Terminal Improvements Phase I (Design)	\$942,647
A-7	Terminal Improvements Phase I (Construction)	\$11,089,968
A-8	Terminal Improvements Phase II (Design and Construction)	\$12,198,965
A-9	Rehab GA Apron Ramp North; Pipe Ditch in FBO #2 Area; Direct to EDDB (Construction)	\$5,544,984
A-10	Outbound Bag Room Retrofit	\$332,699
A-11	Taxiway A and H Widening and Paved Shoulders	\$6,543,081
A-12	BCA/EA for Runway 24 Extension	\$332,699
A-13	Extend Runway 24 - Phase II of IV	\$6,523,866
A-14	Design and Construction of Boat Launch for Water Access	\$55,450
A-15	Map on Airport Utilities	\$5,545



## Aviation Projects with Anticipated Funding

*NOTE: Projects displayed for general location purposes only and not intended to show exact alignment.  
Projects still subject to federal environmental review (NEPA) process before construction.*



### Legend

Aviation Project Identification Number (A-#)

- Aviation Project
- Aviation Runway Project

Existing Aviation Facilities

- Ⓐ Passenger Terminal
- Ⓑ VA and Business Park Area
- Ⓒ FBOs
- Ⓓ Customs Facility
- Ⓔ Rental Car Facility
- Ⓕ Rescue Base/ARFF HQ

## Fiscal Constraint Analysis

This document is required by the Federal Highway Administration and the Federal Transit Administration to be fiscally constrained. That means that *Cape Fear Transportation 2040* must identify how much funding for new aviation projects is anticipated to be available to meet aviation project needs in this community between 2015 and 2040 and; based on this anticipated funding availability, this document must identify which aviation projects the community anticipates being able to fund by 2040.

The matrix and the map on pages 51 and 52 show the greatest aviation project needs for which the WMPO anticipates being able to coordinate in the allocation of funds. This plan documents that available funding should be spent on these projects both because they had a high score through the Aviation Prioritization Process, and because there is enough projected aviation funding between 2015 to 2040 to construct these projects.

While the majority of ILM's annual budget concerns operating expenses, ILM also requires capital improvements which can be funded in large part through Federal Aviation Administration (FAA) grants in coordination with the North Carolina Department of Transportation (NCDOT) and the WMPO. NCDOT provides up to \$ 500,000 in FAA grant matching funds for capital projects. By including aviation projects in *Cape Fear Transportation 2040*, the WMPO supports ILM in its efforts to secure funds for capital improvement projects through NCDOT.

The fiscally-constrained Aviation project list should not be seen as a comprehensive overview of aviation project needs in the Wilmington Urban Area, but as a list of aviation projects that should be priorities for available funding sources.

## Aviation Policies

The policies below were developed by the Aviation Subcommittee based on goals and objectives of this element. Aviation policies will be used to guide action on aviation issues in the Wilmington Urban Area. Each policy was reviewed through public outreach and by CAC, TCC, and TAC before being included in *Cape Fear Transportation 2040*.

- Improve access to Wilmington International Airport (ILM) and business park via all modes of transportation to enhance convenience, affordability and value to residents throughout the Wilmington Metropolitan Region as demographics and workforce requirements warrant.
- Work with the Cape Fear Public Transportation Authority and New Hanover County Airport Authority to improve mass transportation service between downtown Wilmington and Wilmington International Airport (ILM), as demographics and workforce requirements warrant.
- Support transportation mode choice for shift workers at the potential ILM Business Park



- Use improvements in aviation service to position the region to compete for business
- Link with rail for freight in the future to promote a Foreign Trade Zone (FTZ)
- Provide transportation facilities that allow ILM to continue to support key industries (existing and potential) such as film, pharma, military, etc.
- Provide non-stop aviation service to business centers and/or hubs
- Provide the infrastructure to maximize the market share of ILM in the WMPO
- Ensure roadway networks support the development of ILM Business Park to include accommodations necessary for truck/rail freight transportation
- Support international cargo operations through ILM
- Reinstate the Wallace to Castle Hayne corridor for freight rail service

## Conclusion

Aviation transportation in the Wilmington area is largely dependent on the Wilmington International Airport (ILM) as the regional aviation transportation facility; connecting residents, businesses, and tourists to the area. As such, the majority of planned aviation projects are coordinated and funded through financial structures managed by ILM. Working in close concert, the WMPO coordinates NCDOT's funding matches through the regional project prioritizations process based on direction from ILM through the WMPO Transportation Advisory Committee. Larger scale, regional planning coordinated by the WMPO is also necessary to ensure multi-modal integration is addressed. Ensuring connections from ILM with freight/rail, mass transportation, and the roadway network is vital to both the commercial cargo operations and passenger enplanements at ILM.

## Endnotes

<sup>1</sup> See *Greater Wilmington Area Profile* for more information on the data that was reviewed by the Aviation Subcommittee in order to develop the recommendations in this element

<sup>2</sup> For an in-depth discussion of CAC, TCC, and TAC roles in the development of this plan, please see the *Public Involvement Element*

<sup>3</sup> For further discussion of the Aviation Prioritization Process, see Appendix D

<sup>4</sup> For an in-depth discussion of the fiscal analysis process please see the *Financial Analysis Element* and Appendix E



# BICYCLE AND PEDESTRIAN ELEMENT

## Trends

In 1990, bicycling and walking were described as “the forgotten modes” of transportation by the Federal Highway Administration (FHWA). These nonmotorized options had been overlooked by many transportation agencies for years. Funding sources were limited, bicycle and pedestrian commuting trips were down, and bicycle and pedestrian crashes accounted for a high percentage of traffic fatalities. In 1994 the US Department of Transportation (USDOT) adopted the first national transportation policy to increase the use of bicycling, to address bicycle and pedestrian needs, and to increase pedestrian safety. Today, FHWA and NCDOT policies clearly recognize several benefits of bicycling and walking to include health benefits, transportation benefits, environmental/energy benefits, and economic benefits. The US Census American Community Survey (ACS) shows a national increase of walking commuters from 2.48% to 2.82% between 2002 – 2008. It also shows an increase of biking commuters from 0.4% to 0.55% between 2005 – 2008. Those numbers hold steady in the 2013 ACS results at 2.8% and .6% respectively.

The *Cape Fear Transportation 2040* survey reflects a desire for more bicycle and pedestrian facilities in the region. When respondents were asked how they prefer to get to work/school in the future, 55% responded they would like to bike more often, and 44% responded they would like to walk more often. To run errands, 61% said they would like to bike more often and 55% said they would like to walk more often. When asked which factors would increase the amount they were bicycling, over 60% of respondents said they would bike more often if there were more off-road and multi-use paths and almost 50% responded they would bike more often if there were more on-road bike lanes. Similarly, when asked which factors would increase the amount they were bicycling, over 60% responded they would walk more often if there were more sidewalks and multi-use paths and almost 55% responded they would walk more often if there were safe intersection crossings.

## Existing Conditions

The WMPO has made significant progress in recent years in their efforts to create more livable communities. The planning, development, and management of bicycle and pedestrian facilities and other improvements for bicycling and walking have played a key role in such efforts. This region has much to offer its residents and visitors in terms of bicycle and pedestrian facilities. In the WMPO, there currently are 75.1 miles of sidewalks, 27.8 miles of bike lanes, 24.4 miles of multi-use paths, and 1.5 miles of sharrow-marked roadways. Some of these facilities piece-together to form the backbone of a variety of regional trails and corridors, including:

- **Gary Shell Cross-City Trail:** Planned and maintained by the City of Wilmington as a path for use by both pedestrians and bicyclists, the Gary Shell Cross-City Trail runs as a “C” through the City of Wilmington from the Heide-Trask Drawbridge on the eastern

edge of the City of Wilmington, west through midtown and then south along Independence Boulevard before turning east again along South 17th Street to James E.L Wade Park in the southeastern part of the City. Most Gary Shell Cross-City Trail facilities are off-road multi-use paths, but the trail also includes sections that are composed of sidewalks and bicycle lanes.

- **East Coast Greenway:** The East Coast Greenway is a bicycle, pedestrian and (in portions) equestrian multi-state trail network proposed as the urban counterpart to the Appalachian Trail. Ultimately, the East Coast Greenway will run from Calais, Maine to Key West, Florida mostly along off-road multi-use path facilities. The Wilmington Urban Area plays a key role in connecting the “spine corridor” (or main route) for the East Coast Greenway roughly going north-south along US-421 with the “coastal corridor” that roughly runs along US17 before making its spine route connection in Wilmington. Within the Wilmington Urban Area, portions of the East Coast Greenway are constructed mostly to coincide with portions of the Gary Shell Cross-City Trail and also to coincide existing facilities in downtown Wilmington.
- **Island Greenway:** Planned by the Towns of Carolina and Kure Beach, the Island Greenway is a mostly off-road trail proposed to run from the Snows Cut Bridge in Carolina Beach to the Fort Fisher Ferry Terminal south of Kure Beach, paralleling Dow Road, K Avenue, and South Fort Fisher Boulevard. Portions of the Island Greenway have been constructed in Carolina Beach.
- **North Carolina Bicycling Highway 3 (Ports of Call):** North Carolina’s coast is long and varied, with two major sounds—the Pamlico and the Albemarle—and a series of barrier islands known as the Outer Banks. This 300-mile route from South Carolina to Virginia takes you to all the major ports of the colonial era—Southport, Wilmington, New Bern, Bath, and Edenton. Other points of interest along this route include Fort Fisher State Historic Site, Carolina Beach State Park, the Croatan National Forest Recreation Areas, Tryon Palace, Goose Creek State Park and Merchants Millpond State Park. In the Cape Fear region, this route follows U.S. 421 on Pleasure Island (on-road bicycle lanes), River Road (on-road bicycle lanes), North and South Front Street, Princess Street, North 23rd Street and Blue Clay Road.



- **North Carolina Bicycling Highway 5 (Cape Fear Run):** This 160-mile route roughly parallels the course of the Cape Fear River through the southeast coastal plain to the sea. Rolling hills soon give way to flat land in the swamps and Carolina bays typical of this region of the state. Notable points of interest include Jones Lake State Park, Moore's Creek National Military Park, the USS North Carolina Battleship Memorial, Brunswick Town State Historic Site, Carolina Beach State Park, and Fort Fisher State Historic Site. In the Cape Fear region, this route follows U.S. 421 on Pleasure Island (on-road bicycle lanes), River Road (on-road bicycle lanes), North and South Front Street, Isabel Holmes Bridge and U.S. 421 north of downtown Wilmington.
- **River to the Sea Bikeway:** The River to the Sea Bikeway (WMPO Bicycle Route 1) is an 11-mile, on- and off-road bicycle route that follows the Historic Beach Car Line, which carried vacationers from downtown Wilmington to Wrightsville Beach by trolley. The bikeway is comprised of bicycle boulevards, bicycle lanes, multi-use paths, residential streets, and a few busy arterial roadways with no bicycle facilities.

## Bicycle and Pedestrian Element Development

In order to analyze and propose recommendations for the development of bicycle and pedestrian facilities in the Wilmington Urban Area, the WMPO contacted subject matter experts in bicycle and pedestrian planning, bicycling and pedestrian safety, and bicycle and pedestrian advocacy to form a Bicycle and Pedestrian Subcommittee. Specifically, the WMPO worked with the following organizations to develop the recommendations in this element:

- |   |                                    |
|---|------------------------------------|
| • Brunswick County                          | • Town of Belville                 |
| • Cape Fear Cyclists                        | • Town of Carolina Beach           |
| • Cape Fear Public Transportation Authority | • Town of Kure Beach               |
| • City of Wilmington                        | • Town of Leland                   |
| • NCDOT                                     | • Town of Navassa                  |
| • North Carolina Board of Transportation    | • Town of Wrightsville Beach       |
| • New Hanover County                        | • UNCW                             |
| • Pender County                             | • WMPO Citizens Advisory Committee |

During Bicycle and Pedestrian Subcommittee meetings, WMPO staff initiated group discussions by presenting pertinent facts, relevant information and public survey results related to the current and future state of bicycle and pedestrian facilities throughout the Wilmington Urban Area.<sup>1</sup>

Under the direction of the WMPO's Citizens Advisory Committee, MPO staff worked with this Bicycle and Pedestrian Subcommittee to develop recommendations for the following components of this element:

- Guiding bicycle and pedestrian goals and objectives to develop this element
- A list of bicycle and pedestrian projects needed in the Wilmington Urban Area
- Policies to guide action on bicycle and pedestrian facilities in the Wilmington Urban Area

Recommendations from the Bicycle and Pedestrian Subcommittee were presented to the CAC, TCC, and TAC for further review and modification before being incorporated into *Cape Fear Transportation 2040*.<sup>2</sup> Public input was also critical to the development of this element and is further discussed in the *Public Involvement Element*.

## Goals and Objectives

Goals and objectives for the development of this element were created over a series of several Bicycle and Pedestrian Subcommittee meetings and serve three distinct purposes within this element. Goals and objectives guide the overall development of this element. Goals and objectives were also used as the criteria on which to base the scoring of bicycle and pedestrian projects in order to help determine which bicycle and pedestrian projects were of greatest funding priority. Finally, goals and objectives guided the development of bicycle and pedestrian policies which will ultimately be used to guide action on bicycle and pedestrian issues in the Wilmington Urban Area.

Because goals and objectives served such a critical role in the development of the bicycle and pedestrian element, each goal and objective was reviewed by CAC, TCC, and TAC before being utilized in the process for the development of *Cape Fear Transportation 2040*.

The goals and objectives for bicycle and pedestrian facilities are as follows:

### BICYCLE

#### Goal A: Safety, Education, Awareness, and Enforcement

##### **Objectives:**

1. Support a campaign to educate motorists, bicyclists and pedestrians on etiquette & laws of sharing the road
2. Support law enforcement efforts to create a safer environment for cyclists
3. Bicycle facility prioritization should consider the nature of adjacent traffic

#### Goal B: Transportation Choice

##### **Objectives:**

1. Increase the ease of transitioning between bicycling & other modes of transportation (mass transportation & ferries) through prioritization of bicycle projects
2. Support programmatic elements (such as increasing the capacity of bicycles on busses & the creation of bicycle amenities at bus stops) to ease the transition

between bicycling & mass transportation

3. Prioritize projects that overcome socioeconomic barriers
4. Support the creation of a bike share program that is integrated with the fixed-route mass transportation network
5. Support the installation of visual cues that prioritize bike users through facilities, amenities and traffic engineering solutions
6. Support the consideration of bicycle needs when looking at intermodal intercity connections

### **Goal C: Built Environment, Land use, and Connectivity**

#### ***Objectives:***

1. Prioritize bicycle facilities in areas with high employment density
2. Prioritize bicycling facilities that fall within ¼ miles of school campuses
3. Prioritize bicycle connections between parks & residential areas
4. Prioritize removal of barriers to bicycle around medical campuses
5. Prioritize bicycle facility connections around grocery stores/farmers markets
6. Prioritize connections to existing bicycling facilities
7. Prioritize bicycling connections between school campuses
8. Support accommodation of the elderly, disabled and low-income populations during the design of bicycle facilities
9. Prioritize bicycle facilities that allow safe usage of bridges, overpasses, tunnels and viaducts
10. Prioritize short trail connections (under 1,000 feet) that fill gaps in the roadway system that will allow bicycle use of these roadways

### **Goal D: Health**

#### ***Objectives:***

1. Support the provision of health indicators and data along branded trails
2. Support the promotion of bicycling in wellness programs through biking events
3. Support the designation of exercise loops for bicycling in areas that have high daytime populations
4. Support the utilization of health impact assessments where appropriate



## **Goal E: Economic Development**

### ***Objectives:***

1. Support bicycle tourism in our region
2. Support the incentivization of public/private development around biking
3. Support the creation of sponsorship policies
4. Support the development of a program to recognize bicycle friendly businesses
5. Support the incorporation of mobile technology into the trail system
6. Support the accommodation of major events (e.g., triathlons) in facility design

## **PEDESTRIAN**

## **Goal A: Safety, Education, Awareness, and Enforcement**

### ***Objectives:***

1. Prioritize crosswalks at existing signals
2. Support the installation of audible pedestrian signals
3. Support driver education specifically related to turning movements and crosswalk compliance
4. Support law enforcement efforts to increase pedestrian safety
5. Support the creation of a comprehensive, integrated, and validated reporting system for documenting bicycle and pedestrian crash data

## **Goal B: Transportation Choice**

### ***Objectives:***

1. Sidewalk and crosswalk prioritization should consider nature of adjacent traffic
2. Prioritize sidewalks and crosswalks based on residential and employment density
3. Support the installation of visual cues that prioritize pedestrians (traffic calming, etc.)
4. Support design of roadways and sidewalks to enhance pedestrian safety (medians, street trees, brick crossings, etc.)

## **Goal C: Built Environment, Land use, and Connectivity**

### ***Objectives:***

1. Prioritize pedestrian facilities that fall within ¼ miles of school campuses
2. Prioritize pedestrian connections between parks & residential areas
3. Prioritize removal of barriers to pedestrians around medical campuses
4. Prioritize pedestrian facilities around libraries, community centers/senior centers, courthouses, local government centers
5. Prioritize pedestrian facility connections around grocery stores/farmers markets
6. Prioritize connections to existing pedestrian facilities
7. Prioritize direct connections to transit stops
8. Support the use of traffic impact analyses (TIAs) to create pedestrian connectivity
9. Support the use of mass transportation to mitigate gaps in the pedestrian network
10. Support the installation of pedestrian facilities with the installation and upgrade of other transportation facilities
11. Prioritize short trail links (under 1,000 feet) that fill gaps between low traffic roadways to allow for pedestrian use while continuing to preserve the low traffic status of those roadways.

## **Goal D: Health**

### ***Objectives:***

1. Support the incorporation of health statistics and case studies in the promotion of transportation demand management (TDM) programs and wellness programs
2. Support the designation of exercise loops for walking in areas that have high daytime populations
3. Prioritize sidewalk and crosswalk connections between transit facilities and medical services
4. Support the utilization of health impact assessments when appropriate

## **Goal E: Economic Development**

### ***Objectives:***

1. Support initiatives to create and promote walking tours in our region

2. Support the inclusion of pedestrian facility design in new developments
3. Support the creation of sponsorship policies for walking trails
4. Support the development of a program to recognize pedestrian friendly development
5. Support the incorporation of mobile technology into the trail system
6. Support the accommodation of major events (triathlons) in facility design

## Bicycle and Pedestrian Project Prioritization Process

The list of needed bicycle and pedestrian projects was quantitatively scored and ranked based on the goals and objectives identified in this element. This ranked list was then evaluated and revised by the Wilmington MPO's CAC, TCC, and TAC as is noted in the matrix below. A ranked list of bicycle and pedestrian project needs was the basis for the fiscal constraint analysis determining which projects are anticipated to receive funding in this region between 2015 and 2040, as is discussed in the following pages.<sup>4</sup>

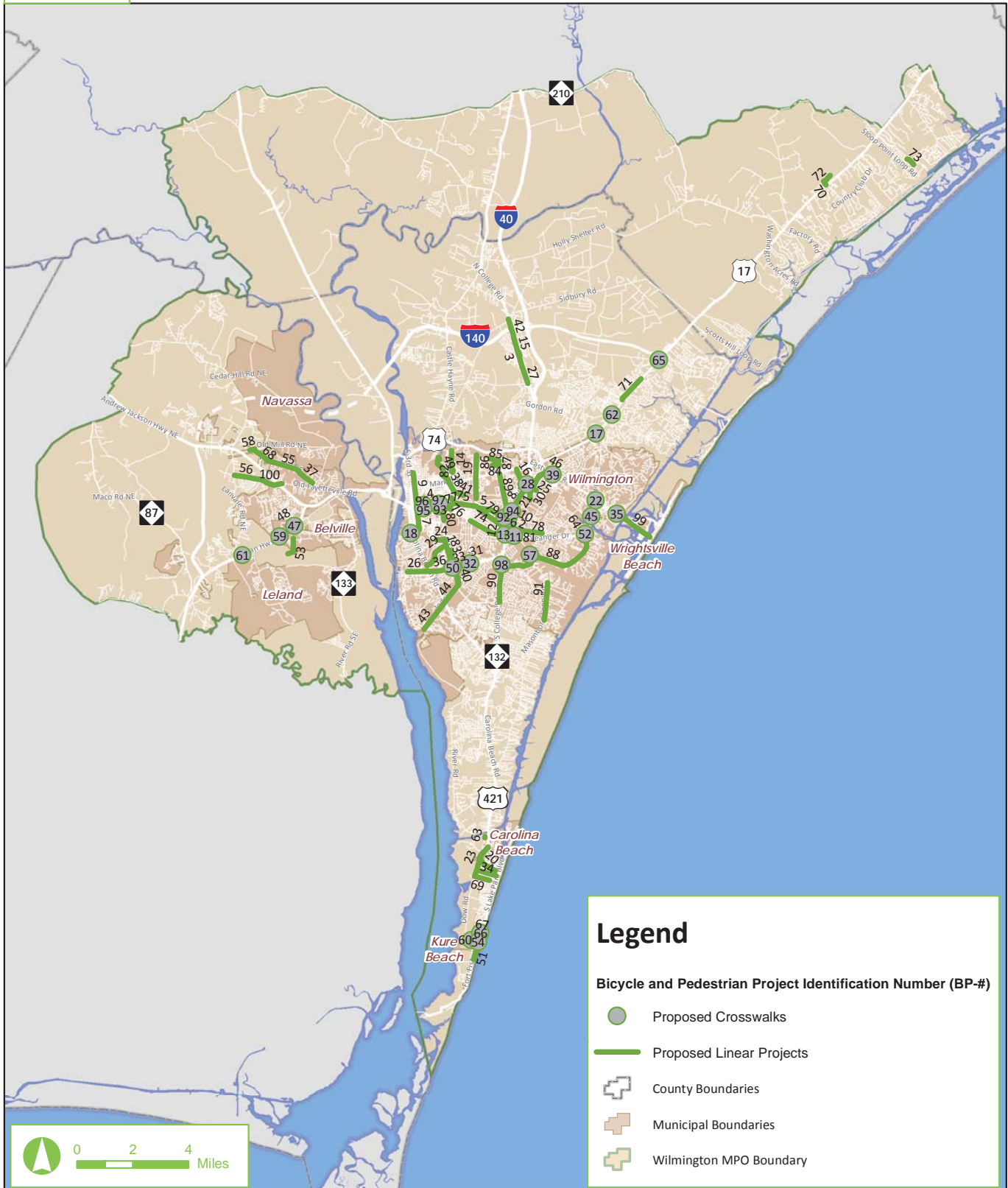
FISCALLY-CONSTRAINED BICYCLE AND PEDESTRIAN PROJECT LIST				
ID	PROJECT	FROM	TO	CONSTRUCTION YEAR COST ESTIMATE
BP-1	S. 17th Street	Hospital Plaza	INDEPENDENCE BLVD	\$1,153,357
BP-2	Peachtree Ave	Park Ave	MacMillan Ave	\$272,698
BP-3	N. College Rd.	New Town Rd	Danny Pence Dr	\$223,863
BP-4	Wooster St.	S. 8th Street	Oleander Dr	\$198,146
BP-5	WILSHIRE BLV	WRIGHTSVILLE AVE	KERR AVE	\$2,137,450
BP-6	COLLEGE RD & WILSHIRE BLVD	N/A	N/A	\$83,175
BP-7	5TH AVE	ANN ST	GREENFIELD LAKE PARK	\$2,240,065
BP-8	COLLEGE RD	HURST DR	RANDALL PKWY	\$1,336,956
BP-9	5TH AVE	RAIL LINE NORHT OF CAMBELL ST	ANN ST	\$1,018,329
BP-10	WILSHIRE BLV	KERR AVE	MACMILLAN AVE	\$430,074
BP-11	OLEANDER DR & PINE GROVE DR	N/A	N/A	\$83,175
BP-12	COLLEGE RD	WRIGHTSVILLE AVE	WILSHIRE BLVD	\$689,727
BP-13	COLLEGE RD & OLEANDER DR	N/A	N/A	\$83,175
BP-14	23RD ST	ONE TREE HILL WAY	PRINCESS PLACE DR	\$1,966,542
BP-15	N COLLEGE RD	NE NORTHCHASE PKWY	NEW VILLAGE WAY	\$1,878,598
BP-16	NEW CENTRE DR	MARKET ST	COLLEGE RD	\$1,195,422
BP-17	MARKET ST & GORDON RD	N/A	N/A	\$83,175
BP-18	CAROLINA BEACH RD & FRONT ST/ BURNETT BLV	N/A	N/A	\$83,175

FISCALLY-CONSTRAINED BICYCLE AND PEDESTRIAN PROJECT LIST				
ID	PROJECT	FROM	TO	CONSTRUCTION YEAR COST ESTIMATE
BP-19	INDEPENDENCE BLVD EXTENSION	RANDALL PKWY	SOUTH OF MLK PKWY	\$4,361,533
BP-20	HARPER AVE	DOW RD	S 3RD ST	\$2,246,333
BP-21	COLLEGE RD	RANDALL PKWY	NEW CENTRE DR	\$1,230,756
BP-22	MILITARY CUTOFF RD & EASTWOOD RD	N/A	N/A	\$83,175
BP-23	DOW RD	CLARENDON AVE	LAKE PARK BLVD	\$2,307,679
BP-24	HOSPITAL PLAZA DR PATH	LAKESHORE DRIVE	S 17TH ST	\$543,289
BP-25	NEW CENTRE DR	COLLEGE RD	PROPOSED TRAIL TO CLEAR RUN DR	\$1,063,130
BP-26	SHIPYARD BLVD	RIVER RD	CAROLINA BEACH RD	\$2,102,080
BP-27	N COLLEGE RD	NEW VILLAGE WAY	BAVARIAN LN	\$1,360,529
BP-28	COLLEGE RD & NEW CENTRE DR	N/A	N/A	\$83,175
BP-29	Medical Center Dr	CAROLINA BEACH RD	S 17TH ST	\$2,519,043
BP-30	RACINE DR	RANDALL DR	EASTWOOD RD	\$2,210,251
BP-31	SHIPYARD BLVD	INDEPENDENCE BLVD	LONGSTREET DR	\$486,828
BP-32	SHIPYARD BLVD & INDEPENDENCE BLVD	N/A	N/A	\$83,175
BP-33	SHIPYARD BLVD	S 17TH ST	INDEPENDENCE BLVD	\$2,050,650
BP-34	Cape Fear Boulevard	Dow Road	Lake Park Boulevard	\$2,516,182
BP-35	EASTWOOD RD & WRIGHTSVILLE AVE	N/A	N/A	\$97,858
BP-36	SHIPYARD BLVD	CAROLINA BEACH RD	S 17TH ST	\$2,898,275
BP-37	Village Rd NE A	WAYNE ST	LOSSEN LN	\$3,680,881
BP-38	BURNT MILL CREEK PATH	METTS AVE	MARKET ST	\$678,489
BP-39	EASTWOOD RD & CARDINAL DR	N/A	N/A	\$97,858
BP-40	S 17TH ST	INDEPENDENCE BLVD	SHIPYARD BLVD	\$1,822,663
BP-41	BURNT MILL CREEK PATH	COLONIAL DR	METTS AVE	\$1,140,677
BP-42	COLLEGE RD	BLUE CLAY RD	NORTHCHASE PKWY	\$1,832,135
BP-43	INDEPENDENCE BLVD	RIVER RD	CAROLINA BEACH RD	\$4,342,456
BP-44	INDEPENDENCE BLVD	CAROLINA BEACH RD	S 17TH ST	\$2,660,884
BP-45	WRIGHTSVILLE AVE & AIRLIE RD/OLEANDER DR	N/A	N/A	\$97,858
BP-46	EASTWOOD RD	CARDINAL DR	RACINE DR	\$1,061,222
BP-47	US 17 & OLDE WATERFORD WY/ PLOOF RD SE	N/A	N/A	\$131,513
BP-48	US 17 Frontage Path	PLOOF RD	OCEAN GATE PLAZA	\$816,352



### Bicycle and Pedestrian Projects

NOTE: Projects displayed for general location purposes only and not intended to show exact alignment.  
Projects still subject to federal environmental review (NEPA) process before construction

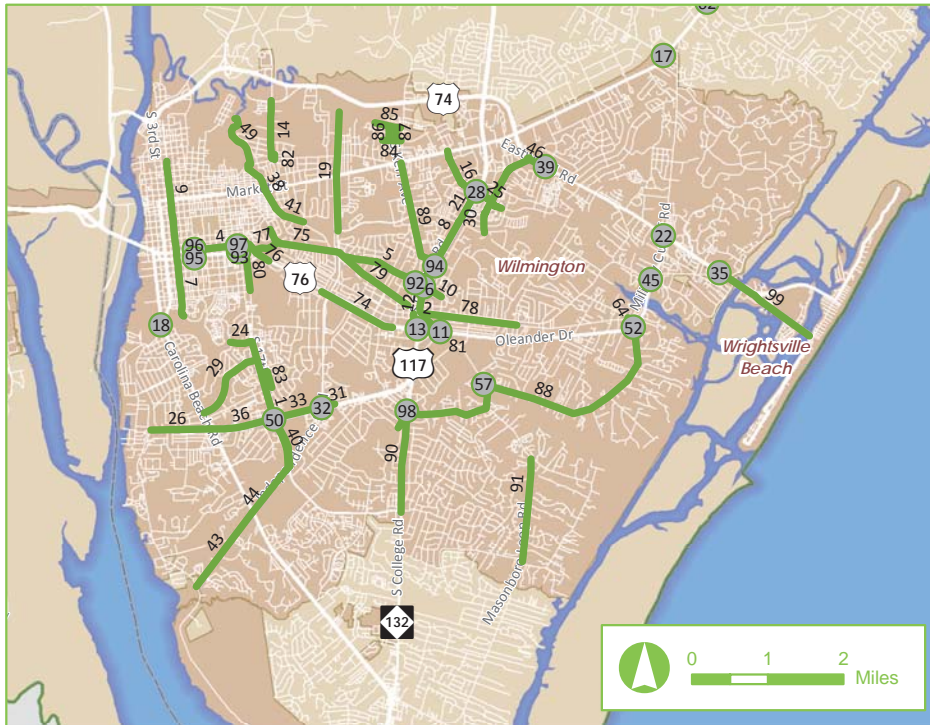






## Bicycle and Pedestrian Projects

NOTE: Projects displayed for general location purposes only and not intended to show exact alignment.  
Projects still subject to federal environmental review (NEPA) process before construction



### Wilmington

#### Bike/Ped Project ID# (BP-#)

- Proposed Crosswalks
- Proposed Linear Projects
- County Boundaries
- Municipal Boundaries
- Wilmington MPO Boundary



### Leland, Belville, & Navassa

#### Bike/Ped Project ID (BP-#)

- Proposed Crosswalks
- Proposed Linear Projects
- County Boundaries
- Municipal Boundaries
- Wilmington MPO Boundary

FISCALLY-CONSTRAINED BICYCLE AND PEDESTRIAN PROJECT LIST				
ID	PROJECT	FROM	TO	CONSTRUCTION YEAR COST ESTIMATE
BP-49	BURNT MILL CREEK PATH	MARKET ST	ARCHIE BLUE PARK	\$5,890,806
BP-50	17TH ST & SHIPYARD BLVD	N/A	N/A	\$131,513
BP-51	FORT FISHER BLV	E AVE	N AVE/SEVENTH AVE	\$2,132,730
BP-52	OLEANDER DR & GREENVILLE LP RD/ GREENVILLE AVE	N/A	N/A	\$131,513
BP-53	W Gate Park Connector	WEST GATE DR	END	\$2,554,395
BP-54	K AVE & 421	N/A	N/A	\$131,513
BP-55	VILLAGE RD	WAYNE ST NE	OAKMONT CT NE	\$1,050,755
BP-56	Old Fayetteville Rd NE	LANVALE RD	PICKETT RD	\$3,888,048
BP-57	PINE GROVE RD & GREENVILLE LP RD	N/A	N/A	\$131,513
BP-58	Village Rd Connector	LELAND SHOOL RD	LINCOLN RD NE	\$607,250
BP-59	US 17 & W GATE DR/ GRANDIFLORA DR	N/A	N/A	\$152,460
BP-60	SEVENTH AVE & K AVE	N/A	N/A	\$152,460
BP-61	US 17 & PROVISION PKWY	N/A	N/A	\$152,460
BP-62	MARKET ST & MIDDLE SOUND LOOP RD	N/A	N/A	\$152,460
BP-63	Bridge Barrier Rd	GREENWAY PLAN PATH	OLD DOW RD	\$43,364
BP-64	GREENVILLE AVE	OLEANDER DR	PARK AVE	\$393,276
BP-65	US 17/MARKET ST & PORTERS NECK RD	N/A	N/A	\$131,513
BP-66	N AVE & FORT FISHER BLVD	N/A	N/A	\$131,513
BP-67	N AVE	FORT FISHER BLVD	ATLANTIC AVE	\$68,031
BP-68	VILLAGE RD NE	WAYNE RD	OLD MILL RD	\$1,813,447
BP-69	Clarendon Ave	Dow Rd.	Lake	\$1,847,792
BP-70	JENKINS RD	US17	ST JOHNS CHURCH RD	\$345,352
BP-71	MARKET ST	Bayshore Dr	Marsh Oaks Dr.	\$4,146,552
BP-72	ST JOHNS CHURCH RD	Jenkins	End	\$750,600
BP-73	MASTER LN	Doral Dr	Sloop Point Loop Rd.	\$715,432
BP-74	Oleander Drive	Hawthorne Road	42nd Street	\$704,579
BP-75	Wrightsville Ave	Castle Street	Independence Blvd	\$193,805
BP-76	Oleander Drive	Wooster Street	Mimosa Place	\$248,481
BP-77	Dawson Street	Wrightsville Ave	Oleander Drive	\$47,033
BP-78	Wrightsville Ave	College Rd.	Hawthorne Dr	\$1,263,801
BP-79	Wrightsville Ave	44th Street	Independence Blvd	\$1,097,483
BP-80	17th Street	Wooster St	Greenfield St	\$261,494

FISCALLY-CONSTRAINED BICYCLE AND PEDESTRIAN PROJECT LIST				
ID	PROJECT	FROM	TO	CONSTRUCTION YEAR COST ESTIMATE
BP-81	Oleander Drive	Pine Grove Drive	College Road	\$197,164
BP-82	N. 23rd St	Princess Place Dr	Belvedere Dr	\$54,273
BP-83	Delaney Ave	Wellington Ave	Glen Mead Rd	\$192,775
BP-84	McClelland Drive	Saint Rosea Rd	Kerr Ave	\$653,784
BP-85	Fairlawn Drive	Barclay Hills Drive	Kerr Ave	\$934,306
BP-86	Clover Rd	Fairlawn Drive	McClelland Drive	\$455,517
BP-87	Gleason Rd	Fairlawn Drive	McClelland Drive	\$498,195
BP-88	Greenville Loop Trail	College Rd.	Oleander Drive	\$7,605,563
BP-89	Kerr Ave Trail	Randall Parkway	College Road	\$1,006,347
BP-90	Central College Trail	Holly Tree Rd.	S. 17th Street	\$1,633,850
BP-91	Masonboro Loop Trail	Pine Grove Drive	Navaho Trail	\$3,307,186
BP-92	Kerr Ave & Wilshire Blvd	N/A	N/A	\$38,815
BP-93	16th St. & Dawson St.	N/A	N/A	\$83,175
BP-94	College & Hurst/ Hoggard	N/A	N/A	\$38,815
BP-95	8th St. & Dawson St.	N/A	N/A	\$55,450
BP-96	8th St. & Wooster St.	N/A	N/A	\$55,450
BP-97	17th St. & Dawson St.	N/A	N/A	\$83,175
BP-98	Holly Tree Rd. & S. College Rd.	N/A	N/A	\$138,625
BP-99*	CAUSEWAY DR	AIRLIE RD	WAYNICK BLVD	\$18,910,848
BP-100*	Old Fayetteville Rd B	PICKETT RD	BASIN ST	\$6,276,778

## Fiscal Constraint Analysis

This document is required by the Federal Highway Administration and Federal Transit Administration to be fiscally constrained. That means that *Cape Fear Transportation 2040* must identify how much funding for new bicycle and pedestrian projects is anticipated to be available to meet bicycle and pedestrian project needs in this community between 2015 and 2040 and; based on this anticipated funding availability, this document must identify which bicycle and pedestrian projects the community anticipates being able to fund by 2040.



Mid-block Crosswalk  
in Wrightsville Beach

The matrix and the maps on pages 62-67 show the greatest bicycle and pedestrian project needs for which the WMPO anticipates being able to allocate funding. This plan documents that available funding should be spent on these projects both because they had a high score through the Bicycle and Pedestrian Prioritization Process, and because there is enough projected bicycle and pedestrian funding between 2015 to 2040 to construct these projects.

### **Alternative Funding**

As part of the fiscal analysis, it was determined that the needs for bicycle and pedestrian projects between 2015 and 2040 could not be met solely through the existing sources of anticipated funding for bicycle and pedestrian projects.<sup>5</sup> In order to meet a greater number of project needs between 2015 and 2040, the fiscally constrained project list includes funding from alternative funding mechanisms as well.<sup>6</sup> Funding from alternative funding mechanisms is not guaranteed and for this reason, projects anticipated to receive funding from alternative funding mechanisms are identified with an asterisk in the matrix

The fiscally-constrained bicycle and pedestrian project list should not be seen as a comprehensive overview of bicycle and pedestrian project needs in the Wilmington Urban Area, but as a list of bicycle and pedestrian projects that should be priorities for available funding sources. Additional bicycle and pedestrian projects beyond what is identified in the list above are needed and should be pursued where funding and development opportunities become available. A more comprehensive list of bicycle and pedestrian project needs is listed in Appendix H of this document, and all of these projects should be pursued as opportunities arise and if alternative funding becomes available.<sup>7</sup>

### **Bicycle and Pedestrian Policies**

The policies below were developed by the Bicycle and Pedestrian Subcommittee based on goals and objectives of this element. Bicycle and pedestrian policies will be used to guide action on bicycle and pedestrian issues in the Wilmington Urban Area. Each policy was reviewed through public outreach and by CAC, TCC, and TAC before being included in Cape Fear Transportation 2040.

The WMPO will work with member agencies to support the following:

#### **Access & Connections**

- Consider bicycle and pedestrian needs when looking at intermodal intercity connections
- Collaborate with Brunswick County Schools, New Hanover County Schools, and Pender County schools to improve school siting, bicycle connections to existing schools and encouragement of bicycle to school programs
- Improve bicycle access to all public facilities (i.e. courthouses, offices, parks, police stations, etc.)



## Bicycle/Pedestrian/Driver Safety Campaign

- Create a campaign to educate motorists, bicyclists and pedestrians on etiquette & laws of sharing the road, including coordination with any state-wide safety programs
- Encourage law enforcement efforts to create a safer environment for cyclists and pedestrians

## Transit

- Identify programmatic elements (such as increasing the capacity of bicycles on buses & the creation of bicycle amenities at bus stops) to ease the transition between bicycling & mass transportation
- Utilize the use of mass transportation to mitigate gaps in the pedestrian network
- Create a bike share program that is integrated with the fixed-route mass transportation network

## Planning, Design, Land Development, and Construction

- Design roadways and sidewalks to enhance pedestrian safety (medians, street trees, brick crossings, etc.)
- Incentivize public/private development around biking
- Use traffic impact analyses (TIAs) and development review to create bicycle and pedestrian connectivity
- Install of bicycle and pedestrian facilities with the installation and upgrade of other transportation projects such as roadway improvements, etc
- Include pedestrian facility design in new developments
- Create comprehensive bicycle and pedestrian plans for municipalities within the Wilmington Urban Area to identify additional bicycle projects for funding
- Include bicycle and pedestrian facilities in all new roadway and bridge projects within the Wilmington Urban Area
- Ensure that transportation projects within the Wilmington Urban Area do not disrupt existing or planned bicycle routes or facilities
- Implement the bicycle projects and policies identified in all WMPO adopted plans
- Install audible and visible cues that prioritize cyclists and pedestrians through facilities, amenities and traffic engineering solutions
- Accommodate the elderly, disabled and low-income populations during the design of bicycle and pedestrian facilities





## **Health & Wellness**

- Create health indicators and data along branded trails
- Promote of bicycling in wellness programs through biking events
- Designate exercise loops for bicycling and walking in areas that have high daytime populations
- Utilize health impact assessments where appropriate
- Incorporate health statistics and case studies in the promotion of transportation demand management (TDM) programs and wellness programs

## **Tourism**

- Create and promote bicycle tourism in our region
- Create and promote walking tours in our region
- Design facilities to accomodate major events (triathlons)

## **Sponsorships and Recognition**

- Create local sponsorship policies
- Develop a program to recognize bicycle and pedestrian friendly businesses

## **Technology & Data**

- Incorporate mobile technology into the trail system
- Create a comprehensive, integrated, and validated reporting system for documenting bicycle and pedestrian crash data

## **Funding**

- Assist all member counties and municipalities in seeking planning and infrastructure grants to improve the bicycle transportation system within the Wilmington Urban Area

## **Complete Streets**

- Implement the complete streets policies adopted by the WMPO and NC Board of Transportation

## **Conclusion**

Two prominent factors were continuously discussed during the Bicycle and Pedestrian Subcommittee meetings: regional connectivity and overcoming existing barriers to bicycle and pedestrian activity. While developing an inventory of bicycle and pedestrian facility needs in the region, the subcommittee discussed a variety of barriers to bicycle and pedestrian transportation. These barriers vary from large bodies of water to invisible jurisdictional boundaries to roadways with high speeds and high traffic volumens. Prominent in the discussion of bicycle and pedestrian barriers was the opportunity to

create connections across large bodies of water such as the Cape Fear River and the Atlantic Intracoastal Waterway. Although the region has shown many successes in bicycle and pedestrian facilities in the recent years, there are still gaps in the existing bicycle and pedestrian system, and an abundance of opportunity for new facilities. Survey results and trends show an increase in demand for new bicycle and pedestrian facilities. Other modes of transportation also place demand for additional bicycle and pedestrian facilities. For example, most people who use mass transportation either walk or bike to their bus stops. Thus, a robust bicycle and pedestrian network is essential for the health of a mass transportation system. Bicycle and pedestrian facilities are important not only in and of themselves, but they support the health and operations of other transportation modes. Thus the expansion of our bicycle and pedestrian networks is critical for the success of our overall transportation network.

## Endnotes

<sup>1</sup> See *Greater Wilmington Area Profile* for more information on the data that was reviewed by the Bicycle and Pedestrian Subcommittee in order to develop the recommendations in this element

<sup>2</sup> For an in-depth discussion of CAC, TCC, and TAC roles in the development of this plan, please see the *Public Involvement Element*

<sup>3</sup> For further discussion of the Bicycle and Pedestrian Prioritization Process, see Appendix D

<sup>4</sup> For an in-depth discussion of the fiscal analysis process please see the *Financial Analysis Element* and Appendix E

<sup>5</sup> For a discussion of projected Bicycle and Pedestrian funding sources used to develop the revenue projections used for this analysis please see Appendix E

<sup>6</sup> For a discussion of alternative funding mechanisms please see the *Financial Analysis Element* and Appendix E

<sup>7</sup> For a discussion of projected bicycle and pedestrian funding sources used to develop the revenue projections used for this analysis please see Appendix E



# FERRY AND WATER TRANSPORTATION ELEMENT

## Trends

Nationally, most regions do not have water access and, as such, ferry and water transportation trends are very localized to the systems in the particular regions they serve. In the Greater Wilmington Area, ferry ridership has maintained a steady increase in recent years. The need to improve upon and potentially expand the local ferry system is attributable to two main factors: the existing and expected growth of the tourism industry; and the trend in ferry ridership as an alternative to vehicular travel on an ever-more congested roadway network. Recently, a discussion has begun in exploring the potential to expand the existing ferry system through additional public-private partnerships (as is discussed further in this element).

Ferries in the Greater Wilmington Area are part of the North Carolina Ferry System (NCFS). The most recent report analyzing the NCFS was completed in February 2010 by the Institute for Transportation Research and Education at North Carolina State University. This report summarizes key findings from passenger surveys, interviews and water transportation data analysis. The report finds that the NCFS is doing an exceptional job operating 22 vessels on seven unique routes serving North Carolina coastal communities. In addition to transporting commuters and tourists, the Ferry System serves critical community service and public safety roles, provides emergency services to residents and visitors, offer a means of emergency evacuation, and sometimes even rescues distressed boaters. In the Greater Wilmington Area, the local ferry routes are well funded and are operating at a surplus. As a whole, the NCFS needs to explore additional funding sources for the replacement of aging vessels, maintenance, and operations functions. The state has a rich history in the boat-building industry and can leverage these opportunities to benefit the state's economy, improve ferry services, and continue to provide mobility in the coastal regions.



NCDOT Southport to Ft. Fisher Ferry.

## Existing Conditions

The Ferry and Water Transportation services within the WMPO primarily encompass three types of water transportation services. These include the North Carolina state run ferry service between Fort Fisher and Southport, NC; the privately run Bald Head Island Ferry

with service running between Southport and Bald Head Island; and finally the private water taxi services and tourist vessels for hire that primarily run along the Cape Fear River to various tourist destination from the Downtown Wilmington Riverwalk.

The NCFS route that runs from Fort Fisher to Southport began service crossing the Cape Fear River in 1965. The route was designed for use by those traveling between attractions that lay north and south of the mouth of the Cape Fear River. It takes approximately 35 minutes for a ferry to travel the 4 miles across the River. Every year approximately 500,000 passengers and 185,000 vehicles take the Fort Fisher Ferry. NCFS states in a 2010 report that annual travel time benefits for this Ferry route come in at \$3,227,000 with vessel operating costs of \$3,246,000. This leaves a net impact of \$19,000 annual cost to the state. This cost supported tourism expenditures of \$71,913,000 in the same year – 2009. During this same time the Southport to Fort Fisher supported 37,090 work trips on this ferry route.<sup>3</sup>

The Bald Head Island (BHI) Ferry is a passenger-only ferry that runs between Southport and Bald Head Island as the primary means of transportation to and from the island. The island is a village located on the east side of the Cape Fear River in Brunswick County. It is only accessible by ferry. The village is revered for its picturesque nature and is a popular vacation destination. Ferry ridership on the BHI Ferry has generally followed economic trends. Ridership steadily increased from 1997 with a slight drop during the great recession from 2008-2012. Ridership has been making a comeback from 2012 to the present with current numbers holding steady at 271,000 annual round-trip ferry rides.

Water taxi service is utilized throughout the region to provide public transportation along and crossing waterways. The geographical nature of the WMPO lends itself to the development of water taxi service. All of the WMPO jurisdictions have shorelines on either the Cape Fear River, Brunswick River, Intracoastal Waterway, and/or the Atlantic Ocean. Water taxi service may be scheduled with multiple stops (operating in a similar manner to a fixed-route city bus) or it can operate on-demand to many locations (operating in a similar manner to a taxicab). Unlike some ferry services, a water taxi would not accommodate personal vehicles. One primary benefit to water taxi service is mitigation of vehicle congestion management on roadways, particularly in and around tourist areas. The utilization of regional water taxis particularly may also be further studied to work in concert with emergency evacuation.

During the Cape Fear Transportation 2040 Survey, public input overwhelmingly supported the ferry system. Respondents requested an increased frequency of trips, with a call for later and earlier ferry running times supporting the local tourism workforce. Comments also supported expanding the existing ferry routes to connect various tourist destinations throughout the region, and better integration of the ferry system with other modes of transportation.



## Ferry and Water Transportation Element Development

In order to analyze and propose recommendations for the development of ferry and water transportation in the Wilmington Urban Area, the WMPO contacted subject matter experts in the ferry and water transportation field to form a Ferry and Water Transportation Subcommittee. Specifically, the WMPO worked with the following organizations to develop the recommendations in this chapter:

- Bald Head Island Ferry
- North Carolina Department of Transportation Ferry Division
- WMPO Citizens Advisory Committee

During Ferry and Water Transportation Subcommittee meetings, WMPO staff initiated group discussions by presenting pertinent facts, relevant information and public survey results related to the current and future state of ferry and water transportation throughout the Wilmington Urban Area.<sup>1</sup>

Under the direction of the WMPO's Citizens Advisory Committee MPO staff worked with the Ferry and Water Transportation Subcommittee to develop recommendations for the following components of this chapter:

- Guiding ferry and water transportation goals and objectives to develop this element
- A list of ferry and water transportation projects needed in the Wilmington Urban Area
- Policies to guide action on ferry and water transportation in the Wilmington Urban Area

Recommendations from the Ferry and Water Transportation Subcommittee were presented to the CAC, TCC, and TAC for further review and modification before being incorporated into *Cape Fear Transportation 2040*.<sup>2</sup> Public input was also critical to the development of this chapter and is further discussed in the *Public Involvement Element*.

## Goals and Objectives

Goals and objectives for the development of this element were created over a series of several Ferry and Water Transportation Subcommittee meetings and serve three distinct purposes within this element. Goals and objectives guide the overall development of this element. Goals and objectives were also used as the criteria on which to base the scoring of ferry and water transportation projects in order to help determine which ferry and water transportation projects were of greatest funding priority. Finally, goals and objectives guided the development of ferry and water transportation policies which will ultimately be used to guide action on ferry and water transportation issues in the Wilmington Urban Area.



Because goals and objectives served such a critical role in the development of the ferry and water transportation element, each goal and objective was reviewed by CAC, TCC, and TAC before being utilized in the process for the development of *Cape Fear Transportation 2040*.

The goals and objectives for ferry and water transportation are as follows:

### **Goal A: Safety**

#### **Objectives:**

1. Prioritize projects that development new facilities at locations along ferry routes that are not prone to shoaling

### **Goal B: Environmental Responsibility**

#### **Objectives:**

1. Prioritize projects and routes that that minimize environmental disturbance
2. Prioritize projects that benefit the overall transportation network in terms of congestion management and the efficient use of public infrastructure

### **Goal C: Efficiency and Level of Service**

#### **Objectives:**

1. Prioritize projects that improve ADA-accessibility from ferry terminal to adjacent destinations
2. Prioritize projects that develop new ferry routes to serve both commuter and tourism markets

### **Goal D: Increased Ridership Modal Integration**

#### **Objectives:**

1. Prioritize projects that improve access to and quality of intermodal ferry terminal/marina facilities
2. Prioritize projects that provide infrastructure to promote biking to/from the ferry terminals
3. Prioritize projects that allow for bike share at ferry terminals
4. Prioritize projects that improve public transit to ferry terminals
5. Prioritize projects that provide Park and Ride lot access proximate to ferry terminals

## Goal E: Economic Development

### Objectives:

1. Prioritize projects that support and enhance ferry service to tourist and local employment areas

## Ferry and Water Transportation Prioritization Process

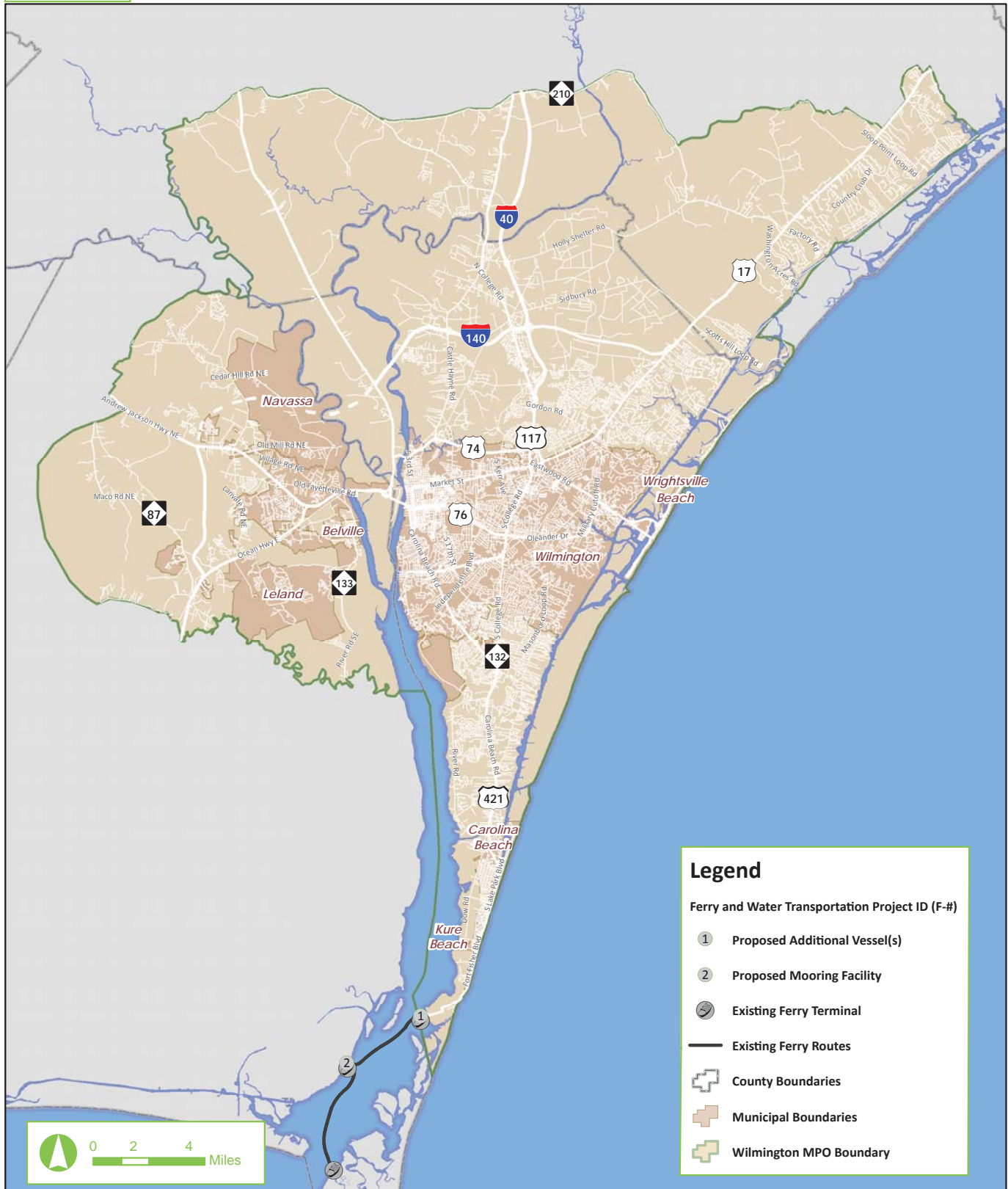
The list of needed ferry and water transportation projects was quantitatively scored and ranked based on the goals and objectives identified in this chapter. This ranked list was then evaluated and revised by the Wilmington MPO's CAC, TCC, and TAC as is noted in the matrix below.<sup>4</sup> A ranked list of ferry and water transportation project needs was the basis for the fiscal constraint analysis determining which projects are anticipated to receive funding in this region between 2015 and 2040, as is discussed in the following pages.<sup>5</sup>





### Ferry and Water Transportation Projects with Anticipated Funding

NOTE: Projects displayed for general location purposes only and not intended to show exact alignment.  
Projects still subject to federal environmental review (NEPA) process before construction.





FISCALLY-CONSTRAINED FERRY AND WATER TRANSPORTATION PROJECT LIST				
ID	PROJECT	FROM	TO	CONSTRUCTION YEAR COST ESTIMATE
F-1	New river class vessel (Southport to Ft. Fisher)	Southport	Ft. Fisher	\$13,307,961
F-2	Southport Additional Mooring Facilities	US 421	US 74/76 Andrew Jackson Highway	\$1,663,495

## Fiscal Constraint Analysis

This document is required by the Federal Highway Administration and the Federal Transit Administration to be fiscally constrained. That means that *Cape Fear Transportation 2040* must identify how much funding for new ferry and water transportation projects is anticipated to be available to meet ferry and water transportation project needs in this community between 2015 and 2040 and; based on this anticipated funding availability, this document must identify which ferry and water transportation projects the community anticipates being able to fund by 2040.

The matrix above and the map on page 78 show the ferry and water transportation project needs for which the WMPO anticipates being able to allocate funding. This plan documents that available funding should be spent on these projects both because they had a high score through the Ferry and Water Transportation Prioritization Process, and because there is enough projected ferry and water transportation funding between 2015 to 2040 to construct these projects.

The fiscally-constrained ferry and water transportation project list should not be seen as a comprehensive overview of ferry and water transportation project needs in the Wilmington Urban Area, but as a list of ferry and water transportation projects that should be priorities for available funding sources. Additional ferry and water transportation projects beyond what is identified in the list above are needed and should be pursued where funding and development opportunities become available. A more comprehensive list of ferry and water transportation project needs is listed in Appendix H, and all of these projects should be pursued as opportunities arise and if alternative funding becomes available.<sup>6</sup>

Funding identified in this plan for ferry and water transportation projects is very limited. This is primarily due to the fact that the available funds are restricted to capital acquisitions for the NCFS's existing ferry routes. It is important to note that existing funding for ferry and water transportation projects identified through this plan apply only to capital improvement projects. Any additional projects identified (including additional vessel operations or routes outside of the scope of NCDOT's existing ferry infrastructure) are not eligible for existing NCFS funds but may be coordinated through other funding sources such as public-private partnerships.

## Ferry and Water Transportation Policies

The policies below were developed by the Ferry and Water Transportation Subcommittee based on goals and objectives of this element. Ferry and water transportation policies will be used to guide action on ferry and water transportation issues in the Wilmington Urban



Area. Each policy was reviewed through public outreach and by CAC, TCC, and TAC before being included in *Cape Fear Transportation 2040*.

The WMPO will work with member agencies to do the following:

- Operate in compliance with USCG regulations and industry best practices to reduce safety risk to an acceptable level
- Plan facilities and ferry routes that minimize environmental disturbance
- Promote the ferry within the overall transportation network in terms of congestion management and the efficient use of public infrastructure and fossil fuels
- Support public/private operating partnerships where appropriate to effectively leverage regional funding and infrastructure resources
- Promote ADA-accessible networks at ferry terminals and adjacent destinations
- Promote additional ferry routes to serve both commuter and tourism market demand
- Improve access to and quality of intermodal ferry terminal/marina facilities
- Support the biking community by improving biking facilities at ferry terminals
- Support the biking community by promoting bike share at ferry terminals
- Support public transit - bus connections at ferry terminals
- Support Park and Ride lot access proximate to ferry terminals
- Support planned ferry service to tourism and local employment areas

## Conclusion

Capital improvements to the ferry and water transportation network in the Greater Wilmington Area are largely dependent on the availability of funds from the state. As such, the majority of ferry and water transportation projects included in this element are coordinated and funded through financial structures managed by NCDOT with input from the Wilmington MPO. Larger scale, regional planning coordinated by the WMPO is also necessary to ensure multi-modal integration is addressed. Further expansion of the existing ferry routes will require the development of strategic public/private partnerships in order to connect residents, business people, and tourists within and to the region.



Furthermore, future years may see an increasing use for the ferry and water transportation system to provide support to regional emergency management operations. The potential use of water vessels and temporary barges at strategic locations should be explored for use in emergency management and natural disaster planning and preparation.

## Endnotes

<sup>1</sup> See *Greater Wilmington Area Profile* for more information on the data that was reviewed by the Ferry and Water Transportation Subcommittee in order to develop the recommendations in this element

<sup>2</sup> For an in-depth discussion of CAC, TCC, and TAC roles in the development of this plan, please see the *Public Involvement Element*

<sup>3</sup> Study conducted by ITRE 2009 *Benchmarking and Optimizing the North Carolina Ferry System*

<sup>4</sup> For further discussion of the Ferry and Water Transportation Prioritization Process, see Appendix D

<sup>5</sup> For an in-depth discussion of the fiscal analysis process and funding sources used to develop revenue projections, please see the *Financial Analysis Element* and Appendix E



# FREIGHT/RAIL ELEMENT

## Trends

Whether by truck, waterway, or rail, the bulk of the mileage covered through a long-distance freight movement occurs outside of the urbanized areas. However, industry analysis has revealed that the last mile of transportation to a freight node is the most congested, the slowest, and the most dangerous (thus the most costly). Thus, issues in the last mile surrounding a freight node have received increased attention from transportation organizations in recent years. These “last mile” issues are primarily occurring within urbanized areas where truck and rail movements leave corridors dedicated to speed and mobility (in mostly rural areas) to enter corridors that are more dedicated to serving access purposes (in mostly urban areas). Transportation corridors in urbanized areas serve more complex purposes and thus introduce increased opportunities for conflicts, crashes, and congestion. Balancing all the purposes of a transportation corridor in the last mile is particularly important to the safe and efficient movement of freight into and out of an urbanized area and presents itself as a pressing concern in the development of transportation networks that serve freight.

On the other end of the spectrum; communities with large freight nodes have been demanding increased involvement in the development of freight activity. This has materialized itself through an emphasis on incorporating freight considerations in land use planning initiatives both in promoting positive economic development and in mitigating negative externalities from increased freight movements. Transportation projects aimed at mitigating issues for freight or otherwise improving freight corridors must balance increasing the efficiency of freight movements with community concerns such as reducing conflicts with other modes of transportation. Communities have also been utilizing planning and political platforms to demonstrate an increasing interest in passenger rail options in urbanized area. Oftentimes, passenger rail utilizes the same track as freight rail and this increases opportunities for conflict so must be carefully coordinated where it is planned.

This overall increase in emphasis on freight and rail planning in the urbanized areas has encouraged transportation organizations to invest more heavily in freight. This includes investing in improvements to identified truck route corridors. It also includes entering into public-private partnerships to improve (sometimes private) rail and roadway infrastructure in an effort to realize increased public benefits from economic development opportunities.

## Existing Conditions

The Wilmington Urban Area has a mixture of different types of freight to include those typically seen in other MPOs throughout the country such as domestic freight delivery and freight generated from manufacturing/industrial uses. In addition to freight uses typical to most urban areas, the Wilmington MPO is home to the larger of two seaports in the state of North Carolina. The NC Port of Wilmington and the value-added services that the ports have catalyzed generate a significant effect on the Wilmington transportation network and bring significant economic development value to the region.

The NC Ports, founded in 1945, is an enterprise Agency of the State that employs approximately 240 state port employees and handles approximately 3 million tons and more than 250,000 TEUs (twenty foot equivalent) containers annually. The Port of Wilmington is designated by the U.S. Department of Defense as one of only 16 strategic seaports capable of simultaneously handling commercial and military requirements. Waterborne trade is a vital business component of many North Carolina industries, notably agriculture, manufacturing, mining/aggregates, and forest products. North Carolina-based exporters rely on nearby port facilities for efficient access to the global marketplace. In turn, goods imported through North Carolina ports provide products that support North Carolina businesses including manufacturing plants, local retail sales, and distribution centers. The presence of the port facilities also attracts a variety of value-added services that support employment in industries such as trucking, rail, distribution, marine maintenance and repair services, and services to facilitate the trade transaction. In all, North Carolina's port activities are estimated to contribute to 76,700 jobs statewide and \$707 million each year in state and local tax revenues<sup>[1]</sup>.

The Port of Wilmington is located in the City of Wilmington in New Hanover County. The Port of Wilmington offers terminal facilities serving military, container, bulk, breakbulk, and specialty cargo operations. CSX Transportation (railroad) provides daily service for boxcar, tanker, and general cargo services via a short line Wilmington Terminal Railroad. CSX now owns and operates the largest intermodal rail network in the eastern United States. The Wilmington switching yard, Davis Yard, is located in Navassa and processes approximately 90,000 to 98,000 rail cars per year. CSXT also has interchanges with short lines to the US Army's Military Ocean Terminal at Sunny Point (Brunswick County) and the Wilmington Terminal Railroad (with connections to the Port of Wilmington).

Imports, exports, and commodities used by businesses in southeastern North Carolina are continually hampered by inefficiencies in the rail system. The NCDOT owns 27 miles of the former Wilmington & Weldon rail line right of way between Wallace (in Duplin County) and Castle Hayne (just north of Wilmington in New Hanover County) in hopes of restoring this rail line. The restoration of this rail service could open up the Port of Wilmington to the northern I-95 corridor sections of the state.

The Port of Wilmington is capable of providing intermodal rail service (i.e, containers via rail) and can even accommodate double stacked container rail cars; however, the current volume of container traffic generated at the facility does not meet the threshold set by the rail service provider to justify competitive intermodal rates. At some point in the future intermodal service could facilitate rail movements for a portion of container traffic that is currently moved via truck; this amount is dependent on market and pricing factors. Bulk and breakbulk freight are transported by both truck and rail. Although additional growth in commodities like grains, fertilizer, and steel will contribute to added rail usage in the region, at the present time, containerized freight coming into or leaving the Port is transported only by truck. Rail cars into and out of the Port are substantially fewer than the number of trucks per month.



The number of trucks entering and exiting the Port of Wilmington is expected to grow based on projected cargo forecasts. Overall, the Charlotte and Piedmont Triad origin/destinations made up the largest majority of port container traffic. Other large customers (i.e.,



origin/destinations) for the Port of Wilmington container business are located in Rutherford and Caldwell counties to the west and Nash County in the north-central part of the state. Traffic generated by the Port of Wilmington is subject to market conditions for the goods and services it imports and exports. Port volumes are now trending positively. NC Ports has maintained an overall market strength in the handling of bulk and breakbulk cargos as compared to other regional ports. Across containerized cargo, NC Ports handle only a small share of containers destined for the region. In the last couple of years, NC Ports has secured new lines of business, or in some instances reconstituted former lines. The new wood pellet facility at the Port of Wilmington is expected to export more than 2 million tons of pellets at its peak. The wood pellet facility will have one truck-served manufacturing site and the remaining manufacturing sites will be rail-served. The product will ultimately be exported to Europe from manufacturing facilities in southeastern NC.

Within the perimeter of the port, the NC Ports Authority has been pursuing an internal North South Corridor project to connect the existing south gate to a relocated north gate. The North South Corridor project would allow for safe and efficient freight movements internal to the port's perimeter and would significantly minimize congestion on transportation facilities located in the vicinity of the port.

Future growth projections suggest that congestion levels on the local transportation network could hamper the Port's growth plans and competitiveness. Deficiencies in the existing transportation network diminish the ability to efficiently distribute goods and services from the Port of Wilmington. Access to the port terminal is critical in creating an efficient and effective supply chain and the roads and rail lines leading into and out of the port terminal are a critical part of the NC's pipeline to the global marketplace.



## Freight/Rail Element Development

In order to analyze and propose recommendations for the development of Freight/Rail in the Wilmington Urban Area, the WMPO contacted subject matter experts in freight industries to form a Subcommittee. Specifically, the WMPO worked with the following organizations to develop the recommendations in this element:

- Wilmington Terminal Railroad
- CSXT
- NC State Ports Authority
- Brunswick County Economic Development Commission
- City of Wilmington Traffic Management
- NCDOT Division 3
- NCDOT Transportation Planning Branch
- NCDOT Rail Division
- North Carolina Trucking Association
- MCO Transportation
- Load Match Logistics
- Military Terminal at Sunny Point
- WMPO Citizens Advisory Committee

During Freight/Rail Subcommittee meetings, WMPO staff initiated group discussions by presenting pertinent facts, relevant information and public survey results related to the current and future state of freight movements throughout the Wilmington Urban Area.<sup>1</sup>

Under the direction of the WMPO's Citizens Advisory Committee, MPO staff worked with this Freight/Rail Subcommittee to develop recommendations for the following components of this element:

- Guiding freight/rail goals and objectives to develop this element
- A list of freight/rail projects needed in the Wilmington Urban Area
- Policies to guide action on freight/rail in the Wilmington Urban Area

Recommendations from the Freight/Rail Subcommittee were presented to the CAC, TCC, and TAC for further review and modification before being incorporated into *Cape Fear Transportation 2040*.<sup>2</sup> Public input was also critical to the development of this element and is further discussed in the *Public Involvement Element*.

## Goals and Objectives

Goals and objectives for the development of this element were created over a series of several Freight/Rail Subcommittee meetings and serve three distinct purposes within this element. Goals and objectives guide the overall development of this element. Goals and objectives were also used as the criteria on which to base the scoring of freight/rail projects in order to help determine which freight/rail projects were of greatest funding priority. Finally, goals and objectives guided the development of freight/rail policies which will ultimately be used to guide action on freight/rail issues in the Wilmington Urban Area.

Because goals and objectives served such a critical role in the development of the freight/rail element, each goal and objective was reviewed by CAC, TCC, and TAC before being utilized in the process for the development of Cape Fear Transportation 2040.

The goals and objectives for freight/rail are as follows:

### **Goal A: Supporting Military Freight Movements**

***Objectives:***

1. Mitigate key congestion choke points between military origins & destinations
2. Provide localized military support at key military destinations

### **Goal B: Enhance Transportation Network between existing and potential customers to and from WMPO Ports**

***Objectives:***

1. Support/enhance access for bulk grain markets
2. Support/enhance access for wood & wood products markets
3. Support/enhance access for industrial bulk/breakbulk commodities
4. Improve freight access to Charlotte Intermodal terminals
5. Support/enhance access for chemicals/fertilizer markets
6. Support/enhance access for other agricultural markets
7. Support containerized freight movements
8. Support/enhance access for warehousing/distribution centers

### **Goal C: “Last Mile” improvements to freight nodes**

***Objectives:***

1. Mitigate key congestion choke points within the last mile of key freight nodes
2. Localized improvements at NC Port of Wilmington
3. Reduce traffic conflicts where freight interacts with other modes

**Goal D: Building community support & supporting local business****Objectives:**

1. Re-instate passenger rail access to/from Wilmington and major East Coast destinations
2. Support/enhance access for existing industrial parks
3. Support/Enhance access for domestic freight
4. Support/Enhance Wilmington International Airport Industrial Park initiatives
5. Establish the WMPO as a regional logistics center

**Freight/Rail Prioritization Process**

The list of needed freight/rail projects was quantitatively scored and ranked based on the goals and objectives identified in this element. This ranked list was then evaluated and revised by the Wilmington MPO's CAC, TCC, and TAC as is noted in the matrix below.<sup>3</sup> A ranked list of project needs was the basis for the fiscal constraint analysis determining which projects are anticipated to receive funding in this region between 2015 and 2040, as is discussed below.<sup>4</sup>

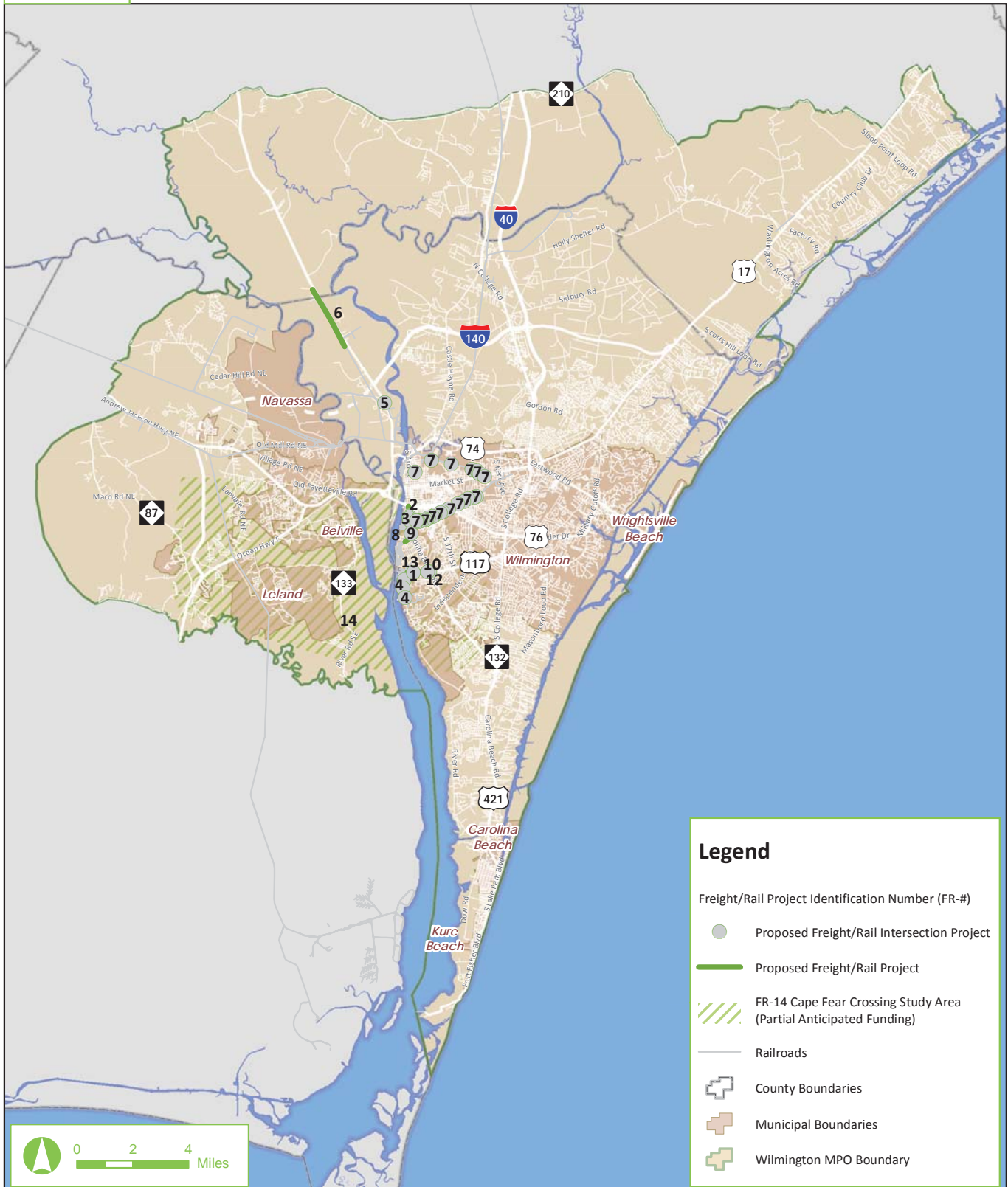
FISCALLY-CONSTRAINED FREIGHT/RAIL PROJECT LIST			
ID	PROJECT TYPE	PROJECT	CONSTRUCTION YEAR COST ESTIMATE
FR-1	Truck/Roadway	Shipyards Boulevard eb bus pullout, bus stop, and sidewalk	\$135,000
FR-2	Truck/Roadway	Front Street widening and redesign	\$17,450,892
FR-3	Rail	Front Street lead railroad signalization and gates	\$998,097
FR-4	Rail	Study at-grade rail crossing conflicts on WTRY and spur lines near Port of Wilmington (multiple locations)	\$391,432
FR-5	Rail	US421 Railroad crossing safety improvements south of I-140/Dan Cameron Bridge	\$521,909
FR-6	Rail	US421 Railroad extension from Invista to Pender Commerce Park	\$5,694,698
FR-7	Rail	At-grade rail crossing conflicts on NCDOT & CSX lines (multiple locations)	\$10,890,646
FR-8	Truck/Roadway	Burnett Boulevard widening to allow for queuing at north gate of NC Port of Wilmington from Carolina Beach Road to Myers Street	\$2,628,506
FR-9	Truck/Roadway	Front Street & Burnett Boulevard turn lanes improving sb and nb truck access	\$408,567
FR-10	Truck/Roadway	"Carolina Beach Road and Shipyards Boulevard wb right turn improvements"	\$1,315,130
FR-11	Truck/Roadway	Shipyards Boulevard eb at Carolina Beach Road nb left turn additional queuing	\$306,864
FR-12	Truck/Roadway	Shipyards Boulevard median closure at Rutledge Drive	\$43,838
FR-13	Truck/Roadway	Shipyards Boulevard speed sensors and warning activation at NC Port of Wilmington	\$175,351
FR-14	Truck/Roadway	Cape Fear Crossing - Funded Portion	\$158,021,483
* Projects anticipated to receive funding from alternative funding mechanisms			





## Freight/Rail Projects with Anticipated Funding

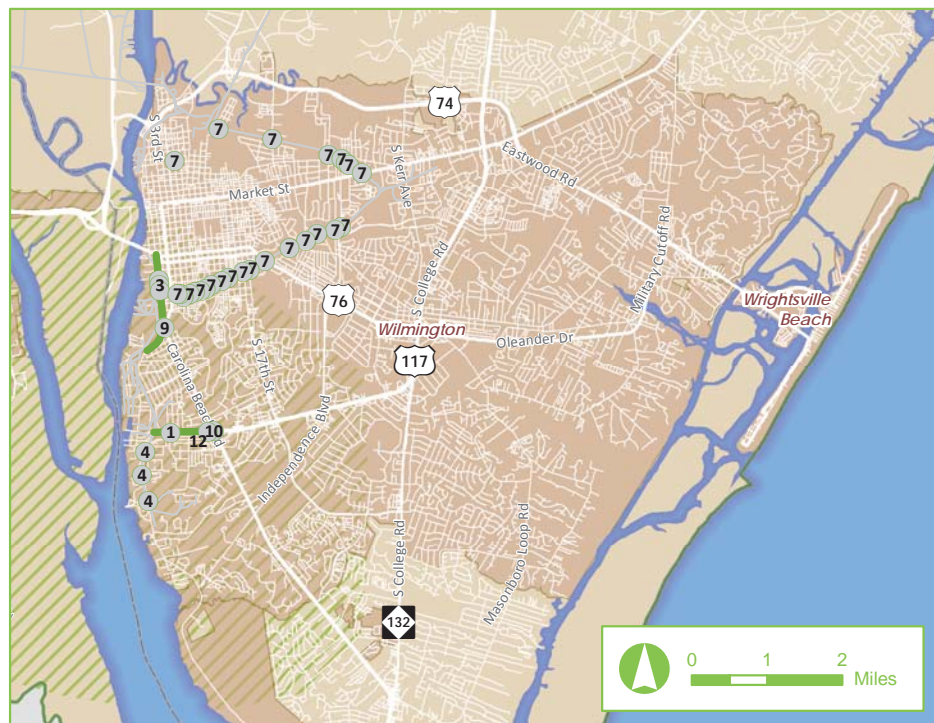
NOTE: Projects displayed for general location purposes only and not intended to show exact alignment.  
Projects still subject to federal environmental review (NEPA) process before construction.





## Freight/Rail Projects with Anticipated Funding

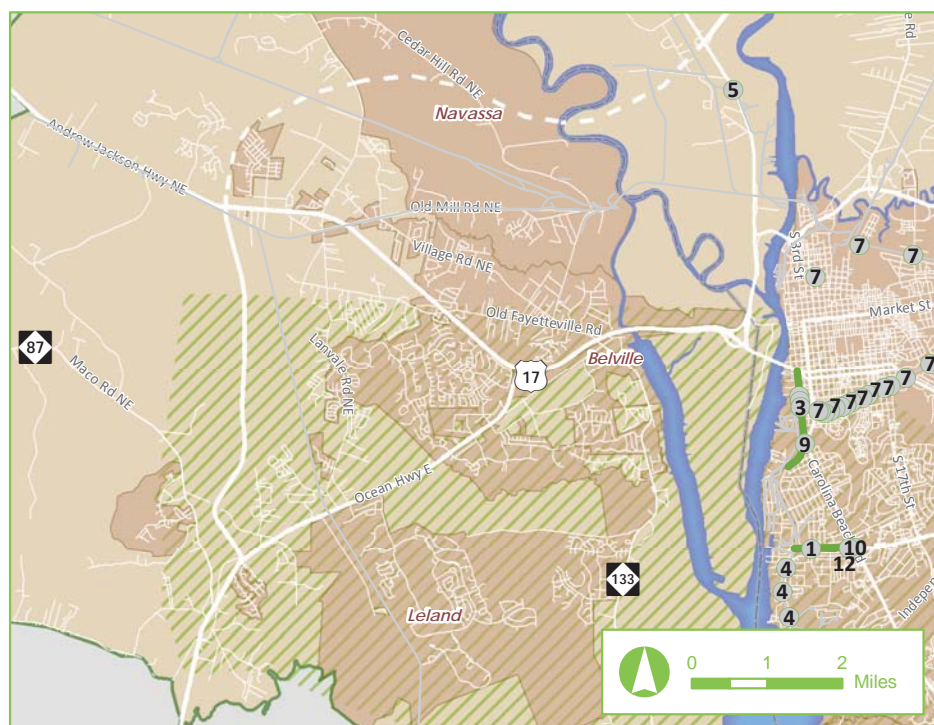
NOTE: Projects displayed for general location purposes only and not intended to show exact alignment. Projects still subject to federal environmental review (NEPA) process before construction.



### Wilmington

Freight/Rail Project Identification Number (FR-#)

- Proposed Freight/Rail Intersection
- Proposed Freight/Rail Project
- FR-14 Cape Fear Crossing Study Area (Partial Anticipated Funding)
- Railroads
- County Boundaries
- Municipal Boundaries
- Wilmington MPO Boundary



### Leland, Belville, & Navassa

Freight/Rail Project Identification Number (FR-#)

- Proposed Freight/Rail Intersection
- Proposed Freight/Rail Project
- FR-14 Cape Fear Crossing Study Area (Partial Anticipated Funding)
- Railroads
- County Boundaries
- Municipal Boundaries
- Wilmington MPO Boundary



### Fiscal Constraint Analysis

This document is required by the Federal Highway Administration to be fiscally constrained. That means that *Cape Fear Transportation 2040* must identify how much funding for new freight/rail projects is anticipated to be available to meet freight/rail project needs in this community between 2015 and 2040 through traditional, dedicated funding sources and; based on this anticipated funding availability, this document must identify which freight/rail projects the community anticipates being able to fund by 2040.

The matrix and the maps on pages 89-91 show the freight/rail project needs for which the WMPO anticipates being able to allocate funding. This plan documents that available funding should be spent on these projects both because they had a high score through the freight/rail prioritization process<sup>5</sup>, and because there is enough projected freight/rail funding between 2015 to 2040 to construct these projects.

The fiscally-constrained freight/rail project list should not be seen as a comprehensive overview of freight/rail project needs in the Wilmington Urban Area, but as a list of freight/rail projects that should be priorities for available funding sources. Freight/rail is unique among the transportation modes being analyzed in *Cape Fear Transportation 2040* in its typical funding structure. Most funding of larger freight/rail projects does not occur on an annual basis; therefore these larger and intermittent freight/rail funding sources have not been included in the *Financial Analysis Element*. These additional funding sources include but are not limited to: TIGER (Transportation Investment Generating Economic Recovery), TIFIA (Transportation Infrastructure Finance and Innovation Act), Golden Leaf, EDA (Economic Development Administration), CDBG (Community Development Block Grant Program), and other public-private partnerships, etc. Additional freight/rail projects beyond what is identified in the list above are needed and should be pursued where funding and development opportunities become available. A more comprehensive list of freight/rail project needs is shown in the freight/rail vision map (see opposite page) and are listed in Appendix H of this document. All of these projects should be pursued as opportunities arise and if alternative funding becomes available.

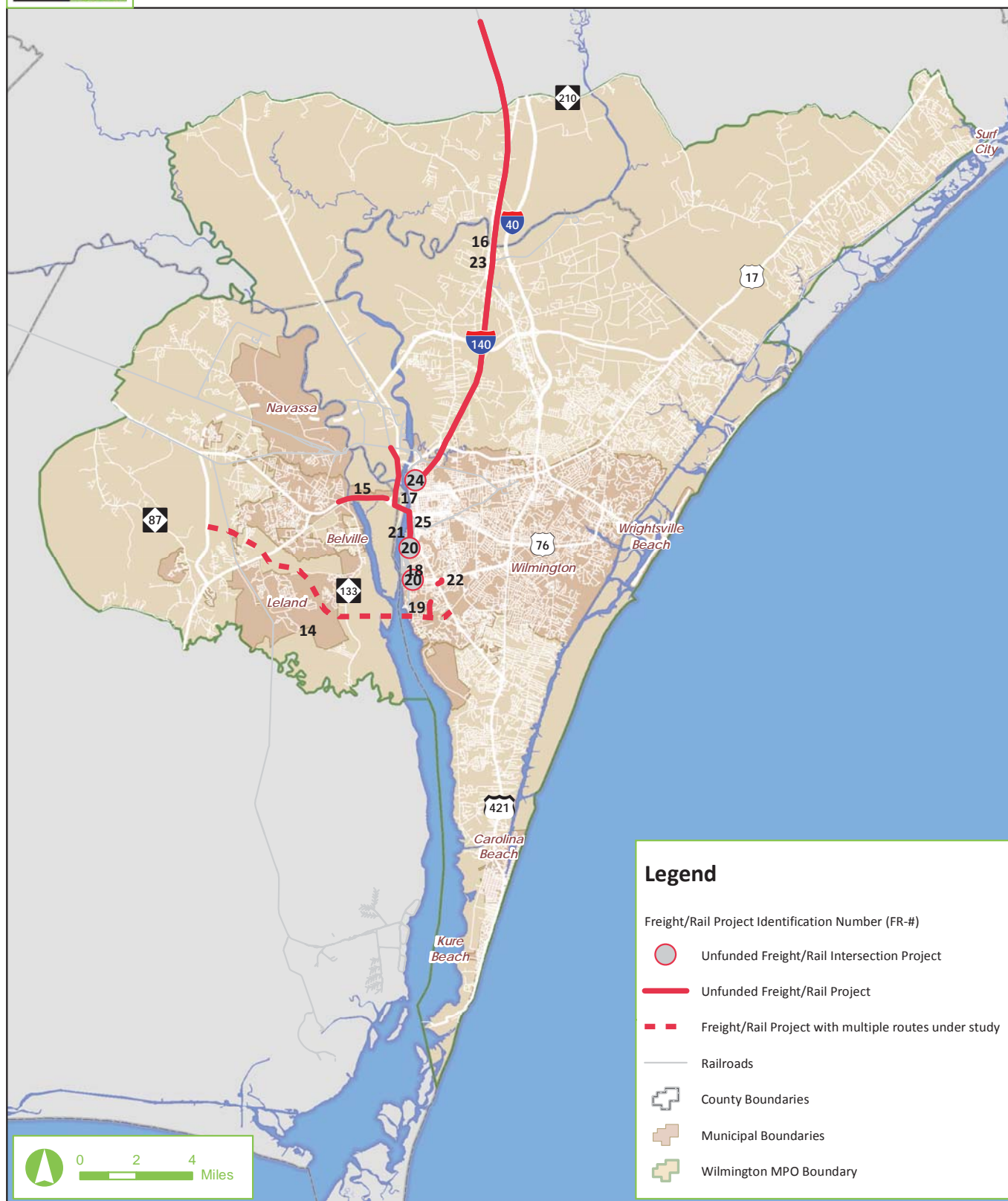


Containers on Rail.



## Unfunded Freight/Rail Projects - VISION [DRAFT]

NOTE: Projects displayed for general location purposes only and not intended to show exact alignment. Projects still subject to federal environmental review (NEPA) process before construction.



An overarching vision of the projects that are important to the Greater Wilmington Area's freight/rail development is to utilize a combination of traditional and more innovative funding mechanisms to allow for dedicated transportation freight facilities that minimize both conflicts with other modes of transportation and conflicts with other community activities. The fiscally constrained projects noted in the matrix represent important opportunities to address current deficiencies in how modes are operating together; these projects should be complemented (using more innovative funding sources) by larger transportation projects that will allow for greater separation of (and thus reduced conflict between) freight/rail and other transportation users. These vision projects are noted in Appendix H and on the "Freight/Rail Vision Map".

## **Freight/Rail Policies**

The policies below were developed by the Freight/Rail Subcommittee based on goals and objectives of this element. Freight/rail policies will be used to guide action on freight/rail issues in the Wilmington Urban Area. Each policy was reviewed through public outreach and by CAC, TCC, and TAC before being included in *Cape Fear Transportation 2040*.

The WMPO will work with member agencies to do the following:

- Support circulation improvements in the area surrounding the Port of Wilmington, particularly on Carolina Beach Road (US 421), Front Street (between the Cape Fear Memorial Bridge and Burnett Boulevard), the Cape Fear Memorial Bridge, River Road, Shipyard Boulevard (US117), and STRAHNET routes
- Support circulation improvements for other freight nodes, particularly on River Road, Raleigh Street, US421, US74/76 Andrew Jackson Highway, and Independence Boulevard
- Support the restoration of the rail line between Castle Hayne and Wallace for both passenger and freight service between the Wilmington Urban Area and Raleigh and the Northeast
- Support improvements to the rail freight networks from Wilmington to Hamlet and Pembroke
- Support the upgrade of US74 between Wilmington Urban Area and Charlotte to interstate standards
- Support network improvements that benefit the military
- Explore partnership opportunities with the Jacksonville Area MPO to restore rail connections to and between both urbanized areas
- Support regional economic development through improved access to the Brunswick County Megasites to include the construction of a signalized intersection along US74/76 between the Mid-Atlantic Industrial Rail Park and the International Logistics Park of North Carolina
- Support improved transportation in the vicinity of the North Carolina Port of Wilmington through support of internal transportation improvements within the perimeter of the port to include the construction of the North South Corridor project in conjunction with a realignment of the north gate to the Port of Wilmington and/or grade separations at existing gates



## Conclusion

Freight movement is a critical element of an advanced industrial economy and the ease of freight movement is one component of a region's economic competitiveness for attracting and retaining various types of industry and employment centers. Freight movement can also have an impact on a region's quality of life, particularly with the need to ensure heavy truck/rail traffic has suitable routes to/from the national highway, regional rail nodes, and ports remains in balance with the needs of non-industrial components of the community. This freight/rail element outlines proposals for policies and projects that will capitalize on economic development opportunities for the WMPO and those that will mitigate potential conflicts and externalities from freight movements on the larger community and transportation network.

## Endnotes

<sup>[1]</sup> Economic Contribution of the NCSPA, NC State/ITRE, November 2014.

<sup>3</sup> For further discussion of the Freight/Rail Prioritization Process, see Appendix D

<sup>4</sup> For an in-depth discussion of the fiscal analysis process please see the *Financial Analysis Element* and Appendix E

<sup>5</sup> For a discussion of freight/rail prioritization process, please see Appendix D



# MASS TRANSPORTATION ELEMENT

## Trends

Nationally, public transit ridership has outpaced the population growth in recent years.<sup>3</sup> There are many factors that can be attributable to this trend in the growth of ridership. The baby boomer generation is entering retirement and an aging population is less inclined to drive to commute from place to place.<sup>4</sup> Additionally, the Millennial generation has a higher preference for public transit and non-vehicular travel options.<sup>5</sup> Beyond demographic changes, the price of auto ownership is putting a significant strain on the budgets of middle class America, thus alternatives to commuting by single-occupant vehicle are gaining increased attention.

Of note, recent years have seen a rise in “choice ridership” (public transportation ridership by those who can afford to own, maintain and drive a car for most of their commuting needs). The trend towards increased public transportation ridership has particularly been realized in those communities that invest in improving the frequency of their fixed-route services and in supporting transit through land use planning practices.

Transit-oriented or transit-accessible land use planning is a critical component in the choice some communities make to more heavily invest in public transportation. It is estimated that 45% of American households do not have access to public transportation<sup>6</sup> and this reality severely limits the number of potential transit riders. The density of origins and destinations near a transit stop directly correlates with its success. Land use planners have increasingly been interested in changing the physical landscape to facilitate transit ridership. For example, in order to support a high-frequency transit route, a neighborhood would ideally support 5,000 to 15,000 residents located within a half-mile of a bus or rail station.<sup>7</sup> Supportive land use development and improvements to the built environment are a key first step to improving mass transportation services.

## Existing Conditions

In the Greater Wilmington area, mass transportation is most heavily utilized by “transit-dependent riders” (those without/with limited access to a personal vehicle for commuting purposes). This is due to many factors to include the large headways, limited fixed-route service area, and the lack of transit-supportive built environments. The greater Wilmington area is served by one fixed-route public transportation provider and three paratransit and dial-a-ride public transportation providers.

The Cape Fear Public Transportation Authority, doing business as Wave Transit, runs 16 fixed routes seven days a week. The service area for Wave Transit includes most of New Hanover County and the urbanized portion of northern Brunswick County to include Leland and Navassa. Most of their routes have an hour headway (the busses return to the same stop every hour) and have a cost of two dollars per ride. Wave Transit also runs a paratransit service for those with disabilities and seniors living within  $\frac{3}{4}$  of a mile of a Wave Transit fixed route. Wave Transit’s paratransit service provides door-to-door service based on advanced booking. Wave Transit’s ridership has remained around 1.5 million passengers annually.

Brunswick Transit System (BTS) and Pender Adult Services - Transportation (PAS-TRAN) are non-profit community transportation systems that coordinate general public and human service transportation services for the residents of Brunswick County and Pender County (respectively) based on placing advanced bookings for the service. BTS provides trips



Brunswick Transit System Vehicle

throughout Brunswick County Mondays through Fridays as well as trips to New Hanover County on Tuesdays and Thursdays. The cost of BTS's services range from \$1.50 to \$5 depending on the distance travelled. BTS consistently provides approximately 50,000 trips annually, but it should be noted that BTS serves all of Brunswick County to include areas outside of the WMPO planning area boundary. PAS-TRAN provides trips to residents of Pender County Monday through Friday. The cost of a one-way trip through PAS-TRAN is \$3 or \$8 if it is an out-of-county trip. PAS-TRAN serves approximately 20,000 trips annually; this also includes trips outside of the WMPO planning area boundary.

Information from the *Cape Fear Transportation 2040 Survey*<sup>8</sup> reveals that there is an opportunity to entice additional mass transportation ridership through key service improvements.

I WOULD TAKE THE BUS MORE OFTEN IF THE FOLLOWING FACTORS WERE PRESENT: (CHOOSE 3)		
ANSWER OPTIONS	RESPONSE PERCENT	RESPONSE COUNT
Park and Ride was available	29.3%	1096
Access to bus stops (sidewalks, etc.)	32.3%	1209
More frequent bus service	39.7%	1487
Express routes along major roads	32.6%	1219
Amenities (benches, shelters, etc.)	25.6%	957
Nothing will result in me riding the bus	37.8%	1415
Other (please specify)	11.7%	437
ANSWERED QUESTION		3741
SKIPPED QUESTION		424

Furthermore, respondents overwhelmingly indicated that they would prefer to use public transportation more often for both commuting purposes (46% of respondents) and for running errands (43% of respondents).

## Mass Transportation Element Development

In order to analyze and propose recommendations for the development of mass transportation in the Wilmington Urban Area, the WMPO contacted subject matter experts

in public transportation to form a Subcommittee. Specifically, the WMPO worked with the following organizations to develop the recommendations in this element:

- Cape Fear Public Transportation Authority (dba WAVE)
- Pender Adult Services - Transportation
- Brunswick Transit
- Wilmington Housing Authority
- University of North Carolina at Wilmington (UNCW)
- WMPO Citizens Advisory Committee

During Mass Transportation Subcommittee meetings, WMPO staff initiated group discussions by presenting pertinent facts, relevant information and public survey results related to the current and future state of mass transportation throughout the Wilmington Urban Area.<sup>1</sup>

Under the direction of the WMPO's Citizens Advisory Committee, MPO staff worked with this Mass Transportation Subcommittee to develop recommendations for the following components of this element:

- Guiding mass transportation goals and objectives to develop this element
- A list of mass transportation projects needed in the Wilmington Urban Area
- Policies to guide action on mass transportation in the Wilmington Urban Area

Recommendations from the Mass Transportation Subcommittee were presented to the CAC, TCC, and TAC for further review and modification before being incorporated into *Cape Fear Transportation 2040*.<sup>2</sup> Public input was also critical to the development of this element and is further discussed in the *Public Involvement Element*.

## Coordination with other Mass Transportation Plans

In coordination with the WMPO but outside of Cape Fear Transportation 2040, local public transportation providers (to include WAVE, BTS and PAS-TRAN) create their own documents to direct mass transportation operations in the greater Wilmington area. Local public transportation providers direct how their operations and maintenance budgets are used to develop programs and services provided directly to the public. These plans are updated on an annual basis and generally will only include major program changes every five years.

Cape Fear Transportation 2040 complements the plans of local public transportation



PAS-TRAN Signage



providers by outlining which fiscally-constrained capital investments are needed for a horizon year 25 years in the future to reflect a shared future vision of mass transportation adaptable to different operational scenarios. Although this document only outlines how capital investments will be made over the next 25 years, public input collected for the development of Cape Fear Transportation 2040 heavily indicated support for future mass transportation operational changes to include:

- More frequent bus service
- Express routes along major corridors
- Expanded weekend hours
- Fixed-route service area expansion

The wholesale implementation of these types of service improvements require additional maintenance and operations funding beyond what is currently being programmed for public transportation in the greater Wilmington area. Cape Fear Transportation 2040 addresses these public requests by including capital projects that allow for these service improvements in the local public transportation providers' service improvement plans, should the operations/maintenance funding be available in their budgets at a future date.

## **Capital Projects outlined in Cape Fear Transportation 2040**

The following project types are noted in the fiscally-constrained project list in this Mass Transportation Element:

PROJECT TYPE	DESCRIPTION
Park & Ride	Park & Ride projects will dedicate 8-20 parking spaces for the use of commuters seeking to access carpools, vanpools or transit from a convenient location while completing the first portion of their journeys in their own private vehicles. Park & Ride projects will include dedicated parking spots and associated signage. Park & Ride lots will typically be accomplished through a partnership with interested property owners
Stop Access	Stop Access projects provide better pedestrian accessibility to bus stops through the provision or upgrade of crosswalks
Amenity	Amenity projects can include the provision of one or more of the following: bus stop shelter, bench, trash can, bicycle parking
Express Route Service	Express Route Service projects are service improvements that include the purchase of a fixed-route bus. Express Route Service projects will add an additional fixed route to the network. The additional fixed route will have a limited number of stops operating with a shorter headway (running more frequently) than other fixed route services. Express Route Service projects will also operate as an out-and-back service rather than a looped service (they will operate in both directions rather than providing direct service on only one side of the roadway corridor).
Additional Fixed Route Service	Additional Fixed Route Service projects are service improvements that may include the purchase of an additional fixed-route bus. Additional Fixed Route Service will expand the service area of the existing fixed routes to reach a wider number of potential transit riders through the addition of new origins/destinations.

## Goals and Objectives

Goals and objectives for the development of this element were created over a series of several Mass Transportation Subcommittee meetings and serve three distinct purposes within this element. Goals and objectives guide the overall development of this element. Goals and objectives were also used as the criteria on which to base the scoring of mass transportation projects in order to help determine which mass transportation projects were of greatest funding priority. Finally, goals and objectives guided the development of mass transportation policies which will ultimately be used to guide action on mass transportation issues in the Wilmington Urban Area.

Because goals and objectives served such a critical role in the development of the mass transportation element, each goal and objective was reviewed by CAC, TCC, and TAC before being utilized in the process for the development of *Cape Fear Transportation 2040*.

The goals and objectives for mass transportation are as follows:

### Goal A – Build Community Support for Public Transit

#### **Objectives:**

1. Educate elected officials on public transit logistics and funding dynamics
2. Improve community perception about safety, comfort, and convenience of public transit
3. Highlight the potential for public transit to serve as an economic development engine for the region
4. Highlight the opportunity to reduce carbon emissions through public transit
5. Highlight the benefit of public transit to the overall transportation network in terms of congestion management and the efficient use of public infrastructure
6. Provide data and recommendations for greater transit availability by means of optimal routes and increased frequency

### Goal B – Enhance Economic Development Opportunities through Public Transit Services

#### **Objectives:**

1. Prioritize public transit service to employment centers
2. Prioritize public transit service to low income population housing
3. Prioritize public transit service to medical centers

4. Prioritize public transit service to educational centers
5. Enhance health and livability with access to healthy foods and recreation centers through public transportation
6. Market public transit services to economic development workforce groups to encourage new regional industry/commerce

### **Goal C – Broaden Base of Public Transit Ridership**

#### ***Objectives:***

1. Utilize choice ridership to expand service and support for transit-dependent populations
2. Identify and capitalize on unserved public transit opportunities for 55+ population
3. Identify and capitalize on unserved public transit opportunities for young professionals
4. Pilot express bus routes on major corridors
5. Identify bicycle route connections from public transit stops to major destinations

### **Goal D – Complement Mass Transportation Routes/Services with Physical Infrastructure**

#### ***Objectives:***

1. Ensure robust and ADA-accessible pedestrian networks exist from public transit stops to adjacent destinations
2. Ensure paratransit transportation needs are met for travelers
3. View the installation of bus shelters, benches, and trash bins as a necessity rather than an amenity
4. Prioritize installation of bus shelters, benches and trash bins at bus stop locations where ridership and potential ridership is highest
5. Prioritize installation of crosswalks at bus stop locations where ridership and potential ridership is highest and/or where safety concerns exist

### **Mass Transportation Prioritization Process**

The list of needed mass transportation projects was quantitatively scored and ranked based on the goals and objectives identified in this element. This ranked list was then evaluated and revised by the Wilmington MPO's CAC, TCC, and TAC as is noted in the matrix below.<sup>9</sup> A ranked list of project needs was the basis for the fiscal constraint analysis determining which projects are anticipated to receive funding in this region between 2015 and 2040, as is discussed on the following pages.<sup>10</sup>

FISCALLY-CONSTRAINED MASS TRANSPORTATION PROJECT LIST			
ID	PROJECT TYPE	PROJECT	CONSTRUCTION YEAR COST ESTIMATE
MT-1	PARK & RIDE	US17 at Brunswick Forest	\$3,000
MT-2	PARK & RIDE	Mt. Misery at US74/76	\$3,000
MT-3	PARK & RIDE	Leland Town Hall	\$3,000
MT-4	AMENITY	Town Hall Drive (Leland)	\$15,000
MT-5	ADDITIONAL SERVICE	Airport Boulevard service to ILM	0
MT-6	STOP ACCESS	Oleander Drive & Independence Boulevard	\$83,175
MT-7	AMENITY	Oleander Drive at Whole Foods	\$16,635
MT-8	EXPRESS ROUTE	Downtown Wilmington to Forden Station	\$510,139
MT-9	EXPRESS ROUTE	Downtown Wilmington to Mayfaire	\$510,139
MT-10	PARK & RIDE	Mayfaire Shopping Center	\$3,327
MT-11	AMENITY	Lake Avenue at South College Road	\$16,635
MT-12	STOP ACCESS	College Road & Sanders Road	\$83,175
MT-13	PARK & RIDE	"Carolina Beach Road at S College Road (Monkey Junction)"	\$16,635
MT-14	AMENITY	S College Road at Randall Parkway	\$16,635
MT-15	AMENITY	S 17th St at Glen Meade Road	\$16,635
MT-16	AMENITY	N College Road at Danny Pence Drive	\$16,635
MT-17	AMENITY	Carolina Beach Road at Harris Teeter	\$16,635
MT-18	AMENITY	US17 at NC210	\$16,635
MT-19	ADDITIONAL SERVICE	Market Street from College Road to Porter's Neck Walmart	\$510,139
MT-20	AMENITY	S College Road at University Drive	\$16,635
MT-21	AMENITY	17th Street at Food Lion Plaza	\$16,635
MT-22	AMENITY	17th Street at Doctors Circle	\$16,635
MT-23	STOP ACCESS	Shipyard Boulevard & 17th Street	\$83,175
MT-24	STOP ACCESS	17th Street at Hospital Plaza Drive	\$83,175
MT-25	STOP ACCESS	College Road at Hurst Drive	\$83,175
MT-26	STOP ACCESS	College Road at New Center Drive	\$83,175
MT-27	STOP ACCESS	College Road at University Drive	\$83,175
MT-28	AMENITY	Independence Boulevard at Canterbury Drive	\$16,635
MT-29	AMENITY	Market Street at Kerr Avenue	\$16,635
MT-30	AMENITY	Market Street at Covil Avenue	\$16,635
MT-31	AMENITY	Independence Boulevard at Independence Mall (northbound)	\$16,635
MT-32	AMENITY	Independence Boulevard at Park Avenue	\$16,635
MT-33	AMENITY	Independence Boulevard at Independence Mall (southbound)	\$16,635
MT-34	STOP ACCESS	Market Street at Cinema Drive	\$83,175
MT-35	STOP ACCESS	"Carolina Beach Road at Antoinette Drive (Monkey Junction)"	\$83,175
MT-36	PARK & RIDE	Carolina Beach Road at Snow's Cut Bridge	\$3,327
MT-37	PARK & RIDE	I-40 at Cape Fear Community College North Campus	\$3,327
MT-38	PARK & RIDE	Market Street at Middle Sound Loop Road	\$3,327
MT-39	PARK & RIDE	US17 at NC210	\$3,327
MT-40	PARK & RIDE	Barclay West	\$3,327
MT-41	PARK & RIDE	Fairfield Park	\$3,327

FISCALLY-CONSTRAINED MASS TRANSPORTATION PROJECT LIST			
ID	PROJECT TYPE	PROJECT	CONSTRUCTION YEAR COST ESTIMATE
MT-42	AMENITY	College Road at University Drive	\$16,635
MT-43	AMENITY	17th Street at Hospital Plaza Drive	\$16,635
MT-44	AMENITY	Gordon Road at Food Lion Plaza	\$16,635
MT-45	AMENITY	Shipyard Boulevard at Commons Drive	\$16,635
MT-46	AMENITY	Monkey Junction Transfer Station	\$16,635
MT-47	AMENITY	N Lake Park Boulevard at Town Hall	\$16,635
MT-48	AMENITY	Shipyard Boulevard at 41st Street	\$16,635
MT-49	AMENITY	41st Street at Hoggard High School	\$16,635
MT-50	STOP ACCESS	Shipyard Boulevard at 41st Street	\$83,175
MT-51	PARK & RIDE	Market Street at Porters Neck Road	\$3,327
MT-52	AMENITY	Carolina Beach Road at Medical Center Drive	\$16,635
MT-53	AMENITY	Carolina Beach Road at Roses	\$16,635
MT-54	STOP ACCESS	Market Street & Lullwater Drive	\$83,175
MT-55	AMENITY	Nixon Street at 8th Street	\$16,635
MT-56	AMENITY	Downtown Transfer Station	\$16,635
MT-57	AMENITY	College Road at Wilshire Boulevard	\$19,572
MT-58	AMENITY	Eastwood Road at Rogersville Road	\$19,572
MT-59	AMENITY	Carolina Beach Road at Independence Boulevard	\$19,572
MT-60	AMENITY	Carolina Beach Road at Tennessee Avenue	\$19,572
MT-61	AMENITY	West Gate Drive at Walmart	\$19,572
MT-62	AMENITY	Halyburton Memorial Parkway at Ballfields	\$19,572
MT-63	AMENITY	Independence Boulevard at Converse Drive	\$19,572
MT-64	AMENITY	Princess Place Drive at N 25th Street	\$19,572
MT-65	AMENITY	Carolina Beach Road at Southern Boulevard	\$19,572
MT-66	AMENITY	Market Street at Lullwater Drive	\$19,572
MT-67	AMENITY	Oleander Drive at Hawthorne Drive	\$19,572
MT-68	AMENITY	College Road at Kmart	\$19,572
MT-69	AMENITY	Randall Parkway at Brailsford Drive	\$19,572
MT-70	AMENITY	Military Cutoff Road at Old Macumber Station Road	\$19,572
MT-71	AMENITY	Carolina Beach Road at Silva Terra Drive	\$19,572
MT-72	AMENITY	17th Street at John D Barry Drive	\$19,572
MT-73	AMENITY	Village Road at Food Lion	\$19,572
MT-74	AMENITY	Front Street at Harnett Street	\$19,572
MT-75	PARK & RIDE	US17 at Sidbury Road	\$3,914
MT-76	AMENITY	Market Street at 16th Street	\$19,572
MT-77	AMENITY	Sigmon Road at Walmart	\$19,572
MT-78	AMENITY	Oleander Drive at Giles Avenue	\$19,572
MT-79	AMENITY	Wrightsville Avenue at Jones Road	\$19,572
MT-80	AMENITY	Wilshire Boulevard at Berkshires at Pecan Cove	\$19,572
MT-81	AMENITY	Wilshire Boulevard at Kerr Avenue	\$19,572
MT-82	AMENITY	Mt. Misery Road at Food Lion	\$19,572
MT-83	AMENITY	Village Road at S Navassa Road	\$19,572
MT-84	AMENITY	Carl Winner Avenue at Carolina Beach Avenue	\$19,572
MT-85	AMENITY	10th Street at Meares Street	\$19,572



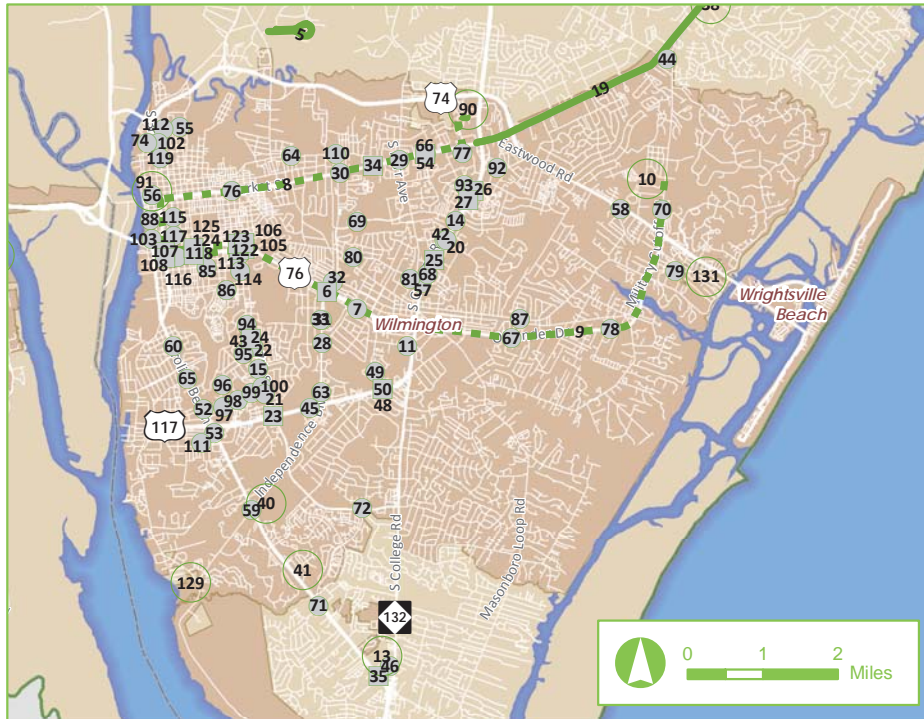
NOTE: Projects displayed for general location purposes only and not intended to show exact alignment. Projects still subject to federal environmental review (NEPA) process before construction.





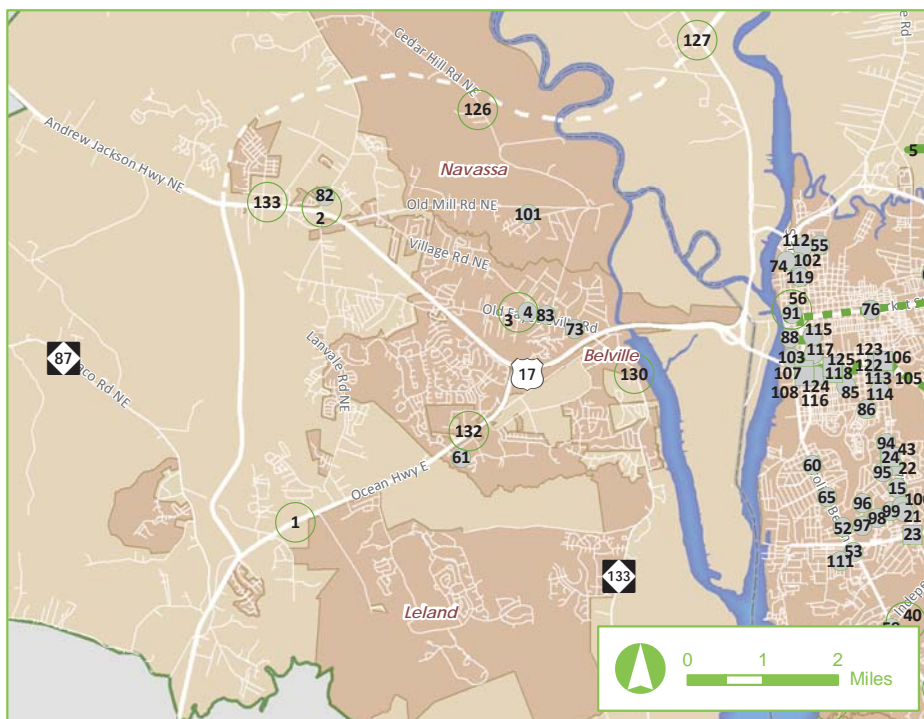
### Mass Transportation Projects with Anticipated Funding

NOTE: Projects displayed for general location purposes only and not intended to show exact alignment. Projects still subject to federal environmental review (NEPA) process before construction.



#### Wilmington

- Mass Transportation Project Id (MT-#)
- Park and Ride
- Transit Stop Access Improvements
- Transit Stop Amenity Upgrades
- Express Routes Service
- Additional Fixed Route Service
- County Boundaries
- Municipal Boundaries
- Wilmington MPO Boundary



#### Leland, Belville, & Navassa

- Mass Transportation Project Id (MT-#)
- Park and Ride
- Transit Stop Access Improvements
- Transit Stop Amenity Upgrades
- Express Routes Service
- Additional Fixed Route Service
- County Boundaries
- Municipal Boundaries
- Wilmington MPO Boundary

FISCALLY-CONSTRAINED MASS TRANSPORTATION PROJECT LIST			
ID	PROJECT TYPE	PROJECT	CONSTRUCTION YEAR COST ESTIMATE
MT-86	AMENITY	Greenfield Street at 13th Street	\$19,572
MT-87	AMENITY	Wrightsville Avenue at Cape Fear Memorial Hospital	\$19,572
MT-88	AMENITY	Front Street at Ann Street	\$19,572
MT-89	PARK & RIDE	I-40 at Holly Shelter Road	\$3,914
MT-90	PARK & RIDE	Forden Station	\$3,914
MT-91	PARK & RIDE	Downtown Transfer Station	\$3,914
MT-92	AMENITY	New Hanover County Government Center Drive	\$19,572
MT-93	AMENITY	New Center Drive at Bob King Buick	\$19,572
MT-94	AMENITY	17th Street at Little John Circle	\$19,572
MT-95	AMENITY	Cypress Grove Drive at Doctors Circle	\$19,572
MT-96	AMENITY	Medical Center Drive at Delaney Radiologists	\$19,572
MT-97	AMENITY	Wellington Avenue at Silver Stream Lane	\$19,572
MT-98	AMENITY	Wellington Avenue at Troy Drive	\$19,572
MT-99	AMENITY	Wellington Avenue at Flint Drive	\$19,572
MT-100	AMENITY	Wellington Avenue at 17th Street	\$19,572
MT-101	AMENITY	Main Street at Church Street (Navassa)	\$19,572
MT-102	AMENITY	4th Street at ABC Alley	\$19,572
MT-103	AMENITY	Front Street at Castle Street (northbound)	\$19,572
MT-104	AMENITY	Front Street at Castle Street (southbound)	\$19,572
MT-105	STOP ACCESS	Dawson Street at 17th Street	\$97,858
MT-106	STOP ACCESS	Wooster Street at 17th Street	\$97,858
MT-107	STOP ACCESS	Wooster Street at 3rd Street	\$97,858
MT-108	STOP ACCESS	Dawson Street at 3rd Street	\$97,858
MT-109	PARK & RIDE	I-140 at Castle Hayne Road	\$3,914
MT-110	AMENITY	Princess Place Drive at Montgomery Avenue	\$19,572
MT-111	AMENITY	Marion Drive at Rutledge Drive	\$19,572
MT-112	AMENITY	Nixon Street at 5th Street	\$19,572
MT-113	AMENITY	16th Street at Wright Street	\$19,572
MT-114	AMENITY	16th Street at Kidder Street	\$19,572
MT-115	AMENITY	5th Street at Ann Street	\$19,572
MT-116	AMENITY	5th Street at Dawson Street	\$19,572
MT-117	AMENITY	5th Street at Castle Street	\$19,572
MT-118	AMENITY	Dawson Street at 9th Street	\$19,572
MT-119	AMENITY	Wilmington Multimodal Transportation Center	\$12,147,304
MT-120	AMENITY	US117/NC133 at Old Blossom Ferry Road	\$19,572
MT-121	AMENITY	US421 at Blueberry Road	\$19,572
MT-122	STOP ACCESS	Dawson Street & 16th Street	\$97,858
MT-123	STOP ACCESS	Wooster Street & 16th Street	\$113,444
MT-124	STOP ACCESS	Dawson Street at 8th Street	\$113,444
MT-125	STOP ACCESS	Wooster Street 8th Street	\$113,444
MT-126	PARK & RIDE	I-140 at Cedar Hill Road	\$4,538
MT-127	PARK & RIDE	I-140 at US421	\$4,538
MT-128	PARK & RIDE	US421 at Cowpens Landing Road	\$4,538
MT-129	PARK & RIDE	Terminus of Independence Boulevard	\$4,538



FISCALLY-CONSTRAINED MASS TRANSPORTATION PROJECT LIST			
ID	PROJECT TYPE	PROJECT	CONSTRUCTION YEAR COST ESTIMATE
MT-130	PARK & RIDE	US17/74/76 at River Road (NC133)	\$3,327
MT-131	PARK & RIDE	Galleria Mall	\$3,327
MT-132	PARK & RIDE	US17 at Walmart	\$3,327
MT-133	PARK & RIDE	I-140 at US74/76	\$3,914
MT-134	PARK & RIDE	River Road (NC133)	\$3,914

## Fiscal Constraint Analysis

This document is required by the Federal Highway Administration and the Federal Transit Administration to be fiscally constrained. That means that *Cape Fear Transportation 2040* must identify how much funding for mass transportation projects is anticipated to be available to meet mass transportation project needs in this community between 2015 and 2040 and; based on this anticipated funding availability, this document must identify which mass transportation projects the community anticipates being able to fund by 2040.

The matrix above and the maps on pages 103-108 show the greatest mass transportation project needs for which the WMPO anticipates being able to allocate funding. This plan documents that available funding should be spent on these projects both because they had a high score through the Mass Transportation Prioritization Process, and because there is enough projected mass transportation funding between 2015 to 2040 to construct these projects.

The fiscally-constrained mass transportation project list should not be seen as a comprehensive overview of mass transportation project needs in the Wilmington Urban Area, but as a list of mass transportation projects that should be priorities for available funding sources. Additional mass transportation projects beyond what is identified in the list above are needed and should be pursued where funding and development opportunities become available. A more comprehensive list of mass transportation projects should be pursued as opportunities arise and if alternative funding becomes available.<sup>11</sup> Additional recurring funding commitments must be secured for non-fiscally constrained but desired service improvements (such as reduced headways) for their operations and maintenance.

## Mass Transportation Policies

The policies below were developed by the Mass Transportation Subcommittee based on goals and objectives of this element. Mass transportation policies will be used to guide action

on mass transportation issues in the Wilmington Urban Area. Each policy was reviewed through public outreach and by CAC, TCC, and TAC before being included in *Cape Fear Transportation 2040*.

The WMPO will work with member agencies to do the following:

- Support the coordination and linkage of the mass transportation, bicycle transportation and pedestrian transportation systems within the Wilmington Urban Area
- Support the inclusion of mass transportation facilities where appropriate (i.e. benches, bus lanes, park-and-ride lots, pull-outs, shelters, etc.) in all new roadway and bridge projects within the Wilmington Urban Area
- Coordinate with local agencies, organizations and all member counties and municipalities to improve mass transportation access to all public spaces (i.e. courthouses, parks, recreation facilities, etc.)
- Coordinate with the Brunswick Transit System, Cape Fear Transportation Authority (WAVE Transit), Greyhound, North Carolina Department of Transportation Ferry Division, Pender Adult Services - Transportation, and other mass transportation operators
- Encourage all member counties and municipalities to consider the appropriate location of mass transportation facilities as part of subdivision and/or site development plan review
- Construct the mass transportation projects and implement the policies identified in locally adopted plans
- Ensure that mass transportation projects are considered in land use planning efforts



Wave Transit Buses at Forden Station.



- Ensure that the implementation of transportation projects within the Wilmington Urban Area have minimal impact on planned mass transportation routes or facilities
- Implement the complete streets policies adopted by the WMPO and the North Carolina Board of Transportation
- Improve mass transportation connections between the Wilmington Urban Area and adjacent urban areas (i.e. Jacksonville, Myrtle Beach, Raleigh, etc.)
- Promote mass transportation as a viable and safe mode of transportation throughout the Wilmington Urban Area
- Work with the North Carolina Department of Transportation to improve mass transportation facilities on existing state-maintained roadways
- Continue to work with the Cape Fear Public Transportation Authority, Pender Adult Services - Transportation and Brunswick Transit System to provide paratransit and other local transit needs
- Continue development of the Wilmington Multimodal Transportation Center
- Coordinate with local jurisdictions to encourage appropriate densification/intensification of land uses to support transit oriented development corridors where desired

## **Conclusion**

This mass transportation element outlines projects and policies that would result in increased ridership and improved service to both transit-dependent populations and choice ridership populations. This element includes a heavy emphasis on increasing the safety and comfort of riders in accessing public transportation. Most mass transportation users are also pedestrians at some point in their travels; therefore enhancements to the pedestrian network are critical to improving the experience of mass transportation users and critical to the enticement of new riders.

By increasingly serving choice riders and a larger segment of the population, mass transportation will see broader community support. When broadly utilized, mass transportation is one of the most efficient modes of transportation and can be one of the most cost-effective investments a community can make. In the Greater Wilmington area, mass transportation is most heavily utilized by transit-dependent riders. However, there is great opportunity to expand ridership and increase the attractiveness of mass transportation to choice rider populations. The benefits of increasing mass transportation ridership extend beyond the financial return to local public transportation providers. Benefits of increased mass transportation ridership include mitigating increases in community congestion and environmental degradation. Increased mass transportation ridership captures a percentage of the trips that would have otherwise been made by single-occupant vehicles. By mitigating congestion, improved mass transportation service can also reduce the need to increase capacity on the roadway network.

## Endnotes

<sup>1</sup> See *Greater Wilmington Area Profile* for more information on the data that was reviewed by the Mass Transportation Subcommittee in order to develop the recommendations in this element

<sup>2</sup> For an in-depth discussion of CAC, TCC, and TAC roles in the development of this plan, please see the *Public Involvement Element*

<sup>3</sup> Public Transportation Use is Growing — Here Are the Facts. (n.d.). Retrieved March 5, 2015, from <http://www.apta.com/mediacenter/ptbenefits/Pages/Public-Transportation-Use-is-Growing-.aspx>

<sup>4</sup> Keeping Baby Boomers Mobile: Preserving the Mobility and Safety of Older Americans. (2012, February 1). Retrieved March 5, 2015, from <http://www.aarp.org/content/dam/aarp/livable-communities/act/transportation/Keeping-Baby-Boomers-Mobile-Preserving-the-Mobility-and-Safety-of-Older-Americans-AARP.pdf>

<sup>5</sup> Scauzillo, S. (2014, September 9). Millennials more likely to ride public transit than Baby Boomers, middle-aged Americans. Retrieved March 5, 2015, from <http://www.sgvtribune.com/general-news/20140922/millennials-more-likely-to-ride-public-transit-than-baby-boomers-middle-aged-americans>

<sup>6</sup> For a discussion of projected mass transportation funding sources used to develop the revenue projections used for this analysis please see Appendix E

<sup>6</sup> Public Transportation Use is Growing — Here Are the Facts. (n.d.). Retrieved March 5, 2015, from <http://www.apta.com/mediacenter/ptbenefits/Pages/Public-Transportation-Use-is-Growing-.aspx>

<sup>7</sup> Online TDM Encyclopedia — Transit Oriented Development. (2014, December 19). Retrieved March 5, 2015, from <http://www.vtpi.org/tdm/tdm45.htm>

<sup>8</sup> See *Public Involvement Element* for more detailed information on our *Cape Fear Transportation 2040 Survey* and survey results

<sup>9</sup> For further discussion of the Mass Transportation Prioritization Process, see Appendix D

<sup>10</sup> For an in-depth discussion of the fiscal analysis process please see the *Financial Analysis Element* and Appendix E

<sup>11</sup> For a discussion of projected Mass Transportation funding sources used to develop the revenue projections used for this analysis please see Appendix E



# ROADWAY ELEMENT

## Trends

The Federal Highways Administration (FHWA) maintains forecasts of statistics on nationwide vehicle miles travelled (VMT). In May of 2014, FHWA revised their previous forecasts to reveal a precipitated decline in the projected annual rate of growth in vehicle miles travelled.<sup>3</sup> This includes a projected decline in not just the vehicle miles travelled by commuting vehicles but by truck traffic as well. Based on this trend, this means that people are expected to drive less in future years than they do today.

This national trend is reiterated by the results of our *Cape Fear Transportation 2040 Survey*.<sup>4</sup> A hefty number of respondents indicated that they desired to reduce their use of a private vehicle for both commuting to work/school (37% of respondents indicated they would like to use their private vehicle less for this purpose) and for running errands (35% of respondents indicated they would like to use their private vehicle less for this purpose). Respondents overwhelmingly indicated that they intend to shift their choice in transportation modes for both commuting (through an increased use of carpooling by 26%, public transportation by 46%, bicycling by 55% and walking by 44%) and for running errands (through an increased use of public transportation by 43%, bicycling by 61%, and walking by 55%)

Although the use of personal vehicles is projected to decline on a per capita basis; the population and employment growth anticipated in the Wilmington Urban Area will continue to add vehicles to our roadway network<sup>5</sup>. It is anticipated that overall demand on our existing transportation network will continue to grow through the horizon of this planning document. Trends would indicate that this growing demand is not just on our roadway network but also spreading to other modes and would necessitate that improvements to our roadway network be designed so as to accommodate not just single-occupant vehicles but bicycles,

crosswalks facilitating pedestrian travel, public transportation, freight, carpools, vanpools, etc.

Third Street in Downtown Wilmington



The challenge of this element is to accommodate (or manage) this growth on a limited budget. This problem can also be seen in terms of rising congestion, which acts as a brake to economic development and results in external costs to the economy.

## Existing Conditions

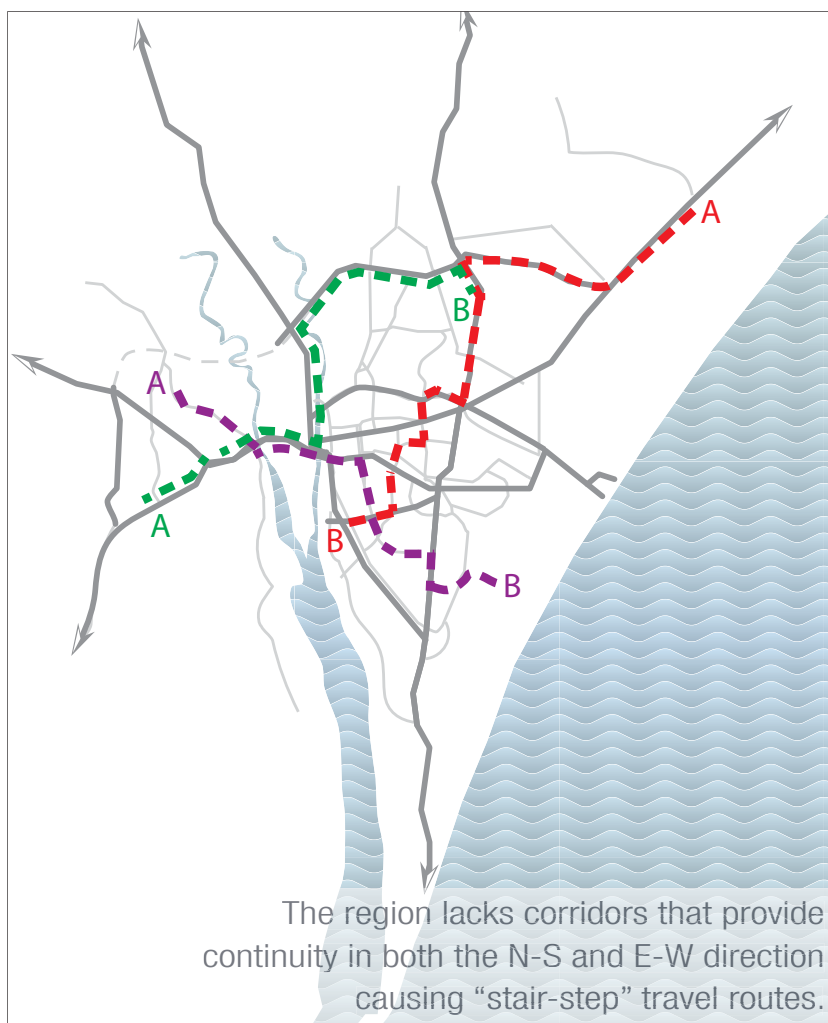
A look at the roadway network reveals that rapid economic development and population growth largely preceded coordinated planning efforts in the Wilmington Urban Area. Incremental development of the transportation

network utilized existing major roadways to move both regional traffic (allowing traffic to move *through* an area) and local traffic (providing access *to* land uses in an area) instead of developing a grid network to better distribute traffic across the region. This non-grid development also increasingly relies on a few primary routes and precludes the utilization of alternate routes when incidents or other types of congestion occur. As a result, the major roadways in the Wilmington Urban Area serve as major obstacles when they get congested. Without grid-pattern connectivity the fragmented vehicular travel patterns in the region are dominated by “stair-step” (as opposed to direct) movements.

Some of the limited connectivity in the transportation network can be attributed to the region’s unique geography – adjacent land uses are bifurcated by waterways to include wetlands, creeks, streams, rivers, and even parts of the ocean. However, the lack of connectivity in the transportation network can also be attributed to a lack of coordinated land use and transportation planning. This is why, while recommendations in this element for increasing capacity in the roadway network include widening projects, they are dominated by projects such as new bridges and new location roadways that increase the connectivity of the overall network.

### WMPO Travel Demand Model

The Wilmington MPO works cooperatively with NCDOT to develop and maintain a travel demand model<sup>6</sup> to evaluate the existing and future capacity and demand on the roadway network. This model uses multiple inputs to include population and employment growth projections, transportation network capacity data, and existing traffic volumes to develop output projections on traffic volumes and traffic conditions in future years. Any roadway project recommendation included in this element has been reviewed using the WMPO Travel Demand Model.<sup>7</sup>





## WMPO Congestion Management Process (CMP)

As of 2012, the Wilmington MPO was designated as a transportation management area (TMA) by the FHWA and required to use an adopted Congestion Management Process (CMP) to evaluate and manage congestion in a regionally agreed-upon manner. As part of this process, the Wilmington MPO has begun collecting congestion data to be published in a CMP report on a biennial basis. These biennial reports will be used to evaluate congestion in the region and to analyze potential strategies to mitigate congestion. Ultimately, projects that implement CMP strategies will be noted in this document by amendment. CMP strategies will also be used to evaluate the update to this plan.

## Roadways Element Development

In order to analyze and propose recommendations for the development of roadway projects in the Wilmington Urban Area, the WMPO contacted subject matter experts in the roadway planning, construction, and operations fields to form a Roadway Subcommittee. Specifically, the WMPO worked with the following organizations to develop the recommendations in this element:

- NCDOT Regional Traffic Safety
- NCDOT Division 3
- NC State Ports Authority
- City of Wilmington Traffic Engineering
- City of Wilmington Planning, Development, and Transportation Services
- Town of Leland
- New Hanover County Planning
- Pender County Planning
- WMPO Citizens Advisory Committee

During Roadway Subcommittee meetings, WMPO staff initiated group discussions by presenting pertinent facts, relevant information and public survey results related to the current and future state of roadways throughout the Wilmington Urban Area.<sup>1</sup>

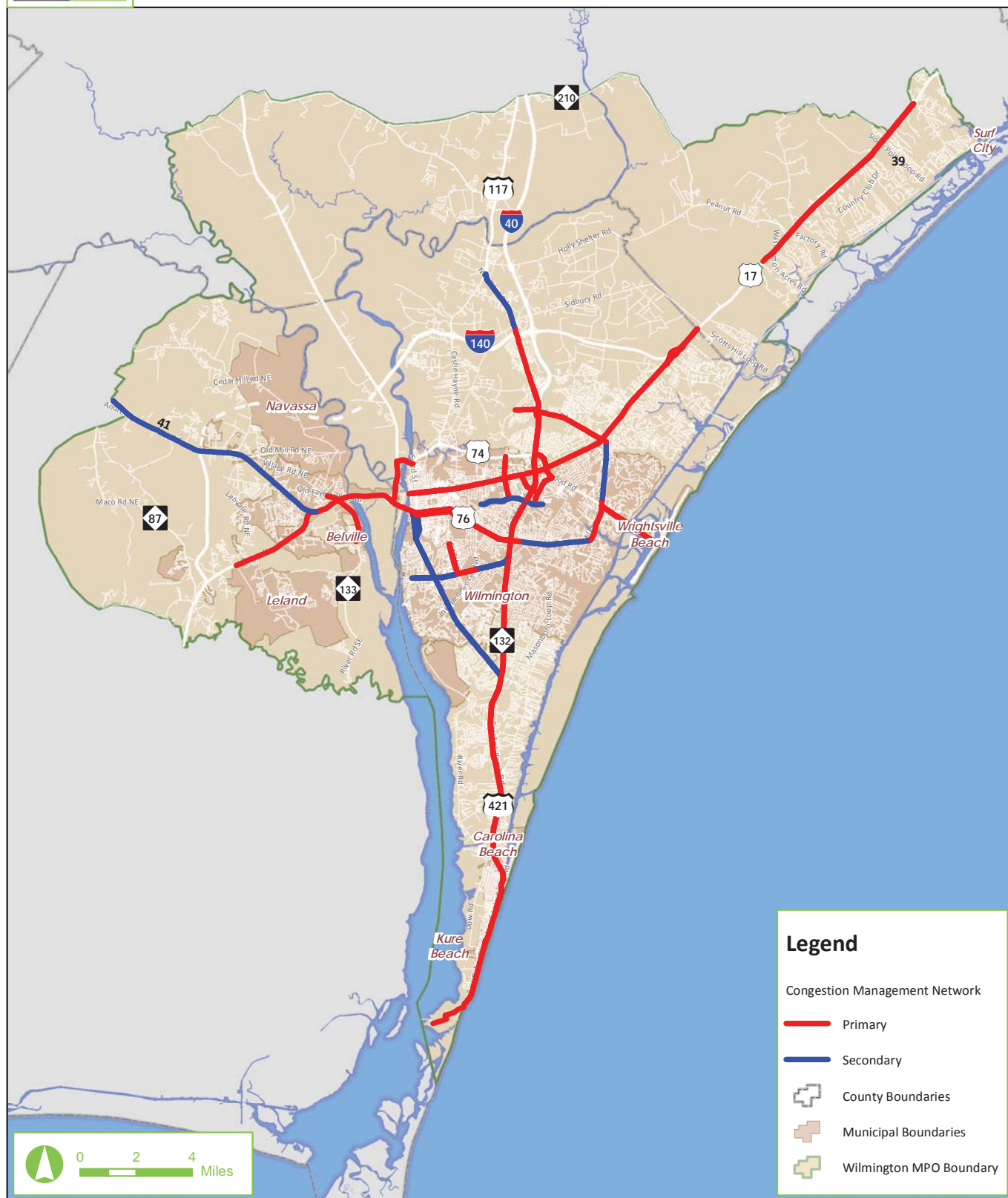
Under the direction of the WMPO's Citizens Advisory Committee, MPO staff worked with this Roadway Subcommittee to develop recommendations for the following components of this element:

- Guiding roadway goals and objectives to develop this element
- A list of roadway projects needed in the Wilmington Urban Area
- Policies to guide action on roadways in the Wilmington Urban Area

Recommendations from the Roadway Subcommittee were presented to the CAC, TCC, and TAC for further review and modification before being incorporated into *Cape Fear Transportation 2040*.<sup>2</sup> Public input was also critical to the development of this element and is further discussed in *Public Involvement Element*.



## WMPO Congestion Management Network



## Goals and Objectives

Goals and objectives for the development of this element were created over a series of several Roadway Subcommittee meetings and serve three distinct purposes within this element. Goals and objectives guide the overall development of this element. Goals and objectives were also used as the criteria on which to base the scoring of roadway projects in order to help determine which roadway projects were of greatest funding priority. Finally, goals and objectives guided the development of roadway policies which will ultimately be used to guide action on roadway issues in the Wilmington Urban Area.

Because goals and objectives served such a critical role in the development of the roadway element, each goal and objective was reviewed by CAC, TCC, and TAC before being utilized in the process for the development of *Cape Fear Transportation 2040*.

The goals and objectives for roadways are as follows:

### **Goal A: Safe – reduces injuries and improves the sense of safety for all users**

#### **Objectives:**

1. Prioritize roadway projects that reduce the rate of crashes on existing facilities
2. Prioritize roadway projects that reduce the severity of crashes on existing facilities
3. Prioritize roadway projects that reduce the number of conflict points on existing facilities
4. Prioritize roadway projects that reduce the vulnerability of bicyclists and pedestrians on existing facilities

### **Goal B: Efficient – moves the most people and goods in a cost effective manner, while using the least amount of resources**

#### **Objectives:**

1. Prioritize roadway projects that reduce/maintain rate of mean travel time for people and freight
2. Prioritize roadway projects that reduce vehicle miles travelled per capita
3. Prioritize roadway projects that maximize throughput for each lane mile for both people and freight
4. Prioritize roadway projects that maximize throughput in the network for public dollar
5. Prioritize roadway projects that reduce cumulative peak hour delay per capita

**Goal C: Appropriate – contributes to the quality of life and character of the region through proper design**

**Objectives:**

1. Prioritize roadway projects that minimize disparity between actual and intended functional classification of existing facilities
2. Prioritize roadway projects that balance needs of access and mobility in the transportation network
3. Prioritize roadway projects that enhance the aesthetics of the community
4. Prioritize roadway projects that minimize adverse impacts to the cultural, aesthetic, and environmental character of the community

**Goal D: Responsible – protects existing investments and limits environmental and social impacts**

**Objectives:**

1. Prioritize roadway projects that improve/maintain existing multimodal connectivity
2. Prioritize roadway projects that improve/maintain existing network integrity
3. Prioritize roadway projects that exhibit demonstrated community support through existing adopted plans

**Goal E: Integrated – links with other transportation and land use plans as well as future infrastructure investments**

**Objectives:**

1. Prioritize roadway projects that address future anticipated employment growth areas
2. Prioritize roadway projects that address future anticipated population growth areas
3. Prioritize roadway projects that address future anticipated freight/industrial growth areas
4. Prioritize roadway projects that address future anticipated growth via utility investments

**Goal F: Multimodal – provides a choice of modes for most trips**

**Objectives:**

1. Include bicycle/pedestrian facilities for mobility along corridors
2. Include bicycle/pedestrian facilities for access to land uses along corridors
3. Include accommodations for transit along appropriate corridors

4. Prioritize roadway projects that provide infrastructure for identified roadway TDM initiatives
5. Prioritize roadway projects that are identified for future transit routes through a WMPO adopted plan

## Roadway Prioritization Process

The list of needed roadway projects was quantitatively scored and ranked based on the goals and objectives identified in this element. This ranked list was then evaluated and revised by the Wilmington MPO's CAC, TCC, and TAC as is noted in the matrix below.<sup>8</sup> A ranked list of roadway project needs was the basis for the fiscal constraint analysis determining which projects are anticipated to receive funding in this region between 2015 and 2040, as is discussed below.<sup>9</sup>

FISCALLY-CONSTRAINED ROADWAY PROJECT LIST					
ID	PROJECT	FROM	TO	CONSTRUCTION YEAR COST ESTIMATE	TIP #
R-1	Kerr Avenue Widening	Randall Parkway	US 74/Martin Luther King Jr. Parkway	\$44,309,966	U-3338
R-2	I-140 Wilmington Bypass	US421	US 74/76 Andrew Jackson Highway	\$163,930,000	R-2633
R-3	Military Cutoff Road Extension	US 17BUS/Market Street	US 17/Wilmington Bypass	\$178,917,855	U-4751
R-4	NC 133/Castle Hayne Road Widening	US74/Martin Luther King Jr Parkway	Holly Shelter Road	\$226,458,655	U-2724
R-5	US117/NC132/College Road Widening	Gordon Road	US421/Carolina Beach Road	\$113,482,764	U-5702
R-6	Gordon Road Widening	NC 132 Interchange	US 17BUS/Market Street	\$35,167,338	U-3831
R-7	US117/NC132/College Road Widening	US117/Shipyard Boulevard	Wilshire Boulevard	\$24,524,536	U-5702
R-8	US421/Carolina Beach Road Widening	Piner Road	Sanders Road	\$16,788,067	U-5790
R-9	US17BUS/Market Street Road Diet	17th Street	Covil Avenue	\$13,904,312	U-5869
R-10	US17BUS/Market Street Access Management	Military Cutoff Road	Porters Neck Road	\$9,453,686	U-4902
R-11	US17BUS/Market Street Access Management	US 74/Martin Luther King Jr Parkway	Military Cutoff Road	\$4,403,609	U-4902
R-12	US17 Superstreet	Washington Acres Road	Sloop Point Road	\$61,372,712	U-5732
R-13	US117/NC132/College & US76/Oleander Intersection	US 117/NC132/ College Road	US76/Oleander Drive	\$37,981,128	U-5704
R-14	US17BUS/Market Street Access Management	Colonial Drive	New Centre Drive	\$6,860,680	U-4902
R-15	US421/Front Street Widening	US 76/421/ Cape Fear Memorial Bridge	US421/Burnett Boulevard	\$17,450,892	U-5734



FISCALLY-CONSTRAINED ROADWAY PROJECT LIST					
ID	PROJECT	FROM	TO	CONSTRUCTION YEAR COST ESTIMATE	TIP #
R-16	US74/Eastwood Road & Military Cutoff Road	US74/Eastwood Road	Military Cutoff Road	\$44,030,537	U-5710
R-17	Carolina Beach Road & College Road Flyovers	US 421/Carolina Beach Road	US117/NC132/ College Road	\$23,445,141	U-5790
R-18	Isabel Holmes Bridge Flyovers	US 17	US421	\$27,179,344	U-5731
R-19	US117/NC132/College & MLK Pkwy Intersection	US117/NC132/ College Road	US74/Martin Luther King Jr. Parkway	\$44,030,537	U-5792
R-20	Kerr Avenue/MLK Jr Pkwy Intersection	Kerr Avenue	US74/Martin Luther King Jr. Parkway	\$36,394,018	U-3338
R-21	US421/Carolina Beach Road Upgrade	US421/Burnett Boulevard	US117/Shipyard Boulevard	\$4,768,686	U-5729
R-22	Hurst Drive Extension	Kerr Avenue	Riegel Road	\$4,768,686	N/A
R-23	Dawson Street Streetscape	US17BUS/ South 3rd Street	US76/Oleander Drive	\$609,948	N/A
R-24	Wooster Street Streetscape	US17BUS/ South 3rd Street	US76/Oleander Drive	\$609,948	N/A
R-25	US17BUS/Market Street & 17th Street Intersection	US17BUS/ Market Street	South 17th Street	\$1,774,395	N/A
R-26	Wrightsville Avenue & Wallace Avenue Roundabout	Wrightsville Avenue	Wallace Avenue	\$1,663,495	N/A
R-27	Oleander Drive & Pine Grove Intersection	US76/ Oleander Drive	Pine Grove Drive	\$2,328,893	N/A
R-28	Pine Grove Drive & MacMillan Avenue Intersection	Pine Grove Drive	Macmillan Avenue	\$2,772,492	N/A
R-29	Love Grove Additional Access	Nixon Street	King Street	\$6,764,880	N/A
R-30	Pine Grove Drive & Greenville Loop Road Roundabout	Pine Grove Drive	Greenville Loop Road	\$1,663,495	N/A
R-31	Pine Grove Drive & Holly Tree Road Roundabout	Pine Grove Drive	Holly Tree Road	\$1,663,495	N/A
R-32	Rice Gate Way Extension	Rice Gate Way	Mallory Creek Road	\$12,741,553	N/A
R-33	Kerr Avenue Widening	Patrick Avenue	Wrightsville Avenue	\$86,267,237	N/A
R-34	Old Fayetteville Road Widening	Village Road	US74/76/Andrew Jackson Highway	\$26,988,212	N/A
R-35	N 23rd Street Widening	NC133/Castle Hayne Road	US74/Martin Luther King Jr Parkway	\$13,147,430	N/A
R-36	NC210 Improvements	Island Creek/ NC210	US17	\$4,273,066	N/A
R-37	Wilshire Boulevard Extension	US117/132/ College Road	MacMillan Avenue	\$3,114,227	N/A
R-38	Hampstead Bypass	Porters Neck Road	Sloop Point Road	\$343,328,798	R-3300
R-39	Country Club/Doral Drive and Sloop Point Loop Road	Country Club Drive/Doral Drive	Sloop Point Loop Road	\$975,620	N/A
R-40	Kerr Avenue Extension	Wrightsville Avenue	US76/Oleander Drive	\$14,628,777	N/A

## Roadway Projects with Anticipated Funding

**Legend**

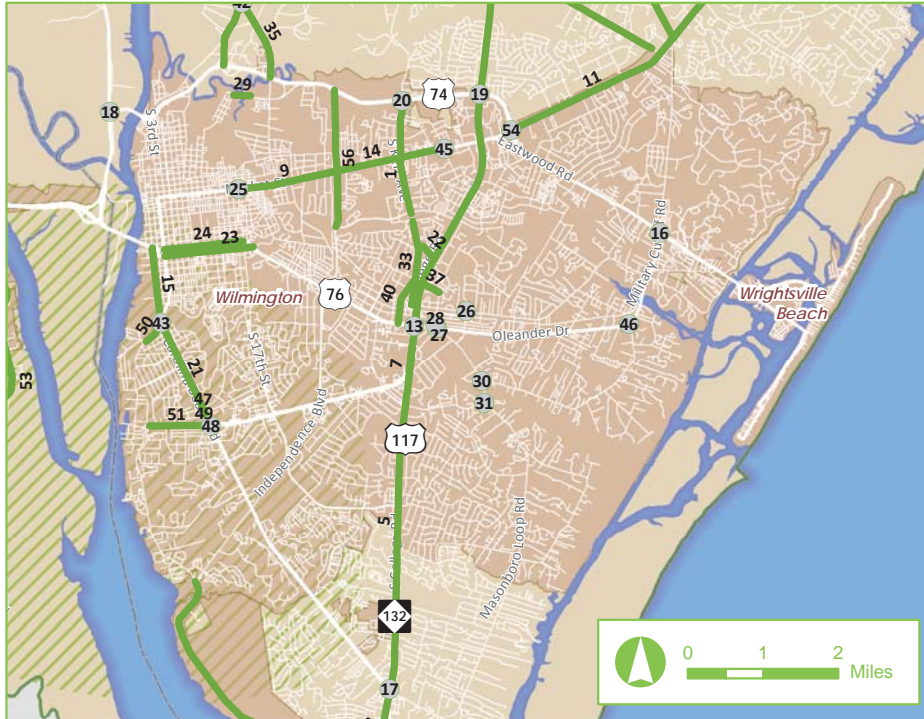
- Proposed Roadway Project (Intersection Improvement)
- Proposed Roadway Project
- ▨ R-58 Cape Fear Crossing Study Area (Partial Anticipated Funding)
- ▭ County Boundaries
- ▭ Municipal Boundaries
- ▭ Wilmington MPO Boundary





## Roadway Projects with Anticipated Funding

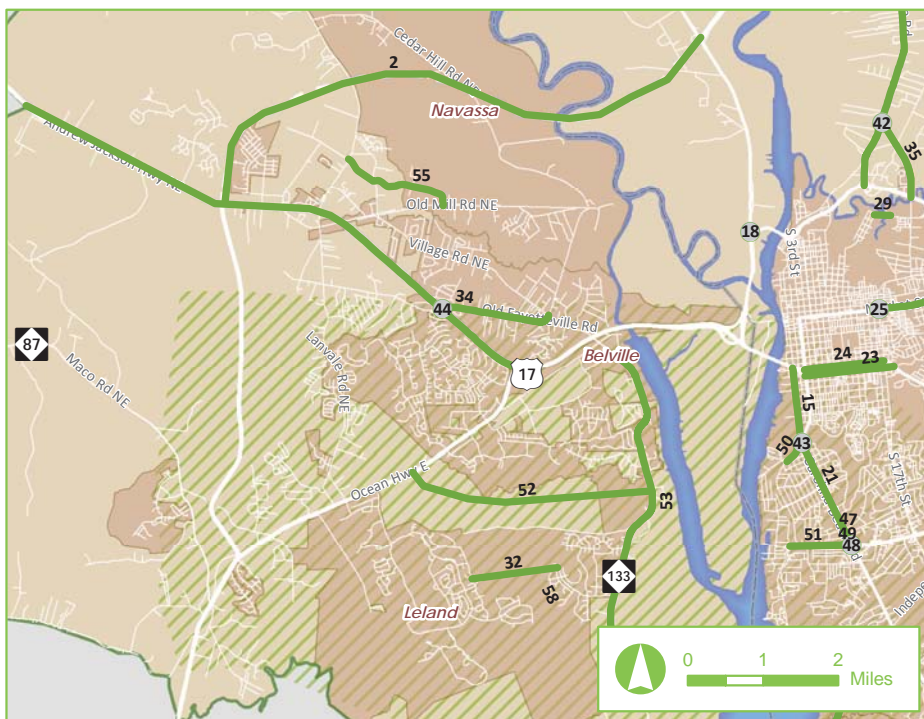
NOTE: Projects displayed for general location purposes only and not intended to show exact alignment. Projects still subject to federal environmental review (NEPA) process before construction.



### Wilmington

Roadway Project Identification Number (R-#)

- Proposed Intersection Improvement
- Proposed Roadway Project
- R-58 Cape Fear Crossing Study Area (Partial Anticipated Funding)
- County Boundaries
- Municipal Boundaries
- Wilmington MPO Boundary



### Leland, Belville, & Navassa

Roadway Project Identification Number (R-#)

- Proposed Intersection Improvement
- Proposed Roadway Project
- R-58 Cape Fear Crossing Study Area (Partial Anticipated Funding)
- County Boundaries
- Municipal Boundaries
- Wilmington MPO Boundary

FISCALLY-CONSTRAINED ROADWAY PROJECT LIST					
ID	PROJECT	FROM	TO	CONSTRUCTION YEAR COST ESTIMATE	TIP #
R-41	I-74 Upgrade	US17/74/76	WMPO Boundary	\$59,886,935	R-4462
R-42	NC133/Castle Hayne Road & 23rd Street Roundabout	NC133/ Castle Hayne Road	N 23rd Street	\$1,358,967	N/A
R-43	Front Street & Carolina Beach Road Intersection	US421/Burnett Boulevard/ Front Street	US421/Carolina Beach Road	\$408,567	N/A
R-44	Old Fayetteville Road Interchange	Old Fayetteville Road	US74/76/Andrew Jackson Highway	\$11,646,941	U-3337
R-45	New Centre Drive & Market Street Intersection	New Centre Drive	US17BUS/Market Street	\$815,380	N/A
R-46	Greenville Avenue & Oleander Drive Intersection	Greenville Avenue	US76/Oleander Drive	\$408,567	N/A
R-47	Shipyard Boulevard Access Management (F/R)	US421/ Carolina Beach Road	Rutledge Drive	\$43,838	N/A
R-48	Carolina Beach Road & Shipyard Boulevard Intersection (wb right turn) (F/R)	US421/ Carolina Beach Road	US117/Shipyard Boulevard	\$1,315,130	N/A
R-49	Shipyard Boulevard Widening (F/R)	US421/ Carolina Beach Road	US117/Shipyard Boulevard	\$306,864	N/A
R-50	Burnett Boulevard Widening (F/R)	US421/ Carolina Beach Road	Myers Street	\$2,628,506	N/A
R-51	Shipyard Boulevard Speed Sensors and Warning activation at NC Port of Wilmington (F/R)	US421/ Carolina Beach Road	River Road	\$175,351	N/A
R-52	US17 to NC133 Connection	US17	NC133	\$16,366,064	N/A
R-53	NC 133/River Road Widening	US17/74/76	Rabon Way SE	\$38,150,598	N/A
R-54	Market Street/MLK Jr. Pkwy Flyovers	US74/Martin Luther King Jr. Parkway	US74/Eastwood Road	\$31,508,309	N/A
R-55	Magnolia Drive Extension	Mount Misery Road	Old Mill Road	\$8,909,680	N/A
R-56*	Independence Boulevard Extension	Randall Parkway	US74/Martin Luther King Jr. Parkway	\$196,640,913	U-4434
R-57*	River Road Widening	Independence Boulevard	US421/Carolina Beach Road	\$187,201,953	N/A
R-58*	Cape Fear Crossing - Funded Portion	US17	US421/Carolina Beach Road	\$158,021,483	U-4738
* Projects anticipated to receive funding from alternative funding mechanisms					

## Fiscal Constraint Analysis

This document is required by the Federal Highway Administration and the Federal Transit Administration to be fiscally constrained. That means that *Cape Fear Transportation 2040* must identify how much funding for new roadway projects is anticipated to be available to meet roadway project needs in this community between 2015 and 2040 and; based on this anticipated funding availability, this document must identify which roadway projects the community anticipates being able to fund by 2040.

The matrix on pages 119-120 and the maps on pages 121-122 show the greatest roadway project needs for which the WMPO anticipates being able to allocate funding. This plan documents that available funding should be spent on these projects both because they had a high score through the Roadway Prioritization Process, and because there is enough projected roadway funding (between 2015 to 2040) to complete these projects.



Traffic on College Road in Wilmington.

## Alternative Funding

As part of the fiscal analysis, it was determined that the needs for roadways between 2015 and 2040 could not be met solely through the existing sources of anticipated funding for roadways.<sup>13</sup> In order to meet a greater number of roadway project needs between 2015 and 2040, the fiscally constrained project list includes funding from the following alternative funding mechanisms as well: quarter cent local option sales tax, vehicle registration fees, motor vehicle license tax, vehicle rental tax, statewide auto parts tax, transportation bonds, and tolling.<sup>14</sup> Funding from alternative funding mechanisms is not guaranteed and for this reason, projects anticipated to receive funding from alternative funding mechanisms are identified with an asterisk in the matrix on pages 119-120.

The fiscally-constrained roadway project list should not be seen as a comprehensive overview of roadway project needs in the Wilmington Urban Area, but as a list of roadway projects that should be priorities for available funding sources. Additional roadway projects beyond what is identified in the list above are needed and should be pursued where funding and development opportunities become available. A more comprehensive list of roadway project needs is listed in Appendix H of this document, and all of these projects should be pursued as opportunities arise and if alternative funding becomes available.



## Roadway Policies

The policies below were developed by the Roadway Subcommittee based on goals and objectives of this element. Roadway policies will be used to guide action on roadway issues in the Wilmington Urban Area. Each policy was reviewed through public outreach and by CAC, TCC, and TAC before being included in *Cape Fear Transportation 2040*.

The WMPO will work with member agencies to do the following:

- Preserve transportation corridors as alignments for transportation projects are finalized by the North Carolina Department of Transportation and other agencies
- Ensure that bicycle, mass transportation and pedestrian accommodations and facilities are considered on new roadways and bridges (“complete streets”)
- Ensure that all new roadways and bridges within the Wilmington Urban Area are designed and constructed in a context sensitive manner
- Ensure that land use planning and development regulations in all member counties and municipalities support the functionality of the existing and proposed roadway network
- Ensure that new development projects in all member counties and municipalities support the functionality of the existing and proposed roadway network
- Implement this Plan and all other adopted transportation plans
- Coordinate the development of policies and procedures to guide the integration between land use and transportation planning
- Create funding mechanisms that allow for the construction of improvements within the surrounding transportation network necessitated by new developments
- Develop a tool to enhance the coordination of right of way entities (utilities, maintenance organizations, etc.) in the design and implementation of projects that support projects in the MTP & CTP.

## Conclusion

Demand on our existing roadways will only increase over time, but some of this demand is from new types of users. Our roadway network needs additional capacity to carry an anticipated increase in regional vehicle miles travelled (VMT), but also in order to carry new user types such as increased bus service, additional freight, bicycle transportation and the facilitation of pedestrian movements. Trends indicate that in the future people and goods will move through a more diverse array of transportation modes. The further development of the roadway network should facilitate future movements through facilitating mode choice, increased connectivity, and improved balance between access and mobility. The thoughtful further development of the roadway network is critical for the Wilmington Urban Area to be able to mitigate traffic increases and facilitate additional choice in order to increase the quality of life and economic development opportunities in the Wilmington Urban Area.

## Endnotes

<sup>1</sup> See *Greater Wilmington Area Profile* for more information on the data that was reviewed by the Roadway Subcommittee in order to develop the recommendations in this element

<sup>2</sup> For an in-depth discussion of CAC, TCC, and TAC roles in the development of this plan, please see the *Public Involvement Element*

<sup>4</sup> See the *Public Involvement Element* for more detailed information on our *Cape Fear Transportation 2040 Survey* and survey results

<sup>5</sup> See *Greater Wilmington Area Profile* for more information on the projected population and employment data that reviewed for the development of this plan

<sup>6</sup> For a discussion of roadway funding sources used to develop the revenue projections used for this analysis please see Appendix E

<sup>6</sup> See Appendix F for more information on the Wilmington Urban Area Travel Demand Model

<sup>7</sup> See Appendix F for more information on the Wilmington Urban Area Travel Demand Model

<sup>8</sup> See Appendix D for further discussion of the Roadway Prioritization Process

<sup>9</sup> For an in-depth discussion of the fiscal analysis process please see the *Financial Analysis Element* and Appendix E

<sup>10</sup> CAM= Congestion & Access Management, EE= Economic Development, S= Safety; More detailed Purpose & Need Information is available in Appendix F

<sup>11</sup> This represents the full cost of the project. In this planning document, the project is only anticipated to receive partial funding through anticipated funding sources as is noted in the *Financial Analysis Element*

<sup>12</sup> This represents the full cost of the project. In this planning document, the project is only anticipated to receive partial funding through anticipated funding sources as is noted in the *Financial Analysis Element*

<sup>13</sup> For a discussion of projected roadway funding sources used to develop the revenue projections used for this analysis please see the *Financial Analysis Element* and Appendix E

<sup>14</sup> For a discussion of alternative funding mechanisms please see the *Financial Analysis Element* and Appendix E

# TRANSPORTATION DEMAND MANAGEMENT ELEMENT

## TDM Element Development

Transportation Demand Management (TDM) is a general term for a variety of strategies to reduce travel demand or to redistribute this demand in space or time. It emphasizes the movement of people and goods, rather than motor vehicles, and so gives priority to more efficient modes (such as public transit, walking, bicycling, ridesharing, and carpool/vanpool) particularly under congested conditions. The overarching goal of TDM programs is to mitigate the growth of traffic congestion.

According to the *Cape Fear Transportation 2040* public survey, over 80% of survey respondents use a private vehicle for over half of their trips to work or school, and they do not carpool/vanpool, use public transit, bicycle or walk for any of these trips. However, when respondents were asked how they would like to get to/from work and school, 55% prefer to bicycle more often, 45% prefer to use public transportation and/or walk more often, and over 35% prefer to drive a vehicle less often. The survey results reflect a desire for more information about carpool/vanpool options, Park & Ride lots, and bicycle and pedestrian facilities. Among other TDM strategies, improvements to these travel modes could provide the public with the transportation options they desire while mitigating the growth of traffic congestion in the region.

In order to analyze and propose recommendations for the development of a TDM program in the Wilmington Urban Area, the WMPO contacted the TDM Committee. This committee is composed of members representing

- Cape Fear Community College
- FOCUS
- NCDOT
- New Hanover County
- New Hanover County Schools
- New Hanover Regional Medical Center
- Pender County
- PPD, Inc.
- Town of Leland
- UNCW
- Wave Transit
- WMPO/City of Wilmington

Since the development of the TDM Committee in 2013, several TDM strategies have been implement-ed. Two Park & Ride lots have been constructed in Leland. One is located at Lowe's grocery store in Brunswick Forest. The other is located at Food Lion on Mt. Misery Road near highway 74/76. The WMPO also contributes towards the rideshare matching program, Share the Ride NC. This program allows potential carpool participants to find other potential carpool participants with similar work/home locations and schedules. Share the Ride NC also allows people interested in vanpool or mass transportation options to explore available seats and routes. The Share the Ride NC program also houses the Emergency Ride Home (ERH) program. This program allows carpool and vanpool participants to print

a voucher to be used as a reimbursement in case there is an emergency and the participant needs to get home quickly, but may not be able to do so without their private vehicle (due to carpool or vanpooling that day). Also, the WMPO received funding from NCDOT to create a full-time TDM Coordinator position. This position started in July 2015. The primary responsibilities of this position are to work with area employers to implement the short-range TDM plan, develop a marketing plan for the TDM program, and to conduct extensive public outreach to promote TDM strategies.

During TDM Committee meetings, pertinent facts, relevant information, and public survey results re-lated to the current and future state of potential TDM initiatives throughout the Wilmington Urban Area were presented.<sup>1</sup> This committee has also developed the short-range TDM Plan, outlining a variety of strategies applicable to the region in the next ten years. The short-range TDM Plan identifies 14 TDM Strategies. The TDM Committed identified an additional seven strategies for long-range planning efforts. These strategies and their priorities are:

High Priority	Medium Priority	Low Priority
<ul style="list-style-type: none"> <li>• Alternative Work Schedules</li> <li>• Carpool/Vanpool</li> <li>• Development Review</li> <li>• Park &amp; Ride Lots</li> <li>• Full-Time TDM Coordinator</li> <li>• Transit Amenities</li> <li>• Bicycle &amp; Pedestrian Infrastructure</li> <li>• Commuter Transit Routes</li> <li>• Transit Oriented Development*</li> <li>• Trip Reduction Ordinance*</li> <li>• Trip Reduction Program for Large Mixed Use Developments*</li> </ul>	<ul style="list-style-type: none"> <li>• Bicycle Sharing Program</li> <li>• Car Share</li> <li>• Employer Transportation Coordinator</li> </ul>	<ul style="list-style-type: none"> <li>• Consulting Services for Telecommuting</li> <li>• Employer Shuttles</li> <li>• Transportation Management Districts</li> <li>• High Occupancy Vehicle (HOV) Lanes*</li> <li>• Toll and Express Toll (HOT) Lanes*</li> <li>• Light Rail*</li> <li>• Water Taxi Service*</li> </ul>

\*= only a long-range TDM strategy

## **TDM Strategy 1 – Full Time TDM Staff**

**Description:** Full time TDM staff would be responsible for a wide variety of TDM responsibilities to implement this plan, including:

- Establish a marketing/outreach plan
- Public outreach – promote TDM efforts using multiple medias

- Employer outreach – conduct outreach to educate area employers on transportation options, TDM initiatives, costs/benefits, etc
- Work with employers for Best Workplace for Commuters designation
- Coordinate events such as Bike to Work Week and annual bicycle events to promote transportation on bicycle facilities, attend public events to promote transit, carpool, vanpool, bicycle and pe-pedestrian, and transit options
- Establish public-private and intergovernmental partnerships to promote TDM programs
- Maintenance, operations and outreach for carpooling and vanpooling
- Market research – identify preferences of a target population before launching a product or program or to identify the performance/satisfaction with a particular product/programs once it has been implemented
- Partnerships with public school systems, UNCW, and CFCC
- Implementing TDM strategies based on adopted priorities
- Secure TDM program funding

### **Benefits:**

- Increases the number of people and organizations implementing TDM strategies
- Mitigates growth in traffic congestion
- Implementation of the TDM strategies
- Education, outreach, and promotion of TDM in the community and to employers
- Coordination and communication among partners

**Potential for Application:** *Cape Fear Commutes 2035* identified a TDM Coordinator as a high priority, as it is the first requirement towards a successful TDM program. To implement TDM strategies further, the WMPO started conversations with other regional entities to determine the best organization to house the TDM Coordinator. The WMPO continues to be the most suitable organization for this position and has secured funding in partnership with NCDOT for a new TDM Coordinator's salary, benefits, and additional funds for education, outreach, and promotional efforts.

**Strategy Implementation:** Strategies to fund the TDM Coordinator position should be discussed with NC DOT, WMPO, and other local jurisdictions. Other options for funding this position should be reviewed along with WMPO staff responsibilities to best determine who should be the TDM Coordinator and if existing WMPO staff responsibilities need to be shifted to accommodate accordingly.



## **TDM Strategy 2 – Alternative Work Schedules**

**Description:** Alternative Work Schedules include a variety of work scheduling options including telecommuting, flextime, compressed work week, and staggered shifts.

- Telecommuting is a work-from-home option. This would require obtaining all the technological equipment required to perform work duties from the home of the employee.
- Flextime allows employees some flexibility in their daily work schedules. This would follow a 5-day work week but would allow employees to work 7:00 – 4:00 or 9:00 – 6:00 rather than a typical 8:00 – 5:00 schedule.
- Compressed work week allows employees to work fewer but longer days. Common examples are a 4 x 10 schedule (working four 10 hour days and having the 5th day off) or a 9 x 9 schedule (working nine 9 hour days and having the 10th day off) compared to a 5 x 8 schedule (working five 8 hour days).
- Staggered shifts reduce the number of employees arriving and leaving a worksite at one time by staggering the work schedule. For example, some shifts may be from 7:00 – 4:00, others 8:00 – 5:00, and others 9:00 – 6:00.

### **Benefits:**

- Can reduce individual commuting trips by 20% or more
- Reduced peak-hour single occupancy vehicle trips
- Increased employee job satisfaction, productivity and morale
- Effective employee recruitment and retention tool
- Potentially longer hours of customer service for businesses

**Potential for Application:** This strategy is driven primarily through education, outreach, and pro-motion. The WMPO's role will include communicating with area employers, determining if there are opportunities for alternative work schedules, assisting with the development of an alternative work schedule policy, and promoting and implementing the policy to current and new employees. The WMPO can also promote this strategy through public awareness and other campaigns.

**Strategy Implementation:** The Alternative Work Schedule strategy should be bundled with other TDM tools presented to area employers. While discussing opportunities for carpooling/vanpooling and promoting bicycle and pedestrian infrastructure and park & ride lots, the TDM Coordinator should be discussing alternative work schedule opportunities with local business owners. Opportunities may lie with the local Chambers of Commerce to coordinate with the business community to help promote alternative work schedules and identify opportunities and constraints. Formal alternative work schedule policies should be developed/updated for suitable businesses.

The policy should specifically address which job categories are suitable, what is required of employees who qualify, what criteria are to be used to evaluate the performance of employees on alternative schedules, how employees schedules are determined and what is required to change schedules, periodic review of the arrangement, and model contracts and forms for establishing and tracking alternative work schedules.

## **TDM Strategy 3 – Bicycle Sharing Program**

**Description:** Bike share is a service in which bicycles are made available for individuals to rent on a very short term basis. One can pay by the hour to use a bicycle as needed then return the bicycle to any one of the bike share hubs. A bike share program consists of several components including a hub with a payment center, information tracking, instructions for use, information about other hubs, bike racks, and the bicycles. Another component is management of the bicycles. Some-times bicycles need to be redistributed more evenly to all the hubs. A vehicle with a trailer is re-quired to do this. Maintenance is another component. Bicycles need to be serviced regularly along with the information kiosk and payment center.



### **Benefits:**

- Increases the flexibility during the work day for alternative mode commuters
- Lowers air pollution and greenhouse gas emission from cars
- Reduces peak hour congestion
- Mitigates congestion throughout the day, specifically in urban cores
- Adds character to a city
- Provides an option for college students who need to cross campus quickly
- Provides an opportunity for exercise (health and wellness benefits)
- Will provide green jobs or a green business opportunity
- Popular alternative to Millennials
- Attractive to tourists
- Creates an opportunity for exercise while providing a transportation option
- Complements the one-mile radius policy at UNCW – students who live within one mile of campus cannot park on campus

**Potential for Application:** UNCW would likely start a bike share program before any other area. UNCW has a one-mile policy that does not allow students who live within a one-mile radius to obtain a parking pass on campus. That creates an ideal bike share opportunity on campus as it increases demand for on-campus transportation options. It also creates an opportunity for bike share to expand to the apartment complexes and shopping centers within the one-mile radius. The opportunity to expand bike share should be explored to consider downtown Wilmington and at strategic locations across the City of Wilmington such as Mayfaire, along the Cross-City Trail, etc.

**Strategy Implementation:** A feasibility study should be conducted to best determine how to start a bike share program in the Cape Fear Region. There are a variety of options, including:

- Rolling out a large, comprehensive bike share program
- Starting with a smaller program at UNCW, possibly including shopping and apartment complexes within a one-mile radius as a second phase
- Starting with a smaller program in Downtown Wilmington or Wrightsville Beach

## **TDM Strategy 4 – Car Share**

**Description:** Car share is a model of car rental where people rent cars for short periods of time, often by the hour. One can pay by the hour to use a car as needed then return the car according to the car share program's operating area layout. The simplest car share programs have only one or two pick-up points, but more advanced systems allow cars to be picked up and dropped off at any available public parking space within a designated operating area. Car share programs differ in their objectives, size, business models, levels of ambition, technology, and target markets but they do share many features. The more established operations usually require a check of past driving records and a monthly or annual fee in order to become a member. The total cost and maximum time a car may be used also varies. Reservations can be made online, by phone, by text, and some companies have an app that will allow you to make a reservation. Users are members and have been pre-approved to drive (background driving checks and payment method established). Many car sharing companies only provide the state minimum liability insurance. Some companies provide comprehensive and collision insurance. Some do not provide uninsured or under-insured insurance nor do they provide personal injury protection insurance.

### **Benefits:**

- Reduced parking demand
- Increases the flexibility during the work day for alternative mode commuters
- Popular alternative to Millennials
- Reduces the cost and responsibilities of car ownership

- Reduces vehicle miles traveled (VMT)
- Not limited by office hours
- Flexible – vehicles can be rented by the minute, hour, and day
- Helps mitigate growth in traffic congestion and pollution

**Potential for Application:** Successful car sharing development tends to be associated mainly with densely populated areas such as city centers, universities and other campuses. Car share could be a feasible option for the UNCW area and in Downtown Wilmington. Working with parking managers could provide opportunities for designating car share parking in parking decks.

**Strategy Implementation:** A feasibility study should be conducted to best determine how to start a car share program in the Cape Fear Region. There are a variety of options, including campus car share at UNCW, expanding car share beyond UNCW to local businesses and multi-family residential areas, and a car share program in downtown Wilmington. There should be coordination with parking managers to determine if and where there is available existing parking for car share vehicles.

## **TDM Strategy 5 – Carpool/Vanpool**

**Description:** Carpooling is a strategy that creates opportunities for people to ride to work or run errands together in the same car (belonging to one of the participants), therefore saving on fuel costs, tolls, and also reducing the stress of driving. Vanpooling allows people to share the ride similar to carpooling, but on a larger scale with concurrent savings in fuel and vehicle operating costs. Vans may be provided by: individuals; by individuals in cooperation with various public and private support programs; through a program operated on behalf of an element of government or transit agency; or through a program operated on behalf of an employer. In many cases an employer may elect to subsidize the cost of the vanpool and the vehicles' maintenance. In some cases, the vehicles are provided and maintained by the municipality. Typically, there is a website available to match people with potential carpool opportunities and vanpool opportunities. This website allows you to enter your locations of interest, the schedule you will need, and even smoking and music preferences. Once you are in the system, you can see if others nearby could be potential carpool matches, or if there is a vanpool opportunity you could join.

### **Benefits:**

- Mitigated growth in traffic congestion
- Reduced commuting costs (fuel, vehicle maintenance, tolls)
- Reduced demand for parking
- Reduces the stress of driving in traffic (rotate drivers)
- Allows passengers time to relax, respond to emails, read the newspaper, etc.

**Potential for Application:** The Wave Pool program could utilize a detailed marketing plan outlining opportunities for education and outreach for both carpooling and vanpooling opportunities. Not only does this information need to be promoted to the general public, but federal tax incentives are available to Wave Pool passengers and employers. While discussing alternative work schedules with area employers, the employers should also be educated on the tax incentives available to them for participating in the Wave Pool.

Implementation of the Park & Ride Lot TDM Strategy will increase opportunities for carpooling and vanpooling. Please see page 62 for proposed Park & Ride lots.

Also, an ERH program should be established for carpoolers. Until funding for a regional ERH program is established, creative ERH options should be explored, such as an employer-based ERH program or an employer-sponsored ERH program.

**Strategy Implementation:** With the Share the Ride NC website already available to people in the Cape Fear Region, and additional buses becoming available for vanpooling, education, and outreach is the next component needed to implement this TDM strategy. Staff time should be dedicated to promoting the Wave Pool program. There should be coordination with parking managers to identify and reserve preferred parking spaces for those who are participating in carpooling and for the vanpool vans.



## **TDM Strategy 6 – Consulting Services for Telecommuting Opportunities**

**Description:** The Consulting Services for Telecommuting Opportunities TDM Strategy is an optional preliminary step towards developing and implementing an alternative work schedule option for a particular business. This TDM strategy was generated from the State of Maryland's Teleworking Partnership with Employers (TPE) service. The Maryland Department of Transportation (MDOT)'s TPE offers free professional telecommute consulting services to Maryland employers looking to start or expand the organizations' telecommute program. The Baltimore Metropolitan Council and the MDOT have contracted with the Telecommuting Advantage Group to work with a select number of businesses in the Baltimore region. This service is provided at no cost to the employer, with no obligation of any kind. This same TDM strategy is recommended for North Carolina, to be implemented by NCDOT, and therefore made available to businesses in the Cape Fear Region.



**Benefits:**

- Provides assistance to businesses hesitant to implement a telecommuting option to employees
- Free to the business owner with no obligation
- Secondary benefits include mitigated growth in traffic congestion, improved employee satisfaction
- Tertiary benefits include improved employee retention, reduced recruiting and training costs, competitive advantage in finding quality employees, improved productivity, reduced office space costs
- Would/could be made available to other regions in North Carolina

**Potential for Application:** This TDM strategy is almost entirely the responsibility of NCDOT. A local or regional agency could also contract for these consulting services

**Strategy Implementation:** Discussions need to be held with NCDOT to determine the feasibility of this program.

**TDM Strategy 7 – Development Review**

**Description:** The Development Review TDM Strategy includes reviewing development proposals and providing comments regarding when transit or TDM-related conditions may be appropriate, including the addition of sidewalks, bike lanes, multi-use paths, crosswalks, bus stops, bus pull outs, park and ride lots, and the purchase of transit vehicles.

**Benefits:**

- Increases the number of employer shuttles, bicycle, pedestrian, and transit facilities
- Assists with implementing plans
- Creates a policy-oriented method for implementing TDM strategies
- Allows for future transportation infrastructure construction/construction planning through right-of-way easement dedication

**Potential for Application:** Language could be developed for all WMPO jurisdictions to guide TIA and development review for any new/improved development, allowing all WMPO jurisdictions to be on the same page regarding potential transportation improvements due to new/improved development. An inventory of help needed/wanted should be conducted first to determine which WMPO jurisdictions are interested.

**Strategy Implementation:** The following steps need to be taken:

- Create an inventory of existing development review processes and inconsistencies in how the development review process is perceived by different user groups
- Identify successful practices and potential pitfalls
- Develop a list of recommendations for improvement (short-term and long-term) with implementation strategies

## **TDM Strategy 8– Employer Shuttles**

**Description:** An employer shuttle is a shuttle provided by the employer to connect employees from Park & Ride lots and satellite parking to the place of work. It is possible to share a shuttle between neighboring employers who, through an agreement, could share the cost of the shuttle.

### **Benefits:**

- Decrease the amount of parking needed by an employer
- Mitigate growth in traffic congestion

**Potential for Application:** A survey of needs should be conducted to determine which employers would be interested in this TDM strategy. The option of an employer shuttle between employers or at an employer center should be explored.

**Strategy Implementation:** The TDM Coordinator should begin conversations with local businesses and compile an inventory of interests in employer shuttles specifically for one company or for a group of companies. There should be coordination with parking managers to identify and reserve parking spaces for employer shuttles.

## **TDM Strategy 9 – Employer Transportation Coordinator**

**Description:** An Employer Transportation Coordinator (ETC) is a staff person employed by a regional employer who would be responsible for the development, implementation, and administration of an employee transportation program. The program would provide transportation options to employees thus reducing company expenses by using pre-tax options and providing an improved employee benefit package to include Transportation (Commuting) Benefits. This would provide the employer with effective employee recruitment tools. The ETC will manage and promote TDM strategies for the employer and assist with overall transportation related issues within a company. This person could also manage a rewards/financial incentives program for ride sharing, and walking, biking or using transit as transportation to and from work. This person would serve as a liaison between the employer and the TDM Coordinator. It should be noted that this does not need to be one full-time employee (FTE) hired specifically for this program. Often this is

several people in different departments - someone in human resources to promote the employee benefit package, someone in sustainability or transportation to administer the program, and/or someone in health and wellness to promote walking and biking to work. It is possible to share the ETC between employers or at an employment center such as a large shopping mall or concentration of small businesses. A Memorandum of Understanding (MOU) could be in place between the TDM Coordinator and the employers that would define the responsibilities of the ETC and provide a documented resource for those serving in this position. This would define relationships, help justify expenses for either party, outline the basics that a company would have to do, and demonstrate company buy-in.

**Benefits:**

- Demonstrates company buy-in (particularly with a MOU in place)
- Increase the number of people using walking, biking and transit
- Increase participation in carpool and potentially vanpool
- Potentially increase the number of people participating in alternative work schedules

**Potential for Application:** A survey of needs should be conducted to determine if an employer would be interested in this TDM strategy. The option of an ETC between employers or at an employer center should be explored.

**Strategy Implementation:** The TDM Coordinator should begin conversations with local businesses to determine interest in ETCs specifically for one company or for a group of companies

## **TDM Strategy 10 – Bicycle and Pedestrian Infrastructure**

**Description:** The Bicycle and Pedestrian Infrastructure Strategy includes promoting the existing bicycle and pedestrian facilities and constructing new facilities to expand the existing network. These facilities include multi-use paths, bike lanes, sidewalks, high-visibility crosswalks with push-button pedestrian heads, and other improvements for multi-modal transportation.

**Benefits:**

- Increases the number of people walking and biking
- Mitigates the growth of traffic congestion
- Walking and biking is a healthier, active form of transportation

**Potential for Application:** Bicycle and pedestrian infrastructure is in high demand in the Cape Fear Region. According to Cape Fear Transportation 2040 survey results, 55% of respondents would like to bicycle more often to get to/from work and school and 44% of respondents would like to walk more often. To run errands, 61% of respondents would like to bicycle more often and 55% would like to walk more often. Two reliable sources of funds allocated to the region are Surface Transportation Program – Direct Attributable (STP-DA) and Transportation Alternatives Program – Direct Attributable (TAP-DA) funds. These funds are allocated to the WMPO on an annual basis. A competitive process has been designed to allocate these funds to the local jurisdictions within the WMPO. The total amount between these two funds is approximately \$2.5 million annually. Additional funding sources include grant funding and Capital Improvement funds allocated within certain local jurisdictions' approved budget. These projects can also be completed through the development review process.

**Strategy Implementation:** The TDM Coordinator should provide input in the bicycle and pedestrian planning process and support local jurisdictions in their efforts to secure funding for bicycle and pedestrian facilities. Initiatives such as Bike to Work Week should be implemented to encourage people to use these facilities as a mode of transportation to get to and from work.

## **TDM Strategy 11 – Park & Ride Lots**

**Description:** Park & Ride Lots provide opportunities for employees to drive a portion of the distance to work, park their car, then join a carpool, vanpool, or take local transit depending on which option(s) are available at that Park & Ride location. Park & Ride Lots vary in complexity from a simple Park & Ride Lot located at an existing large box store parking lot with designated parking spaces available for those who are carpooling and/or vanpooling to a full service transit hub such as Forden Station (also a transfer station) that serves as a base for all transit routes, includes Greyhound bus connections, and also provides parking for carpooling and vanpooling.



**Benefits:**

- Mitigates growth in traffic congestion
- Allows commuters to avoid the stress of driving during the congested part of their commute
- Commuters can avoid parking expenses in city-centers
- Enhances carpooling, vanpooling, and public transportation opportunities

**Potential for Application:** *Cape Fear Commutes 2035* identifies 15 Park & Ride Lots within the Wilmington Urban Area by 2035. That list has been modified in the draft *Cape Fear Transportation 2040*. Many employees live along the major corridors that connect to the Wilmington area where regional employers are located. Assuming other major regional employers have employees living in the same general areas, providing Park & Ride lots along these major corridors should provide employees in the region with opportunities for carpooling, vanpooling, and public transportation.

**Strategy Implementation:** The proposed Park & Ride Lots should be prioritized according to demand and ease of development. The TDM Coordinator should take the lead to establish the prioritization list and look further into lot options, determining if land needs to be acquired, facilities need to be built, or if potential partnerships are available and using existing parking lots is feasible. Once Park & Ride Lots are established, the TDM Coordinator should ensure proper signage is in place and promote the lots to the public and the region's employers and transportation providers. As a supporting effort and incentive, there should be coordination with parking managers to identify and reserve preferred parking spaces for those who are using Park & Ride Lots for carpooling.

**TDM Strategy 12 – Transit Amenities**

**Description:** Transit amenities include:

- The provision of comfortable and convenient shelters/stations/stop locations to include benches, bike racks, transit information, lighting, etc.
- Perceived safety and cleanliness of vehicles, stops, stations, facilities, etc.
- Improved technology regarding arrival and departure times and internet access on vehicles
- Additional programs such as Wave Transit's Bus Buddies, etc.

**Benefits:**

- Increased public transportation ridership
- Mitigate growth in traffic congestion
- Improved community cohesion through potential increased choice ridership



**Potential for Application:** An inventory has been completed along with the 5-year shelter plan (replacement plan) to improve amenities. Funds need to be secured to implement the shelter plan.

**Strategy Implementation:** WAVE is currently implementing this strategy but additional resources are needed to fully implement it. Funding should be identified and secured to implement the 5-year shelter plan. New amenities need to be marketed in an effort to attract new riders and retain existing ones.

## **TDM Strategy 13 – Commuter Transit Routes**

**Description:** Commuter Transit Routes are those that provide a direct route to employers and service a portion of a route without stops or a limited number of stops. They primarily navigate up and down the same corridor with stops at major points along the way or provide a quick connection between residential and business centers. Commuter Transit Routes are designed to carry a significant number of passengers from a major origin point to a major destination point, very similar to an express route.

### **Benefits:**

- Satisfies a common complaint about existing bus routes regarding loop service with multiple stops. An express route is a down-and-back route with minimum stops that would allow the rider a shorter commute time.

**Potential for Application:** Wave Transit's current Short Range Transit Plan (SRTP) does not call for an additional commuter express route. In the next few years this strategy will be revisited to determine this is a potential opportunity.

**Strategy Implementation:** This strategy would be implemented by Wave Transit. The TDM Coordinator and WMPO Staff should stay abreast of developments with this strategy.

## **TDM Strategy 14 – Transportation Management Districts**

**Description:** Transportation Management Districts (TMDs) provide concentrated services to encourage the use of transit and other commuting options in major business districts. It is a "neighborhood" approach to establishing TDM efforts including:

- Specifically targeting employers within the same TMD for adoption of commuter-benefits program
- Informing employees that work within the same TMD about commuting options and incentives
- Working specifically to improve transit and connections to transit in the TMD

- Develop congestion management strategies specific to that TMD to implement during peak travel times of the day and year (holiday shopping)
- Prioritize the construction of alternative transportation projects in the TMD
- Heavily promote TDM in the TMD
- Develop and implement a Transportation Management Plan for each TMD
- Provide TDM services to each TMD that will correspond to the level of expected development and redevelopment in the area.

**Benefits:**

- Mitigate growth in traffic congestion
- Increase transportation capacity
- Reduce air and noise pollution
- Promote bicycle and pedestrian access
- Expand carpool/vanpool network
- Promote overall TDM initiatives
- Increase transit usage

**Potential for Application:** Potential TMDs include the Independence Mall area (Independence Mall, Hanover Center, and other businesses along Oleander Drive and Independence Boulevard), the Downtown Wilmington Business District, Mayfaire, and the UNCW area.

**Strategy Implementation:** This is a new concept in the Cape Fear region; Conversations should be informative with a clear understanding of commitment and obligation from businesses. An inventory of potential TMDs should be conducted including businesses that would be most likely to be interested in participating in a TMD. Once businesses are supportive of a TMD program, the TMD should be formally established followed by the development of the district-specific Transportation Management Plan, which should involve all businesses in the TMD.

## **Strategy 15 – High Occupancy Vehicle (HOV) Lanes**

**Description:** High Occupancy Vehicle (HOV) lanes are restricted traffic lanes reserved at peak travel times (or longer) for the exclusive use of vehicles with a driver and one or more passengers. This includes carpools, vanpools, and transit buses. Often other vehicles including motorcycles, charter buses, emergency and law enforcement vehicles, low-emission and other green vehicles are exempt. HOV lanes are created to increase average vehicle occupancy. These lanes are not accessible to all vehicles, can have less traffic congestion on them, and therefore entice single-occupancy vehicle drivers to increase their occupancy to allow them to use the traffic lane with less traffic.

**Benefits:**

- Mitigate growth in traffic congestion
- Promotes overall TDM initiatives including carpool, vanpool, and transit

**Potential for Application:** Currently, there are no plans to install HOV lanes in the WMPO area.

**Strategy Implementation:** When appropriate, conversations about HOV lanes on the next Cape Fear River should occur to determine if this is a feasible and beneficial strategy.

## **Strategy 16 – High Occupancy Toll and Express Toll (HOT) Lanes**

**Description:** High Occupancy Toll/Express Toll (HOT) lanes is a road pricing scheme that gives motorists the option to use the High Occupancy Vehicle (HOV) lane. This can be developed in several ways – high occupancy vehicles can be granted free access of the HOT lane while single-occupancy vehicles pay a toll to use the lane; all vehicles can pay to use the HOT lane; or the toll can depend on the number of people in the vehicle. Congestion pricing is also a component of HOT lanes. Typically, tolls increase as traffic density and congestion within the tolled lanes increase.

**Benefits:**

- Mitigate growth in traffic congestion
- Promotes overall TDM initiatives including carpool, vanpool, and transit
- Increase funding for transportation

**Potential for Application:** Currently there are no plans to install HOT lanes in the WMPO area.

**Strategy Implementation:** Implementation of HOT lanes can be prohibitively expensive due to the initial construction required, particularly providing access to and from the HOT lane at interchanges. When appropriate, conversations about HOT lanes on the next Cape Fear River should occur to determine if this is a feasible and beneficial strategy.

## Strategy 17 – Light Rail

**Description:** Light rail is a mode of transit service operating passenger rail cars singly or in several-car trains. The rails are located in right-of-ways that are often separated from other traffic. Light rail vehicles are typically driven electrically, by an operator on board, with power being drawn from an overhead electric line. ‘Light’ in this context is in regards to lighter loads, faster movement, and lighter infrastructure than a heavy rail system.

### Benefits:

- Mitigate growth in traffic congestion
- Provides a ‘faster’ option than transit

**Potential for Application:** Currently, there are no funded plans to install/construct light rail in the WMPO area. The City of Wilmington and NCDOT are exploring the potential to relocate a freight rail line that currently runs through the heart of the city. This may open potential for the installation of a light rail line in its place.

**Strategy Implementation:** Coordination with Wave Transit should determine if, where, and when light rail could be planned for the future.

## Strategy 18 – Transit Oriented Development

**Description:** Transit Oriented Development (TOD) is a mixed-use residential and commercial area designed to maximize access to public transportation, and often incorporates features to encourage transit ridership. A TOD typically has a center with a transit station (or stop) surrounded by relatively high-density development with progressively lower-density development spreading outward from the center. TODs are generally located within a quarter- to half-mile radius from a transit stop and therefore also incorporates bicycle and pedestrian facilities to provide access to the transit stop.

### Benefits:

- Mitigates growth in traffic congestion
- Promotes overall TDM initiatives including transit, walking, and biking

**Potential for Application:** Not all jurisdictions in the WMPO have access to transit services. Without access to transit service, TOD is not an option. Currently, the City of Wilmington, New Hanover County, Leland, and Carolina Beach have transit routes traversing their jurisdictions. Therefore, until transit routes are expanded to connect Pender County, Wrightsville Beach, Kure Beach, Belville, and Navassa this strategy would only apply to the jurisdictions with transit access.

**Strategy Implementation:** TOD is a strategy that would apply to some WMPO member jurisdictions more than others. For areas with existing transit access and opportunity for development, this strategy may be a higher priority than areas with long range plans for transit access. For jurisdictions that are interested, an inventory of potential policy changes should be conducted to determine how to further develop this strategy.

## **Strategy 19 – Trip Reduction Ordinance**

**Description:** Typically, a Trip Reduction Ordinance (TRO) requires employers with a pre-determined number of employees who arrive to work between pre-determined peak-hour travel times to develop and implement a program to encourage their employees to reduce vehicle miles travelled and single-occupant vehicle trips. The program details can vary tremendously between one jurisdiction and another. Durham County, NC established an ordinance that required businesses to designate an employee responsible for trip reduction efforts (similar to an Employee Transportation Coordinator, strategy 8) and develop a plan (similar to that required in Transportation Management Districts, strategy 14) that would encourage staff to cut their total driving time where feasible. A fine up to \$1,000 will be imposed upon businesses that don't meet certain provisions. Other program components can include parking management, rideshare matching, commuter financial incentives, alternative work scheduling, transit encouragement, walking and biking encouragement.

### **Benefits:**

- Mitigates growth in traffic congestion
- Involves employers in TDM efforts
- Promotes overall TDM initiatives

**Potential for Application:** A TRO can be politically sensitive. The establishment of an ordinance with requirements and potential fines for not participating is a much more stringent approach than optional participation in TDM initiatives. Larger jurisdictions with existing traffic congestion, existing strategies for mitigating traffic congestion, and higher demand for land development are more likely to implement TROs than smaller jurisdictions with minimal traffic congestion and land development.

**Strategy Implementation:** An inventory of existing TDM policies and ordinances should be conducted for each of the WMPO member jurisdictions. Conversations could be had with those jurisdictions to determine their interest in establishing TROs.



## **Strategy 20 – Trip Reduction Program for Large Mixed-Use Developments**

**Description:** A trip reduction program for developments requires a variety of TDM services to be incorporated into new and expanded mixed-use developments in Cape Fear Region, such as:

- Employer transportation coordinator, funded by development
- Transit resource center
- Bicycle storage for residents and employees with separate bicycle storage for visitors
- On-site taxi and transit loading/waiting zones (not just a bus stop)
- Accessible drop-off and pick-up waiting areas for paratransit vehicles
- On-site business centers for residents to work from home
- Property concierge

### **Benefits:**

- Mitigates growth in traffic congestion
- Involves developers in TDM efforts
- Promotes overall TDM initiatives

**Potential for Application:** A policy requiring developer to incorporate specific transportation initiatives can be politically sensitive. This is a much more stringent approach than optional participation in TDM initiatives. Larger jurisdictions with existing traffic congestion, existing strategies for mitigating traffic congestion, and higher demand for land development are more likely to have large mixed-use developments, and are more likely to implement policies with development requirements than smaller jurisdictions with minimal traffic congestion and land development.

**Strategy Implementation:** This strategy may not be relative to all WMPO member jurisdictions, or it may have various priority levels depending on the goals and interests of the various WMPO member jurisdictions. Interest should be gauged among WMPO member jurisdictions.

## **Strategy 21 – Water Taxi Service**

**Description:** A water taxi is used to provide public transportation along and crossing waterways. Service may be scheduled with multiple stops, operating in a similar manner to a bus, or on demand to many locations, operating in a similar manner to a taxi. Unlike some ferry services, a water taxi would not accommodate personal vehicles.

### **Benefits:**

- Congestion management
- Tourism (mostly accessing beach areas)
- Access to major employment centers (particularly Brunswick County access to Wilmington)
- Emergency evacuation – there are three jurisdictions in the WMPO that are only accessible by a bridge (Wrightsville Beach, Carolina Beach, Kure Beach)

**Potential for Application:** The geographical nature of the WMPO lends itself to the development of water taxi service. All of the WMPO jurisdictions have shorelines on either the Cape Fear River, Brunswick River, Intracoastal Waterway, and/or the Atlantic Ocean.

**Strategy Implementation:** Opportunities for public-private partnerships should be explored. Grant funding opportunities may be available in the realm of clean fuel for companies interested in exploring water taxi opportunities.

### **Conclusion**

TDM has been described in this plan as an effort to mitigate the growth in traffic congestion. It has also been described as the “flip-side” of infrastructure, as it is generally programmatic with an effort to reduce the demand on existing and new infrastructure. Trends are showing that future generations will be more interested in TDM programs rather than commuting habits that apply stress to our infrastructure. If trends continue to fall as they have in the previous years, the TDM strategies listed in this chapter will provide the transportation alternatives that younger generations are looking for. These strategies should be explored as outlined in the 10-year short-range plan and in this long-range plan.

# TRANSPORTATION SYSTEMS MANAGEMENT ELEMENT

## Transportation Systems Management Element Development

Transportation Systems Management is the process of optimizing the existing transportation system and infrastructure. TSM focuses on enhancing the existing infrastructure to increase roadway capacities, to integrate transportation and land use planning, and to reduce congestion within the Wilmington Urban Area. TSM is an opportunity to target improvements that increase capacity, efficiency and utilization of the existing infrastructure. TSM strategies include optimizing signal timing and operations, geometric design, intersection modifications, and access management initiatives.

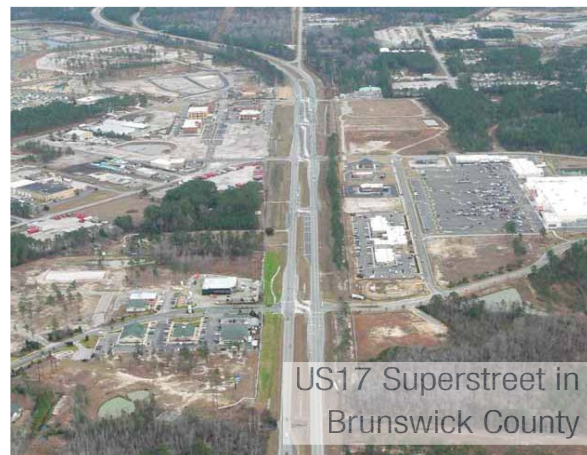
As of 2012, the Wilmington MPO was designated as a TMA and, as such, is required to use an adopted Congestion Management Process (CMP) to evaluate and manage congestion in a regionally-agreed upon manner. The WMPO convened a Congestion Management Steering Committee in order to guide the development and evaluate the progress of the WMPO CMP. As part of this process, the Wilmington MPO has begun collecting congestion data to be published in a CMP report on a biennial basis. The CMP Steering Committee will use these biennial reports to evaluate congestion in the region and to analyze potential strategies to mitigate congestion. CMP strategies will also be used to evaluate the update to this plan.

*Cape Fear Transportation 2040* recommends that the Congestion Management Steering Committee include TSM initiatives in the implementation of congestion management. The implementation of TSM initiatives in the Greater Wilmington Area will also optimize the transportation system infrastructure through increasing roadway capacities and better integrating transportation and land use planning.

## Recommended Projects and Policies

### Access Management

Access Management (AM) is a set of techniques state and local governments can utilize to control access to major arterials, minor arterials, collector streets and other roadways. When appropriately utilized, the benefits of access management include improved movement of traffic, reduced crashes, and fewer vehicle conflicts. Access management usually addresses the location and number of driveways, median openings, street



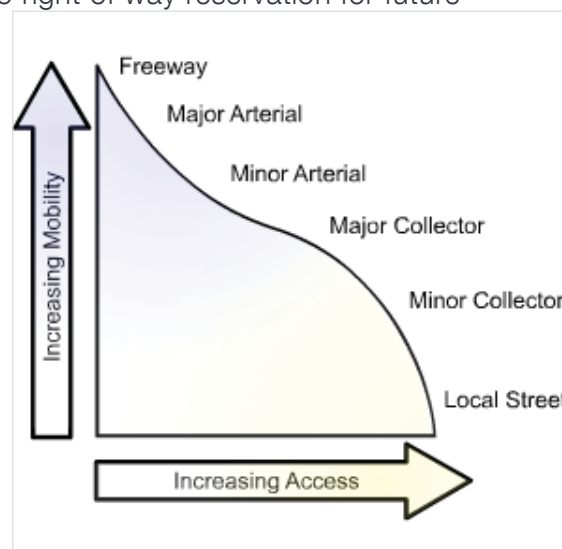
connections, interconnectivity, etc. Good access management can improve traffic flow, safety and promote the safe and efficient utilization of the transportation network. Access management techniques include:

- **Access Spacing:** increasing the distance between traffic signals improves the flow of traffic on major arterials, reduces congestion, and improves air quality for heavily traveled corridors.
- **Driveway Spacing:** Fewer driveways spaced further apart allows for more orderly merging of traffic and presents fewer conflicts for drivers.
- **Safe Turning Lanes:** dedicated left- and right-turn, indirect left-turns and u-turns, and roundabouts keep through-traffic flowing. Roundabouts represent an opportunity to improve intersections with many conflict points or severe crash histories (T-bone crashes) to intersections that operates with fewer conflict points and less severe crashes (sideswipes) if they occur.
- **Median Treatments:** nontraversable, raised medians can be one of the most effective means to regulate access and reduce crashes.
- **Right-of-Way Management:** as it pertains to right of way reservation for future widenings, good sight distance, access location, and other access-related issues.

Access management can be accomplished through regulations, codes, guidelines, policies, and directives by NCDOT and the WMPO member jurisdictions through land development regulations and the development review process. Access management can enhance capacity and level of service, improve traffic flow, reduce vehicles conflicts and improve safety.

Given the development patterns in the Wilmington Urban Area, there are significant challenges with access management. Most challenges occur along the major commercial corridors. A strategy for reducing the number of conflict points is the installation of median treatments to channelize turning movements to specific locations. Another opportunity to improve access management is to provide cross-access between adjacent parcels (interconnectivity between adjacent parking lots). This cross-access eliminates the need to utilize a major transportation corridor to access an adjacent property. The Wilmington MPO aims to improve connectivity and access management throughout the Greater Wilmington Area.

*Cape Fear Transportation 2040* recommends the Wilmington MPO complete access management plans for the major corridors within the Greater Wilmington Area. These plans should promote effective access management and interconnectivity. As properties develop and/or redevelop, local member jurisdictions should follow the access





management plans and require those properties to construct connections to the adjacent properties.

This strategy will help to improve mobility and safety along the major corridors within the Greater Wilmington Area for all users.

### Additional Turn Lanes

Turn lanes can be installed at signalized and unsignalized intersections to improve efficiency. The construction of turn lanes helps to improve the operating conditions of intersections by providing additional capacity. The appropriate installation of turn lanes helps channelize turning vehicles away from through lanes. Properly

designed turn lanes can help minimize delay and improve traffic flow. The appropriate length of turn lane storage often depends on the existing and anticipated turning volumes during the peak hour. Access management plays an important role in determining the appropriate locations and lengths for right and left lanes.

*Cape Fear Transportation 2040* recommends the study and, where appropriate, the construction of right and left turn lanes to reduce delay and improve mobility at signalized and unsignalized intersections and along roadway corridors. The plan recommends the allocation of funding from the WMPO, WMPO member jurisdictions and the North Carolina Department of Transportation in order to construct these improvements. As land development occurs, the WMPO will work with member jurisdictions to develop appropriate access management strategies and appropriate turn lanes storage lengths to accommodate development through the development review process.

Care should be taken when designing turn lanes not to negatively impact the pedestrian realm and disrupt existing or planned bicycle facilities. When feasible, it is recommended that channelized right-turn lanes be used to minimize the crossing distance for pedestrians. The enlargement of corner radii increases the speed of turning vehicles, so this should be carefully designed so as to minimize the endangerment of pedestrians travelling along a roadway corridor. The addition of turn lanes is intended to improve mobility and safety at intersections and along corridors by removing the turning vehicles from the through movements.

### Motorist Assistance Program

A motorist assistance program can increase the safety of the transportation network by allowing motorists a quick point of contact when a minor vehicle issue occurs (flat tire, blown head gasket, etc.). *Cape Fear Transportation 2040* recommends the installation of



signage on major corridors that notify the public of a number for reporting non-emergency assistance. This hotline would be answered by an operator who takes necessary information from motorists. This information is then relayed to the necessary police agency to provide assistance in this time of need.

*Cape Fear Transportation 2040* recommends the creation of a Motorist Assistance Program to assist motorists and remove disabled vehicles from the roadway in the time of need. This strategy will improve mobility and reduce congestion by providing assistance for disabled vehicles and removing the vehicles from the roadway more efficiently.

## **Pavement Markings**

The installation of pavement markings is intended to provide information to roadway users. These markings can be installed in addition to or to supplement signs and traffic signals. These markings are used to delineate bicycle lanes, crosswalks, school zones, stop control, and edge lines of travel.

*Cape Fear Transportation 2040* recommends the evaluation of pavement markings on an annual basis to determine the need for re-installation of the markings. As development and/or redevelopment occur, each proposal should be reviewed to determine the appropriate pavement markings for installation. The plan recommends the installation of pavement markings using thermoplastic as opposed to paint. This strategy will help to provide necessary information to all users. This strategy will improve safety and reduce delay by providing motorists with additional time to make decisions about their route choices.

## **Signs and Lighting Upgrade**

The installation of improved signage and lighting can enhance the safety for drivers, bicyclists and pedestrians. These improvements can provide wayfinding assistance and directions to important features (police stations, fire stations, parks, etc.), improve visibility and/or enhance the streetscape of a particular corridor.

*Cape Fear Transportation 2040* recommends coordinating with member jurisdictions and the North Carolina Department of Transportation to review the current signage program for the Greater Wilmington Area to determine any modifications that could provide improved information to travelers. The Wilmington MPO and North Carolina Department of Transportation should review the signs and streetlights details to determine potential enhancements with the construction of roadway, bicycle and pedestrian construction projects.

This strategy will help to improve mobility and safety and enhance aesthetics. It will provide a means of communicating information to residents and visitors about important community features. The improved lighting will improve the safety of bicyclists, pedestrians and motorists.

## Streetscape Improvements

Streetscape enhancement projects are typically constructed on roadways to improve the aesthetics of the corridor. These enhancements can include brick pavers, sidewalks, bulb-outs, decorative lighting, decorative traffic signals, medians, landscaping, benches, signage and other aesthetic improvements. These improvements can improve the mobility and safety of bicyclists, pedestrians and motorists and also spur redevelopment and a renewed interest from property owners that can increase the tax base of the region. The construction of bulb-outs can reduce the required crossing distance for pedestrians, medians can reduce the number of conflict points, and signage can help to better direct travelers throughout the community. Streetscape enhancements bring together several of the TDM and TSM strategies into one cohesive plan.

*Cape Fear Transportation 2040* evaluated projects that were key to the community fabric and established criteria to rank projects that have an impact on regional economic enhancement and quality of life. The funded economic enhancement roadway projects are included in the Roadway Element.

## Tourist Transportation Plan

A tourist transportation plan should be developed to expand and improve tourist access to key destination points throughout the Greater Wilmington Area. This plan should be completed by the Wilmington-Cape Fear Coast Convention and Visitors Bureau with assistance from the WMPO.

## Traffic Signal Timing Optimization

Traffic signals function in four different operating modes that include pre-timed, semi-actuated, fully-actuated or coordinated.

- Pre-timed signals have a fixed amount of time for each movement regardless of actual vehicle demand.
- Semi-actuated signals have vehicle detection for some movements which adjusts the green time allocated to the detected movements based on actual vehicle demand. The remaining undetected movements operate in the basic pre-timed pattern.
- Fully-actuated signals have vehicle detection for all movements. Green time is allocated to each movement based on actual vehicle demand.



- Coordinated signal mode allows adjacent signals to operate systematically. Pre-timed, semi-actuated and fully-actuated signals can be operated in coordination mode to improve mobility and traffic flow along the corridor. These coordinated systems help the progression of traffic along the corridors and help to efficiently and effectively move traffic throughout the community.

Traffic signal timing optimization is the analysis and adjustment of signal timings to enhance the capacity of the roadway intersections and corridors. This is a very cost-effective way to improve traffic flow throughout the community.

Since the cooperative traffic signal system upgrade completed in 2010 between the City of Wilmington and North Carolina Department of Transportation, all traffic signal timings maintained by City of Wilmington have been adjusted to accommodate the changes in traffic volumes and patterns from the previous adjustments. This is, and will continue to be, an ongoing effort affected by many variables such as access management changes, turn lane additions/subtractions, lane use changes, speed limit changes, major roadway construction projects and changes in daily vehicle volumes from new (and defaulted) residential and commercial developments. All of these variables have the ability to significantly change vehicular demand on the roadway and at traffic signals, necessitating further adjustments. Some traffic signals in the unincorporated areas of New Hanover County and all signals in Pender and Brunswick Counties are operated and maintained by the North Carolina Department of Transportation and were not part of this upgrade.

*Cape Fear Transportation 2040* recommends that all new traffic signals within the Greater Wilmington Area be connected to and coordinated with the City of Wilmington's upgraded traffic signal system; These signals should be constructed as fully-actuated signals and coordinated with nearby traffic signals to efficiently and effectively utilize the resources available to improve traffic flow throughout the system. The plan recommends that each traffic signal within the Greater Wilmington Area be studied periodically for seasonal variation and to determine the appropriate signal timing. Timings should be changed periodically to accommodate the changes in traffic volumes at the intersections.

The intent of this strategy is to synchronize all of the traffic signals within the Greater Wilmington Area in an effort to improve mobility and safety throughout the community which also reducing greenhouse emissions. The synchronization of these signals will improve roadway capacity and reduce delay at the intersections and improve the level of service along each corridor.

### **Variable/Dynamic Message Signs**

The use of variable message signs (VMSs) is an important traffic control device that can provide real-time information to motorists. VMSs are either located on a fixed structure or on trailers which can be moved easily throughout the community. VMSs convey information to travelers regarding incidents that occur frequently (i.e. bridge opening) or unusual driving conditions (i.e. accident information, construction or maintenance, speed

reduction, wet pavement, lane closures, speed limits, event notifications, etc.). These boards are an important element of Intelligent Transportation Systems (ITS) which aim to provide motorists information to alleviate congestion during peak periods and to alert drivers to avoid certain congested areas.

*Cape Fear Transportation 2040* recommends the Wilmington MPO utilize variable message signs to convey frequent and unusual driving conditions to motorists. The Wilmington MPO should work with the North Carolina Department of Transportation to implement an area wide ITS plan and system for the region. The Wilmington MPO should work cooperatively with the North Carolina Department of Transportation to evaluate potential locations for the installation of stationary devices. The Wilmington MPO should work with the North Carolina Department of Transportation and local member jurisdictions to utilize movable boards to provide information on construction or maintenance, speed reduction, wet pavement, lane closures, speed limits, event notifications, safety messages, amber alerts, etc.

This strategy will help to improve mobility by providing information to motorists in an effort to avoid congested areas.

### **Vehicle Detectors Repair/Replacement**

Vehicle detectors are an important element in the function of an efficient traffic signal system. The vehicle detection devices are installed in the roadway at signalized intersections to initiate a signal's response to a vehicle. These devices serve as indicator loops that are placed in the pavement. Other vehicle detection devices include video cameras that provide pixel sensitizing. These detection devices improve the efficiency of the intersections by optimizing the signal timing lengths based on the traffic at the intersection and allow for more "green" time at the priority movements. Video cameras can also assist with bicycle and pedestrian data collection. The use of these devices can have a significant impact on mobility and traffic flow along entire corridors with the MPO planning area boundary.

*Cape Fear Transportation 2040* recommends that as roadways are constructed, widened or resurfaced, the Wilmington MPO coordinate with the City of Wilmington and North Carolina Department of Transportation for the funding and implementation of loop detectors at all signalized intersections. As new signals are installed, Cape Fear Commutes recommends coordination with the City of Wilmington and North Carolina Department of Transportation to install traffic cameras where appropriate to efficiently move traffic throughout the region.

This strategy will help to ensure that the intersections are functioning appropriately and help to improve efficiency at the signalized intersections. The installation of new loops with the construction, widening or resurfacing will reduce costs and improve efficiency.





# ENVIRONMENTAL ANALYSIS ELEMENT

## Introduction

The Wilmington Urban Area MPO Metropolitan Transportation Plan seeks to strike a balance between improving and maintaining the region's transportation networks, ensuring that low-income and minority populations are not disproportionately impacted, and preserving the natural environment. This chapter identifies and highlights the areas within the WMPO region that are characterized by higher populations of low-income and minority residents and estimates the impact of the MTP's roadway, bicycle and pedestrian transportation, and mass transportation recommendations on these areas. This chapter also includes a discussion of the natural environmental features in the region.

## Environmental Justice

A 1994 Presidential Executive Order directed every Federal agency to incorporate environmental justice into their mission. Agencies were required to identify and address the effect their policies and activities had on minority and low-income communities. The U.S. Department of Transportation (USDOT) promotes environmental justice as an integral part of the long range transportation planning process continuing through individual project planning and design. According to the USDOT, environmental justice requires the understanding and incorporation of the unique needs of distinct socioeconomic groups to create transportation projects that fit within the framework of their communities without sacrificing safety or mobility.

Environmental justice within the WMPO MTP is based on three fundamental principles derived from guidance issued by the USDOT:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

For more information, please visit [www.fhwa.dot.gov/environment/environmental\\_justice/ej\\_at\\_dot/](http://www.fhwa.dot.gov/environment/environmental_justice/ej_at_dot/).





## Demographic Characteristics

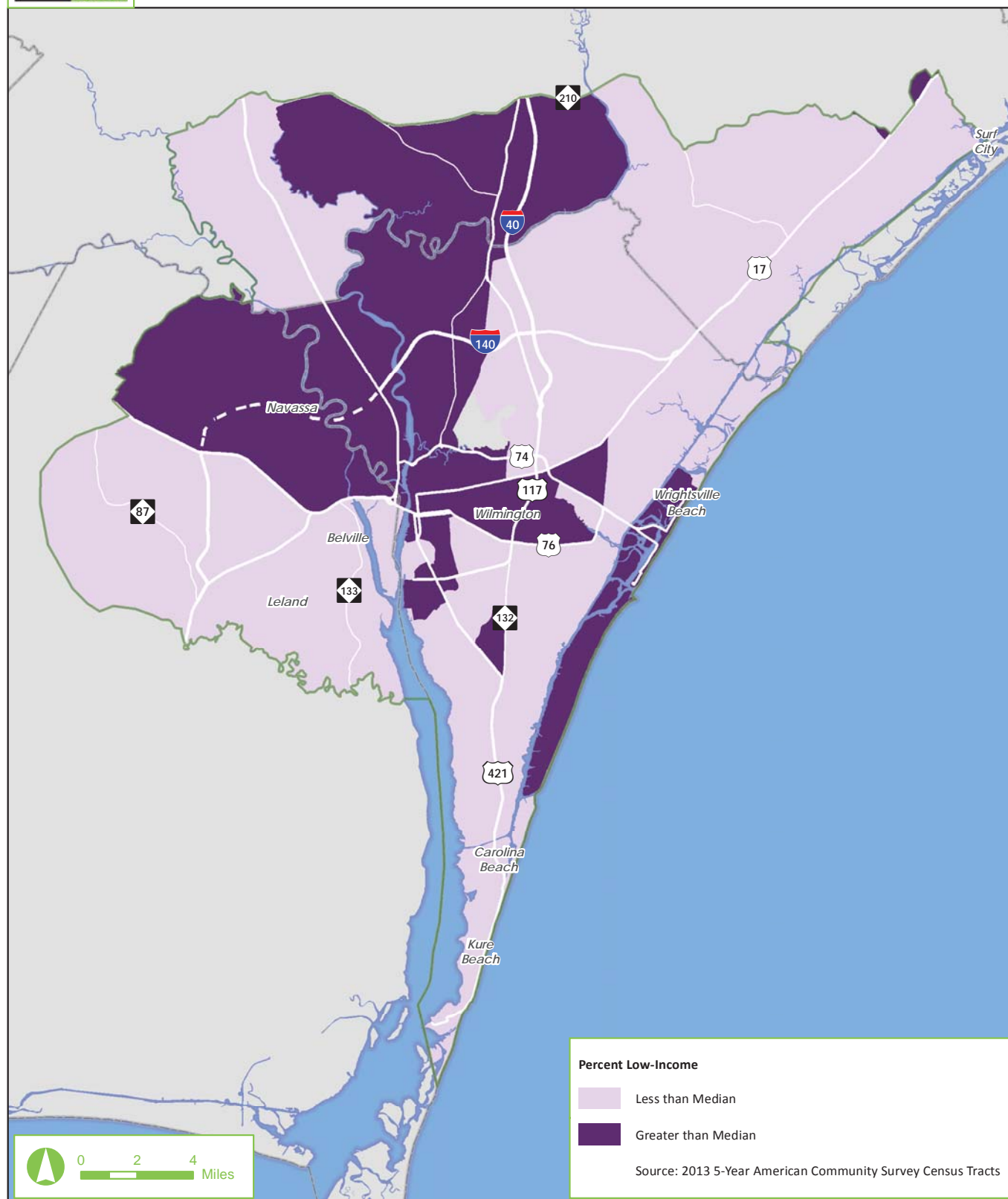
The maps on the following pages present data at the Census Tract level from the 2013 American Community Survey 5-Year Estimates. The highlighted Census Tracts indicate areas where low-income, low-vehicle ownership, African-American, Hispanic, and other minority percentages are higher than the WMPO region median values. The median values for each of these population groups are shown in the table below. The WMPO region's low-income, low-vehicle ownership, and minority population percentages are lower than the averages across North Carolina.

POPULATION	WMPO	NORTH CAROLINA	UNITED STATES
Low-Income	16.81%	17.50%	15.40%
Low Vehicle Ownership	2.54%	6.58%	9.06%
African-American	14.83%	21.43%	12.57%
Hispanic	5.73%	8.55%	16.62%
Other Minority	5.43%	8.86%	13.41%



## Environmental Justice

### Low-Income

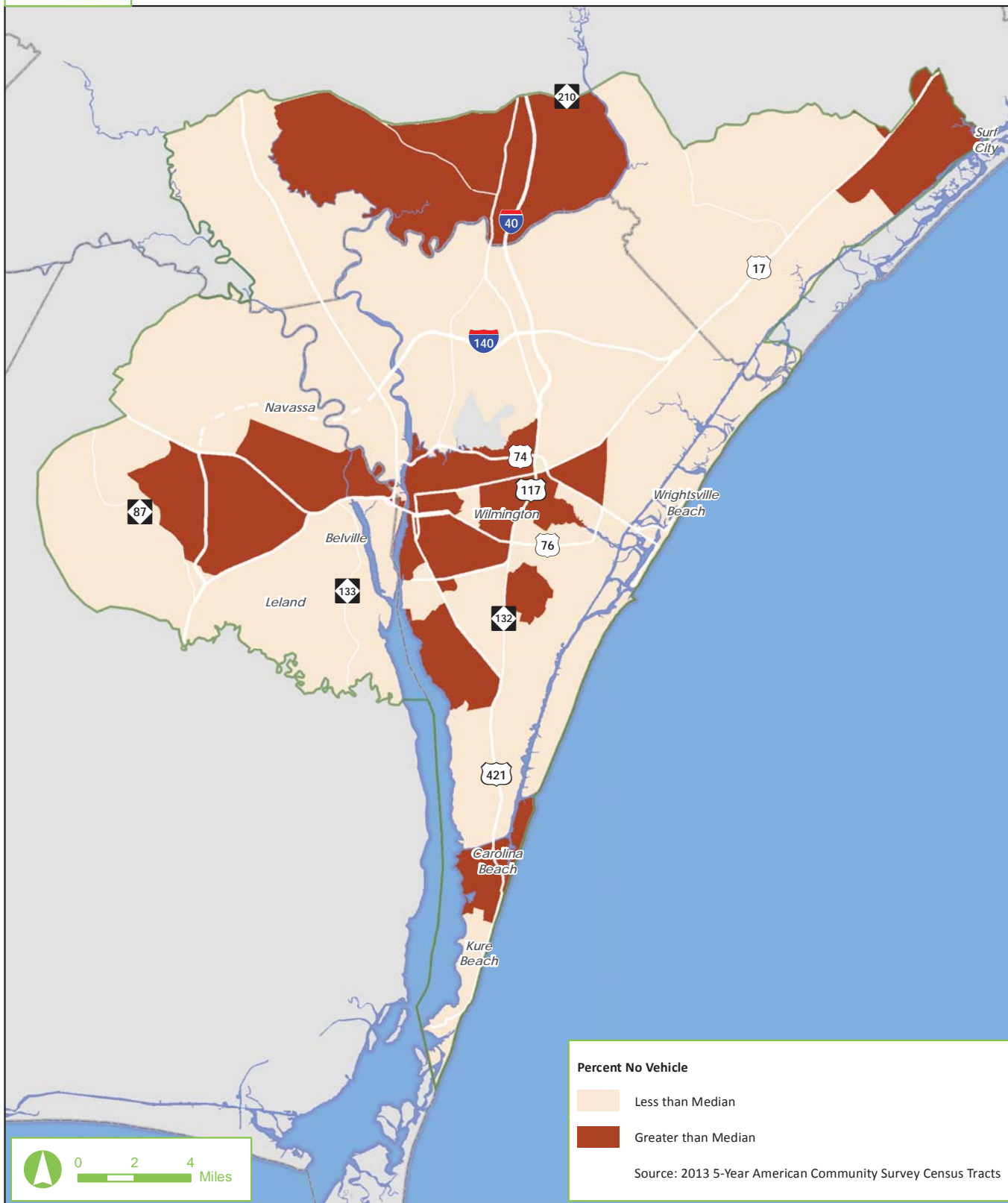






## Environmental Justice

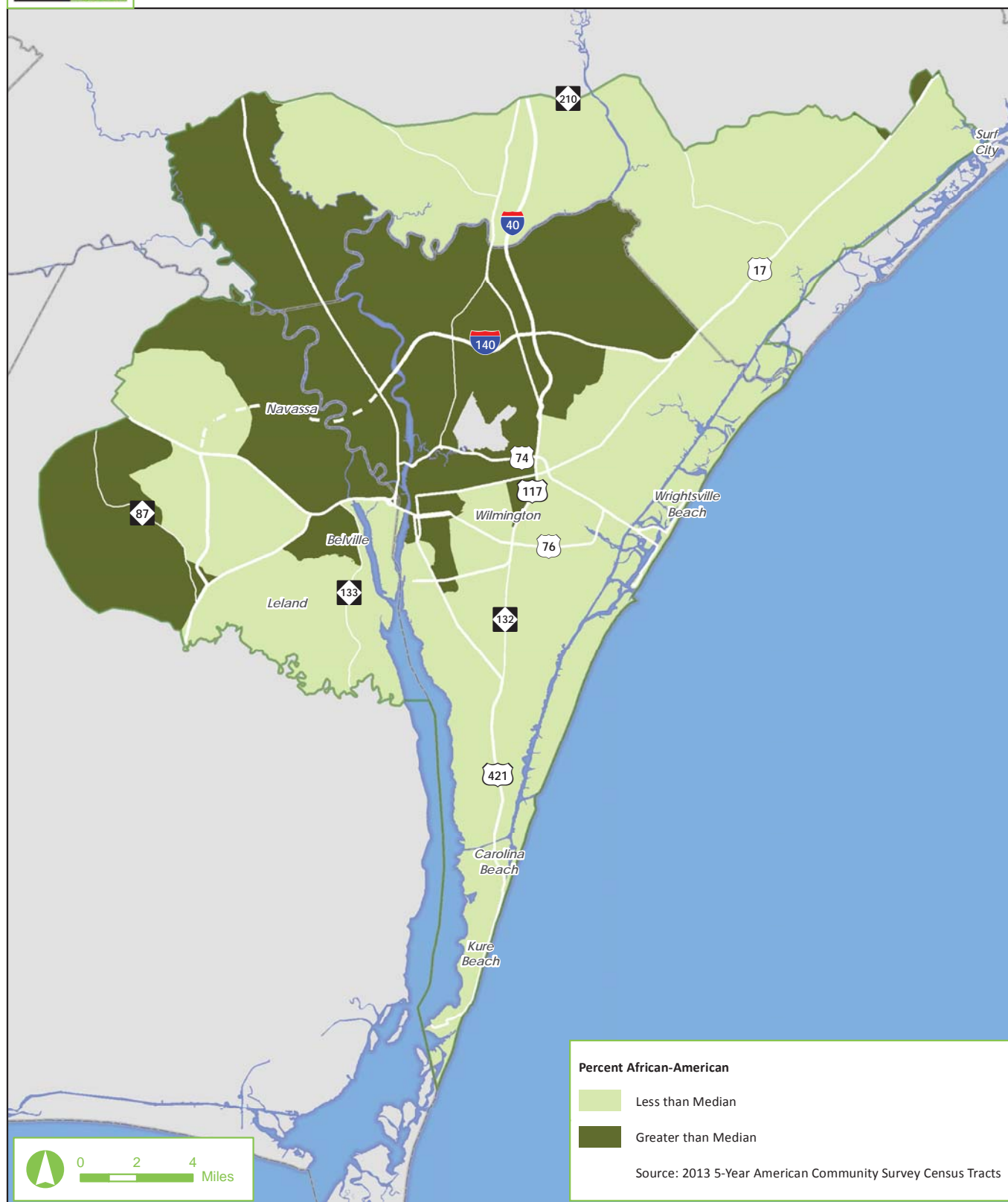
### No Vehicle





## Environmental Justice

### African-American

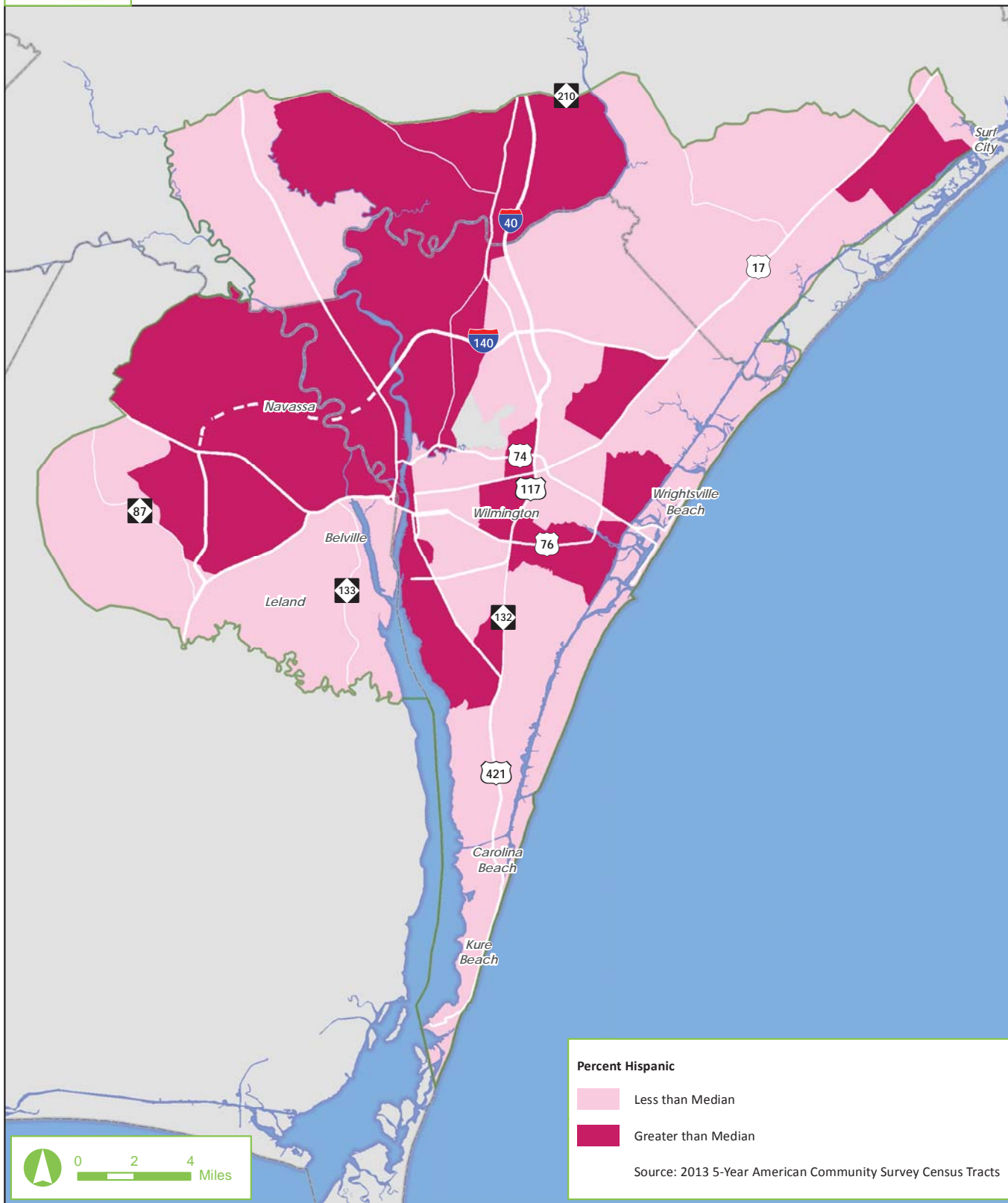






## Environmental Justice

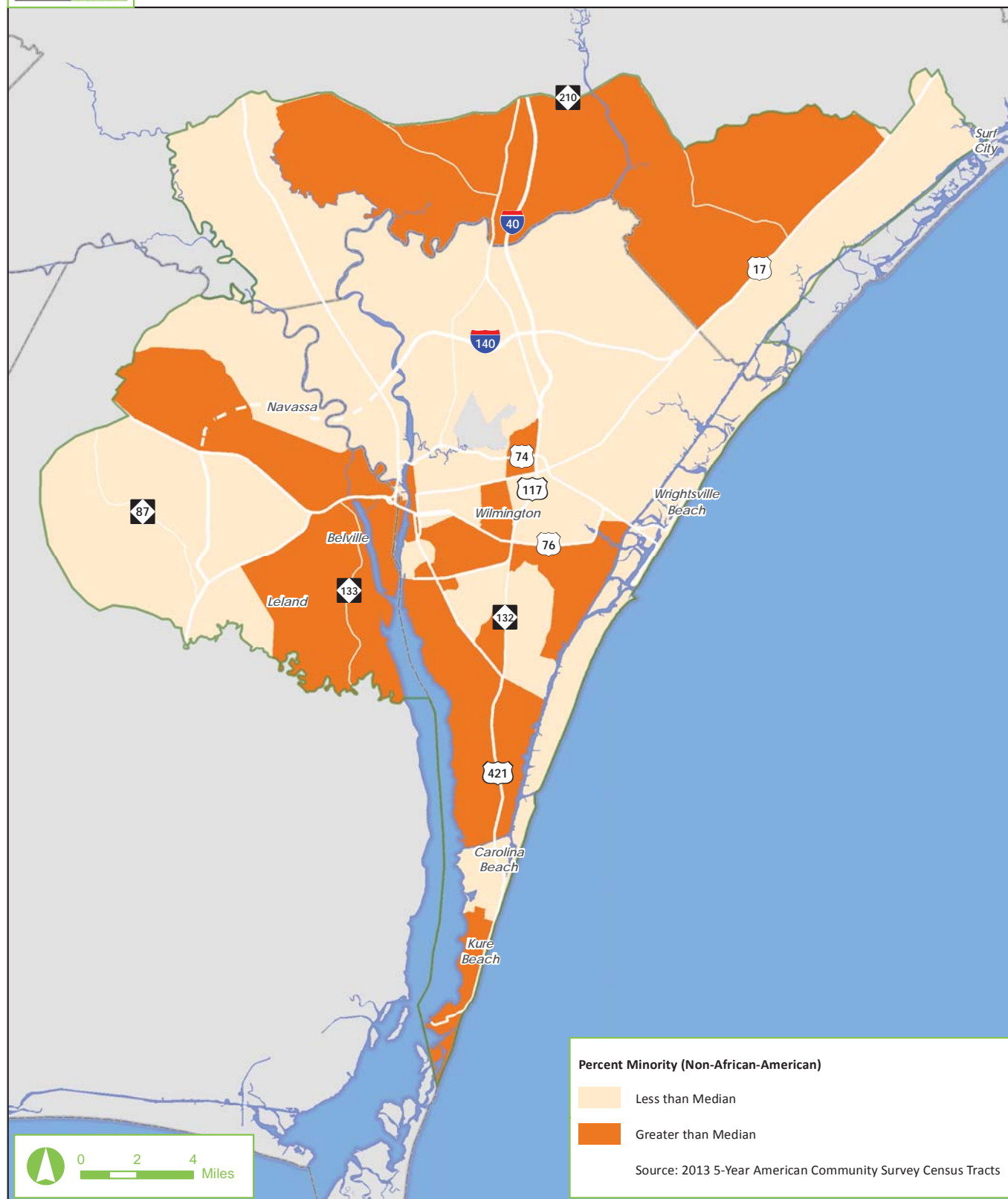
### Hispanic





## Environmental Justice

### Other Minority



## Project Impacts

The following maps display the roadway, bicycle and pedestrian transportation, and mass transportation projects overlaid on three identified areas defined for the purposes of the MTP's environmental justice assessment. The three identified areas are:

- Low-Income and African-American
- Low-Income and Hispanic
- Low-Income and Other Minority

As shown in the demographic maps included on the previous pages, the median percentage of low-income individuals in the WMPO region is 16.81%. The median percentages for African-American, Hispanic, and Non-African-American Minority populations are 14.83%, 5.73%, and 5.43%, respectively. Hispanic populations are identified in the Census as an ethnicity rather than a minority race and Americans of any race could identify themselves as Hispanic or non-Hispanic on the 2010 Census. The assessment identified areas as Census Tracts with low-income and racial/ethnic populations above the WMPO median values.

The Environmental Justice assessment included the estimation of costs for projects located within each of the three identified areas to demonstrate that the MTP does not unfairly distribute environmental impacts of transportation projects in low-income and minority communities. It is important to note that some transportation projects can benefit the surrounding community. For example, low-income communities often benefit from additional or improved mass transportation that serves the communities.

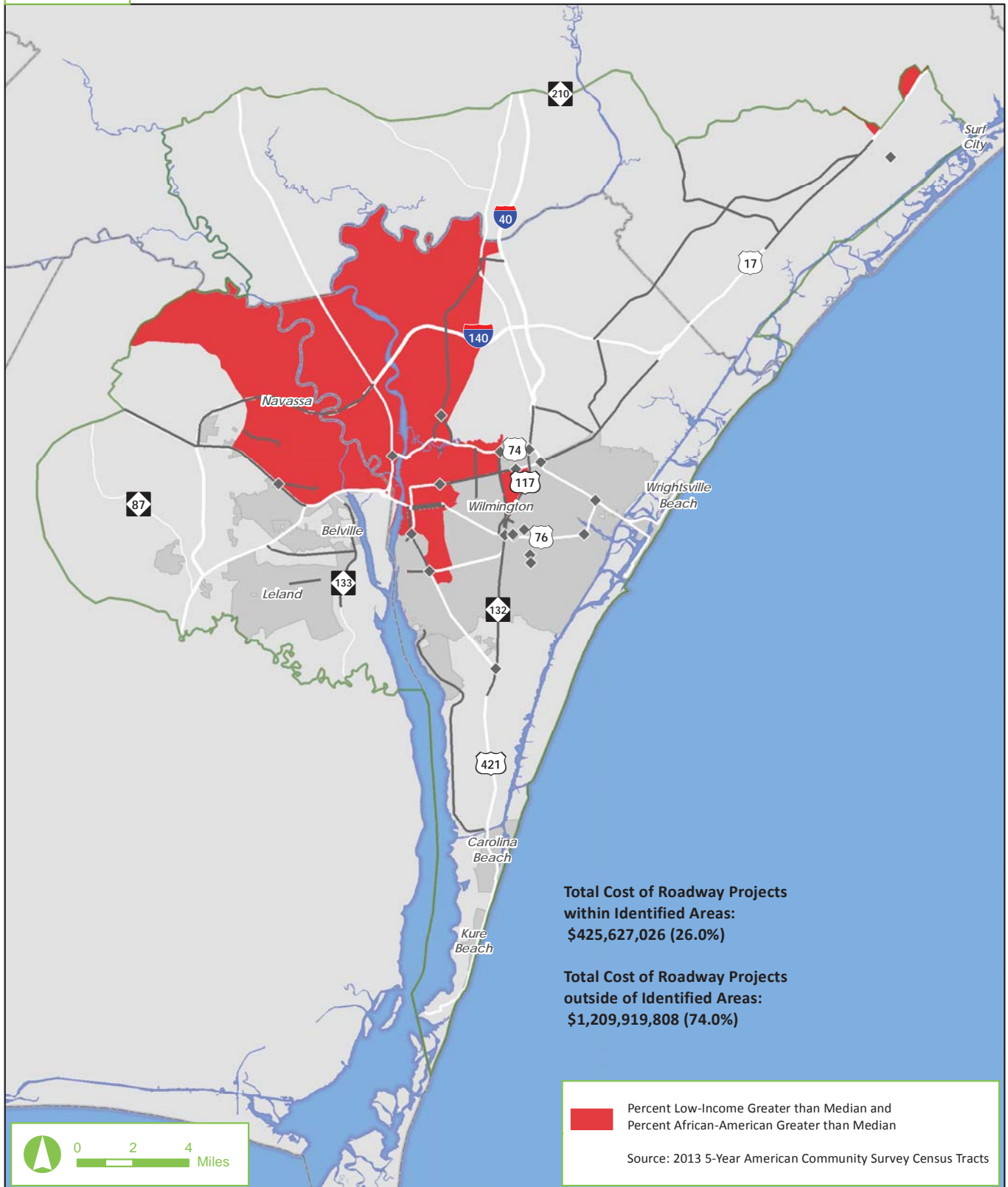
The evaluated projects include only the recommendations in the financially constrained plan. The current year costs of projects impacting the identified areas are shown in the table and maps below categorized by transportation mode. The impact to the identified areas, measured in project costs, is generally proportional to the median population percentages across the WMPO region.

	ROADWAY		BICYCLE & PEDESTRIAN TRANSPORTATION		MASS TRANSPORTATION		TOTAL	
	PROJECT COSTS	PERCENT OF TOTAL	PROJECT COSTS	PERCENT OF TOTAL	PROJECT COSTS	PERCENT OF TOTAL	PROJECT COSTS	PERCENT OF TOTAL
Total	\$1,635,546,834	100.0%	\$89,835,252	100.0%	\$4,128,000	100.0%	\$1,729,510,086	100.0%
Low-Income and African-American	\$425,627,026	26.0%	\$21,277,588	23.7%	\$1,857,151	45.0%	\$448,761,765	25.9%
Low-Income and Hispanic	\$528,620,670	32.3%	\$14,778,330	16.5%	\$804,727	19.5%	\$554,203,727	31.5%
Low-Income and Other Minority (Non-African-American)	\$230,177,037	14.1%	\$13,979,562	15.6%	\$787,313	19.1%	\$244,943,912	14.2%



## Environmental Justice

### Roadway - Low-Income and African-American

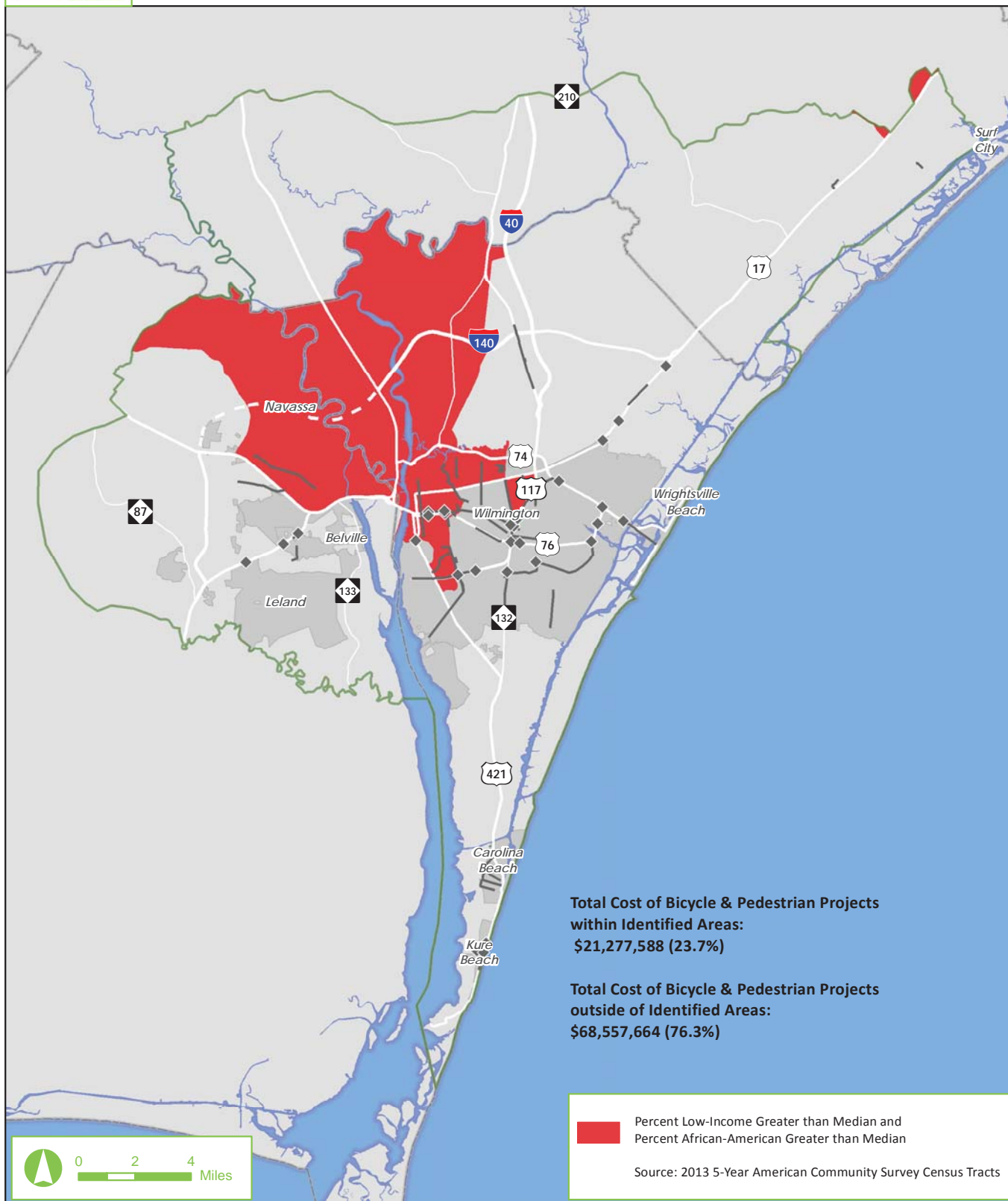






## Environmental Justice

### Bicycle & Pedestrian Transportation - Low-Income and African-American

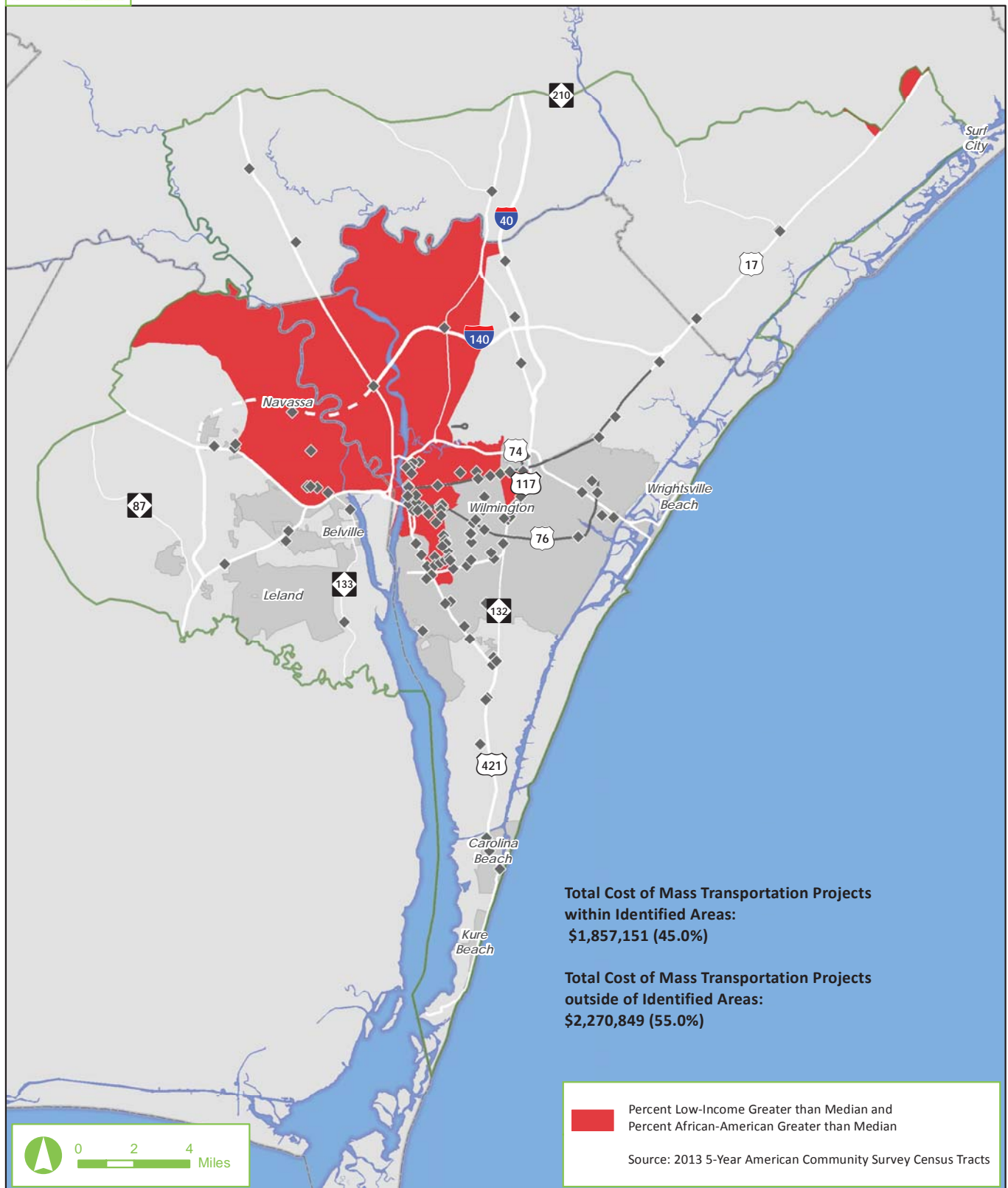






## Environmental Justice

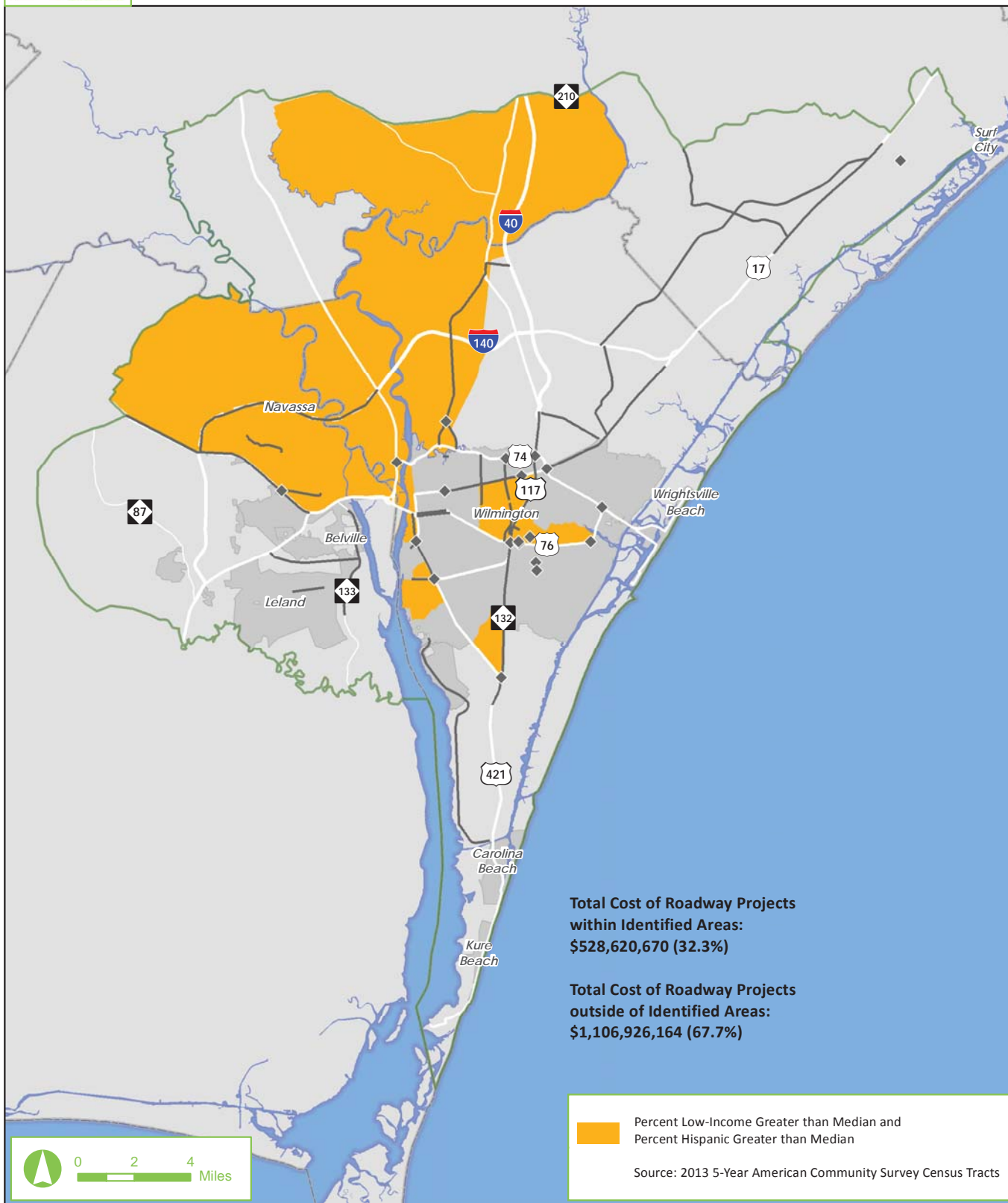
### Mass Transportation - Low-Income and African-American





## Environmental Justice

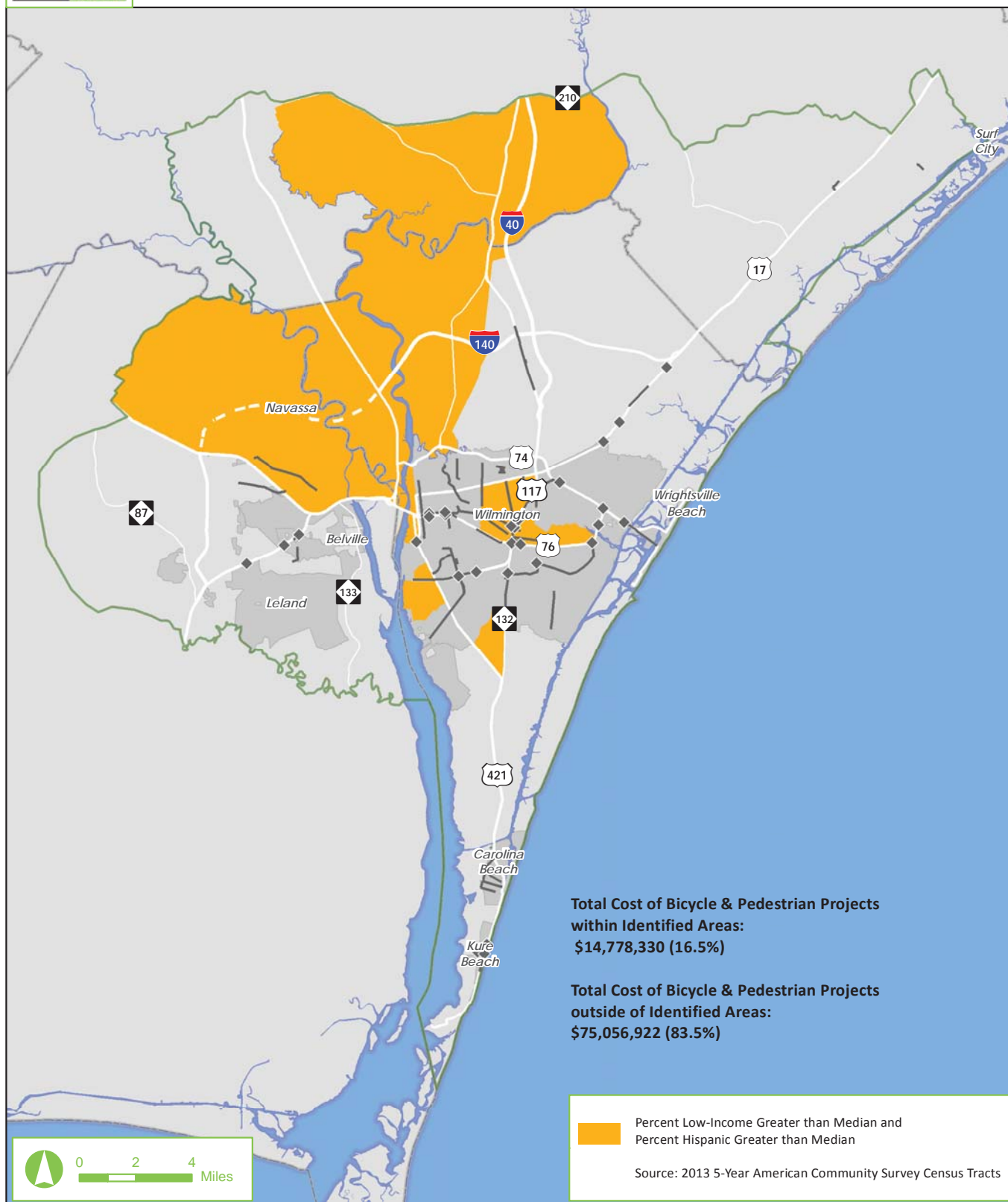
### Roadway - Low-Income and Hispanic





## Environmental Justice

### Bicycle & Pedestrian Transportation - Low-Income and Hispanic

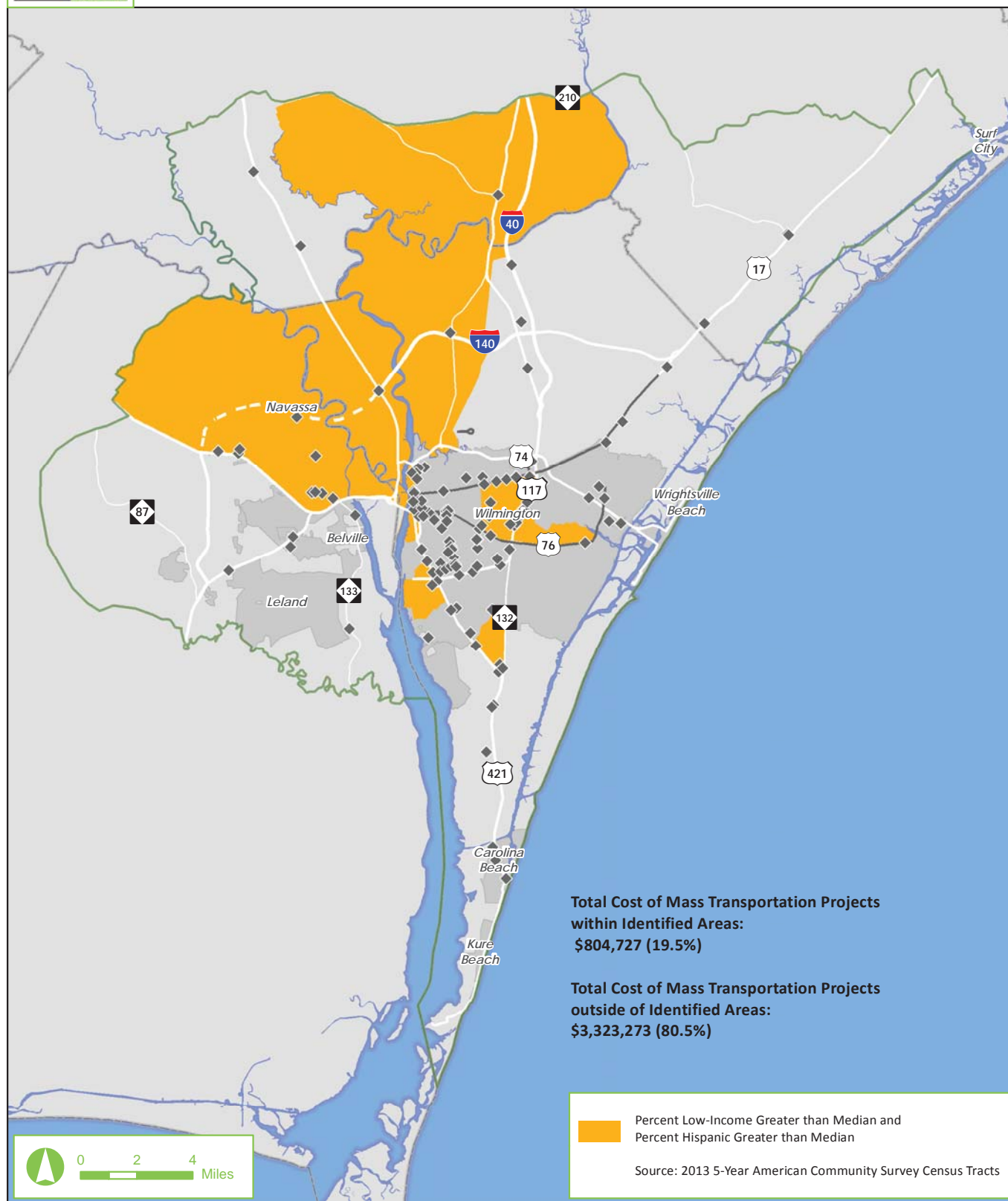






## Environmental Justice

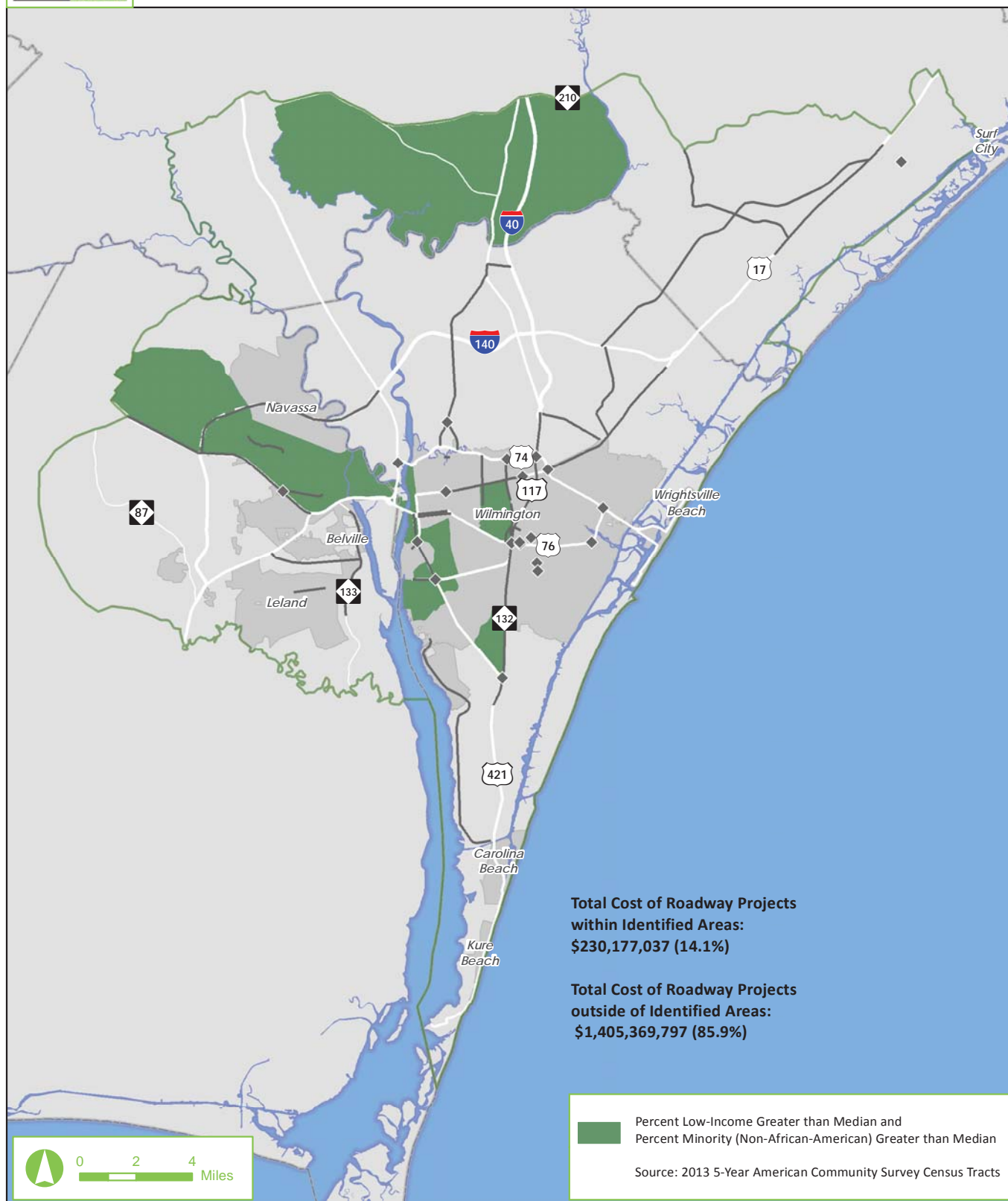
### Mass Transportation - Low-Income and Hispanic





## Environmental Justice

### Roadway - Low-Income and Minority (Non-African-American)

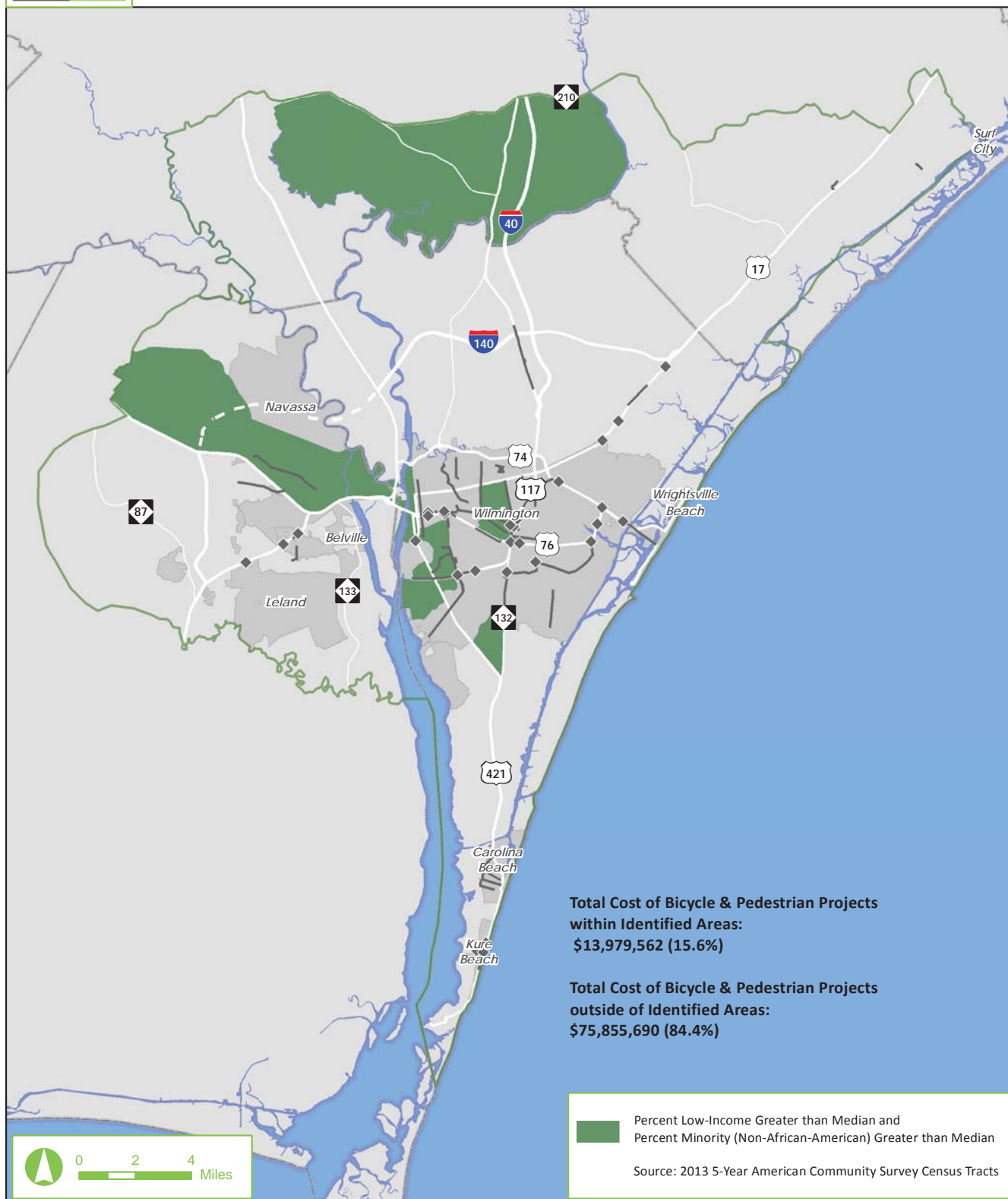






## Environmental Justice

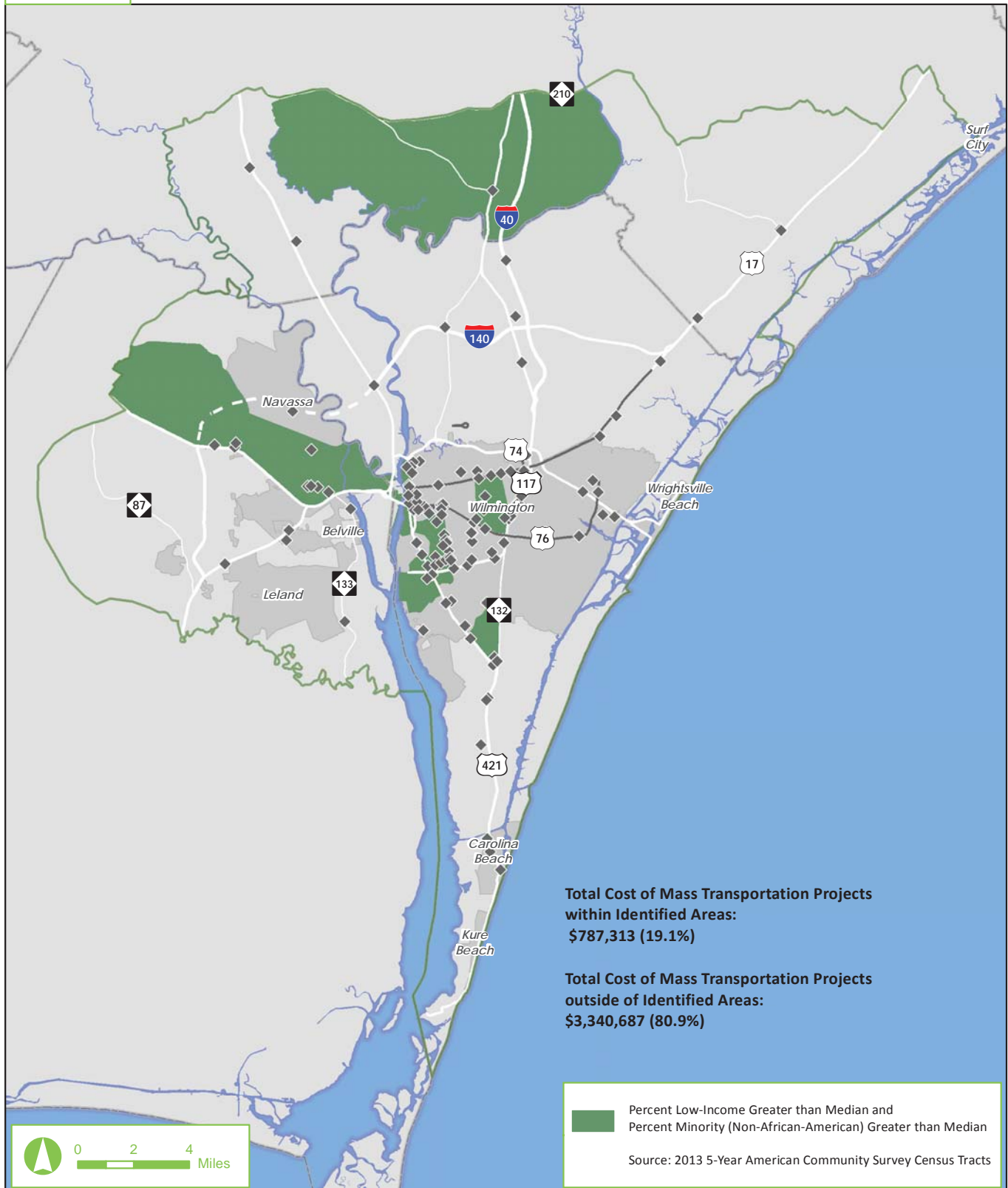
### Bicycle & Pedestrian Transportation - Low-Income and Minority (Non-African-American)





## Environmental Justice

### Mass Transportation - Low-Income and Minority (Non-African-American)



The low-income and African-American populations are primarily located in northwest Wilmington, Navassa, and along the Cape Fear River and Northeast Cape Fear River. The low-income and Hispanic populations are generally located in central Wilmington, Navassa, and the northern portion of the WMPO region between US 421 and I-40. The low-income and other minority (non-African-American) populations are located along the north side of US 74, in several locations within Wilmington, and north of the Northeast Cape Fear River.

The greatest impacts of the projects funded in the MTP are expected to come from mass transportation projects in the low-income and African-American areas. Approximately 45% of the mass transportation projects are in areas identified as having percentages of low-income and African-American populations greater than the region's median levels. Many of these projects are located in Downtown Wilmington where there is greater need for improved mass transportation infrastructure and bus service.

The total cost of projects impacting the identified areas in the WMPO region, accounting for overlap of the three identified area categories, is \$670 million which makes up 39% of all of the projects in the WMPO MTP. The remaining 61% totals \$1.1 billion. The WMPO will consider the continuation of ongoing efforts to mitigate impacts to identified areas within the region. These efforts include providing more opportunities for environmental justice communities to engage in the transportation planning process and guiding the development of transportation recommendations to mitigate impacts to the identified areas. The WMPO should also continue to communicate how mass transportation and bicycle and pedestrian transportation improvements can positively impact communities.

## **Public Involvement**

The strategy for providing for and enticing public involvement throughout the development of this document included a specific focus on communities located in areas identified as being of interest to the plan's local environmental justice efforts. There were two rounds of public open houses (with a total of 12 open houses) during the development of this plan and, while these open houses were held throughout the region in an effort to reach the breadth of the planning area's public, they were also specifically located in areas that have been identified as having significant populations that are low-income, African-American, Hispanic, minority, and having low-vehicle ownership. Outreach for the plan included a concerted effort to ensure that public input opportunities were made available for the transit-dependent population and Spanish speakers. Open house locations are listed below with their fixed-route service and Spanish translation availability.

- Tuesday, September 17th Leland Town Hall (served by Wave Transit route 204)
- Wednesday, September 18th, 2013 Carolina Beach Town Hall (served by Wave Transit route 301)
- Monday, September 23, 2013 Forden Station (primary transfer point for Wave Transit)

- Monday, September 23, 2013 Halyburton Memorial Park (serviced by Wave Transit route 201)
- Tuesday, September 24, 2013 Pender County Library (Hampstead Branch)
- Thursday, April 2nd, 2015 Forden Station (primary transfer point for Wave Transit)
- Tuesday, April 7th, 2015 Hillcrest Community Center (serviced by Wave Transit route 205)
- Monday, April 13th, 2015 Halyburton Memorial Park (serviced by Wave Transit route 201)
- Tuesday, April 14th, 2015 Carolina Beach Town Hall (serviced by Wave Transit route 301)
- Thursday, April 16th, 2015 Leland Town Hall (serviced by Wave Transit route 204)
- Thursday, April 23rd, 2015 Pender County Hampstead Annex
- Monday, April 27th, 2015 Bradley Creek Elementary School (Spanish translation services available)

Outreach materials, surveys and comment forms were translated into Spanish and distributed specifically to areas with high concentrations of Hispanic populations. For additional information on the public outreach strategy please see the Public Involvement Element of this plan.

## **Natural Environment**

Protecting and enhancing the environment is a concern shared throughout the transportation community. MAP-21 planning factors provide guidance to protect the environment, identify the need for integrating the planning and environmental processes, and promote a streamlined process for reviews and permitting. By doing so, the legislation emphasizes environmental mitigation. Early integration of the planning and environmental review and approval processes makes it more likely that transportation projects can be implemented in a timely and environmentally sensitive manner. The coordinated effort of WMPO MTP supports the protection and enhancement of the environment and sets the stage for the streamlined process outlined by NEPA regulations. Although the integration will vary by project, every effort should be made to initiate the environmental assessment and mitigate environmental concerns as early in the project developmental phase as practical.

The aim of the environmental assessment is to review the overall impact of the projects recommended as part of the 2040 MTP on the natural environment. The environmental assessment is intended to be a high-level evaluation, and detailed environmental analyses will need to be performed once project alignments are defined in the future.

## Environmental Assessment

The intent of the environmental assessment is to demonstrate that the WMPO region is rich in environmental resources and to identify the features comprising the natural and social environment within the WMPO region that may be impacted by the MTP's recommendations. Detailed environmental analyses are expected to occur during the planning and design of each project, and the determination of alignment alternatives is expected to consider preserving and mitigating impacts to the WMPO's environmental resources. If projects are anticipated to impact the environmental resources in the region,



transportation planners and engineers can consider several mitigation strategies including realignment of the project; the construction of noise walls, retaining walls, or bridges; and the installation of landscaping or traffic calming devices.

The following maps show the environmental features in the WMPO region categorized into hydrologic, cultural, and other environmental features.

## Data Sources

The environmental assessment included datasets from several sources including:

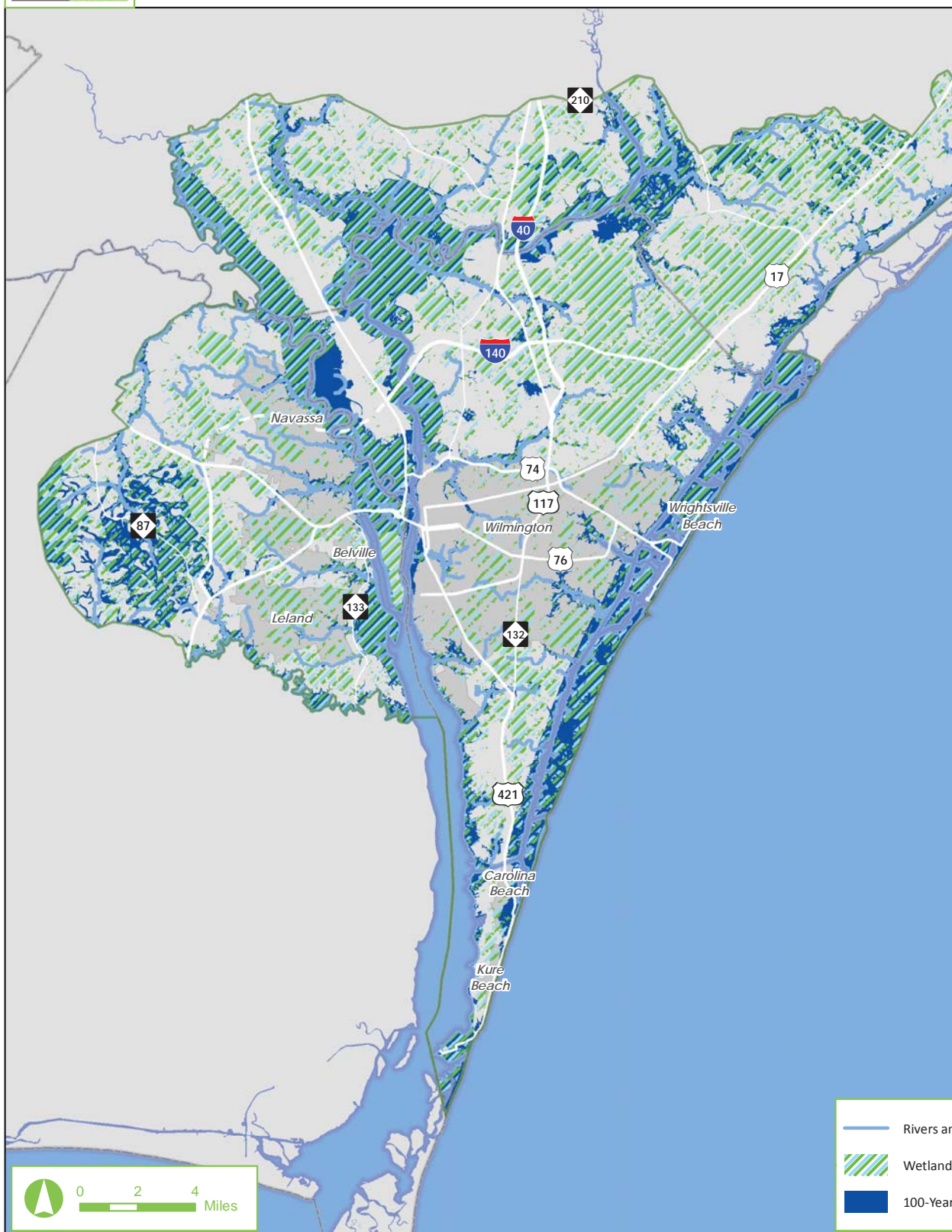
- **Green Growth Toolbox** – developed as a guide to assist local officials and decision-makers in conserving priority wildlife, habitats, and natural resource conservation areas
- **NC OneMap** – provides geospatial data via its GeoSpatial Portal
- **NC Division of Coastal Management** – a division of the North Carolina Department of Environment and Natural Resources charges with managing the coast in the Morehead City, Elizabeth City, Washington, and Wilmington districts
- **NC Floodplain Mapping Program** – maintains the Flood Risk Information System which provides flood hazard data and maps





## Natural Environment

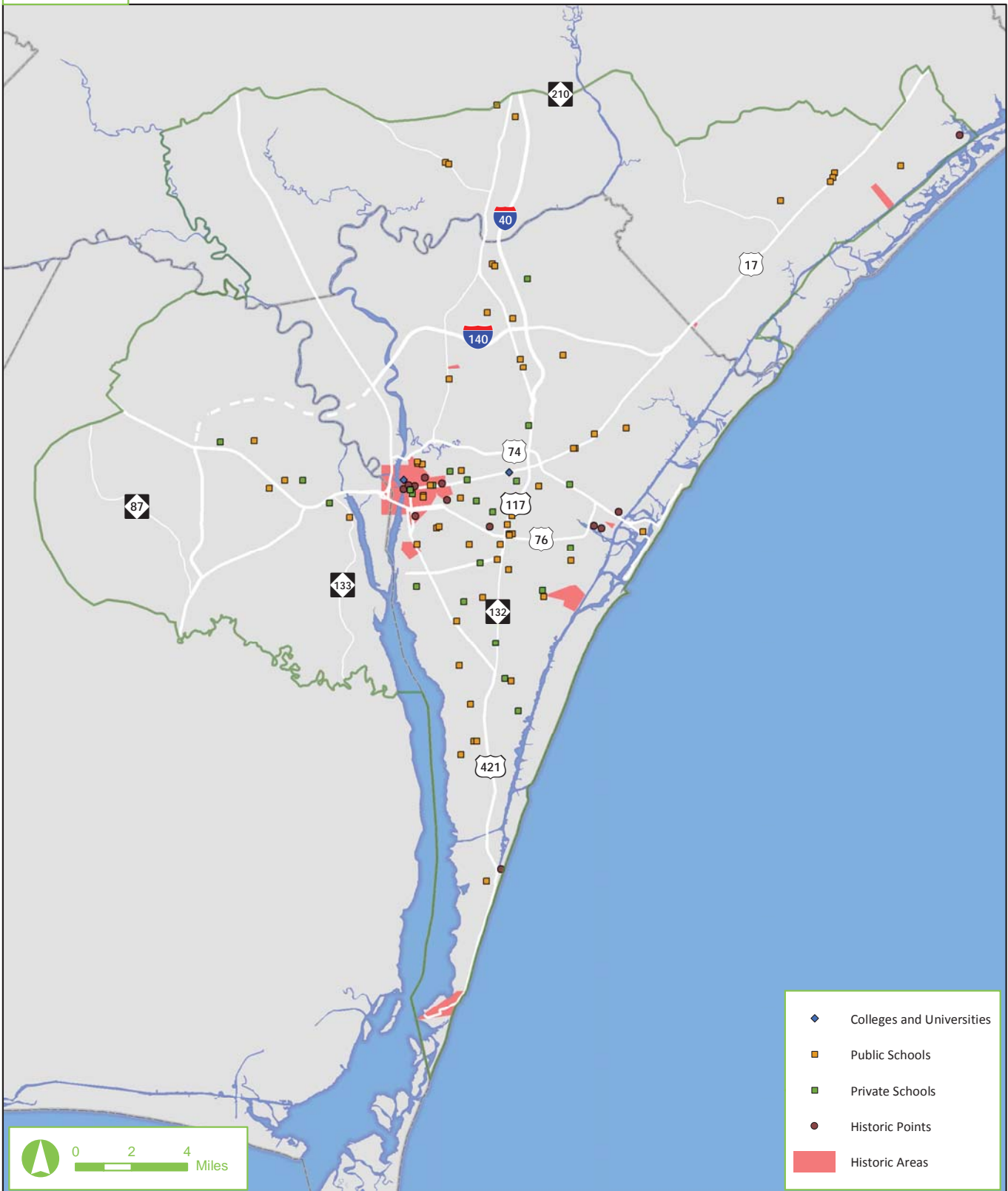
### Hydrologic





## Natural Environment

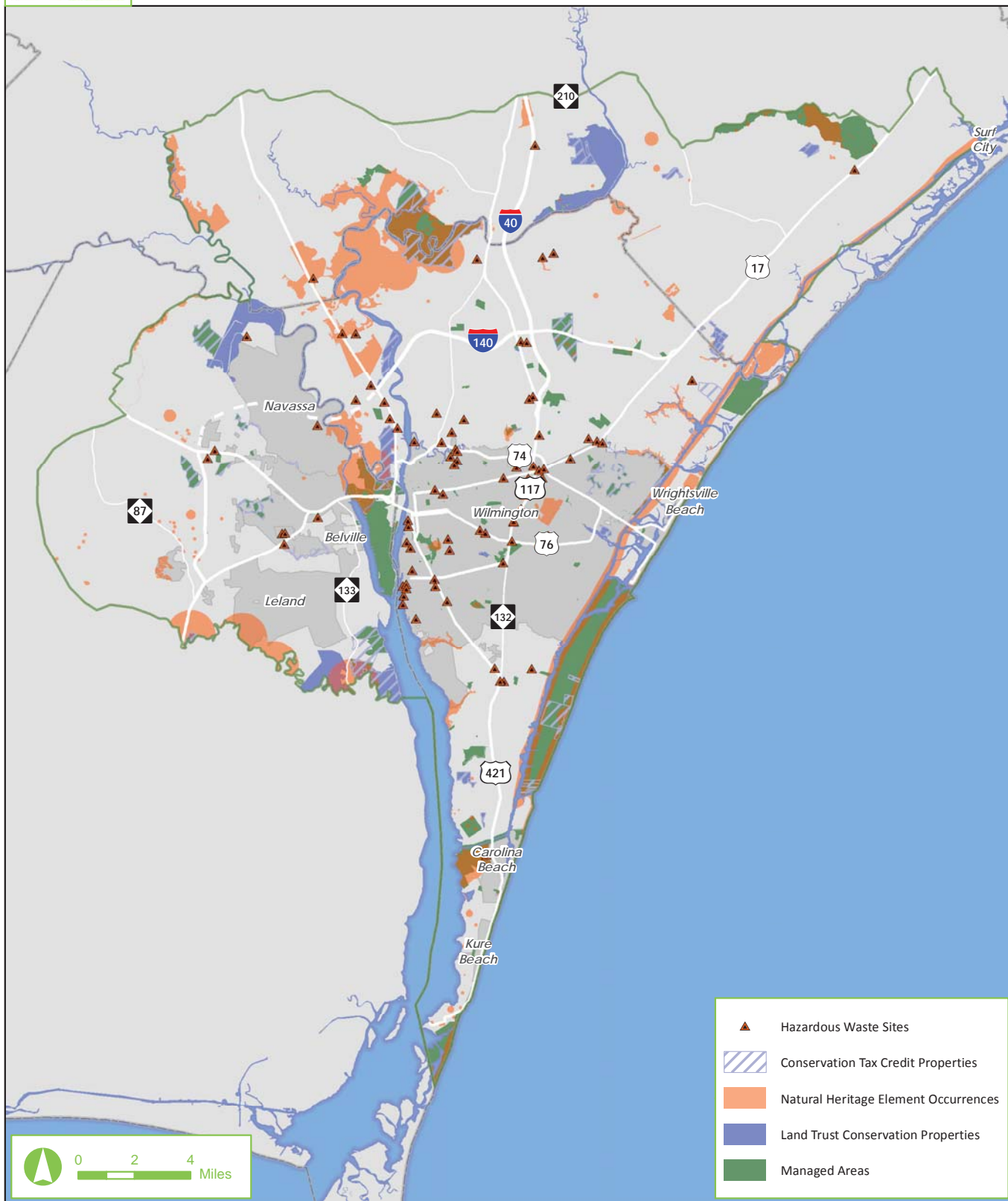
## Cultural





## Natural Environment

### Environmental





## Environmental Features

Features of the WMPO region's natural environment can be grouped into the following categories:

- **Hydrologic features**

- ♦ Bodies of water
- ♦ Wetlands
- ♦ Floodplains

- **Cultural features**

- ♦ Colleges, universities, and schools
- ♦ Historic buildings and districts

- **Other environmental features**

- ♦ Hazardous waste sites
- ♦ Conservation tax credit properties
- ♦ Natural heritage element occurrences
- ♦ Land trust conservation properties
- ♦ Managed areas
- ♦ Significant natural heritage areas

Some of the notable environmental features in the region include:

- **Hydrologic**

- ♦ Atlantic Ocean
- ♦ Banks Channel
- ♦ Black River
- ♦ Brunswick River
- ♦ Cape Fear River
- ♦ Green Channel
- ♦ Greenfield Lake
- ♦ Intracoastal Waterway
- ♦ Long Point Channel
- ♦ Masonboro Channel
- ♦ Middle Sound
- ♦ Motts Channel
- ♦ Nixon Channel
- ♦ Silver Lake
- ♦ Topsail Sound

- **Colleges**

- ♦ University of North Carolina – Wilmington
- ♦ Miller-Motte Technical College
- ♦ Cape Fear Community College

- **Public schools**

- ♦ A H Snipes Academy of Arts/Design
- ♦ Belville Elementary
- ♦ Bradley Creek Elementary
- ♦ Cape Fear Center for Inquiry
- ♦ Cape Fear Elementary
- ♦ Cape Fear Middle
- ♦ Carolina Beach Elementary
- ♦ Castle Hayne Elementary
- ♦ Charles P Murray Middle
- ♦ College Park Elementary
- ♦ D.C. Virgo Preparatory Academy
- ♦ Dr Hubert Eaton Sr Elementary

- ♦ Dr John Codrington Elementary
- ♦ Edwin A Alderman Elementary
- ♦ Edwin A Anderson Elementary
- ♦ Emma B Trask Middle
- ♦ Emsley A Laney High
- ♦ Eugene Ashley High
- ♦ Forest Hills Elementary
- ♦ Gregory Elementary
- ♦ Heide Trask High
- ♦ Heyward C Bellamy Elementary
- ♦ Holly Shelter Middle
- ♦ Holly Tree Elementary
- ♦ Isaac M Bear High
- ♦ John J Blair Elementary
- ♦ John T Hoggard High
- ♦ Lake Forest Academy
- ♦ Leland Middle
- ♦ Lincoln Elementary
- ♦ M C S Noble Middle
- ♦ Mary C Williams Elementary
- ♦ Mary Sidberry Mosley PLC
- ♦ Mosley Performance Learning Center
- ♦ Murrayville Elementary
- ♦ Myrtle Grove Middle
- ♦ New Hanover High
- ♦ New Hanover Regional Detention Center
- ♦ North Brunswick High
- ♦ North Topsail Elementary
- ♦ Ogden Elementary
- ♦ Pine Valley Elementary
- ♦ R Freeman School of Engineering
- ♦ Rocky Point Primary
- ♦ Roland Grise Middle
- ♦ South Topsail Elementary
- ♦ Sunset Park Elementary
- ♦ Topsail Elementary
- ♦ Topsail High
- ♦ Topsail Middle
- ♦ Walter L Parsley Elementary
- ♦ Williston Middle
- ♦ Wilmington Early College High
- ♦ Wilmington Preparatory Academy
- ♦ Winter Park Model Elementary
- ♦ Wrightsboro Elementary
- ♦ Wrightsville Beach Elementary

• **Private schools**

- ♦ Academy of Excellence
- ♦ Access Academy Wilmington
- ♦ Atlas Day Treatment School at Trinity
- ♦ Calvary Christian School
- ♦ Cape Fear Academy
- ♦ Children's Schoolhouse
- ♦ Coastal Christian High
- ♦ Friends School
- ♦ Hill School of Wilmington
- ♦ Joshua Academy
- ♦ Learning Foundations School
- ♦ Leland Christian Academy
- ♦ Myrtle Grove Christian School
- ♦ New Horizons Elementary
- ♦ Noah's Ark Children's Center
- ♦ Peace Rose Montessori School
- ♦ Pine Valley Wee Care Kindergarten
- ♦ Point Institute



- ♦ St. James Day School
- ♦ St. Mark Catholic School
- ♦ St. Mary Catholic School
- ♦ Strategic Academy

• **Historic points**

- ♦ Audubon Trolley Station
- ♦ Babies Hospital
- ♦ Bradley-Latimer Summer House
- ♦ City Hall/Thalian Hall
- ♦ Delgrado School
- ♦ Federal Building and Courthouse
- ♦ Hooper, William, School (Former)
- ♦ Joy Lee Apartment Building and Annex

• **Historic areas**

- ♦ Belvidere Plantation House
- ♦ Carolina Heights Historic District
- ♦ Carolina Place Historic District
- ♦ Fort Fisher
- ♦ Gabriel's Landing
- ♦ Market Street Mansion District
- ♦ Masonboro Sound Historic District
- ♦ Poplar Grove

• **Managed areas**

- ♦ Black River Cypress Forest Preserve
- ♦ Broadfoot Nature Preserve
- ♦ Brunswick County Open Space
- ♦ Cape Fear River Wetlands Game Land
- ♦ Cape Fear River Wetlands Game Land DNP
- ♦ Carolina Beach State Park
- ♦ Carolina Beach State Park RHA

- ♦ Wilmington Acad. of Arts & Science
- ♦ Wilmington Christian Academy
- ♦ Wilmington SDA School
- ♦ Yahweh Center School

- ♦ Mount Lebanon Chapel and Cemetery
- ♦ Sloop Point
- ♦ USS NORTH CAROLINA (BB-55) National Historic Landmark
- ♦ Walker, James, Nursing School Quarters
- ♦ Wilmington National Cemetery

- ♦ Sunset Park Historic District
- ♦ Tinga Nursery
- ♦ USS NORTH CAROLINA
- ♦ Westbrook-Ardmore Historic District
- ♦ Wilmington Historic and Archeological District
- ♦ Wilmington Historic District (Boundary Increase)

- ♦ Clarks Landing Coastal Goldenrod Site RHA
- ♦ Coast Guard Loran Station
- ♦ Eagles Island Dredge Disposal Area
- ♦ Eagles Island Natural Area DNP
- ♦ Eagles Island Spoil Area
- ♦ Ev-Henwood Nature Preserve
- ♦ Figure Eight Island Marsh RHA
- ♦ Fort Fisher Coquina Outcrop RHA

- ♦ Fort Fisher State Historic Site
  - ♦ Fort Fisher State Recreation Area
  - ♦ Holly Shelter Game Land
  - ♦ Holly Shelter Game Land DNP
  - ♦ Hood Creek Floodplain and Slopes RHA
  - ♦ Horticultural Crops (Castle Hayne) Research Station
  - ♦ Lower Cape Fear River Islands RHA
  - ♦ Masonboro Island Component of the North Carolina National Estuarine Research Reserve
  - ♦ Masonboro Island Component of the North Carolina National Estuarine Research Reserve DNP
  - ♦ Masonboro Island State Park
  - ♦ NC Clean Water Management Trust Fund Easement
  - ♦ NC Department of Transportation Mitigation Land
  - ♦ NC Submerged Lands
- ♦ New Hanover County Open Space
- ♦ North American Agricultural Foundation Easement
- ♦ North American Agricultural Foundation Preserve
- ♦ North American Land Trust Easement
- ♦ North Carolina Coastal Land Trust Easement
- ♦ North Carolina Coastal Land Trust Preserve
- ♦ Northeast New Hanover Conservancy Preserve
- ♦ USS NORTH CAROLINA Battleship Memorial
- ♦ Zeke's Island Component of the North Carolina National Estuarine Research Reserve
- ♦ Zeke's Island Component of the North Carolina National Estuarine Research Reserve DNP



# APPENDIX

*A - MAP-21 Planning Factors*

*B - Definitions and Acronyms*

*C - Subcommittee Composition*

*D - Prioritization Process*

*E - Financial Analysis Additional Information*

*F - Roadway Projects Travel Demand Model  
and Purpose & Need Information*

*G - Roadway Projects with Multiple Routes  
Under Study*

*H - Potential Comprehensive Transportation  
Plan Projects*





# APPENDIX A

## MAP-21 PLANNING FACTORS

## MAP-21 PLANNING FACTORS

		Cape Fear Transportation 2040 Goals					
		Safe	Efficient	Appropriate	Responsible	Integrated	Multi-Modal
Map-21 Planning Factors	Support Economic Vitality		✓			✓	✓
	Increase Safety	✓		✓			✓
	Increase Security	✓		✓			✓
	Increase Accessibility		✓	✓			✓
	Environmental Protection and Quality of Life	✓	✓	✓	✓	✓	✓
	Enhance System Integration and Connectivity		✓			✓	✓
	Promote System Management	✓	✓	✓		✓	
	System Preservation		✓	✓	✓		✓

Moving Ahead for Progress in the 21st Century (MAP-21), the federal transportation legislation enacted in 2012 and extended in 2014, carries on eight planning factors that were established in the previous federal transportation legislation, Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), originally enacted in 2005. Accordingly, Cape Fear Transportation 2040 addresses the following planning factors:

- ♦ Support economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency
- ♦ Increase the safety of the transportation system for motorized and non-motorized users
- ♦ Increase the security of the transportation system for motorized and non-motorized users
- ♦ Increase the accessibility and mobility of people and freight
- ♦ Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns

- ♦ Enhance the integration and connectivity of the transportation system, across and between modes, people and freight
- ♦ Promote efficient system management and operation
- ♦ Emphasize the preservation of the existing transportation system

These planning factors correlate with the goals of Cape Fear Transportation 2040, and with the vision of the Wilmington Metropolitan Planning Organization (WMPO). The mission of the Wilmington MPO is to develop and implement a comprehensive multi-modal transportation plan that supports the existing and future mobility needs and economic vitality of the Wilmington Urban Area. This shall be accomplished by protecting the environment, safe guarding the social equity, improving the quality of life for the citizens of the community, improving the local economy and providing for the safe and efficient mobility throughout the region. This is achieved through the long range transportation planning process which includes a comprehensive, continuous and cooperative approach from citizens and participating members.

## **Economic Vitality**

Economic Vitality - Support economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency. The economic vitality planning factor addresses the following three Cape Fear Transportation 2040 goals:

- ♦ Efficient: moves the most people and goods in a cost effective manner, while using the least amount of resources
- ♦ Integrated: links with other transportation and land use plans as well as future infrastructure investments
- ♦ Multi-modal: provides a choice of modes for most trips.

Several projects have recently been completed that complement the economic vitality planning factor. A portion of the I-140 Wilmington Bypass has been completed that connects US17 to US74/76. This phase is 6.5 out of 27 miles of freeway that will provide important access to the tri-county region and benefit the WMPO area economy through improved transportation for people and goods, and increased tourism. Also, mass transit and bicycle and pedestrian facilities maintain the region's reputation as a desirable place to live and work. The Gary Shell Cross-City Trail is a 15 mile urban trail in Wilmington that is nearing completion. The Brunswick Connector provides bus service to Brunswick County, connecting people to the City of Wilmington. Two Park & Ride lots have also been established to allow commuters to park their car at designated lots and carpool the remaining trip to their places of employment.

Regarding the development of Cape Fear Transportation 2040, several economic datasets were used to identify and evaluate new projects to include: employment density (2010), projected employment density (2040), employment growth (2010-2040), employment centers (Greater Wilmington Business Journal), poverty data, median family income. Using these data sets allows projects that will enhance economic vitality to rise to the top of the project list.

The economic vitality planning factor is achieved in the development of all six modal chapters. Improved air travel in the region will result in improved economic vitality and global competitiveness through providing access to the region's employment centers and industry and by facilitating travel to other regions. Bicycle and pedestrian projects were prioritized using a variety of data measures, including employment density, proximity of schools, proximity of parks and recreational areas, proximity of medical campuses, and proximity of grocery stores. Combined, these factors account for 37% of the total possible bicycle points and 45% of the total possible pedestrian points. Identification of existing and future bicycle needs and the prioritization process along with improved bicycle and pedestrian travel in the region will likely result in improved economic vitality and efficiency through providing access to jobs and commerce by alternate modes of transportation.

Existing and future Ferry and Water Transportation needs were identified and prioritized through cooperation with NCDOT and local Ferry and Water Transportation business to create potential public/private partnerships. The freight/rail element was developed in concert with regional freight experts to include several members from the private sector and staff from the NC Port of Wilmington through a Freight/Rail Subcommittee. A major focus of this subcommittee was improving the efficiency of freight movements within the Wilmington MPO. The ease of freight movement is recognized as one component of a region's economic competitiveness for attracting and retaining various types of industry and employment centers.

A major goal of the Mass Transportation Element is to enhance economic development opportunities through public transit services which it accomplished through prioritizing public transit service to: employment centers, to-low income population housing, medical centers, educational centers, fresh food (at grocery stores and farmers market), recreation centers. Another goal of the Mass Transportation Element is to build community support for public transit by highlighting the potential for public transit to serve as an economic development engine for the region. An objective of the Mass Transportation Element is to market public transit services to economic development workforce groups to encourage new regional industry/commerce. Finally, the highway system is the principal means of mobility and accessibility within the overall transportation system. An efficient roadway network provides a strong foundation upon which a regional economy can prosper. Roadway projects were identified and ranked based on multiple criteria that all impact the economic vitality of the region through improving regional safety, efficiency, and quality of life.

## Safety

Safety - Increase the safety of the transportation system for motorized and non-motorized users. The safety planning factor addresses the following three Cape Fear Transportation 2040 goals:

- ♦ Safe: Reduces injuries and improves the sense of safety for all users
- ♦ Appropriate: contributes to the quality of life and character of the region through proper design
- ♦ Multi-modal: provides a choice of modes for most trips.

In an effort to improve safety between cyclists, pedestrians, and drivers, the WMPO has supported NCDOT's Watch for Me NC bicycle/pedestrian/driver safety campaign. Safety materials have been distributed, and law enforcement has participated in safety training to improve safety conditions by enforcing safe biking, walking, and driving habits.

The safety planning factor is achieved in the development of all six modal chapters. In the Aviation chapter, the recommendations from ILM Master Plan include safety improvements for all users. Bicycle and pedestrian projects were prioritized using a data measure to allot more points towards a project that would satisfy a demonstrated need for a safer facility along a typically unsafe roadway for cyclists and pedestrians. Projects were awarded up to ten points depending on the functional classification of the parallel road. This prioritizes projects along busy and congested thoroughfares over low-volume neighborhood streets. Additionally, member jurisdictions have adopted plans and policies that will increase the extent of fit-for-purpose bicycle and pedestrian facilities. This will improve safety by reducing the potential conflict between bicyclists, pedestrians, and motor vehicles. The recommendation in the Ferry and Water Transportation chapter include safety improvements for all users. In the Freight/Rail chapter, as part of the analysis of improving the "last mile" of travel to freight nodes, the Freight/Rail Subcommittee looked at locations where conflicts occur between freight and other modes of transportation along major freight routes. Project recommendations were developed to address these conflict areas and mitigate safety issues. A major goal of the Mass Transportation Element is to complement mass transportation routes/services with physical infrastructure which will increase the safety of pedestrians who are waiting for Mass Transportation service by providing facilities for them to wait at in a highly visible location outside of the vehicular travel lane. An objective of the Mass Transportation Element is to ensure paratransit options are available and that robust ADA-accessible pedestrian networks exist between public transit stops and adjacent destinations. Finally, highway crash data was specifically used to identify and evaluate roadway projects that could improve safety on the overall transportation network.



## Security

Security - Increase the security of the transportation system for motorized and non-motorized users. The security planning factor addresses the following two Cape Fear Transportation 2040 goals:

- ♦ Safe: Reduces injuries and improves the sense of safety for all users
- ♦ Appropriate: contributes to the quality of life and character of the region through proper design

Typically, security issues are not a primary focus of transportation plans. Transportation plans typically include strategies to reduce crashes and the impacts those crashes have on the transportation system. Law enforcement and emergency management plans generally focus on managing incidents after they occur, including evacuations and the security of property and people.

The security planning factor is achieved in the development of all six modal chapters. ILM continues to work to enhance security of air travel as part of emergency management and homeland security procedures. Bicycling improvements will continue to increase security for non-motorized users by offering choice in commuting options. The recommendations in the Ferry and Water Transportation element include safety improvements for all users. The NC Port of Wilmington works with local emergency management personnel to site the storage and evacuation procedures for sensitive materials coming into and out of the port. The Mass Transportation element reiterates through policy support and cooperation with providers of public transportation to the Wilmington Urban Area to include financial and planning partnerships for maintenance and operations activities. WAVE Transit, Pender Adult Services, and Brunswick Transit all comply with Federal Transit Administration security requirements and procedures. It also includes a policy to work to promote mass transportation as a viable and safe mode of transportation throughout the Wilmington Urban Area.

## Accessibility and Mobility Options

Accessibility and Mobility Options - Increase the accessibility and mobility of people and freight. The accessibility planning factor addresses the following three Cape Fear Transportation 2040 goals:

- ♦ Efficient: moves the most people and goods in a cost effective manner, while using the least amount of resources
- ♦ Appropriate: contributes to the quality of life and character of the region through proper design
- ♦ Multi-modal: provides a choice of modes for most trips.

The WMPO has adopted several plans that complement the accessibility and mobility factor. The Congestion Management Plan identifies a variety of corridors based on five characteristics: commercial, commuting, destination, freight, and tourism. Data is collected along these respective corridors and used to improve accessibility and mobility

in areas of need. The WMPO has also adopted Work Cape Fear: Expanding Commuter Options in the Cape Fear Region. This is the region's short-range TDM plan. It identifies a variety of strategies that will mitigate the growth of traffic congestion and provide accessibility and mobility options to commuters in the region.

This plan is developed in an effort to provide a comprehensive approach to transportation planning by considering all modes of transportation. Subcommittees composed of regional subject matter experts on each mode of transportation were used to analyze and identify project needs of aviation, bicycle and pedestrian, ferry and water transportation, freight and rail, mass transportation, and roadways for the development of this plan.

The accessibility and mobility planning factor is achieved in the development of four modal elements. This planning factor is achieved in the Bicycle and Pedestrian modal element by the prioritization of projects to overcome socioeconomic barriers including income and age. This consideration awarded up to seven points to projects in low, middle, and high income and age categories. This prioritizes projects to populations needing accessibility and mobility the most. A primary goal of the freight/rail element is to improve the "last mile" to freight nodes in the Wilmington MPO. Whether by truck, waterway, or rail; the bulk of the mileage covered through a long-distance freight movement occurs outside of the urbanized areas. However, recent industry analysis has revealed that the last mile of transportation to a freight node is the most congested, the slowest, and the most dangerous (thus the most costly). Thus, issues in the last mile surrounding a freight node have received increased attention from transportation organizations in recent years. These "last mile" issues are primarily occurring within urbanized areas where truck and rail movements leave corridors dedicated to speed and mobility to enter corridors that are more dedicated to serving access purposes. Transportation corridors in urbanized areas serve more complex purposes and thus introduce increased opportunities for conflicts, crashes, and congestion. Balancing all the purposes of a transportation corridor in the last mile is particularly important to the safe and efficient movement of freight in and out of an urbanized area and presents itself as a pressing concern in the development of transportation networks that serve freight. A major goal of the Mass Transportation Element is to broaden the base of public transit ridership through utilizing choice ridership to expand service and support for transit-dependent populations. A major goal of the Mass Transportation Element is to enhance economic development opportunities through public transit services which it accomplished through prioritizing public transit service to: employment centers, to-low income population housing, medical centers, educational centers, fresh food (at grocery stores and farmers market), recreation centers. The Mass Transportation Element includes a policy to support the coordination and linkage of the mass transportation, bicycle transportation and pedestrian transportation systems within the Wilmington Urban Area. Finally, the evaluation of roadway needs, the plan recognizes the increased community emphasis on multiple users of roadways to include single-occupant vehicles, carpool/vanpool users, mass transit, bicycle and pedestrians, and freight. Roadway projects were identified and evaluated particularly based on their impact on other modes of transportation. Roadway projects that serve a particular freight need were identified by the freight/rail modal subcommittee which was composed of regional

subject matter experts on freight and rail needs. Proposed cross-sections for roadway projects were chosen after reviewing needs identified for other modes of transportation to appropriately accommodate bicycle and pedestrian, mass transit, and freight considerations.

### **Environmental Protection, Energy Conservation, and Sustainable Development**

Environmental Protection, Energy Conservation, and Sustainable Development - Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns. The environmental protection planning factor addresses the following six Cape Fear Transportation 2040 goals:

- ♦ Safe: Reduces injuries and improves the sense of safety for all users
- ♦ Efficient: moves the most people and goods in a cost effective manner, while using the least amount of resources
- ♦ Appropriate: contributes to the quality of life and character of the region through proper design
- ♦ Responsible: links with other transportation and land use plans as well as future infrastructure investments
- ♦ Integrated: links with other transportation and land use plan as well as infrastructure investments
- ♦ Multi-modal: provides a choice of modes for most trips

The development of this plan complements the environmental protecting planning factor. Whereas projects from this plan are subject to the requirements of NEPA and particular alignments have not been chosen; initial efforts were taken to identify and evaluate project needs based on high-level environmental and demographic data to include an analysis of existing and projected population and employment, Decennial Census and American Community Survey data, wetlands, streams, historic sites, etc. In addition, the Environmental Element of this plan provides a snapshot analysis of how this plan impacts socioeconomic and environmental realities in the WMPO area. Also, the development of this plan was orchestrated through close coordination between the WMPO and staff & elected leaders from all WMPO member jurisdictions as well a broad range of regional mode-specific subject matter experts. Public presentations were made throughout the development of the plan to TAC. At key points in the development of this plan, direction was sought from the general public and the WMPO made efforts to target input from traditionally marginalized populations. The development of this plan is described in the Public Involvement element of this plan.

The environmental protection planning factor is achieved in the development of four modal elements. The WMPO project development process in the Aviation, Bicycle and Pedestrian, and Ferry and Water Transportation elements ensure that potential social and environmental conflicts are identified very early in a project's development. This assists in

the selection of the most appropriate alignment, is beneficial to the public's quality of life, and helps to preserve the natural environment. The recommended Aviation improvements are consistent with local plans and policies. Bicycle and pedestrian projects were prioritized using a variety of data measures, including employment density, proximity of schools, proximity of parks and recreational areas, proximity of medical campuses, proximity of grocery stores, and connections to existing bicycle facilities. Combined, these factors account for 52% of the total possible bicycle points and 63% of the total possible pedestrian points. Finally, objectives of the Mass Transportation Element include highlighting the opportunity to reduce carbon emissions through public transit and also highlighting the benefit of public transit to the overall transportation network in terms of congestion management and the efficient use of public infrastructure

Mode Specific Considerations to Improve Environmental Protection:

## **System Integration and Connectivity**

System Integration and Connectivity - enhance the integration and connectivity of the transportation system, across and between modes, people and freight. The system integration and connectivity planning factor addresses the following three Cape Fear Transportation 2040 goals:

- ♦ Efficient: moves the most people and goods in a cost effective manner, while using the least amount of resources
- ♦ Integrated: links with other transportation and land use plan as well as infrastructure investments
- ♦ Multi-modal: provides a choice of modes for most trips

The WMPO has implemented several projects that complement the system integration and connectivity planning factor, including:

- Park & Ride lots
- Bikes on buses
- Transit plans
- Shelter replacement plan
- Growing greenway system
- Cross-City Trail
- Collector Street Plans

The development of this plan also complements the system integration and connectivity planning factor. Subcommittees composed of regional subject matter experts on each mode of transportation were used to analyze and identify project needs of aviation, bicycle and pedestrian, ferry and water transportation, freight and rail, mass transportation, and roadways for the development of this plan. A primary goal of the freight/rail element is to improve the "last mile" to freight nodes in the Wilmington MPO. Whether by truck, waterway, or rail; the bulk of the mileage covered through a long-distance freight movement occurs outside of the urbanized areas. However, recent industry analysis

has revealed that the last mile of transportation to a freight node is the most congested, the slowest, and the most dangerous (thus the most costly). Thus, issues in the last mile surrounding a freight node have received increased attention from transportation organizations in recent years. These “last mile” issues are primarily occurring within urbanized areas where truck and rail movements leave corridors dedicated to speed and mobility to enter corridors that are more dedicated to serving access purposes. Transportation corridors in urbanized areas serve more complex purposes and thus introduce increased opportunities for conflicts, crashes, and congestion. Balancing all the purposes of a transportation corridor in the last mile is particularly important to the safe and efficient movement of freight in and out of an urbanized area and presents itself as a pressing concern in the development of transportation networks that serve freight.

The system integration and connectivity planning factor is achieved in the development of all six modal elements. The WMPO has supported continuous planning efforts to achieve an efficient multi-modal plan. The existing aviation and ferry and water transportation facilities will be greatly improved and extended through past and current planning efforts. Bicycle and pedestrian projects were prioritized using a variety of data measures to integrate with other modes of transportation and connect existing facilities. Projects were awarded up to three points by connecting to one of Wave Transit’s six key bus stops and NCDOT ferry terminal. Projects were awarded up to seven points for connecting to a transit stop, and up to 15 points for connecting to existing facilities. The WMPO has supported continuous planning efforts to achieve an efficient multi-modal plan. The existing bicycle facilities will be greatly improved and extended through past and current planning efforts. Connecting to other modes is also an emphasis of this Plan. The Mass Transportation Element includes a policy to supports the inclusion of mass transportation facilities where appropriate (i.e. benches, bus lanes, park-and-ride lots, pull-outs, shelters, etc.) in all new roadway and bridge projects within the Wilmington Urban Area. A policy included in the Mass Transportation Element is to support the coordination and linkage of the mass transportation, bicycle transportation and pedestrian transportation systems within the Wilmington Urban Area. Another policy included in the Mass Transportation Element is to work to coordinate with member jurisdictions to ensure that mass transportation projects are considered in land use planning efforts. A third policy included in the Mass Transportation Element is to work with the North Carolina Department of Transportation to improve mass transportation facilities on existing state-maintained roadways. Finally, in the evaluation of roadway needs, the plan recognizes the increased community emphasis on multiple users of roadways to include single-occupant vehicles, carpool/vanpool users, mass transit, bicycle and pedestrians, and freight. Roadway projects were identified and evaluated particularly based on their impact on other modes of transportation. Roadway projects that serve a particular freight need were identified by the freight/rail modal subcommittee which was composed of regional subject matter experts on freight and rail needs. Proposed cross-sections for roadway projects were chosen after reviewing needs identified for other modes of transportation to appropriately accommodate bicycle and pedestrian, mass transit, and freight considerations.



## System Management

System Management - Promote efficient system management and operation. The system management planning factor addresses the following four Cape Fear Transportation 2040 goals:

- ♦ Safe: Reduces injuries and improves the sense of safety for all users
- ♦ Efficient: moves the most people and goods in a cost effective manner, while using the least amount of resources
- ♦ Appropriate: contributes to the quality of life and character of the region through proper design
- ♦ Integrated: links with other transportation and land use plan as well as infrastructure investments

Plan Development Process: This plan is intended to guide the development of transportation projects in the region. The improvements and programs in this plan will add efficiency to the existing transportation system and improve general system management. The Transportation Systems Management (TSM) element describes the process of optimizing the existing transportation system and infrastructure. Examples include access management, additional turn lanes, pavement markings, sign and lighting upgrade, and standardized speed limits.

The system management planning factor is achieved in the development of four modal elements. Development of the aviation, bicycle and pedestrian, and ferry and water transportation improvements and programs in this Plan will add efficiency to the existing transportation system and improve general operations. The mass transportation element reiterates through policy support and cooperation with providers of public transportation to the Wilmington Urban Area to include financial and planning partnerships for maintenance and operations activities with WAVE Transit, Pender Adult Services, and Brunswick Transit. It also reiterates through policy support and cooperation with the North Carolina Department of Transportation to improve mass transportation facilities on existing state-maintained roadways.

## System Preservation

System Preservation - Emphasize the preservation of the existing transportation system. The system preservation planning factor addresses the following four Cape Fear Transportation 2040 goals:

- ♦ Efficient: moves the most people and goods in a cost effective manner, while using the least amount of resources
- ♦ Appropriate: contributes to the quality of life and character of the region through proper design
- ♦ Responsible: links with other transportation and land use plans as well as future infrastructure investments
- ♦ Multi-modal: provides a choice of modes for most trips

The development of this plan complements the system preservation planning factor. The financial element addresses this need through projecting future maintenance and operations funding for each mode of transportation through the horizon of the plan.

The system preservation planning factor is achieved in the development of all six modal elements. This planning factor is achieved by recognizing the importance of system maintenance and by building on the significant aviation, bicycle and pedestrian, and ferry and water transportation infrastructure already in place. A policy included in the Mass Transportation Element is to work to ensure that the implementation of transportation projects within the Wilmington Urban Area have minimal impact on planned mass transportation routes or facilities. An objective included in the Mass Transportation Element is to utilize choice ridership to expand service and support for transit-dependent populations [to preserve/improve service to existing customers by broadening the base of support for the service]. The roadway element seeks to address this planning factor through new projects by attempting to correct a prescient past issue: the disconnection between land use and transportation planning. While recommendations increase capacity in the roadway network through some widening projects, roadway recommendations are dominated by projects such as new bridges and new location roadways that seek to increase the connectivity of the overall network. Rather than simply seeking to add capacity to the existing network, roadway projects in this plan are geared towards increasing the connectivity and efficiency of the existing system. Establishing improved connectivity, increasing the balance between mobility and access, and increasing opportunities for addressing the needs of multiple modes of transportation will all increase the efficiency and preservation of the existing transportation system by originating from the goal of increasing coordination between land use and transportation planning.

# APPENDIX B

## DEFINITIONS AND ACRONYMS

## DEFINITIONS AND ACRONYMS

Commonly used acconyms related to transportation planning that are found in this document are listed in the table below along with definitions:

### MTP 2040 Acronyms and Definitions

3-C	Continuing, Cooperative and Comprehensive Planning Process	
AASHTO	American Association of State Highway and Transportation Officials	
ADA	American's with Disabilities Act	Federal act that requires equal accessibility for persons with disabilities. It mostly comes into play with transit issues.
CE	Categorical Exclusions	
CMAQ	Congestion Mitigation and Air Quality improvement program	A funding program provided under Federal transportation legislation that targets a certain portion of Federal transportation dollars to projects that reduce congestion and/or improve air quality
CMP	Congestion Management Process	
COG	Council of Governments	
CPI	Consumer Price Index	
CSS	Context Sensitive Solutions	
DA	Direct Attributable	
DEIS	Draft Environmental Impact Statement	
DOT	Department of Transportation	The federal department responsible for transportation programs established by Congress.
EA	Environmental Assessment	
EIS	Environmental Impact Statement	An environmental report that documents the actions and processes implemented to comply with the National Environmental Protection Act. The Environmental Impact Statement (EIS) is required for any project involving federal funding.
EJ	Environmental Justice	
EPA	Environmental Protection Agency	The federal agency responsible for environmental protection and environmental programs established by Congress.
FAA	Federal Aviation Administration	
FEIS	Final Environmental Impact Statement	
FHWA	Federal Highway Administration	The federal agency charged with overseeing compliance with federal requirements for highway projects. The FHWA also acts as a conduit to other federal agencies, such as US Fish & Wildlife, Army Corps of Engineers, and US Environmental Protection Agency, on transportation related permits, air quality conformity, and environmental documents.
FONSI	Finding of No Significant Impact	

FTA	Federal Transit Administration	The federal agency charged with overseeing compliance with requirements for federally funded transit projects.
FY	Fiscal Year	Begins July 1 of each year and ends June 30 the following year.
GIS	Geographic Information Systems	
HOV	High-Occupancy Vehicle	A passenger vehicle with 2 or more occupants sometimes referred to as a carpool.
I/M	Inspection and Maintenance	
IHS	Interstate Highway System	
ILM	Wilmington International Airport	Wilmington region's largest public aviation transportation facility
IM	Interstate Maintenance	
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991	
ITS	Intelligent Transportation Systems	
L RTP	Long-Range Transportation Plan	
MAP-21	Moving Ahead for Progress in the 21st Century	Federal transportation legislation that establishes transparent and accountable methodology requirements for statewide and metropolitan transportation plans and programs, as well as planning process.
M&O	Management and Operations	
MPO	Metropolitan Planning Organization	A federally designated agency that provides transportation planning and programming and other duties as specified for federal programs for a metropolitan area, as designated in the federal census.
MTP	Metropolitan Transportation Plan	A federally required transportation planning document which inventories existing transportation systems, forecasts needs, and designates a funding-constrained list of projects for a 20 year horizon.
MTIP	Metropolitan Transportation Improvement Program	A federally required document which lists federally funded and "regionally significant" transportation projects over a four year horizon. This document is then used to demonstrate air quality conformity, which is required for a transportation project to proceed.
NAA	Non-attainment Area	
NCDOT	North Carolina Department of Transportation	
NEPA	National Environmental Policy Act of 1969	The federal law which outlines the processes required to determine the environmental impact of federal projects.
NHS	National Highway System	The National Highway System consists of 163,000 miles of interstate highways and major primary roads.
NOI	Notice of Intent	
PF	Planning Funds	



ROD	Record of Decision	
RPO	Regional Planning Organization	A federally designated agency that provides transportation planning and programming and other duties as specified for federal programs for a non-metropolitan area, as designated in the federal census.
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users	The successor legislation to TEA-21, SAFETEA-LU covers the years 2004 - 2009. While funding levels increased, programs from TEA-21 remained essentially unchanged.
SHC	Strategic Highway Corridor	
SHSP	Strategic Highway Safety Plan	
SIB	State Infrastructure Bank	
SIP	State Implementation Plan	A State Implementation Plan (SIP) is the framework for the state's program to protect the air. It is not a single plan, but an accumulated record of a number of air pollution documents showing what the state has done, is doing, or plans to do to assure compliance with federal National Ambient Air Quality Standards (NAAQS) for "criteria" pollutants.
SOV	Single-Occupancy Vehicle	A vehicle with a driver only, and no additional passengers.
SPR	State Planning and Research Funds	
STIP	Statewide Transportation Improvement Program	The programming document that is adopted every two years by the North Carolina Transportation Commission to designate the projects, schedule, and funding amount for the state's portion of the federal gas tax funds. Placer projects are included in the STIP via PCTPA's adopted Regional Transportation Improvement Program.
STP	Surface Transportation Program	
	Super Street	
TA	Transportation Alternatives	
TAC	Transportation Advisory Committee	The governing Board of elected officials representing each of the jurisdictions that make up the Wilmington Metropolitan Planning Organization
TCC	Technical Coordinating Committee	Planning staff from each of the jurisdictions, Technical Advisory Committee, which reviews and advises staff on issues before the Board.
TCM	Transportation Control Measure	Essentially interchangeable with Transportation Demand Management (TDM) and Transportation Systems Management (TSM), these describe techniques to reduce congestion and air quality problems by encouraging people to use alternative transportation or carpool. Some techniques include increased transit frequency, carpool match listing programs, or providing bike maps to employers.

TDM	Transportation Demand Management	Strategies designed to reduce vehicular demand upon the existing transportation system.
TEA-21	Transportation Equity Act for the 21st Century	One of the funding programs included in the federal transportation legislation (see ISTEA and TEA-21). TEA funds are targeted to provide enhancements over and above those normally provided for transportation projects, such as streetscape improvements, additional landscaping, or transportation museums.
TIFIA	Transportation Infrastructure Finance and Innovation Act of 1998	
TIP	Transportation Improvement Program	
TMA	Transportation Management Area	A private non-profit association, usually made up of large employers, to develop and encourage use of TCMs.
TOD	Transit-Oriented Development	
TRB	Transportation Research Board	
UA	Urbanized Area	
UPWP	Unified Planning Work Program	
WMPO	Wilmington Urban Area Metropolitan Planning Organization	The local organization responsible for regional transportation planning throughout Wilmington, NC



# APPENDIX C

## COMMITTEE COMPOSITION

## COMMITTEE COMPOSITION

### Sub-Committees of Cape Fear Transportation 2040

In order to analyze and propose recommendation for the development of Cape Fear Transportation 2040, the Wilmington MPO utilized the expertise of subject matter experts through subcommittees dedicated to specific tasks as outlined below. During subcommittee meetings, WMPO staff initiated group discussions by presenting pertinent facts, relevant information and public survey results related to the current and future state of transportation in the Greater Wilmington Area.

The names of the individual participants for each the subcommittees involved with the creation of this plan are listed below:

#### Citizens Advisory Committee

- ♦ Howard Capps
- ♦ Eric Coffey
- ♦ Scott Cromartie
- ♦ John Ellen
- ♦ Al Freimark
- ♦ David Hollis
- ♦ Howard Loving
- ♦ John Melia
- ♦ Terry Obrock
- ♦ Jim Smith
- ♦ Stuart Smith
- ♦ Steve Stanton
- ♦ Ernest Mooring

#### Citizens Advisory Modal Sub-Committees

##### Transportation Demand Management (TDM)

- ♦ Sharon Boyd
- ♦ Megan Matheny
- ♦ Pat Batleman
- ♦ Ben Andrea
- ♦ Lynn Sylvia
- ♦ Karyn Crichton
- ♦ Adrienne Cox
- ♦ Chris Bunch
- ♦ Howard Loving

##### Congestion Management Plan (CMP)

- ♦ Katie Hite
- ♦ Jessi Booker
- ♦ Anthony Law
- ♦ Don Bennett
- ♦ Denys Vielkanowitz
- ♦ Amy Beatty
- ♦ Robert Waring
- ♦ Kyle Breuer
- ♦ Chris O'Keefe
- ♦ Albert Eby
- ♦ Megan Matheny
- ♦ Eric Coffey

##### Roadways

- ♦ Patrick Riddle
- ♦ Matt Carlisle
- ♦ Stephanie Ayers
- ♦ James Upchurch
- ♦ Don Bennett
- ♦ Glenn Harbeck



- ♦ David Hollis
- ♦ Chris O’Keefe
- ♦ Kyle Breuer

- ♦ Terry Obrock
- ♦ Mike Kozlosky

### **Mass Transportation**

- ♦ Paul D’Angelo
- ♦ Megan Matheny
- ♦ Valerie Sutton
- ♦ Yvonne Hatcher

- ♦ Bart Neu
- ♦ Stuart Smith
- ♦ Howard Capps

### **Bicycle**

- ♦ Chris O’Keefe
- ♦ Karin Mills
- ♦ Jonnie Sharp
- ♦ Karyn Crichton
- ♦ Terry Benjey
- ♦ Brian Ennis
- ♦ Mike Kirkbride

- ♦ Al Sharp
- ♦ Neil Brooks
- ♦ Katie Ryan
- ♦ Sharon Boyd
- ♦ Al Schroetel
- ♦ Jim Smith
- ♦ Howard Capps

### **Pedestrian**

- ♦ Chris O’Keefe
- ♦ Karin Mills
- ♦ Jonnie Sharp
- ♦ Karyn Crichton
- ♦ Terry Benjey
- ♦ Brian Ennis
- ♦ Mike Kirkbride
- ♦ Al Sharp

- ♦ Neil Brooks
- ♦ Katie Ryan
- ♦ Sharon Boyd
- ♦ Al Schroetel
- ♦ Tina D’Amico Poole
- ♦ Patrick Lockamy
- ♦ John Melia

### **Aviation**

- ♦ Julie Wilsey

- ♦ Al Freimark

### **Ferry**

- ♦ Kirk Pistel
- ♦ Claude McKernan

- ♦ Steven Stanton
- ♦ John Ellen

### **Freight**

- ♦ Stephanie Ayers
- ♦ Roberto Canales
- ♦ Shirley Williams
- ♦ Cheryl Hannah
- ♦ Herbert Smalls
- ♦ Danny McComas

- ♦ Gary Winstead
- ♦ Jim Bradshaw
- ♦ Denys Vielkanowitz
- ♦ David Temple
- ♦ Scott Cromartie
- ♦ Al Freimark



# APPENDIX D

## PRIORITIZATION PROCESS

## **PRIORITIZATION PROCESS**

### **Sub-Committees of Cape Fear Transportation 2040**

The prioritization process used to evaluate projects for a metropolitan transportation plan like Cape Fear Transportation 2040 holds a more significant weight than the prioritization of projects for most other planning processes. Metropolitan transportation plans are fiscally constrained documents that ultimately drive the development of metropolitan transportation improvement programs (MTIPs) which program state and federal dollars towards transportation in the metropolitan areas. The fiscal constraint requirement of metropolitan transportation plans necessitate that Cape Fear Transportation 2040 go beyond typical prioritization (low, medium, high or short-term, mid-term, long-term is a typical strategy for most other planning documents) to show which projects are anticipated to receive funding through typical federal, state and local sources. The fiscal constraint requirement also necessitates that Cape Fear Transportation 2040 draw a line between projects that our region anticipates being funded and projects that our region may not have enough funding to construct through the planning horizon of 2040.

This aspect of the prioritization process for metropolitan transportation plans - the fact that some projects will not be shown as funded - means that it is more critical and requires more quality control than for most other planning processes. It is also acknowledged that any formula-based analysis of projects only tells a portion of the story of the “value” of a project to a region. This is why the prioritization process described in this appendix below involved so many opportunities for adjustment and correction - it is critical that there is general consensus on the resulting ranking of projects to reflect the overall needs of the Greater Wilmington area.

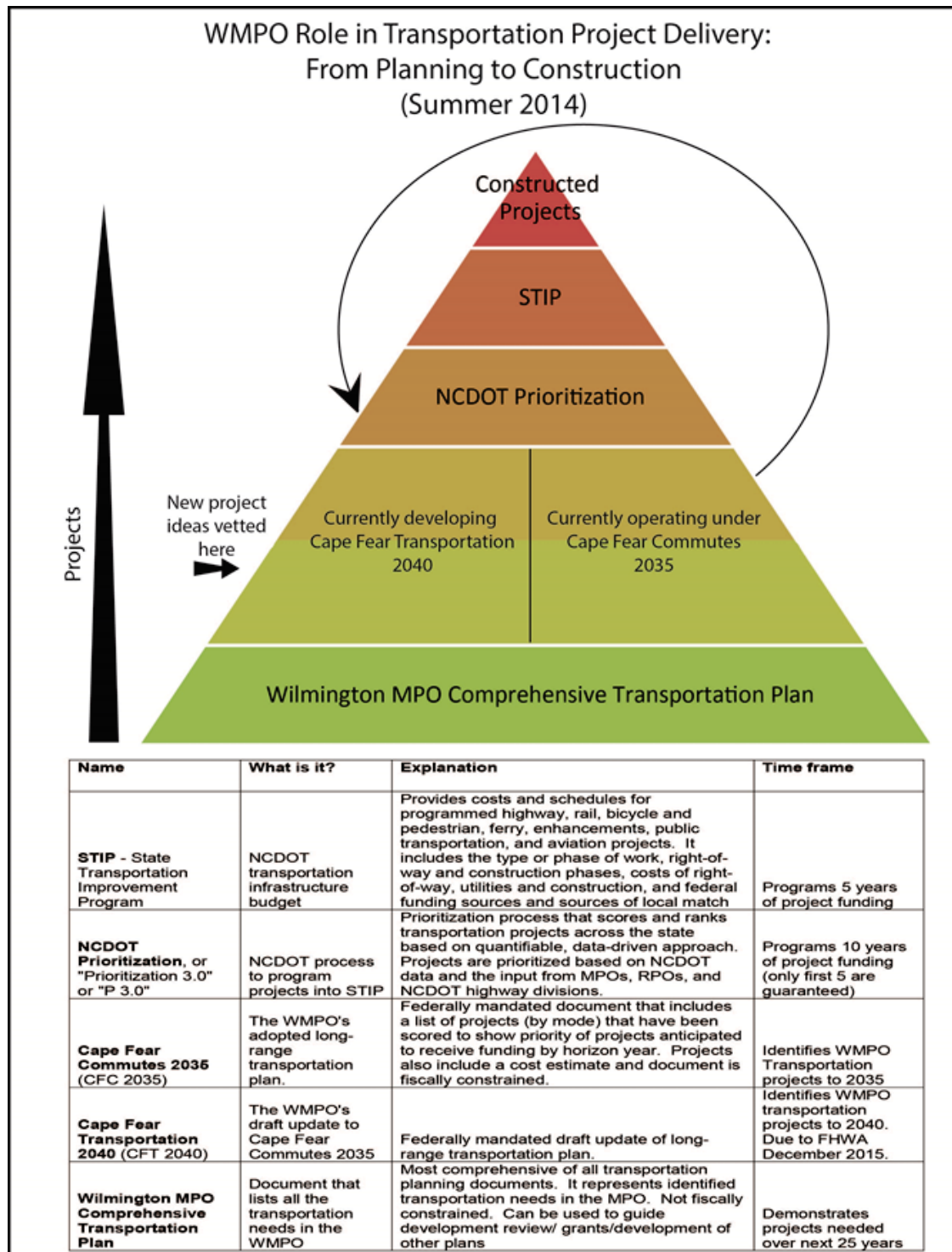
### **Development of the Prioritization Process**

The Cape Fear Transportation 2040 Prioritization Process involved the creation of formulas to evaluate and quantitatively score each project. Based on the scores derived from these formulas, projects were placed in ranked order by mode. These initial rankings were then reviewed by the CAC, TCC, TAC, and the general public as the basis of the final draft ranking and anticipated funding of projects for this plan. This process is described in more detail below.

### **Prioritization Process Formulas**

The Cape Fear Transportation 2040 Prioritization Process was created by the Citizens Advisory Committee based on the goals and objectives developed by each Mode-Specific Subcommittee (Roadways Subcommittee, Aviation Subcommittee, etc.). The Citizens Advisory Committee guided the creation of a formula to evaluate each mode-specific project list created through the development of this plan to include an aviation formula,

a bicycle and pedestrian formula, a ferry and water transportation formula, a freight/rail formula, a mass transportation formula, and a roadways formula. These formulas were based on the goals and objectives developed by each mode-specific subcommittee (the goals and objectives themselves had already received review and approval by CAC, TCC, and TAC) and checked against the formulas used for the previous development of Cape Fear Commutes 2035. CAC's recommended formulas were reviewed by TCC and TAC. Each project was then evaluated and scored based on its applicable formula.





Each mode-specific formula, its criteria and weight can be found in the tables towards the end of this appendix.

### **Draft Project Ranking**

Projects were placed in numerical order based on their initial Prioritization Process Score to create initial draft ranking lists. These project lists with initial draft ranking were presented to CAC, TCC, and TAC for review. After review and discussion at open public meetings, CAC, TCC and TAC each made revisions to the initial ranking of projects and approved of the lists moving forward for the next step in the process.

### **Use of Project Ranking in Fiscal Analysis Process**

Funding anticipated to be available through the plan's timeframe was distributed to each mode-specific project list based on the initial ranking of projects and the cost of projects. CAC, TCC, and TAC reviewed the resulting division between projects that were anticipated to receive funding and those that were not. Although CAC, TCC and TAC each expressed how much they desired that additional funds be distributed to the Greater Wilmington area in order to fund all of the identified project needs by the horizon year of the plan; they acknowledged that our area would see a limited amount of funding over the plan's 25-year timeframe. CAC, TCC and TAC modified the ranked project lists through review and discussion at open public meetings and approved moving a list of projects anticipated to receive funding forward for public review.

CAC, TCC and TAC also discussed the potential to utilize alternative transportation funding mechanisms to supplement the limited federal, state and local anticipated transportation dollars. A discussion of alternative transportation funding and the fiscal analysis process can be found in the Financial Element and the Financial Appendix of this plan.

### **\*Public Involvement Process**

The public was invited to review and comment on the overall draft plan from April 1, 2015 - April 30, 2015. Through this public outreach process, the public was specifically asked which projects they felt should and should not receive funding during the timeframe of the plan. Further discussion of public outreach can be found in the Public Outreach Element of this plan.

Comments from the public outreach process were synthesized and relayed to the mode-specific subcommittees, CAC, TCC and TAC for review. The mode-specific subcommittees, CAC, TCC, and TAC then modified elements of the plan based on information and direction provided by the public during the input process. This included modifying which projects were included as fiscally constrained in Cape Fear Transportation 2040.

## \*Adoption Process

After final modifications were approved by TAC in July 2015, draft Cape Fear Transportation 2040 was finalized and adopted by each of the Greater Wilmington Area MPO's member jurisdictions. After this, the TAC adopted the finalized plan on December 9, 2015.

After final adoption, modification of the project lists can be made by amendment to the plan.

## Tables with individual modal prioritization process formulas (scoring criteria)

### Aviation Project Prioritization

Mode	Goal	Objective	Description
Aviation	Support business and economic development throughout the region	Support mode choice for shift workers at the potential ILM Business Park	10% Does project support mode choice?
		Use improvements in aviation service to position the region to compete for business	10% Does project position region to compete for businesses?
		Link with rail for freight in the future to promote a FTZ	10% Does project Link rail with freight, supporting FTZ?
		Provide transportation facilities that allow ILM to continue to support key industries such as film, pharma, military, etc. (existing and potential)	10% Does project include facilities that support key industries?
	Provide the Region Access to the Global Marketplace for Business and Consumers	Provide non-stop service to business centers and/or hubs	5% Does project provide for non-stop service to business hubs?
		Provide the infrastructure to maximize the market share of ILM in the WMPO	5% Does project provide infrastructure to maximize market share of ILM

		Provide transportation facilities that allow ILM to continue to support key industries such as film, pharma, military, etc. (existing and potential)	5% Does project include facilities that support key industries?
	Provide the Region Access to the Global Marketplace for Movement of Goods	Ensure roadway network supports the development of ILM Business Park to include accommodations necessary for truck/rail freight transportation to/from site	5% Does project ensure roadway network to support truck/freight to rail connection?
		Support international cargo operations through ILM	5% Does project support international cargo operations?
		Reinstate the Wallace to Castle Hayne corridor for freight rail service	5% Does project Reinstate the Wallace to Castle Hayne corridor for freight rail service
	Physical Infrastructure	Provide the infrastructure to maximize the market share of ILM in the WMPO	4% Does project provide infrastructure to maximize market share of ILM
		Ensure roadway network supports the development of ILM Business Park to include accommodations necessary for truck/rail freight transportation to/from site	4% Does project ensure roadway network to support truck/freight to rail connection?

		Reinstate the Wallace to Castle Hayne corridor for freight rail service	4%  Does project Reinstate the Wallace to Castle Hayne corridor for freight rail service
		Link with rail for freight in the future to promote a FTZ	4%  Does project Link rail with freight, supporting FTZ?
		Provide transportation facilities that allow ILM to continue to support key industries such as film, pharma, military, etc. (existing and potential)	4%  Does project include facilities that support key industries?
	Modal Integration	Link with rail for freight in the future to promote a FTZ	5% Does project Link rail with freight, supporting FTZ?
		Ensure roadway network supports the development of ILM Business Park to include accommodations necessary for truck/rail freight transportation to/from site	5% Link with rail for freight in the future to promote a FTZ
		Ensure roadway network supports the development of ILM Business Park to include accommodations necessary for truck/rail freight transportation to/from site	5% Does project ensure roadway network to support truck/freight to rail connection?

**Bicycle Project Prioritization\***

MODE	GOAL	OBJECTIVE	DESCRIPTION
Bike/Ped – Bicycle	Safety, Education, Awareness & Enforcement	Bicycle facility prioritization should consider the nature of adjacent traffic	10% Functional Classification
		Increase the ease of transitioning between bicycling & other modes of transportation (mass transportation & ferries) through prioritization of bicycle projects	3% for 6 key Wave Transit stops and Ferry Terminal 7% for all Wave Transit stops
			7% for Census Data – Income 3% for Census Data - Age
	Built Environment, Land Use & Connectivity	Prioritize bicycle facilities in areas with high employment density	8% for Employment density
		Prioritize bicycling facilities that fall within 1/4 mile of school campuses	13% Proximity to schools
		Prioritize bicycle connections between parks & residential areas	8% Proximity to parks and recreation centers and facilities
		Prioritize removal of barriers to bicycle around medical campuses	3% Proximity to medical offices
		Prioritize bicycle facility connections around grocery stores/farmers markets	5% Proximity to grocery stores and farmers markets
		Prioritize connections to existing bicycling facilities	15% Connections to existing bicycle facilities



		Prioritize bicycling connections between school campuses	3% Projects connecting two school campuses
		Prioritize bicycle facilities that allow safe usage of bridges, overpasses, tunnels & viaducts	5% Projects along bridges, on overpasses, through tunnels, or along viaducts
		Prioritize short trail connections (under 2,000 feet) that fill gaps in the roadway system that will allow bicycle use of these roadways	10% for short trail projects identified in sections activity
<i>*Note: Scores from the bicycle and pedestrian prioritization process were averaged to determine the final score for the Bicycle and Pedestrian Element</i>			

#### **Pedestrian Project Prioritization\***

MODE	GOAL	OBJECTIVE	DESCRIPTION
Bike/Ped – Pedestrian	Safety, Education, Awareness & Enforcement	Prioritize crosswalks at existing signals	10% Existing traffic signals
		Sidewalk and crosswalk prioritization should consider nature of adjacent traffic	8% Functional Classification
	Built Environment, Land Use & Connectivity	Prioritize sidewalks and crosswalks based on residential and employment density	8% for Census Data – Population Density 12% for Census Data – Employment Density
		Prioritize pedestrian facilities that fall within ¼ miles of school campuses	15% Proximity to schools
		Prioritize pedestrian connections between parks & residential areas	5% Proximity to parks and recreation centers and facilities

		Prioritize removal of barriers to pedestrians around medical campuses	2% Proximity to medical offices
		Prioritize pedestrian facilities around libraries, community centers/senior centers, courthouses, local government centers	5% Proximity to shopping centers, cultural centers, tourist destinations, beach accesses
		Prioritize pedestrian facility connections around grocery stores/farmers markets	3% Proximity to grocery stores and farmers markets
		Prioritize connections to existing pedestrian facilities	15% Project connects to existing sidewalks and/or multi-use path
		Prioritize direct connections to transit stops	10% Project connects to or in close proximity to a Wave Transit stop
		Prioritize short trail links (under 1,000 feet) that fill gaps between low traffic roadways to allow for pedestrian use while continuing to preserve the low traffic status of those roadways	10% for short trail projects identified in sections activity
	Health	Prioritize sidewalk and crosswalk connections using Health and Wellness Gap Analysis report	5% Health priorities from Health and Wellness Gaps Analysis
<i>*Note: Scores from the bicycle and pedestrian prioritization process were averaged to determine the final score for the Bicycle and Pedestrian Element</i>			

### Ferry and Waterway Transportation Project Prioritization

MODE	GOAL	OBJECTIVE	DESCRIPTION
Ferry	Maintain High Safety Record	Plan and develop new facilities at locations along ferry routes that are not prone to shoaling	5% Comparison of project locations/ routes to identified shoaling areas
	Maintain High Standards of Environmental Responsibility	Plan and develop new facilities and ferry routes that minimize environmental disturbance	5% Comparison of project locations/ routes to maps of environmentally sensitive areas
		Promote the ferry within overall transportation network in terms of congestion management and the efficient use of public infrastructure and fossil fuels	5% Congestion Management Plan alternative route data
	Maintain Efficiency and Quality Level of Service, while Supporting Customer Demand	Ensure ADA-accessible networks exist from ferry terminal to adjacent destinations	10% Does project include ADA accommodations?
		Develop new, additional ferry routes to serve both commuter and tourism market demand	10% Data on tourism areas and employment industries
	Increase Ferry Ridership by Improving Modal Integration and Connectivity at Terminals	Improve access to and quality of intermodal ferry terminal/marina facilities	5% Does project improve access to and quality of intermodal ferry terminal/marina facilities
		Support biking community with biking facilities at ferry terminals	5% Does project include biking facilities?
		Support bike share located at ferry terminals	5% Does project include bike share?

		Support public transit – bus connections - at ferry terminals	5% Does project include public transit/ bus connections?
		Support Park and Ride lot access proximate to ferry terminals	5% Does project include access proximate to park and ride lot?
	Enhance Economic Development Opportunities Pertaining to the NC Tourism Market Through Ferry Service	Data on tourism areas and employment industries	30% Does project Link rail with freight, supporting FTZ?

#### Ferry and Waterway Transportation Project Prioritization

MODE	GOAL	OBJECTIVE	DESCRIPTION
Freight/Rail	Support Military Freight Movements	Prioritize projects that mitigate key congestion choke points between military origins and destinations	5% Projects along military routes
		Prioritize projects that improve infrastructure at and adjacent to key military destinations	5% Project improves direct access to military base or Port of Wilmington
	Enhance Transportation Network between existing and potential customers to and from WMPO Ports	Prioritize projects that support/enhance access for bulk grain markets	5% Project improves historical routes from WMPO area to bulk grain markets
		Prioritize projects that support/enhance access for wood & wood products markets	5% Project improves historical routes from WMPO area to wood & wood products markets
		Prioritize projects that support/enhance access for industrial bulk/breakbulk commodities	5% Project improves historical routes from WMPO area to industrial bulk/breakbulk commodities

		Prioritize projects that support/enhance access for Charlotte Intermodal terminals	5% Project improves historical routes from WMPO area to Charlotte Intermodal terminals
		Prioritize projects that support/enhance access for chemicals/fertilizer markets	5% Project improves historical routes from WMPO area to chemicals/fertilizer markets
		Prioritize projects that support/enhance access for other agricultural markets	5% Project improves historical routes from WMPO area to other agricultural markets
		Prioritize projects that support/enhance containerized freight movements	10% Project improves historical routes for containerized freight movements
		Prioritize projects that support/enhance access for warehousing/distribution centers	10% Project improves historical routes from WMPO area to warehousing/distribution centers
	“Last Mile” Improvements for freight nodes	Prioritize projects that mitigate key congestion choke points within the last mile of key freight nodes	5% Project improves route that is identified on the WMPO CMP network
		Prioritize projects that improve infrastructure at NC Port of Wilmington	5% Project improves infrastructure at NC Port of Wilmington
		Prioritize projects that reduce traffic conflicts where freight interacts with other modes	5% Project improves route that is identified on the WMPO CMP Truck network or a rail crossing
	Building community support & supporting local business	Prioritize the rein-statement of passenger rail access to/from Wilmington and major East Coast destinations	5% Passenger rail projects in the WMPO



		Prioritize projects that support/enhance access for existing industrial parks	5% Projects that improve access for existing industrial parks
		Prioritize projects that support/enhance access for domestic freight	Project on WMPO CMP network
		Prioritize projects that support/enhance Wilmington International Airport Industrial Park initiatives	5% Projects adjacent to ILM

### Mass Transportation Project Prioritization

MODE	GOAL	OBJECTIVE	DESCRIPTION
Mass Transportation	Enhance Economic Development Opportunities through Public Transit Services	Prioritize public transit service to employment centers	10% Project touches major employment center (Greater Wilmington Business Journal 2013 book of lists)
		Prioritize public transit service to low income population housing	5% Project touches census blocks with highest proportion of low-income population categorized by WMPO income distribution
		Prioritize public transit service to medical centers	5% Project touches medical center (Greater Wilmington Business Journal 2013 book of lists)
		Prioritize public transit service to educational centers	5% Project touches school property
		Prioritize public transportation that provides access to healthy foods and recreation centers	5% Project touches a grocery store or a park

	Broaden Base of Public Transit Ridership	Prioritize projects that benefit the overall transportation network in terms of congestion management and the efficient use of public infrastructure	15% Project coincides with WMPO CMP network
		Prioritize projects that expand choice ridership	5% Project coincides with median 50% of census blocks categorized by WMPO income distribution
		Prioritize projects that expand service for 65+ population	5% Project coincides with census blocks with highest proportion of 65+ population categorized by WMPO age distribution
		Prioritize projects that expand service for young professionals	5% Project coincides with census blocks with median 50% of census blocks categorized by WMPO income distribution
	Complement Mass Transportation Routes/Services with Physical Infrastructure	Pilot express bus routes on major corridors	5% Express bus project
		Prioritize projects that are served by bicycle route connections between public transit stops and major destinations	5% Project coincides with existing WMPO bike facilities
		Prioritize projects that enhance the ADA-accessible pedestrian network from public transit stops to adjacent destinations	5% Project coincides with existing WMPO sidewalk network

		Prioritize projects that benefit existing para-transit service needs	5% Project includes pedestrian network improvement or amenity improvement
		Prioritize projects that install bus shelters, benches, and trash bins	5% Project includes amenity improvement
		Prioritize projects that install bus shelters, benches and trash bins at bus stop locations where ridership is highest	5% Project includes amenity improvement at "Superstation" identified in WAVE's Short Range Plan
		Prioritize projects that install crosswalks at bus stop locations where ridership is highest	10% Project includes crosswalk improvement at "Superstation" identified in WAVE's Short Range Plan

### Roadway Project Prioritization

MODE	GOAL	OBJECTIVE	DESCRIPTION
Roadway	Safe – reduces injuries and improves the sense of safety for all users	Prioritize roadway projects that reduce the rate of crashes on existing facilities	5% NCDOT SPOT On!line crash density score
		Prioritize roadway projects that reduce the severity of crashes on existing facilities	5% NCDOT SPOT On!line crash severity score
		Prioritize roadway projects that reduce the number of conflict points on existing facilities	5% Projects install a new median

		Prioritize roadway projects that reduce the vulnerability of bicyclists and pedestrians on existing facilities	5% Projects include bicycle and/or pedestrian facilities
	Efficient – moves the most people and goods in a cost effective manner, while using the least amount of resources	Prioritize roadway projects that reduce/maintain rate of mean travel time for people and freight	5% NCDOT SPOT On!ine travel time savings for 30 years (hours)
		Prioritize roadway projects that reduce vehicle miles travelled per capita	5% NCDOT SPOT On!ine travel time savings for 30 years (autos hours)
		Prioritize roadway projects that maximize throughput for each lane mile for both people and freight	5% NCDOT SPOT On!ine travel time benefit/cost score
		Prioritize roadway projects that maximize throughput in the network for public dollar	5% NCDOT SPOT On!ine travel time savings for 30 years (dollars)
		Prioritize roadway projects that reduce cumulative peak hour delay per capita	5% NCDOT SPOT On!ine congestion score
	Appropriate – contributes to the quality of life and character of the region through proper design	Prioritize roadway projects that minimize disparity between actual and intended functional classification of existing facilities	2.5% Congestion/ Access Management projects that are not intersection projects
		Prioritize roadway projects that balance needs of access and mobility in the transportation network	2.5% Projects that install medians or include intersection improvements

		Prioritize roadway projects that enhance the aesthetics of the community	2.5% Streetscape projects, projects including landscaped medians, and projects including multi-use paths
		Prioritize roadway projects that minimize adverse impacts to the cultural, aesthetic, and environmental character of the community	2.5% Economic Enhancement projects and projects including bicycle and/or pedestrian accommodations that are not new location projects
	Responsible – protects existing investments and limits environmental and social Impacts	Prioritize roadway projects that improve/maintain existing multimodal connectivity	5% Projects that include bicycle and/or pedestrian accommodations
		Prioritize roadway projects that improve/maintain existing network integrity	5% Congestion/ Access Management Projects that are not intersection projects
		Prioritize roadway projects that exhibit demonstrated community support through existing adopted plans	5% Projects evaluated through NCDOT's P 3.0 process
	Integrated – links with other transportation and land use plans as well as future infrastructure investments	Prioritize roadway projects that address future anticipated employment growth areas	2.5% Project touches TAZes with highest anticipated employment growth
		Prioritize roadway projects that address future anticipated population growth areas	2.5% Project touches TAZes with highest anticipated population growth
		Prioritize roadway projects that address future anticipated freight/industrial growth areas	2.5% Project touches TAZes with highest anticipated freight/industrial growth



		Prioritize roadway projects that address future anticipated growth via utility investments	2.5% Project touches TAZes identified by water/sewer infrastructure plans as growth areas
	Multimodal – provides a choice of modes for most trips	Include bicycle/pedestrian facilities for mobility along corridors	5% Projects that include bicycle and/or pedestrian accommodations
		Include bicycle/pedestrian facilities for access to land uses along corridors	5% Projects that include bicycle and/or pedestrian accommodations including intersection improvements
		Include accommodations for transit along appropriate corridors	2.5% Project includes identified transit accommodations
		Prioritize roadway projects that provide infrastructure for identified roadway TDM initiatives	2.5% Project includes identified transit accommodations or park & ride locations
		Prioritize roadway projects that are identified for future transit routes through a WMPO adopted plan	5% Projects that are identified for future transit routes through a WMPO adopted plan



# APPENDIX E

## FINANCIAL ANALYSIS

## FINANCIAL ANALYSIS ADDITIONAL INFORMATION

### Existing Funding Sources

The following list of funding sources was used to determine existing and projected revenues for the MTP. Funding sources are categorized by mode and use, and include a description of key considerations in the generation or use of each source. Initial funding projection estimates were generated based on averaging available historical data and determining future trends. Funding projections were adjusted to reflect a 3% inflation rate per NCDOT standards. Details of the projections for each funding source categorized by mode are included in this section following the table.

### Development of the Prioritization Process

MODE	GOAL	OBJECTIVE	DESCRIPTION
Roadway	Operations & Maintenance	Interstate Preventative Maintenance (IMPM)	90% Federal share; 10% state match Funds for resurfacing, restoration, rehabilitation, and reconstruction of Interstate highways
		Division 3 Maintenance	Includes road maintenance, bridge maintenance, and contract resurfacing
		Powell Bill	Funds backed by State Highway Trust Fund 1.75 cents per every gallon of taxes motor fuel 75% based on relative population; 25% based on relative mileage Used for construction and maintenance of any municipal roadway, sidewalk, or bicycle facility
	Capital	Highway Safety Improvement Program (HSIP)	90% Federal share; 10% state match Allocated annually Funds safety improvement projects on public roads and bicycle and pedestrian pathways and trails
		Highway Trust Funds	Funded by the Federal gasoline tax (18.4 cents per gallon)

		National Highway Performance (NHP)	80% Federal share Funds for projects supporting the achievement of national performance goals for improving infrastructure condition, safety, mobility, or freight movement on the National Highway System
		Surface Transportation Program (STP)	80% Federal share Allocated annually Includes set asides for safety improvements and transportation enhancements
		Surface Transportation Program - Direct Attributable (STP-DA)	20% state/local match Allocated to MPOs
Bike/Ped	Operations & Maintenance	City/County	Wilmington, Leland, Kure Beach, Wrightsville Beach, and New Hanover County have dedicated funds for maintaining sidewalks, bike lanes, and trails
	Capital	Transportation Alternatives Program (TAP)	80% Federal share Funds on-road and off-road facilities for pedestrians and bicyclists Includes projects eligible in the Recreation Trails and Safe Routes to School programs
		Surface Transportation Program - Direct Attributable (STP-DA)	20% state/local match Allocated to MPOs
		Transportation Alternatives Program - Direct Attributable (TAP-DA)	Allocated to MPOs
Transit	Operations & Maintenance	Section 5303 (Metropolitan Planning)	Formula grant program Allocated to MPOs for comprehensive planning efforts
		Section 5307 (Urban Areas)	Formula grant program Assists capital, operating, and planning in urbanized areas
		Section 5311 (Rural Areas)	Formula grant program Supports transit in rural areas with populations less than 50,000

		Section 5316 (Job Access and Reverse Commute)	Formula grant program Funds projects supporting the commuting of low-income populations
		Section 5317 (New Freedom)	Formula grant program Funds projects supporting Americans with disabilities
		Community Transportation Program (CTP)	Includes federal and state funds Combined FTA Section 5311, Rural Capital Program, and Human Service Transportation Management Program
		State Maintenance Assistance Program (SMAP)	Funds allocated based on state-approved formula Requires at least 50% local match
		Rural Operating Assistance Program (ROAP)	Provides funding to counties via the Elderly and Disabled Transportation Assistance Program, Rural General Public Program, and Employment Transportation Assistance Program
		City/County	Includes local match from City of Wilmington and New Hanover County
		Other	Includes local match from Brunswick Consortium and UNCW Other income from advertising, Greyhound service, and vending machines
		Passenger Fares	Farebox revenues from Wave Transit
	Capital	Section 5307 (Urban Areas)	Formula grant program Assists capital, operating, and planning in urbanized areas
		Section 5310 (Elderly and Disabled)	Formula grant program Assists private nonprofit groups with assisting the elderly and disabled
		Section 5311 (Rural Areas)	Formula grant program Supports transit in rural areas with populations less than 50,000



		Section 5339 (Alternatives Analysis)	Discretionary grant program Funds evaluation of alternatives for travel corridors
Ferry	Operations & Maintenance	Highway Fund	Funded by the state gas tax, motor vehicle registration fees, title fees, and federal-aid reimbursements
	Capital	Ferry Boat Program (FBP)	Federally funded and state allocated 20% state match
		Toll Revenues	Used directly to fund ferry boat replacements
		State Transportation Investments (STI) – Regional	Funded through STI program in Regional category
Aviation	Operations & Maintenance	Airport Revenues	Based on 2010-2014 airport revenues
	Capital	Airport Improvement Program (AIP) Entitlement	Administered by the Federal Aviation Administration for improving airport safety, capacity, security, and environmental concerns
		Customer Facility Charge (CFC)	Charged to customers leasing rental vehicles to fund new car rental facilities
		Passenger Facility Charge (PFC)	Based on \$4.50 per enplanement
Rail	Capital	Freight Rail & Rail Crossing Safety Improvement Fund (FR&RCSI)	Includes the Rail Industrial Access Program and the Short Line Infrastructure Assistance Program
		Rail Industrial Access Program (RIAP)	State funding for constructing or refurbishing tracks for industry to encourage economic development Requires application approval and private or local matching funds
		Short Line Infrastructure Assistance Program (SIAP)	State funding for small freight railroads including bridge and track maintenance Requires at least 50 percent match from railroads

## ROADWAY FINANCIAL PLAN DATA - REVENUES

FY	Capital Federal	HSP	Highway Trust Funds	NHP	STP	STPDA	NHP Match	STP Match	STPDA Match	CoVBond	total	Operation & Maintenance Federal	State	IMPM	Div 3 Road Maintenance	Div 3 Contract Resurfacing	Powell Bill	Total
2015	\$ 700,000	\$ 2,406,500	\$ 15,024,000	\$ 4,800,000	\$ 704,416	\$ 3,756,000	\$ 1,761,104	\$ 1,200,000	\$ 1,761,104	\$ 5,833,333	\$ 56,250,854	\$ 523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 3,114,407	\$ 14,702,424
2016	\$ 700,000	\$ 2,677,000	\$ 15,024,000	\$ 4,800,000	\$ 725,549	\$ 3,756,000	\$ 1,811,387	\$ 1,200,000	\$ 1,811,387	\$ 5,833,333	\$ 58,991,269	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 3,207,839	\$ 16,795,856
2017	\$ 700,000	\$ 3,590,000	\$ 15,024,000	\$ 4,800,000	\$ 747,315	\$ 3,756,000	\$ 1,868,829	\$ 1,200,000	\$ 1,868,829	\$ 5,833,333	\$ 68,237,477	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 3,304,074	\$ 16,892,091
2018	\$ 700,000	\$ 14,750,000	\$ 27,384,000	\$ 5,491,250	\$ 769,735	\$ 6,846,000	\$ 1,924,434	\$ 1,372,813	\$ 1,924,434	\$ 5,833,333	\$ 63,339,564	\$ 4,233,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 3,403,197	\$ 19,291,214
2019	\$ 700,000	\$ 29,937,000	\$ 27,944,000	\$ 5,491,250	\$ 792,827	\$ 6,866,000	\$ 1,982,077	\$ 1,372,813	\$ 1,982,077	\$ 5,833,333	\$ 79,255,429	\$ 4,233,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 3,565,293	\$ 19,393,310
2020	\$ 700,000	\$ 25,938,000	\$ 15,024,000	\$ 5,491,250	\$ 816,612	\$ 3,756,000	\$ 1,761,104	\$ 1,200,000	\$ 1,761,104	\$ 5,833,333	\$ 63,136,160	\$ 523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 3,610,451	\$ 15,196,468
2021	\$ 700,000	\$ 23,064,429	\$ 19,484,914	\$ 5,655,988	\$ 841,110	\$ 4,872,429	\$ 1,433,997	\$ 1,433,997	\$ 1,433,997	\$ 5,833,333	\$ 56,241,943	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 3,718,765	\$ 17,106,782
2022	\$ 721,000	\$ 23,756,361	\$ 20,063,462	\$ 5,825,667	\$ 866,343	\$ 5,017,365	\$ 1,456,417	\$ 1,456,417	\$ 1,456,417	\$ -	\$ 57,929,201	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 3,830,328	\$ 17,286,035
2023	\$ 742,630	\$ 24,468,052	\$ 20,671,546	\$ 6,000,437	\$ 892,333	\$ 5,167,886	\$ 1,500,009	\$ 1,500,009	\$ 1,500,009	\$ -	\$ 59,667,077	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 3,945,238	\$ 17,474,725
2024	\$ 764,909	\$ 25,203,124	\$ 21,291,692	\$ 6,180,450	\$ 919,103	\$ 5,322,923	\$ 1,545,113	\$ 1,545,113	\$ 1,545,113	\$ -	\$ 61,457,090	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 4,063,595	\$ 17,667,017
2025	\$ 787,856	\$ 25,959,218	\$ 21,930,443	\$ 6,365,864	\$ 946,677	\$ 5,482,611	\$ 1,591,466	\$ 1,591,466	\$ 1,591,466	\$ -	\$ 63,300,803	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 4,185,503	\$ 17,865,077
2026	\$ 811,492	\$ 26,737,994	\$ 22,588,356	\$ 6,556,840	\$ 975,077	\$ 5,647,089	\$ 1,639,210	\$ 1,639,210	\$ 1,639,210	\$ -	\$ 65,199,827	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 4,311,068	\$ 18,065,078
2027	\$ 835,837	\$ 27,540,134	\$ 23,266,007	\$ 6,759,545	\$ 1,004,329	\$ 5,815,502	\$ 1,688,386	\$ 1,688,386	\$ 1,688,386	\$ -	\$ 67,155,821	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 4,440,400	\$ 18,278,200
2028	\$ 860,912	\$ 28,366,338	\$ 23,963,987	\$ 6,956,151	\$ 1,034,459	\$ 5,990,957	\$ 1,739,038	\$ 1,739,038	\$ 1,739,038	\$ -	\$ 69,170,406	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 4,573,612	\$ 18,495,626
2029	\$ 886,739	\$ 29,217,328	\$ 24,682,906	\$ 7,164,836	\$ 1,065,493	\$ 6,170,727	\$ 1,791,209	\$ 1,791,209	\$ 1,791,209	\$ -	\$ 71,245,611	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 4,710,820	\$ 18,718,544
2030	\$ 913,341	\$ 30,093,648	\$ 25,423,594	\$ 7,375,781	\$ 1,091,458	\$ 6,353,848	\$ 1,844,945	\$ 1,844,945	\$ 1,844,945	\$ -	\$ 73,382,979	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 4,851,145	\$ 18,946,150
2031	\$ 940,741	\$ 30,936,663	\$ 26,186,095	\$ 7,601,174	\$ 1,130,381	\$ 6,546,524	\$ 1,900,294	\$ 1,900,294	\$ 1,900,294	\$ -	\$ 75,584,469	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 4,997,709	\$ 19,184,644
2032	\$ 968,364	\$ 31,926,563	\$ 26,971,678	\$ 7,829,209	\$ 1,164,254	\$ 6,743,920	\$ 1,957,302	\$ 1,957,302	\$ 1,957,302	\$ -	\$ 77,852,003	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 5,147,640	\$ 19,428,233
2033	\$ 998,033	\$ 32,884,360	\$ 27,780,829	\$ 8,064,086	\$ 1,199,222	\$ 6,945,207	\$ 2,016,021	\$ 2,016,021	\$ 2,016,021	\$ -	\$ 80,187,563	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 5,302,069	\$ 19,678,129
2034	\$ 1,027,974	\$ 33,870,891	\$ 28,614,254	\$ 8,306,008	\$ 1,235,198	\$ 7,153,563	\$ 2,076,502	\$ 2,076,502	\$ 2,076,502	\$ -	\$ 82,599,190	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 5,461,132	\$ 19,937,552
2035	\$ 1,058,813	\$ 34,887,018	\$ 29,472,681	\$ 8,555,189	\$ 1,272,254	\$ 7,368,170	\$ 2,138,797	\$ 2,138,797	\$ 2,138,797	\$ -	\$ 85,070,985	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 5,624,966	\$ 20,203,728
2036	\$ 1,090,577	\$ 35,933,628	\$ 30,356,862	\$ 8,811,844	\$ 1,310,422	\$ 7,589,215	\$ 2,202,961	\$ 2,202,961	\$ 2,202,961	\$ -	\$ 87,623,115	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 5,793,714	\$ 20,477,890
2037	\$ 1,123,295	\$ 37,011,637	\$ 31,267,567	\$ 9,076,200	\$ 1,349,734	\$ 7,816,892	\$ 2,269,050	\$ 2,269,050	\$ 2,269,050	\$ -	\$ 90,251,808	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 5,967,536	\$ 20,760,276
2038	\$ 1,156,993	\$ 38,121,986	\$ 32,205,594	\$ 9,348,486	\$ 1,390,226	\$ 8,051,399	\$ 2,337,121	\$ 2,337,121	\$ 2,337,121	\$ -	\$ 92,950,363	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 6,146,552	\$ 21,051,134
2039	\$ 1,191,703	\$ 39,265,646	\$ 33,171,762	\$ 9,639,840	\$ 1,431,933	\$ 8,292,941	\$ 2,407,935	\$ 2,407,935	\$ 2,407,935	\$ -	\$ 95,740,143	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 6,330,948	\$ 21,350,717
2040	\$ 1,227,454	\$ 40,443,615	\$ 34,166,915	\$ 9,917,808	\$ 1,474,891	\$ 8,541,729	\$ 2,479,451	\$ 2,479,451	\$ 2,479,451	\$ -	\$ 98,620,588	\$ 2,523,000	\$ 3,830,009	\$ 7,235,008	\$ 3,830,009	\$ 7,235,008	\$ 6,520,877	\$ 21,659,288
<b>Total</b>	<b>\$ 23,009,262</b>	<b>\$ 781,200,833</b>	<b>\$ 6,809,904</b>	<b>\$ 182,852,252</b>	<b>\$ 27,137,391</b>	<b>\$ 139,747,736</b>	<b>\$ 45,713,063</b>	<b>\$ 45,713,063</b>	<b>\$ 45,713,063</b>	<b>\$ 35,000,000</b>	<b>\$ 1,900,460,829</b>	<b>\$ 78,137,880</b>	<b>\$ 99,580,243</b>	<b>\$ 188,110,197</b>	<b>\$ 120,069,866</b>	<b>\$ 485,918,188</b>	<b>\$ 120,069,866</b>	<b>\$ 485,918,188</b>

**Assumptions:**  
 Capital funding and federal O&M funding derived from NCDOT STP for 2014 to 2020. Funding for 2021-2040 is a average of 2014 to 2020 annual funding with adjustments for inflation beginning in 2022.  
 STP projects E-5301, EB-5543, U-5527 omitted from funding totals.  
 Powell Bill funding for 2014 and beyond equals the average of 2010 to 2013 annual funding with adjustments for inflation beginning in 2015.  
 STPDA allocation for WMPO is \$2,762,416.80. 85% is available for capital projects. Of this 85%, 30% is available for roadway projects (25.5%), begins in 2015 with adjustments for inflation beginning in 2016.  
 NHS funding was through S06TEA-LU. Combined with NHP.  
 5% of Powell Bill funding assumed to go to sidewalk/trail maintenance.  
 Local match for STPDA is 20% of total NHS funding.  
 State match for NHP is 20% of total NHS funding.  
 HSP and STP funding allocated annually. Values beyond what is shown in STP based on averages for STP. HSP funding assumed to be \$700,000.  
 Approximately 20% of the roadways in Division 3 are located within WMPO.  
 Division 3 maintenance estimated by including part of primary funding proportionate to secondary funding. Averaged in 2015 and remains constant to reflect transition to data-driven formula.  
 State match for STP is 20% of total STP funding.  
 The City of Wilmington passed a \$55 million transportation bond in November 2014. \$55 million will be used to construct roadway projects between 2015 and 2020.

**Sources:**  
 NCDOT STP (June 2014)

# BICYCLE AND PEDESTRIAN FINANCIAL PLAN DATA- REVENUES

Capital FY	TAP	WMPO Share of State Competitive	STPDA	TAPDA	Local	Match	CoW Bond	Total	Operations & Maintenance City of Wilmington					Town of Island Trails	Town of Leboan Sidewalks	Town of Kure Beach	Town of Wrightsville Beach	New Hanover County	Total
2015		\$70,769	\$1,174,027	\$22,152	\$491,737	\$506,489	\$3,333,333	\$5,792,018	\$47,547	\$100,000	\$91,560	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$1,500	\$35,000	\$299,407
2016		\$87,892	\$1,209,248	\$22,816	\$506,489	\$529,305	\$3,333,333	\$5,865,778	\$48,767	\$103,000	\$94,307	\$2,060	\$2,060	\$2,060	\$2,060	\$2,060	\$1,545	\$36,050	\$308,389
2017		\$65,579	\$1,245,525	\$23,681	\$521,684	\$545,365	\$3,333,333	\$5,941,751	\$50,530	\$106,000	\$97,536	\$2,122	\$2,122	\$2,122	\$2,122	\$2,122	\$1,591	\$37,132	\$317,641
2018		\$62,654	\$1,282,091	\$24,751	\$537,334	\$562,085	\$3,333,333	\$6,020,404	\$51,397	\$109,779	\$100,650	\$2,185	\$2,185	\$2,185	\$2,185	\$2,185	\$1,639	\$38,245	\$327,170
2019		\$64,405	\$1,321,378	\$25,093	\$553,454	\$578,547	\$3,333,333	\$6,100,404	\$53,290	\$112,851	\$103,652	\$2,251	\$2,251	\$2,251	\$2,251	\$2,251	\$1,688	\$39,393	\$336,985
2020		\$66,167	\$1,361,013	\$25,534	\$570,058	\$595,592	\$3,333,333	\$6,183,622	\$54,088	\$115,327	\$106,143	\$2,319	\$2,319	\$2,319	\$2,319	\$2,319	\$1,739	\$40,575	\$347,005
2021		\$68,158	\$1,401,850	\$26,261	\$587,160	\$613,418	\$3,333,333	\$6,269,596	\$56,335	\$119,405	\$109,327	\$2,388	\$2,388	\$2,388	\$2,388	\$2,388	\$1,791	\$41,792	\$357,508
2022		\$70,197	\$1,443,905	\$27,218	\$604,774	\$631,971	\$3,333,333	\$6,360,471	\$58,331	\$122,887	\$112,607	\$2,460	\$2,460	\$2,460	\$2,460	\$2,460	\$1,845	\$43,046	\$370,280
2023		\$72,033	\$1,487,222	\$28,145	\$622,915	\$651,058	\$3,333,333	\$6,460,405	\$59,778	\$126,777	\$115,885	\$2,534	\$2,534	\$2,534	\$2,534	\$2,534	\$1,900	\$44,337	\$390,658
2024		\$74,774	\$1,531,839	\$28,857	\$641,605	\$670,382	\$3,333,333	\$6,564,025	\$61,777	\$130,477	\$119,465	\$2,610	\$2,610	\$2,610	\$2,610	\$2,610	\$1,957	\$45,667	\$407,378
2025		\$77,065	\$1,577,794	\$29,553	\$660,679	\$690,232	\$3,333,333	\$6,672,094	\$63,530	\$134,927	\$123,049	\$2,688	\$2,688	\$2,688	\$2,688	\$2,688	\$2,016	\$47,037	\$414,419
2026		\$79,077	\$1,625,128	\$30,710	\$680,679	\$710,389	\$3,333,333	\$6,785,096	\$65,339	\$138,423	\$126,740	\$2,768	\$2,768	\$2,768	\$2,768	\$2,768	\$2,076	\$48,448	\$426,883
2027		\$81,780	\$1,673,882	\$31,735	\$701,059	\$731,794	\$3,333,333	\$6,900,461	\$67,506	\$142,736	\$130,443	\$2,852	\$2,852	\$2,852	\$2,852	\$2,852	\$2,139	\$49,902	\$439,689
2028		\$84,133	\$1,724,099	\$32,737	\$721,132	\$751,869	\$3,333,333	\$7,018,980	\$69,531	\$146,693	\$134,459	\$2,937	\$2,937	\$2,937	\$2,937	\$2,937	\$2,203	\$51,393	\$452,880
2029		\$86,339	\$1,775,821	\$33,624	\$743,786	\$774,115	\$3,333,333	\$7,140,550	\$71,617	\$151,559	\$138,693	\$3,025	\$3,025	\$3,025	\$3,025	\$3,025	\$2,269	\$52,901	\$466,466
2030		\$88,239	\$1,829,095	\$34,605	\$765,110	\$795,719	\$3,333,333	\$7,269,466	\$73,655	\$155,937	\$142,437	\$3,116	\$3,116	\$3,116	\$3,116	\$3,116	\$2,337	\$54,523	\$480,460
2031		\$91,536	\$1,883,963	\$35,486	\$785,039	\$815,525	\$3,333,333	\$7,403,460	\$75,778	\$160,471	\$146,327	\$3,209	\$3,209	\$3,209	\$3,209	\$3,209	\$2,407	\$56,163	\$494,874
2032		\$94,394	\$1,940,488	\$36,183	\$812,766	\$842,959	\$3,333,333	\$7,542,445	\$78,237	\$165,465	\$151,335	\$3,306	\$3,306	\$3,306	\$3,306	\$3,306	\$2,479	\$57,850	\$509,170
2033		\$97,166	\$1,998,703	\$37,198	\$837,169	\$867,367	\$3,333,333	\$7,691,318	\$80,005	\$170,443	\$155,975	\$3,405	\$3,405	\$3,405	\$3,405	\$3,405	\$2,554	\$59,885	\$525,012
2034		\$1,000,846	\$2,058,664	\$38,544	\$862,264	\$890,808	\$3,333,333	\$7,841,318	\$82,023	\$175,351	\$160,551	\$3,507	\$3,507	\$3,507	\$3,507	\$3,507	\$2,630	\$61,373	\$540,762
2035		\$1,030,872	\$2,120,424	\$40,120	\$886,131	\$916,251	\$3,333,333	\$8,002,457	\$85,514	\$180,411	\$165,368	\$3,612	\$3,612	\$3,612	\$3,612	\$3,612	\$2,709	\$63,214	\$560,965
2036		\$1,061,798	\$2,194,036	\$43,267	\$914,775	\$945,042	\$3,333,333	\$8,171,877	\$88,079	\$186,029	\$170,329	\$3,721	\$3,721	\$3,721	\$3,721	\$3,721	\$2,874	\$65,110	\$573,695
2037		\$1,093,652	\$2,269,557	\$45,665	\$942,219	\$972,884	\$3,333,333	\$8,352,426	\$90,722	\$191,610	\$175,488	\$3,832	\$3,832	\$3,832	\$3,832	\$3,832	\$2,960	\$67,076	\$590,906
2038		\$1,126,451	\$2,317,044	\$48,435	\$970,485	\$1,000,920	\$3,333,333	\$8,547,999	\$93,443	\$197,559	\$180,702	\$3,947	\$3,947	\$3,947	\$3,947	\$3,947	\$3,049	\$69,076	\$608,633
2039		\$1,160,255	\$2,386,555	\$51,588	\$999,600	\$1,021,188	\$3,333,333	\$8,747,939	\$96,447	\$203,279	\$186,123	\$4,066	\$4,066	\$4,066	\$4,066	\$4,066	\$3,141	\$71,148	\$626,892
2040		\$1,195,063	\$2,458,152	\$55,136	\$1,025,588	\$1,050,724	\$3,333,333	\$8,952,317	\$99,334	\$209,378	\$191,706	\$4,188	\$4,188	\$4,188	\$4,188	\$4,188	\$3,282	\$73,282	\$649,350
Total		\$22,004,871	\$45,262,318	\$5,564,616	\$18,957,951	\$20,000,000	\$20,000,000	\$114,789,757	\$1,825,372	\$3,855,394	\$3,529,917	\$77,106	\$77,106	\$77,106	\$77,106	\$77,106	\$57,830	\$1,349,350	\$11,543,052

## Assumptions:

Local match assumed to be 20% of the total TAP, STPDA, and TAPDA funding.  
State matching assumed to be \$0 until 2020 and increase to 10% from 2021 and beyond.

Maintenance of on-road bicycle facilities included in roadway maintenance.

WMPO population (215,957) makes up 5.03% of the population of all urbanized areas in NC.

It is assumed that WMPO will aggressively pursue bike/ped funding, obtaining 5.03% of NCDOT's 50% that will be allocated via the state competitive process or through competitive grants.

STPDA allocation for WMPO is \$2,762,416.80. 85% is available for capital projects. Of this 85%, 50% is available for roadway projects (42.5%). Begins in 2015 with adjustments for inflation beginning in 2016.

TAPDA allocation for WMPO is \$222,151.50. Begins in 2015 with adjustments for inflation beginning in 2016.

City of Wilmington spent \$45,968 on the Cross-City Trail in FY 2014. Adjustments for inflation begin in 2015.

NHC spends \$30,000 to \$40,000 a year on general sidewalk, roadways, and trail maintenance per year. Average begins in 2015.

Town of Wrightsville Beach spends \$1,500 per year on sidewalk maintenance. Adjustments for inflation begin in 2015.

Belville, Navassa, and Fender County do not have dedicated funding for sidewalk maintenance.

The City of Wilmington passed a \$55 million transportation bond in November 2014. \$20 million will be used to construct bicycle/pedestrian projects between 2015 and 2020.

## Sources:

FHWA Computational Tables for TAP (FY 2013 and FY 2014)

MAP-21 TAP Approach for NCDOT

MASS TRANSPORTATION FINANCIAL PLAN DATA- REVENUES

FY	Capital		Operations & Maintenance										NCDOT	
	Federal Transit Administration					Federal Transit Administration								
	Section 5307	Section 5310	Section 5311	CTP	Section 5339	NCDOT	Local Match	Total	Section 5303	Section 5307	Section 5311	Section 5316	Section 5317	CTP
2015	\$ 12,750	\$ 23,250	\$ 39,000	\$ 1,205,100	\$ 128,010	\$ 192,015	\$ 1,600,125	\$ 112,000	\$ 2,150,000	\$ 176,000	\$ 75,000	\$ 150,000	\$ 189,000	\$ 636,300
2016	\$ 13,133	\$ 23,948	\$ 40,170	\$ 9,192,699	\$ 926,995	\$ 1,390,492	\$ 11,587,486	\$ 112,000	\$ 2,150,000	\$ 176,000	\$ 150,000	\$ 150,000	\$ 189,000	\$ 642,663
2017	\$ 13,526	\$ 24,666	\$ 41,375	\$ 1,387,763	\$ 146,733	\$ 220,100	\$ 1,834,163	\$ 112,000	\$ 2,150,000	\$ 176,000	\$ 75,000	\$ -	\$ 189,000	\$ 649,090
2018	\$ 13,932	\$ 25,406	\$ 42,616	\$ 112,551	\$ 19,451	\$ 29,176	\$ 243,132	\$ 112,000	\$ 2,150,000	\$ 176,000	\$ -	\$ -	\$ 189,000	\$ 655,581
2019	\$ 14,350	\$ 26,168	\$ 43,895	\$ -	\$ 8,441	\$ 12,662	\$ 105,516	\$ 112,000	\$ 2,150,000	\$ 176,000	\$ -	\$ -	\$ 189,000	\$ 662,136
2020	\$ 14,781	\$ 26,953	\$ 45,212	\$ 537,324	\$ 62,427	\$ 93,640	\$ 780,336	\$ 115,360	\$ 2,214,500	\$ 181,280	\$ -	\$ -	\$ 189,000	\$ 668,758
2021	\$ 15,224	\$ 27,762	\$ 46,568	\$ 2,256,819	\$ 234,637	\$ 351,956	\$ 2,932,966	\$ 118,821	\$ 2,280,935	\$ 186,718	\$ -	\$ -	\$ 189,000	\$ 675,445
2022	\$ 15,681	\$ 28,595	\$ 47,965	\$ 1,545,459	\$ 163,770	\$ 245,655	\$ 2,047,125	\$ 122,385	\$ 2,349,363	\$ 192,320	\$ -	\$ -	\$ 189,000	\$ 682,200
2023	\$ 16,151	\$ 29,452	\$ 49,404	\$ 1,272,154	\$ 136,716	\$ 205,074	\$ 1,708,952	\$ 126,057	\$ 2,419,844	\$ 198,090	\$ -	\$ -	\$ 189,000	\$ 689,022
2024	\$ 16,636	\$ 30,336	\$ 50,886	\$ -	\$ 9,786	\$ 14,679	\$ 122,322	\$ 129,839	\$ 2,492,439	\$ 204,032	\$ -	\$ -	\$ 189,000	\$ 695,912
2025	\$ 17,135	\$ 31,246	\$ 52,413	\$ 622,905	\$ 72,370	\$ 108,555	\$ 904,624	\$ 133,794	\$ 2,567,212	\$ 210,153	\$ -	\$ -	\$ 189,000	\$ 702,871
2026	\$ 17,649	\$ 32,183	\$ 53,985	\$ 1,069,321	\$ 117,314	\$ 175,971	\$ 1,466,423	\$ 137,746	\$ 2,644,229	\$ 216,458	\$ -	\$ -	\$ 189,000	\$ 709,900
2027	\$ 18,178	\$ 33,149	\$ 55,605	\$ 1,424,478	\$ 153,141	\$ 229,711	\$ 1,914,262	\$ 141,878	\$ 2,723,556	\$ 222,952	\$ -	\$ -	\$ 189,000	\$ 716,999
2028	\$ 18,724	\$ 34,143	\$ 57,273	\$ 1,174,529	\$ 1,185,540	\$ 1,778,310	\$ 14,819,249	\$ 146,135	\$ 2,805,262	\$ 229,640	\$ -	\$ -	\$ 189,000	\$ 724,169
2029	\$ 19,286	\$ 35,168	\$ 58,991	\$ 2,290,212	\$ 240,366	\$ 360,548	\$ 3,004,570	\$ 150,519	\$ 2,889,420	\$ 236,529	\$ -	\$ -	\$ 189,000	\$ 731,410
2030	\$ 19,864	\$ 36,223	\$ 60,761	\$ 2,126,236	\$ 224,308	\$ 336,463	\$ 2,803,854	\$ 155,034	\$ 2,976,103	\$ 243,625	\$ -	\$ -	\$ 189,000	\$ 738,725
2031	\$ 20,460	\$ 37,309	\$ 62,584	\$ 1,239,636	\$ 135,999	\$ 203,998	\$ 1,699,986	\$ 159,685	\$ 3,065,386	\$ 250,934	\$ -	\$ -	\$ 189,000	\$ 746,112
2032	\$ 21,074	\$ 38,429	\$ 64,461	\$ 85,122	\$ 20,909	\$ 31,363	\$ 261,357	\$ 164,476	\$ 3,157,347	\$ 258,462	\$ -	\$ -	\$ 189,000	\$ 753,573
2033	\$ 21,706	\$ 39,582	\$ 66,395	\$ 981,963	\$ 110,965	\$ 166,447	\$ 1,387,057	\$ 169,410	\$ 3,252,068	\$ 266,216	\$ -	\$ -	\$ 189,000	\$ 761,109
2034	\$ 22,357	\$ 40,769	\$ 68,387	\$ 1,661,622	\$ 179,314	\$ 268,970	\$ 2,241,419	\$ 174,492	\$ 3,349,630	\$ 274,202	\$ -	\$ -	\$ 189,000	\$ 768,720
2035	\$ 23,028	\$ 41,992	\$ 70,438	\$ 1,999,817	\$ 213,528	\$ 320,291	\$ 2,689,094	\$ 179,727	\$ 3,450,119	\$ 282,428	\$ -	\$ -	\$ 189,000	\$ 776,407
2036	\$ 23,719	\$ 43,252	\$ 72,551	\$ 1,916,103	\$ 205,563	\$ 308,344	\$ 2,569,592	\$ 185,119	\$ 3,553,622	\$ 290,901	\$ -	\$ -	\$ 189,000	\$ 784,171
2037	\$ 24,430	\$ 44,549	\$ 74,728	\$ 1,825,568	\$ 196,928	\$ 295,391	\$ 2,461,594	\$ 190,673	\$ 3,660,231	\$ 299,628	\$ -	\$ -	\$ 189,000	\$ 792,013
2038	\$ 25,163	\$ 45,886	\$ 76,970	\$ 203,279	\$ 35,130	\$ 52,695	\$ 439,123	\$ 196,393	\$ 3,770,038	\$ 308,617	\$ -	\$ -	\$ 189,000	\$ 799,933
2039	\$ 25,918	\$ 47,262	\$ 79,279	\$ 1,926,276	\$ 207,874	\$ 311,810	\$ 2,598,419	\$ 202,284	\$ 3,883,139	\$ 317,876	\$ -	\$ -	\$ 189,000	\$ 807,932
2040	\$ 26,696	\$ 48,680	\$ 81,657	\$ 16,152,869	\$ 1,630,990	\$ 2,446,485	\$ 20,387,377	\$ 208,353	\$ 3,999,633	\$ 327,412	\$ -	\$ -	\$ 189,000	\$ 816,011
Total	\$ 491,551	\$ 896,358	\$ 1,503,569	\$ 64,780,533	\$ 6,767,201	\$ 10,150,802	\$ 84,590,015	\$ 3,868,119	\$ 74,254,078	\$ 6,078,473	\$ 300,000	\$ 300,000	\$ 4,914,000	\$ 18,787,159

Assumptions:

NCDOT funds the 10% state match through SMF. Transit projects can still be funded exclusively through federal funds without the NCDOT 10% match.

All programmed funding values derived from 2013 Wave Capital Plan for 2014 to 2018, except for SMAP.

Federal funding for 2019 and beyond equals the average of 2014 to 2018 annual funding with adjustments for inflation beginning in 2020.

Section 5316 and Section 5317 were repealed in MAP-21, but funding is authorized to 2017. No funding assumed beyond Wave CIP.

FTA provides 50% operating and 80% capital through Section 5307, Section 5311, Section 5316, and Section 5317, included in the above table per what is being shown in the Wave CIP.

Section 5307 funds both capital and O&M projects in the Wave CIP.

All NCDOT, local, and Wave O&M funding values for 2014 based on 2014 Wave Operating Budget and guidance from Wave with adjustments for inflation beginning in 2015.

Other income for O&M includes revenues from advertising, Greyhound service, and vending machines.

Passenger fares expected to increase by 3% annually as a result of ridership increase. No adjustments for inflation.

Federal capital funding is difficult to project; however, basing projections on historical data is reasonable out to 2040.

State CTP assumed to remain constant at \$189,000.

No inflation for SMAP/ROAF; 1% growth.

Capital: local match is 12% and state match is 8%.

Local match for capital comes from City of Wilmington, New Hanover County, Brunswick Consortium, and UNCW.

Section 5339 funding assumed to match vehicle replacement expenditures shown on Wave Vehicle Inventory tab.

Capital funding less Section 5339 funding is expected to be \$75,000 annually.

Sources:

2013 Wave Capital Plan

MASS TRANSPORTATION FINANCIAL PLAN DATA - REVENUES (CONTINUED)

Local												Wave				Other Income		Total
ROAP	NHC DOA	NHC DSS (Van)	NHC DSS (Work First)	Other Agencies	City of Wilmington	NHC	Brunswick Consortium	UNCW	Passenger Fares	Other Income	Total							
\$ 202,000	\$ 72,100	\$ 515,000	\$ 15,450	\$ 18,025	\$ 1,285,000	\$ 275,000	\$ 91,875	\$ 820,000	\$ 993,000	\$ 76,220	\$ 7,851,970							\$ 7,851,970
\$ 204,020	\$ 74,263	\$ 530,450	\$ 15,914	\$ 18,566	\$ 1,323,550	\$ 283,250	\$ 94,631	\$ 844,600	\$ 1,022,790	\$ 78,507	\$ 8,060,203							\$ 8,060,203
\$ 206,060	\$ 76,491	\$ 546,364	\$ 16,391	\$ 19,123	\$ 1,363,257	\$ 291,748	\$ 97,470	\$ 869,938	\$ 1,053,474	\$ 80,862	\$ 7,972,266							\$ 7,972,266
\$ 208,121	\$ 78,786	\$ 562,754	\$ 16,883	\$ 19,696	\$ 1,404,154	\$ 300,500	\$ 100,394	\$ 896,036	\$ 1,085,078	\$ 83,288	\$ 8,038,271							\$ 8,038,271
\$ 210,202	\$ 81,149	\$ 579,637	\$ 17,389	\$ 20,287	\$ 1,446,279	\$ 309,515	\$ 103,406	\$ 922,917	\$ 1,117,630	\$ 85,786	\$ 8,183,335							\$ 8,183,335
\$ 212,304	\$ 83,584	\$ 597,026	\$ 17,911	\$ 20,896	\$ 1,489,667	\$ 318,800	\$ 106,508	\$ 950,605	\$ 1,151,159	\$ 88,360	\$ 8,405,718							\$ 8,405,718
\$ 214,427	\$ 86,091	\$ 614,937	\$ 18,448	\$ 21,523	\$ 1,534,357	\$ 328,364	\$ 109,704	\$ 979,123	\$ 1,185,694	\$ 91,011	\$ 8,634,598							\$ 8,634,598
\$ 216,571	\$ 88,674	\$ 633,385	\$ 19,002	\$ 22,168	\$ 1,580,388	\$ 338,215	\$ 112,995	\$ 1,008,497	\$ 1,221,265	\$ 93,741	\$ 8,870,169							\$ 8,870,169
\$ 218,737	\$ 91,334	\$ 652,387	\$ 19,572	\$ 22,834	\$ 1,627,800	\$ 348,362	\$ 116,385	\$ 1,038,751	\$ 1,257,903	\$ 96,553	\$ 9,112,628							\$ 9,112,628
\$ 220,924	\$ 94,074	\$ 671,958	\$ 20,159	\$ 23,519	\$ 1,676,634	\$ 358,813	\$ 119,876	\$ 1,069,914	\$ 1,295,640	\$ 99,450	\$ 9,362,182							\$ 9,362,182
\$ 223,134	\$ 96,896	\$ 692,117	\$ 20,764	\$ 24,224	\$ 1,726,933	\$ 369,577	\$ 123,472	\$ 1,102,011	\$ 1,334,509	\$ 102,433	\$ 9,619,041							\$ 9,619,041
\$ 225,365	\$ 99,803	\$ 712,880	\$ 21,386	\$ 24,951	\$ 1,778,741	\$ 380,664	\$ 127,176	\$ 1,135,072	\$ 1,374,544	\$ 105,506	\$ 9,883,422							\$ 9,883,422
\$ 227,619	\$ 102,797	\$ 734,267	\$ 22,028	\$ 25,699	\$ 1,832,103	\$ 392,084	\$ 130,992	\$ 1,169,124	\$ 1,415,781	\$ 108,671	\$ 10,155,549							\$ 10,155,549
\$ 229,895	\$ 105,881	\$ 756,295	\$ 22,689	\$ 26,470	\$ 1,887,066	\$ 403,847	\$ 134,922	\$ 1,204,198	\$ 1,458,254	\$ 111,932	\$ 10,435,653							\$ 10,435,653
\$ 232,194	\$ 109,058	\$ 778,984	\$ 23,370	\$ 27,264	\$ 1,943,678	\$ 415,962	\$ 138,969	\$ 1,240,324	\$ 1,502,002	\$ 115,290	\$ 10,723,972							\$ 10,723,972
\$ 234,516	\$ 112,329	\$ 802,353	\$ 24,071	\$ 28,082	\$ 2,001,988	\$ 428,441	\$ 143,138	\$ 1,277,533	\$ 1,547,062	\$ 118,748	\$ 11,020,749							\$ 11,020,749
\$ 236,861	\$ 115,699	\$ 826,424	\$ 24,793	\$ 28,925	\$ 2,062,048	\$ 441,294	\$ 147,432	\$ 1,315,859	\$ 1,593,473	\$ 122,311	\$ 11,326,236							\$ 11,326,236
\$ 239,229	\$ 119,170	\$ 851,217	\$ 25,536	\$ 29,793	\$ 2,123,909	\$ 454,533	\$ 151,855	\$ 1,355,335	\$ 1,641,278	\$ 125,980	\$ 11,640,694							\$ 11,640,694
\$ 241,622	\$ 122,745	\$ 876,753	\$ 26,303	\$ 30,686	\$ 2,187,626	\$ 468,169	\$ 156,411	\$ 1,395,995	\$ 1,690,516	\$ 129,759	\$ 11,964,389							\$ 11,964,389
\$ 244,038	\$ 126,428	\$ 903,056	\$ 27,092	\$ 31,607	\$ 2,253,255	\$ 482,214	\$ 161,103	\$ 1,437,875	\$ 1,741,232	\$ 133,652	\$ 12,297,596							\$ 12,297,596
\$ 246,478	\$ 130,221	\$ 930,147	\$ 27,904	\$ 32,555	\$ 2,320,853	\$ 496,681	\$ 165,936	\$ 1,481,011	\$ 1,793,468	\$ 137,662	\$ 12,640,599							\$ 12,640,599
\$ 248,943	\$ 134,127	\$ 958,052	\$ 28,742	\$ 33,532	\$ 2,390,479	\$ 511,581	\$ 170,915	\$ 1,525,442	\$ 1,847,273	\$ 141,792	\$ 12,993,689							\$ 12,993,689
\$ 251,433	\$ 138,151	\$ 986,793	\$ 29,604	\$ 34,538	\$ 2,462,193	\$ 526,928	\$ 176,042	\$ 1,571,205	\$ 1,902,691	\$ 146,045	\$ 13,357,167							\$ 13,357,167
\$ 253,947	\$ 142,296	\$ 1,016,397	\$ 30,492	\$ 35,574	\$ 2,536,059	\$ 542,736	\$ 181,323	\$ 1,618,341	\$ 1,959,771	\$ 150,427	\$ 13,731,343							\$ 13,731,343
\$ 256,486	\$ 146,564	\$ 1,046,889	\$ 31,407	\$ 36,641	\$ 2,612,140	\$ 559,018	\$ 186,763	\$ 1,666,891	\$ 2,018,565	\$ 154,940	\$ 14,116,536							\$ 14,116,536
\$ 259,051	\$ 150,961	\$ 1,078,296	\$ 32,349	\$ 37,740	\$ 2,690,505	\$ 575,789	\$ 192,366	\$ 1,716,898	\$ 2,079,121	\$ 159,588	\$ 14,513,074							\$ 14,513,074
\$ 5,964,178	\$ 2,779,674	\$ 19,854,817	\$ 595,645	\$ 694,919	\$ 49,540,659	\$ 10,602,087	\$ 3,542,061	\$ 31,613,495	\$ 38,283,171	\$ 2,938,513	\$ 274,911,047							\$ 274,911,047



FERRY FINANCIAL PLAN DATA-REVENUES

FY	Capital				Operations & Maintenance	
	FBP	Toll Revenues	Regional STI	Total	Highway Fund	
2015	\$ 186,500	\$ 756,829	\$ -	\$ 943,328	\$	4,873,882
2016	\$ 192,095	\$ 779,533	\$ -	\$ 971,628	\$	5,020,098
2017	\$ 197,858	\$ 802,919	\$ -	\$ 1,000,777	\$	5,170,701
2018	\$ 203,793	\$ 827,007	\$ -	\$ 1,030,800	\$	5,325,822
2019	\$ 209,907	\$ 851,817	\$ -	\$ 1,061,724	\$	5,485,597
2020	\$ 216,204	\$ 877,372	\$ -	\$ 1,093,576	\$	5,650,164
2021	\$ 222,691	\$ 903,693	\$ -	\$ 1,126,383	\$	5,819,669
2022	\$ 229,371	\$ 930,804	\$ -	\$ 1,160,175	\$	5,994,259
2023	\$ 236,252	\$ 958,728	\$ -	\$ 1,194,980	\$	6,174,087
2024	\$ 243,340	\$ 987,490	\$ 80,400	\$ 1,311,230	\$	6,359,310
2025	\$ 250,640	\$ 1,017,114	\$ 80,400	\$ 1,348,155	\$	6,550,089
2026	\$ 258,159	\$ 1,047,628	\$ 80,400	\$ 1,386,187	\$	6,746,592
2027	\$ 265,904	\$ 1,079,057	\$ 80,400	\$ 1,425,361	\$	6,948,990
2028	\$ 273,881	\$ 1,111,428	\$ 80,400	\$ 1,465,710	\$	7,157,459
2029	\$ 282,098	\$ 1,144,771	\$ 80,400	\$ 1,507,269	\$	7,372,183
2030	\$ 290,561	\$ 1,179,114	\$ 80,400	\$ 1,550,075	\$	7,593,349
2031	\$ 299,278	\$ 1,214,488	\$ 80,400	\$ 1,594,165	\$	7,821,149
2032	\$ 308,256	\$ 1,250,922	\$ 80,400	\$ 1,639,578	\$	8,055,783
2033	\$ 317,504	\$ 1,288,450	\$ 80,400	\$ 1,686,353	\$	8,297,457
2034	\$ 327,029	\$ 1,327,103	\$ 80,400	\$ 1,734,532	\$	8,546,381
2035	\$ 336,840	\$ 1,366,917	\$ 80,400	\$ 1,784,156	\$	8,802,772
2036	\$ 346,945	\$ 1,407,924	\$ 80,400	\$ 1,835,269	\$	9,066,855
2037	\$ 357,353	\$ 1,450,162	\$ 80,400	\$ 1,887,915	\$	9,338,861
2038	\$ 368,074	\$ 1,493,667	\$ 80,400	\$ 1,942,140	\$	9,619,027
2039	\$ 379,116	\$ 1,538,477	\$ 80,400	\$ 1,997,992	\$	9,907,598
2040	\$ 390,489	\$ 1,584,631	\$ 80,400	\$ 2,055,520	\$	10,204,826
<b>Total</b>	<b>\$ 7,190,138</b>	<b>\$ 29,178,043</b>	<b>\$ 1,366,800</b>	<b>\$ 37,734,981</b>	<b>\$</b>	<b>187,902,959</b>

**Assumptions:**

The Ferry Boat Program is federally funded and state allocated.

O&M funding is available per the General Assembly's direction as part of NCDOT's normal budget.

Fort Fisher is one of eight ferry terminals in North Carolina. Funding is expected to be 1/8th of the state FBP allocation.

Funding for 2015 and beyond equals the average of 2013 to 2014 annual funding with adjustments for inflation beginning in 2016.

The state match for the Ferry Boat Program is 20% and will come through SMF.

Total O&M ferry funding per the OSBM 2014-2015 Budget is \$38,991,052. Fort Fisher assumed to obtain 1/8th of this funding for 2015, with funding continuing with inflation starting in 2016.

Regional STI is estimated by taking total available Regional STI funds for multimodal needs (2% of \$450M annually), dividing by number of regions (4), and then dividing by 4 for eligible modes (ferry, transit, rail, aviation). Total is then divided by 7, to account for the fact that Fort Fisher is one of 7 ferry terminals in the region. This comes to \$80,357, which is rounded to \$80,400, starting in 2024 with no inflation.

No inflation for regional dollars for 2014-2023. Inflation applied for further years.

Revenues generated from tolling are used directly to fund the purchase of replacement ferry

Toll revenues increased by 4% from 2013 to 2014. Revenues adjusted by 4% starting in 2015.

**Sources:**

FHWA Ferry Boat Program Formula Funds Tables (FY 2013 and FY 2014)

NC OSBM 2014-2015 Budget

NCDOT Proposed Ferry Toll Rates (PDF)



AVIATION FINANCIAL PLAN DATA-REVENUES

FY	Capital						Operations & Maintenance
	AIP Entitlement	State Match	CFC	PFC	ILM Match	Total	Airport Revenues
2015	\$ 3,200,000	\$ 500,000	\$ 849,752	\$ 2,058,644	\$ 320,000	\$ 6,928,396	\$ 7,665,455
2016	\$ 3,200,000	\$ 515,000	\$ 849,752	\$ 2,127,342	\$ 320,000	\$ 7,012,094	\$ 7,895,418
2017	\$ 3,200,000	\$ 530,450	\$ 849,752	\$ 2,196,040	\$ 320,000	\$ 7,096,242	\$ 8,132,281
2018	\$ 3,200,000	\$ 546,364	\$ 849,752	\$ 2,264,738	\$ 320,000	\$ 7,180,853	\$ 8,376,249
2019	\$ 3,200,000	\$ 562,754	\$ 849,752	\$ 2,327,262	\$ 320,000	\$ 7,259,769	\$ 8,627,537
2020	\$ 3,200,000	\$ 579,637	\$ 849,752	\$ 2,389,787	\$ 320,000	\$ 7,339,176	\$ 8,886,363
2021	\$ 3,200,000	\$ 597,026	\$ 849,752	\$ 2,452,312	\$ 320,000	\$ 7,419,090	\$ 9,152,954
2022	\$ 3,200,000	\$ 614,937	\$ 849,752	\$ 2,514,837	\$ 320,000	\$ 7,499,526	\$ 9,427,542
2023	\$ 3,200,000	\$ 633,385	\$ 849,752	\$ 2,577,362	\$ 320,000	\$ 7,580,499	\$ 9,710,368
2024	\$ 3,200,000	\$ 652,387	\$ 849,752	\$ 2,643,028	\$ 320,000	\$ 7,665,167	\$ 10,001,680
2025	\$ 3,200,000	\$ 671,958	\$ 849,752	\$ 2,708,695	\$ 320,000	\$ 7,750,405	\$ 10,301,730
2026	\$ 3,200,000	\$ 692,117	\$ 849,752	\$ 2,774,362	\$ 320,000	\$ 7,836,231	\$ 10,610,782
2027	\$ 3,200,000	\$ 712,880	\$ 849,752	\$ 2,840,028	\$ 320,000	\$ 7,922,661	\$ 10,929,105
2028	\$ 3,200,000	\$ 734,267	\$ 849,752	\$ 2,905,695	\$ 320,000	\$ 8,009,714	\$ 11,256,978
2029	\$ 3,200,000	\$ 756,295	\$ 849,752	\$ 2,959,025	\$ 320,000	\$ 8,085,072	\$ 11,594,688
2030	\$ 3,200,000	\$ 778,984	\$ 849,752	\$ 3,012,354	\$ 320,000	\$ 8,161,090	\$ 11,942,528
2031	\$ 3,200,000	\$ 802,353	\$ 849,752	\$ 3,065,684	\$ 320,000	\$ 8,237,789	\$ 12,300,804
2032	\$ 3,200,000	\$ 826,424	\$ 849,752	\$ 3,119,013	\$ 320,000	\$ 8,315,189	\$ 12,669,828
2033	\$ 3,200,000	\$ 851,217	\$ 849,752	\$ 3,172,343	\$ 320,000	\$ 8,393,311	\$ 13,049,923
2034	\$ 3,200,000	\$ 876,753	\$ 849,752	\$ 3,228,053	\$ 320,000	\$ 8,474,558	\$ 13,441,421
2035	\$ 3,200,000	\$ 903,056	\$ 849,752	\$ 3,283,764	\$ 320,000	\$ 8,556,572	\$ 13,844,664
2036	\$ 3,200,000	\$ 930,147	\$ 849,752	\$ 3,339,474	\$ 320,000	\$ 8,639,374	\$ 14,260,004
2037	\$ 3,200,000	\$ 958,052	\$ 849,752	\$ 3,395,185	\$ 320,000	\$ 8,722,989	\$ 14,687,804
2038	\$ 3,200,000	\$ 986,793	\$ 849,752	\$ 3,450,896	\$ 320,000	\$ 8,807,441	\$ 15,128,438
2039	\$ 3,200,000	\$ 1,016,397	\$ 849,752	\$ 3,506,606	\$ 320,000	\$ 8,892,756	\$ 15,582,291
2040	\$ 3,200,000	\$ 1,046,889	\$ 849,752	\$ 3,562,317	\$ 320,000	\$ 8,978,958	\$ 16,049,760
<b>Total</b>	<b>\$ 83,200,000</b>	<b>\$ 19,276,521</b>	<b>\$ 22,093,557</b>	<b>\$ 73,874,843</b>	<b>\$ 8,320,000</b>	<b>\$ 206,764,921</b>	<b>\$ 295,526,593</b>

**Assumptions:**

State Aid to Airports funding no longer available because of STI.

ILM is eligible to pursue up to \$500,000 as a state match through SMF. Adjustments for inflation beginning in 2016.

FAA AIP, PFC, and Other funding for 2021 and beyond equals the average of 2014 to 2020 annual funding with adjustments for inflation beginning in 2022.

AIP Discretionary funding is not guaranteed and is omitted to be conservative.

AIP Entitlement assumed to stay constant in future.

CFC assumed to remain constant.

PFC based on enplanement trends and \$4.50 per enplanement.

ILM Match is 10% of AIP Entitlement.

**Sources:**

FAA AIP Grant Histories ([http://www.faa.gov/airports/aip/grant\\_histories/](http://www.faa.gov/airports/aip/grant_histories/))

ILM Capital Improvement Plan FY 2014 - FY 2020

ILM Enplanement Forecast

RAIL FINANCIAL PLAN DATA-REVENUES

FY	Capital		Total	Operations & Maintenance*
	FR&RCSI			
	RIAP	SIAP		
2015	\$ 76,084	\$ 961,333	\$ 1,037,417	\$ -
2016	\$ 78,366	\$ 990,173	\$ 1,068,540	\$ -
2017	\$ 80,717	\$ 1,019,879	\$ 1,100,596	\$ -
2018	\$ 83,139	\$ 1,050,475	\$ 1,133,614	\$ -
2019	\$ 85,633	\$ 1,081,989	\$ 1,167,622	\$ -
2020	\$ 88,202	\$ 1,114,449	\$ 1,202,651	\$ -
2021	\$ 90,848	\$ 1,147,882	\$ 1,238,730	\$ -
2022	\$ 93,573	\$ 1,182,319	\$ 1,275,892	\$ -
2023	\$ 96,381	\$ 1,217,788	\$ 1,314,169	\$ -
2024	\$ 99,272	\$ 1,254,322	\$ 1,353,594	\$ -
2025	\$ 102,250	\$ 1,291,952	\$ 1,394,202	\$ -
2026	\$ 105,318	\$ 1,330,710	\$ 1,436,028	\$ -
2027	\$ 108,477	\$ 1,370,631	\$ 1,479,109	\$ -
2028	\$ 111,731	\$ 1,411,750	\$ 1,523,482	\$ -
2029	\$ 115,083	\$ 1,454,103	\$ 1,569,186	\$ -
2030	\$ 118,536	\$ 1,497,726	\$ 1,616,262	\$ -
2031	\$ 122,092	\$ 1,542,658	\$ 1,664,750	\$ -
2032	\$ 125,755	\$ 1,588,938	\$ 1,714,692	\$ -
2033	\$ 129,527	\$ 1,636,606	\$ 1,766,133	\$ -
2034	\$ 133,413	\$ 1,685,704	\$ 1,819,117	\$ -
2035	\$ 137,416	\$ 1,736,275	\$ 1,873,691	\$ -
2036	\$ 141,538	\$ 1,788,363	\$ 1,929,901	\$ -
2037	\$ 145,784	\$ 1,842,014	\$ 1,987,798	\$ -
2038	\$ 150,158	\$ 1,897,274	\$ 2,047,432	\$ -
2039	\$ 154,662	\$ 1,954,193	\$ 2,108,855	\$ -
2040	\$ 159,302	\$ 2,012,819	\$ 2,172,121	\$ -
<b>Total</b>	<b>\$ 2,933,257</b>	<b>\$ 37,062,325</b>	<b>\$ 39,995,582</b>	<b>\$ -</b>

**Assumptions:**

\$10B set aside for freight rail in Grow America initiative, and \$10B TIGER with an emphasis on freight rail. Put a column in for these future additional funds, look for more information on this. Probably doesn't get any \$\$ until after 2020.

RIAP received \$1 million from 1994 to 2011 and \$119,000 for 2012-2013.

Averaged in 2014 with adjustments for inflation beginning in 2015.

SIAP received \$2 million in 2011 and \$400,000 in 2012 and 2013. Average in 2014 with adjustments for inflation beginning in 2015.

Jon Dees - living off of diminishing ARRA funds for rail. No single mode funds out of FRA since 2009 appropriations. FRA has been administering TIGER funds. FRA gives out some planning money, but that's going to SE High Speed Rail corridor. No federal O&M. O&M on State-supported network provided by state. Out of highway fund. Send funds to AMTRAK for Carolinian. Piedmont AMTRAK funded by NCDOT. NCDOT pays NS and CSX for rights to run on their tracks.

Since there are no AMTRAK routes operating within the MPO, there is no state or federal O&M funding available. If a future line is contemplated, ability to gather O&M funding must be demonstrated.

NCRP is a self-sustaining organization, receiving no financial support from the state. As of 2013, NCRP now has to provide 25% of its revenue to the Rail Division. Funds allocated only to capital projects - Freight Rail and Rail Crossing Safety Improvement funds.

\*O&M is funded by private entities.

No funding is available from FRA.

**Sources:**

Neil Perry and Jon Dees, NCDOT Rail Division



ROADWAY FUNDING MECHANISMS DATA-EXPENDITURES

ID	Street/Intersection	Score	2014 Cost	Year-Bands						
				2015-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050
R-1	Kerr Avenue Widening	N/A	\$ 39,955,000	\$ 44,309,966	\$ 52,132,213	\$ 60,435,522	\$ 70,061,334	\$ 81,220,289	\$ 93,900,000	\$ 107,147,794
R-2	1-140 Wilmington Bypass Phase I	N/A	\$ 163,930,000	\$ 181,797,843	\$ 213,891,468	\$ 247,958,834	\$ 287,452,247	\$ 333,235,938	\$ 384,441,834	\$ 440,330,367
R-3	Military Cutoff Road Extension Phase II		\$ 132,643,162	\$ 147,100,840	\$ 173,069,241	\$ 200,634,684	\$ 232,590,587	\$ 269,636,238	\$ 312,848,460	\$ 363,940,118
R-4	NC 133/Castle Hayne Road Widening Phase I	64.397	\$ 111,437,000	\$ 123,383,275	\$ 145,400,009	\$ 168,558,461	\$ 195,405,454	\$ 226,528,477	\$ 266,528,477	\$ 312,848,460
R-5	US117/NC132/College Road Widening Phase II	64.095	\$ 111,187,000	\$ 123,306,025	\$ 145,073,816	\$ 168,180,314	\$ 194,967,078	\$ 226,020,278	\$ 266,528,477	\$ 312,848,460
R-6	Gordon Road Widening	58.687	\$ 17,300,000	\$ 19,185,644	\$ 22,572,576	\$ 26,167,802	\$ 30,335,655	\$ 35,167,338	\$ 40,830,367	\$ 47,440,337
R-7	US117/NC132/College Road Widening	57.421	\$ 13,986,000	\$ 15,510,429	\$ 18,248,558	\$ 21,155,080	\$ 24,524,536	\$ 28,430,658	\$ 33,335,655	\$ 39,440,337
R-8	US421/Carolina Beach Road Widening	55.146	\$ 9,574,000	\$ 10,617,535	\$ 12,491,898	\$ 14,481,534	\$ 16,788,067	\$ 19,461,971	\$ 22,652,515	\$ 26,652,515
R-9	US17/US1/Market Street Road Diet	51.276	\$ 6,840,000	\$ 7,585,538	\$ 8,924,649	\$ 10,346,114	\$ 11,993,981	\$ 13,904,312	\$ 16,083,617	\$ 18,562,515
R-10	US17/US1/Market Street Access Management	46.590	\$ 6,250,000	\$ 6,931,230	\$ 8,154,832	\$ 9,453,686	\$ 10,959,413	\$ 12,704,963	\$ 14,744,963	\$ 17,083,617
R-11	US17/US1/Market Street Access Management	44.607	\$ 3,375,000	\$ 3,742,864	\$ 4,403,609	\$ 5,104,990	\$ 5,918,083	\$ 6,860,680	\$ 7,944,963	\$ 9,174,963
R-12	US17 Superstreet	40.791	\$ 35,000,000	\$ 38,814,887	\$ 45,667,061	\$ 52,940,640	\$ 61,372,712	\$ 71,147,794	\$ 82,440,337	\$ 95,174,963
R-13	US117/NC132/College & US16/Oleander Intersection	39.533	\$ 25,110,000	\$ 27,846,909	\$ 32,762,855	\$ 37,981,128	\$ 44,030,537	\$ 51,043,460	\$ 59,174,963	\$ 68,440,337
R-14	US17/US1/Market Street Access Management	38.985	\$ 3,375,000	\$ 3,742,864	\$ 4,403,609	\$ 5,104,990	\$ 5,918,083	\$ 6,860,680	\$ 7,944,963	\$ 9,174,963
R-15	US421/Front Street Widening	39.421	\$ 9,952,000	\$ 11,036,736	\$ 12,985,103	\$ 15,053,293	\$ 17,450,892	\$ 20,230,367	\$ 23,440,337	\$ 27,174,963
R-16	US74/Eastwood Road & Military Cutoff Road	38.695	\$ 25,110,000	\$ 27,846,909	\$ 32,762,855	\$ 37,981,128	\$ 44,030,537	\$ 51,043,460	\$ 59,174,963	\$ 68,440,337
R-17	Carolina Beach Road & College Road Flowovers	36.158	\$ 15,500,000	\$ 17,189,450	\$ 20,223,984	\$ 23,445,141	\$ 27,179,344	\$ 31,508,309	\$ 36,394,018	\$ 42,190,642
R-18	Isabel Holmes Bridge Flowovers	30.668	\$ 15,500,000	\$ 17,189,450	\$ 20,223,984	\$ 23,445,141	\$ 27,179,344	\$ 31,508,309	\$ 36,394,018	\$ 42,190,642
R-19	US117/NC132/College & MLK Pkwy Intersection	28.602	\$ 25,110,000	\$ 27,846,909	\$ 32,762,855	\$ 37,981,128	\$ 44,030,537	\$ 51,043,460	\$ 59,174,963	\$ 68,440,337
R-20	Kerr Avenue/MLK Pkwy Intersection	27.824	\$ 20,755,000	\$ 23,017,228	\$ 27,080,567	\$ 31,393,800	\$ 36,394,018	\$ 42,190,642	\$ 49,174,963	\$ 57,174,963
R-21	US421/Carolina Beach Road Upgrade	69.174	\$ 4,300,000	\$ 4,768,686	\$ 5,610,525	\$ 6,504,136	\$ 7,540,076	\$ 8,741,015	\$ 10,083,617	\$ 11,583,617
R-22	Hurst Drive Extension	57.979	\$ 4,300,000	\$ 4,768,686	\$ 5,610,525	\$ 6,504,136	\$ 7,540,076	\$ 8,741,015	\$ 10,083,617	\$ 11,583,617
R-23	Dawson Street Streetscape	46.084	\$ 550,000	\$ 609,948	\$ 717,625	\$ 831,924	\$ 964,428	\$ 1,118,037	\$ 1,294,428	\$ 1,494,428
R-24	Woolster Street Streetscape	46.076	\$ 550,000	\$ 609,948	\$ 717,625	\$ 831,924	\$ 964,428	\$ 1,118,037	\$ 1,294,428	\$ 1,494,428
R-25	US17/US1/Market Street & 17th Street Intersection	33.484	\$ 1,600,000	\$ 1,774,395	\$ 2,087,637	\$ 2,420,144	\$ 2,805,610	\$ 3,252,471	\$ 3,784,428	\$ 4,394,428
R-26	Wrightsville Avenue & Wallace Avenue Roundabout	31.093	\$ 1,500,000	\$ 1,663,495	\$ 1,957,160	\$ 2,268,885	\$ 2,630,259	\$ 3,049,191	\$ 3,524,428	\$ 4,064,428
R-27	Oleander Drive & Pine Grove Intersection	30.489	\$ 2,000,000	\$ 2,238,893	\$ 2,740,024	\$ 3,176,438	\$ 3,682,363	\$ 4,268,868	\$ 4,944,428	\$ 5,694,428
R-28	Pine Grove Drive & MacMillan Avenue Intersection	25.000	\$ 2,500,000	\$ 2,772,492	\$ 3,261,933	\$ 3,781,474	\$ 4,383,765	\$ 5,081,985	\$ 5,881,985	\$ 6,781,985
R-29	Low Grove Additional Access	21.563	\$ 6,100,000	\$ 6,764,880	\$ 7,959,116	\$ 9,276,797	\$ 10,696,387	\$ 12,400,044	\$ 14,400,044	\$ 16,694,428
R-30	Pine Grove Drive & Greenville Loop Road Roundabout	20.000	\$ 1,500,000	\$ 1,663,495	\$ 1,957,160	\$ 2,268,885	\$ 2,630,259	\$ 3,049,191	\$ 3,524,428	\$ 4,064,428
R-31	Pine Grove Drive & Holly Tree Road Roundabout	20.000	\$ 1,500,000	\$ 1,663,495	\$ 1,957,160	\$ 2,268,885	\$ 2,630,259	\$ 3,049,191	\$ 3,524,428	\$ 4,064,428
R-32	Rice Gate Way Extension	63.062	\$ 6,268,000	\$ 6,951,192	\$ 8,178,318	\$ 9,480,912	\$ 10,990,976	\$ 12,741,553	\$ 14,741,553	\$ 16,941,553
R-33	Kerr Avenue Widening	59.759	\$ 49,197,000	\$ 54,559,315	\$ 64,190,926	\$ 74,414,877	\$ 86,267,237	\$ 100,007,372	\$ 115,007,372	\$ 132,848,460
R-34	Old Fayetteville Road Widening	57.697	\$ 15,391,000	\$ 17,068,569	\$ 20,081,764	\$ 23,380,268	\$ 26,988,212	\$ 31,286,734	\$ 36,394,018	\$ 42,190,642
R-35	N 23rd Street Widening	57.766	\$ 8,692,000	\$ 9,639,400	\$ 11,341,089	\$ 13,147,430	\$ 15,241,475	\$ 17,669,046	\$ 20,449,046	\$ 23,694,046
R-36	NC 710 Improvements	51.434	\$ 2,825,000	\$ 3,132,916	\$ 3,685,984	\$ 4,273,066	\$ 4,953,655	\$ 5,742,643	\$ 6,642,643	\$ 7,692,643
R-37	Wilshire Boulevard Extension	50.301	\$ 1,776,000	\$ 1,969,578	\$ 2,317,277	\$ 2,686,359	\$ 3,114,227	\$ 3,610,242	\$ 4,184,242	\$ 4,844,242
R-38	Hampstead Bypass	50.042	\$ 252,524,672	\$ 280,858,617	\$ 330,439,905	\$ 383,070,415	\$ 444,083,600	\$ 514,814,605	\$ 594,814,605	\$ 684,814,605
R-39	County Club/Donal Drive and Sloop Point Loop Road	46.574	\$ 645,000	\$ 715,303	\$ 841,579	\$ 975,620	\$ 1,131,011	\$ 1,311,552	\$ 1,514,552	\$ 1,744,552
R-40	Kerr Avenue Extension	48.732	\$ 13,191,000	\$ 14,628,777	\$ 17,211,263	\$ 19,952,571	\$ 23,130,498	\$ 26,814,587	\$ 31,014,587	\$ 35,814,587
R-41	1/4 Upgrade	40.675	\$ 54,001,000	\$ 59,886,935	\$ 70,459,057	\$ 81,681,358	\$ 94,691,080	\$ 109,772,915	\$ 127,772,915	\$ 148,772,915
R-42	NC 133/Castle Hayne Road & 23rd Street Roundabout	37.467	\$ 775,000	\$ 859,473	\$ 1,011,199	\$ 1,172,257	\$ 1,358,967	\$ 1,575,415	\$ 1,834,415	\$ 2,134,415
R-43	Front Street & Carolina Beach Road Intersection	31.164	\$ 233,000	\$ 258,396	\$ 304,012	\$ 352,433	\$ 408,567	\$ 473,641	\$ 548,641	\$ 628,641
R-44	Old Fayetteville Road Interchange	23.569	\$ 7,700,000	\$ 8,539,275	\$ 10,046,754	\$ 11,646,941	\$ 13,501,997	\$ 15,652,515	\$ 18,102,515	\$ 20,952,515
R-45	New Centre Drive & Market Street Intersection	16.123	\$ 465,000	\$ 515,684	\$ 606,720	\$ 703,354	\$ 815,380	\$ 945,249	\$ 1,095,249	\$ 1,275,249
R-46	Greenville Avenue & Oleander Drive Intersection	14.238	\$ 233,000	\$ 258,396	\$ 304,012	\$ 352,433	\$ 408,567	\$ 473,641	\$ 548,641	\$ 628,641
R-47	Shipyard Boulevard Access Management (F/R)	13.584	\$ 25,000	\$ 27,725	\$ 32,619	\$ 37,815	\$ 43,838	\$ 50,820	\$ 58,843	\$ 67,868
R-48	Carolina Beach Road & Shipyard Boulevard Intersection (wb right turn) (F/R)	10.678	\$ 750,000	\$ 831,748	\$ 978,580	\$ 1,134,442	\$ 1,315,130	\$ 1,524,596	\$ 1,764,596	\$ 2,044,596

## ROADWAY FUNDING MECHANISMS DATA-EXPENDITURES (CONTINUED)

R-49	Shipyard Boulevard Widening (F/R)	8.876	\$	175,000	\$	194,074	\$	228,335	\$	264,703	\$	306,864	\$	355,739
R-50	Burnett Boulevard Widening (F/R)	7.777	\$	1,499,000	\$	1,662,386	\$	1,955,855	\$	2,267,372	\$	2,628,506	\$	3,047,158
R-51	Shipyard Boulevard Speed Sensors and Warning activation at NC Port of Wilmington (F/R)	6.084	\$	100,000	\$	110,900	\$	130,477	\$	151,259	\$	175,351	\$	203,279
R-52	US17 to NC133 Connection	60.423	\$	14,422,000	\$	15,993,952	\$	18,817,439	\$	21,814,569	\$	25,289,064	\$	29,316,957
			\$	13,500,000	\$	14,971,457	\$	17,614,438	\$	20,419,961	\$	23,672,332	\$	27,442,720
			\$	922,000	\$	1,022,495	\$	1,203,001	\$	1,394,608	\$	1,616,733	\$	1,874,236
R-53	NC 133/River Road Widening	46.403	\$	34,401,000	\$	38,150,598	\$	44,885,502	\$	52,034,599	\$	60,322,362	\$	69,930,150
R-54	Market Street/MK Jr. Pkwy Flowovers	28.204	\$	15,500,000	\$	17,189,450	\$	20,223,984	\$	23,445,141	\$	27,179,344	\$	31,508,309
R-55	Magnolia Drive Extension	38.834	\$	8,034,000	\$	8,909,680	\$	10,482,548	\$	12,152,146	\$	14,087,668	\$	16,331,468
R-56*	Independence Boulevard Extension	69.780	\$	152,000,000	\$	168,567,111	\$	198,325,524	\$	229,913,638	\$	266,532,920	\$	308,984,704
		\$	11,000,000	\$	12,198,965	\$	14,352,505	\$	16,638,487	\$	19,288,567	\$	22,360,735	
		\$	9,290,000	\$	10,302,580	\$	12,121,343	\$	14,051,959	\$	16,290,071	\$	18,884,657	
		\$	1,800,000	\$	1,996,194	\$	2,348,592	\$	2,722,662	\$	3,156,311	\$	3,659,029	
		\$	2,400,000	\$	2,661,592	\$	3,131,456	\$	3,630,215	\$	4,208,415	\$	4,878,706	
		\$	12,500,000	\$	13,862,460	\$	16,309,665	\$	18,907,372	\$	21,918,826	\$	25,409,926	
		\$	115,010,000	\$	127,545,720	\$	150,061,964	\$	173,962,944	\$	201,670,731	\$	233,791,650	
R-57*	River Road Widening	62.502	\$	115,483,000	\$	128,070,276	\$	150,679,122	\$	174,678,399	\$	202,500,140	\$	234,753,162
R-58*	Cape Fear River Crossing	66.760	\$	913,900,000	\$	1,013,512,160	\$	1,192,432,213	\$	1,382,355,250	\$	1,602,529,182	\$	1,857,770,534
		Revenue	\$	389,218,754	\$	298,596,114	\$	346,154,734	\$	401,288,209	\$	465,203,017	\$	540,857,160
		Cost	\$	388,429,584	\$	297,941,256	\$	345,372,386	\$	400,248,278	\$	465,095,160	\$	540,857,160
		Balance	\$	789,170	\$	654,859	\$	782,348	\$	1,017,931	\$	1,192,019	\$	1,361,693

Projects anticipated to receive funding from alternative funding mechanisms are identified with an asterisk



BICYCLE AND PEDESTRIAN FUNDING MECHANISMS DATA-EXPENDITURES

	Street/Intersection	2014 Cost	Year-Bands									
			2015-2020	2021-2025	2026-2030	2031-2035	2036-2040					
BP-1	S. 17th Street	\$1,040,000	\$ 1,153,357	\$ 1,356,964	\$ 1,573,093	\$ 1,823,646	\$ 2,114,106					
BP-2	Peachtree Ave	\$209,000	\$ 231,780	\$ 272,698	\$ 316,131	\$ 366,483	\$ 424,854					
BP-3	N. College Rd.	\$148,000	\$ 164,132	\$ 193,106	\$ 223,863	\$ 259,519	\$ 300,854					
BP-4	Wooster St.	\$113,000	\$ 125,317	\$ 147,439	\$ 170,923	\$ 198,146	\$ 229,706					
BP-5	WILSHIRE BLV	\$ 1,927,373	\$ 2,137,450	\$ 2,514,785	\$ 2,915,325	\$ 3,379,660	\$ 3,917,952					
BP-6	COLLEGE RD & WILSHIRE BLVD	\$ 75,000	\$ 83,175	\$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460					
BP-7	5TH AVE	\$ 2,019,902	\$ 2,240,065	\$ 2,635,514	\$ 3,055,283	\$ 3,541,910	\$ 4,106,045					
BP-8	COLLEGE RD	\$ 1,205,554	\$ 1,336,956	\$ 1,572,975	\$ 1,823,509	\$ 2,113,946	\$ 2,450,643					
BP-9	5TH AVE	\$ 918,243	\$ 1,018,329	\$ 1,198,099	\$ 1,388,925	\$ 1,610,145	\$ 1,866,599					
BP-10	WILSHIRE BLV	\$ 387,805	\$ 430,074	\$ 505,998	\$ 586,590	\$ 680,018	\$ 788,328					
BP-11	OLEANDER DR & PINE GROVE DR	\$ 75,000	\$ 83,175	\$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460					
BP-12	COLLEGE RD & OLEANDER DR	\$ 621,938	\$ 689,727	\$ 811,488	\$ 940,737	\$ 1,090,572	\$ 1,264,272					
BP-13	COLLEGE RD	\$ 75,000	\$ 83,175	\$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460					
BP-14	23RD ST	\$ 1,773,262	\$ 1,966,542	\$ 2,313,705	\$ 2,682,218	\$ 3,109,426	\$ 3,604,677					
BP-15	N COLLEGE RD	\$ 1,693,962	\$ 1,878,598	\$ 2,210,236	\$ 2,562,270	\$ 2,970,373	\$ 3,443,476					
BP-16	NEW CENTRE DR	\$ 1,077,931	\$ 1,195,422	\$ 1,406,455	\$ 1,630,467	\$ 1,890,159	\$ 2,191,212					
BP-17	MARKET ST & GORDON RD	\$ 75,000	\$ 83,175	\$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460					
BP-18	CAROLINA BEACH RD & FRONT ST/BURNETT BLV	\$ 75,000	\$ 83,175	\$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460					
BP-19	INDEPENDENCE BLVD EXTENSION	\$ 3,342,752	\$ 3,707,101	\$ 4,361,533	\$ 5,056,212	\$ 5,861,536	\$ 6,795,127					
BP-20	HARPER AVE	\$ 1,721,627	\$ 1,909,279	\$ 2,246,333	\$ 2,604,115	\$ 3,018,883	\$ 3,499,713					
BP-21	COLLEGE RD	\$ 943,272	\$ 1,046,086	\$ 1,230,756	\$ 1,426,784	\$ 1,654,033	\$ 1,917,478					
BP-22	MILITARY CUTOFF RD & EASTWOOD RD	\$ 75,000	\$ 83,175	\$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460					
BP-23	DOW RD	\$ 1,768,644	\$ 1,961,421	\$ 2,307,679	\$ 2,675,233	\$ 3,101,328	\$ 3,595,289					
BP-24	HOSPITAL PLAZA DR PATH	\$ 416,386	\$ 461,771	\$ 543,289	\$ 629,821	\$ 730,135	\$ 846,427					
BP-25	NEW CENTRE DR	\$ 814,801	\$ 903,612	\$ 1,063,130	\$ 1,232,460	\$ 1,428,758	\$ 1,656,323					
BP-26	SHIPYARD BLVD	\$ 1,611,069	\$ 1,786,670	\$ 2,102,080	\$ 2,436,886	\$ 2,825,019	\$ 3,274,972					
BP-27	N COLLEGE RD	\$ 899,470	\$ 997,509	\$ 1,173,604	\$ 1,360,529	\$ 1,577,226	\$ 1,828,437					
BP-28	COLLEGE RD & NEW CENTRE DR	\$ 75,000	\$ 83,175	\$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460					
BP-29	Medical Center Dr	\$ 1,665,384	\$ 1,846,905	\$ 2,172,948	\$ 2,519,043	\$ 2,920,261	\$ 3,385,383					
BP-30	RACINE DR	\$ 1,461,236	\$ 1,620,506	\$ 1,906,582	\$ 2,210,251	\$ 2,562,286	\$ 2,970,392					
BP-31	SHIPYARD BLVD	\$ 373,113	\$ 413,781	\$ 486,828	\$ 564,367	\$ 654,256	\$ 758,462					
BP-32	SHIPYARD BLVD & INDEPENDENCE BLVD	\$ 75,000	\$ 83,175	\$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460					
BP-33	SHIPYARD BLVD	\$ 1,355,721	\$ 1,503,490	\$ 1,768,908	\$ 2,050,650	\$ 2,377,265	\$ 2,755,902					
BP-34	Cape Fear Boulevard	\$ 1,663,493	\$ 1,844,808	\$ 2,170,481	\$ 2,516,182	\$ 2,916,945	\$ 3,381,599					
BP-35	EASTWOOD RD & WRIGHTSVILLE AVE	\$ 75,000	\$ 83,175	\$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460					
BP-36	SHIPYARD BLVD	\$ 1,652,846	\$ 1,833,001	\$ 2,156,589	\$ 2,500,078	\$ 2,898,275	\$ 3,359,896					
BP-37	Village Rd NE A	\$ 2,099,155	\$ 2,327,956	\$ 2,738,921	\$ 3,175,160	\$ 3,680,881	\$ 4,267,150					
BP-38	BURNED MILL CREEK PATH	\$ 448,561	\$ 497,453	\$ 585,270	\$ 678,489	\$ 786,594	\$ 911,832					
BP-39	EASTWOOD RD & CARDINAL DR	\$ 75,000	\$ 83,175	\$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460					
BP-40	S 17TH ST	\$ 1,039,439	\$ 1,152,735	\$ 1,356,232	\$ 1,572,245	\$ 1,822,663	\$ 2,112,965					
BP-41	BURNED MILL CREEK PATH	\$ 650,512	\$ 721,416	\$ 846,771	\$ 983,958	\$ 1,140,677	\$ 1,322,357					
BP-42	COLLEGE RD	\$ 1,044,941	\$ 1,158,725	\$ 1,363,281	\$ 1,580,416	\$ 1,832,135	\$ 2,123,947					
BP-43	INDEPENDENCE BLVD	\$ 2,476,442	\$ 2,746,366	\$ 3,231,195	\$ 3,745,841	\$ 4,342,456	\$ 5,034,097					
BP-44	INDEPENDENCE BLVD	\$ 1,517,465	\$ 1,682,864	\$ 1,979,948	\$ 2,295,302	\$ 2,660,884	\$ 3,084,694					
BP-45	WRIGHTSVILLE AVE & AIRLIE RD/OLEANDER DR	\$ 75,000	\$ 83,175	\$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460					
BP-46	EASTWOOD RD	\$ 522,051	\$ 578,953	\$ 681,158	\$ 789,649	\$ 915,420	\$ 1,061,222					
BP-47	US 17 & OLDE WATERFORD WY/POLOF RD SE	\$ 75,000	\$ 83,175	\$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460					
BP-48	US 17 Frontage Path	\$ 401,591	\$ 445,363	\$ 525,985	\$ 607,442	\$ 704,192	\$ 816,352					
BP-49	BURNED MILL CREEK PATH	\$ 2,897,886	\$ 3,213,746	\$ 3,781,084	\$ 4,383,313	\$ 5,081,461	\$ 5,890,806					
BP-50	17TH ST & SHIPYARD BLVD	\$ 75,000	\$ 83,175	\$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460					
BP-51	FORT FISHER BLV	\$ 1,049,162	\$ 1,163,517	\$ 1,368,918	\$ 1,586,952	\$ 1,839,712	\$ 2,132,730					
BP-52	OLEANDER DR & GREENVILLE LP RD/GREENVILLE AVE	\$ 75,000	\$ 83,175	\$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460					
BP-53	W Gate Park Connector	\$ 1,256,593	\$ 1,393,558	\$ 1,639,569	\$ 1,900,710	\$ 2,203,443	\$ 2,554,395					
BP-54	K AVE & 421	\$ 75,000	\$ 83,175	\$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460					



BICYCLE AND PEDESTRIAN FUNDING MECHANISMS DATA-EXPENDITURES

(CONTINUED)

BP-55	VILLAGE RD	\$	516,902	\$	573,243	\$	674,440	\$	781,861	\$	906,391	\$	1,050,755	X
BP-56	Old Fayetteville Rd NE	\$	1,912,662	\$	2,121,136	\$	2,495,590	\$	2,893,073	\$	3,353,864	\$	3,888,048	X
BP-57	PINE GROVE RD & GREENVILLE LP RD	\$	75,000	\$	83,175	\$	97,858	\$	113,444	\$	131,513	\$	152,460	
BP-58	VILLAGE RD NE	\$	1,198,902	\$	1,329,578	\$	1,564,295	\$	1,813,447	X	2,102,282	\$	2,437,121	
BP-59	Village Rd Connector	\$	298,727	\$	331,287	\$	389,771	\$	451,851	\$	523,820	\$	607,250	X
		\$	1,227,670	\$	1,361,482	\$	1,601,831	\$	1,856,961	\$	2,152,727	\$	2,495,600	
		\$	395,000	\$	438,054	\$	515,385	X	597,473	\$	692,635	\$	802,954	
		\$	530,000	\$	587,768	\$	691,530	\$	801,673	X	929,358	\$	1,077,381	
BP-60	Clarendon Avenue	\$	302,670	\$	335,660	\$	394,916	\$	457,816	\$	530,734	X	615,266	
BP-61	US 17 & W GATE DR/GRANDIFLORA DR	\$	75,000	\$	83,175	\$	97,858	\$	113,444	\$	131,513	\$	152,460	X
BP-62	SEVENTH AVE & KAYE	\$	75,000	\$	83,175	\$	97,858	\$	113,444	\$	131,513	\$	152,460	X
BP-63	US 17 & PROVISION PKWY	\$	75,000	\$	83,175	\$	97,858	\$	113,444	\$	131,513	\$	152,460	X
BP-64	GREENVILLE AVE	\$	224,280	\$	248,726	\$	292,635	\$	339,244	\$	393,276	X	455,915	
BP-65	MARKET ST & MIDDLE SOUND LOOP RD	\$	75,000	\$	83,175	\$	97,858	\$	113,444	\$	131,513	\$	152,460	X
BP-66	Bridge Barrier Rd	\$	24,730	\$	27,425	\$	32,267	\$	37,406	\$	43,364	X	50,271	
BP-67	US 17/MARKET ST & PORTERS NECK RD	\$	75,000	\$	83,175	\$	97,858	\$	113,444	\$	131,513	\$	152,460	
BP-68	N AVE & FORT FISHER BLVD	\$	75,000	\$	83,175	\$	97,858	\$	113,444	\$	131,513	X	152,460	
BP-69	JENKINS RD	\$	311,409	\$	345,352	\$	406,318	\$	471,034	\$	546,058	\$	633,030	
BP-70	MARKET ST	\$	2,039,829	\$	2,262,164	\$	2,661,514	\$	3,085,424	\$	3,576,852	\$	4,146,552	X
BP-71	ST JOHNS CHURCH RD	\$	496,235	\$	550,323	\$	647,474	\$	750,800	X	870,151	\$	1,008,744	
BP-72	MASTER LN	\$	472,985	\$	524,539	\$	617,138	\$	715,432	X	829,382	\$	961,481	
BP-73	N AVE	\$	38,797	\$	43,026	\$	50,621	\$	58,684	\$	68,031	X	78,866	
BP-74	Oleander Drive - Hawthorne to 42nd	\$	635,330	\$	704,579	X	828,962	\$	960,994	\$	1,114,055	\$	1,291,496	
BP-75	Wrightsville Ave - Castle to Independence	\$	174,757	\$	193,805	\$	228,018	\$	264,335	\$	306,437	\$	355,245	
BP-76	Oleander Drive - Wooster to Mimosa	\$	224,060	\$	248,481	X	292,347	\$	338,910	\$	392,890	\$	455,467	
BP-77	Dawson Street - Wrightsville to Oleander	\$	42,410	\$	47,033	X	55,336	\$	64,149	\$	74,367	\$	86,211	
BP-78	Wrightsville Ave - College to Hawthorne	\$	1,139,589	\$	1,263,801	X	1,486,905	\$	1,723,731	\$	1,998,276	\$	2,316,550	
BP-79	Wrightsville Ave - 44th to Independence	\$	989,618	\$	1,097,483	\$	1,291,226	\$	1,496,885	\$	1,735,300	\$	2,011,689	
BP-80	17th Street - Wooster to Greenfield	\$	235,794	\$	261,494	X	307,657	\$	356,659	\$	413,466	\$	479,320	
BP-81	Oleander Drive - Pine Grove to College	\$	177,766	\$	197,164	X	231,970	\$	268,917	\$	311,748	\$	361,401	
BP-82	N. 23rd St	\$	48,939	\$	54,273	X	63,854	\$	74,024	\$	85,815	\$	99,483	
BP-83	Delaney Ave	\$	173,829	\$	192,775	\$	226,807	\$	262,932	\$	304,810	\$	353,358	
BP-84	McClelland Drive	\$	589,527	\$	653,784	X	769,200	\$	891,713	\$	1,033,740	\$	1,198,388	
BP-85	Fairlawn Drive	\$	842,478	\$	934,306	X	1,099,243	\$	1,274,324	\$	1,477,291	\$	1,712,585	
BP-86	Clover Rd	\$	410,747	\$	455,517	X	535,932	\$	621,292	\$	720,247	\$	834,964	
BP-87	Gleason Rd	\$	449,231	\$	498,195	X	586,144	\$	679,502	\$	787,729	\$	913,194	
BP-88	Greenville Loop Trail	\$	6,858,056.70	\$	7,605,563	X	8,948,208	\$	10,373,426	\$	12,025,644	\$	13,941,017	
BP-89	Kerr Ave Trail	\$	907,438.95	\$	1,006,347	X	1,184,002	\$	1,372,583	\$	1,591,200	\$	1,844,637	
BP-90	Central College Trail	\$	1,473,268.50	\$	1,633,850	X	1,922,281	\$	2,228,451	\$	2,583,385	\$	2,994,852	
BP-91	Masonboro Loop Trail	\$	2,982,142.00	\$	3,307,186	X	3,891,019	\$	4,510,757	\$	5,229,204	\$	6,062,081	
BP-92	Kerr & Wilshire	\$	35,000.00	\$	38,815	X	45,667	\$	52,941	\$	61,373	\$	71,148	
BP-93	16th & Dawson	\$	75,000.00	\$	83,175	X	97,858	\$	113,444	\$	131,513	\$	152,460	
BP-94	College & Hoggard/Hurst Dr	\$	35,000.00	\$	38,815	X	45,667	\$	52,941	\$	61,373	\$	71,148	
BP-95	8th & Dawson	\$	50,000.00	\$	55,450	X	65,239	\$	75,629	\$	87,675	\$	101,640	
BP-96	8th & Wooster	\$	50,000.00	\$	55,450	X	65,239	\$	75,629	\$	87,675	\$	101,640	
BP-97	17th & Dawson	\$	75,000.00	\$	83,175	X	97,858	\$	113,444	\$	131,513	\$	152,460	
BP-98	Holly Tree & College	\$	125,000.00	\$	138,625	X	163,097	\$	189,074	\$	219,188	\$	254,099	
BP-99*	CAUSEWAY DR	\$	9,302,884	\$	10,316,868		12,138,154	\$	14,071,447	\$	16,312,663	\$	18,910,848	
BP-100*	Old Fayetteville Rd B	\$	3,087,759	\$	3,424,315		4,028,825	\$	4,670,513	\$	5,414,404	\$	6,276,778	

	Revenue	\$	35,903,777	\$	15,586,548	\$	20,947,017	\$	24,283,334
	Cost	\$	35,767,764	43	15,586,382	14	20,532,113	19	22,757,949
	Balance	\$	136,013		166		414,904		1,525,384

\* Projects anticipated to receive funding from alternative funding mechanisms



MASS TRANSPORTATION FUNDING MECHANISMS DATA-EXPENDITURES

Project Information			Year-Bands						
Type & ID	Description	Score	2014 Cost	2015-2020	2021-2025	2026-2030	2031-2035	2036-2040	
Bus Replacements	Replacement of Existing Fleet (18)		8,280,000	\$ 9,182,493 x	\$ 10,803,522	\$ 12,524,243	\$ 14,519,030	\$ 16,831,535	
Bus Replacements	Replacement of Existing Fleet (3)		1,380,000	\$ 1,530,416	\$ 1,800,587	x \$ 2,087,374	\$ 2,419,838	\$ 2,805,256	
Bus Replacements	Replacement of Existing Fleet (18)		8,280,000	\$ 9,182,493	\$ 10,803,522	\$ 12,524,243	x \$ 14,519,030	\$ 16,831,535	
Bus Replacements	Replacement of Existing Fleet (3)		1,380,000	\$ 1,530,416	\$ 1,800,587	\$ 2,087,374	\$ 2,419,838	x \$ 2,805,256	
Bus Replacements	Replacement of Existing Fleet (16)		7,360,000	\$ 8,162,216	\$ 9,603,131	\$ 11,132,660	\$ 12,905,805	x \$ 14,961,365	
Shuttle Replacements	Replacement of Existing Fleet (10)		1,250,000	\$ 1,386,246	x \$ 1,630,966	\$ 1,890,737	\$ 2,191,883	\$ 2,540,993	
Shuttle Replacements	Replacement of Existing Fleet (15)		1,875,000	\$ 2,079,369	\$ 2,446,450	x \$ 2,836,106	\$ 3,287,824	\$ 3,811,489	
Shuttle Replacements	Replacement of Existing Fleet (15)		1,875,000	\$ 2,079,369	\$ 2,446,450	x \$ 2,836,106	\$ 3,287,824	\$ 3,811,489	
Shuttle Replacements	Replacement of Existing Fleet (5)		625,000	\$ 693,123	\$ 815,483	\$ 945,369	\$ 1,095,941	x \$ 1,270,496	
Shuttle Replacements	Replacement of Existing Fleet (10)		1,250,000	\$ 1,386,246	\$ 1,630,966	\$ 1,890,737	\$ 2,191,883	x \$ 2,540,993	
Paratransit Replacements	Replacement of Existing Fleet (26)		1,300,000	\$ 1,441,696	x \$ 1,696,205	\$ 1,966,367	\$ 2,279,558	\$ 2,642,632	
Paratransit Replacements	Replacement of Existing Fleet (25)		1,250,000	\$ 1,386,246	x \$ 1,630,966	\$ 1,890,737	\$ 2,191,883	\$ 2,540,993	
Paratransit Replacements	Replacement of Existing Fleet (25)		1,250,000	\$ 1,386,246	\$ 1,630,966	\$ 1,890,737	x \$ 2,191,883	\$ 2,540,993	
Paratransit Replacements	Replacement of Existing Fleet (25)		1,250,000	\$ 1,386,246	\$ 1,630,966	\$ 1,890,737	x \$ 2,191,883	\$ 2,540,993	
Paratransit Replacements	Replacement of Existing Fleet (24)		1,200,000	\$ 1,330,796	\$ 1,565,728	\$ 1,815,108	\$ 2,104,207	\$ 2,439,353	
Vanpool Van Replacements	Replacement of Existing Fleet (6)		150,000	\$ 166,350	x \$ 195,716	\$ 226,888	\$ 263,026	\$ 304,919	
Vanpool Van Replacements	Replacement of Existing Fleet (6)		150,000	\$ 166,350	\$ 195,716	x \$ 226,888	\$ 263,026	\$ 304,919	
Vanpool Van Replacements	Replacement of Existing Fleet (6)		150,000	\$ 166,350	\$ 195,716	\$ 226,888	x \$ 263,026	\$ 304,919	
Vanpool Van Replacements	Replacement of Existing Fleet (6)		150,000	\$ 166,350	\$ 195,716	\$ 226,888	\$ 263,026	x \$ 304,919	
Trolley Replacements	Replacement of Existing Fleet (3)		900,000	\$ 998,097	x \$ 1,174,296	\$ 1,361,331	\$ 1,578,155	\$ 1,829,515	
Trolley Replacements	Replacement of Existing Fleet (3)		900,000	\$ 998,097	\$ 1,174,296	\$ 1,361,331	x \$ 1,578,155	\$ 1,829,515	
Trolley Replacements	Replacement of Existing Fleet (2)		600,000	\$ 665,398	\$ 782,864	\$ 907,554	\$ 1,052,104	\$ 1,219,676	
STOP ACCESS - 22	Oleander Drive & Independence Boulevard	65	\$ 75,000	\$ 83,175 x	\$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460	
AMENITY - 69	Oleander Drive at Whole Foods	60	\$ 15,000	\$ 16,635 x	\$ 19,572	\$ 22,689	\$ 26,303	\$ 30,492	
EXPRESS ROUTE -	Downtown Wilmington to Forden Station	60	\$ 460,000	\$ 510,139	x \$ 600,196	\$ 695,791	\$ 806,613	\$ 935,085	
EXPRESS ROUTE -	Downtown Wilmington to Mayfaire	60	\$ 460,000	\$ 510,139	x \$ 600,196	\$ 695,791	\$ 806,613	\$ 935,085	
PARK & RIDE - 23	Mayfaire Shopping Center	60	\$ 3,000	\$ 3,327 x	\$ 3,914	\$ 4,538	\$ 5,261	\$ 6,098	
AMENITY - 324	Lake Avenue at South College Road	60	\$ 15,000	\$ 16,635	x \$ 19,572	\$ 22,689	\$ 26,303	\$ 30,492	
STOP ACCESS - 198	College Road & Sanders Road	60	\$ 75,000	\$ 83,175	x \$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460	
AMENITY - 2	Carolina Beach Road at S College Road (Monkey Junction)	60	\$ 15,000	\$ 16,635	x \$ 19,572	\$ 22,689	\$ 26,303	\$ 30,492	
PARK & RIDE - 16	US17 at Brunswick Forest	60	\$ 3,000	\$ 3,327	\$ 3,914	\$ 4,538	\$ 5,261	\$ 6,098	
AMENITY - 103	S College Road at Randall Parkway	60	\$ 15,000	\$ 16,635	x \$ 19,572	\$ 22,689	\$ 26,303	\$ 30,492	
AMENITY - 157	S 17th St at Glen Meade Road	60	\$ 15,000	\$ 16,635	x \$ 19,572	\$ 22,689	\$ 26,303	\$ 30,492	
AMENITY - 291	N College Road at Danny Pence Drive	60	\$ 15,000	\$ 16,635	x \$ 19,572	\$ 22,689	\$ 26,303	\$ 30,492	
AMENITY - 504	Carolina Beach Road at Harris Teeter	55	\$ 15,000	\$ 16,635	x \$ 19,572	\$ 22,689	\$ 26,303	\$ 30,492	
AMENITY - 503	US17 at NC210	55	\$ 15,000	\$ 16,635	x \$ 19,572	\$ 22,689	\$ 26,303	\$ 30,492	
ADDITIONAL	Market Street from College Road to Porter's Neck Walmart	55	\$ 460,000	\$ 510,139	x \$ 600,196	\$ 695,791	\$ 806,613	\$ 935,085	
SERVICE - 1	US17/74/76 at River Road (NC133)	55	\$ 3,000	\$ 3,327	x \$ 3,914	\$ 4,538	\$ 5,261	\$ 6,098	
PARK & RIDE - 22	Galleria Mall	55	\$ 3,000	\$ 3,327	x \$ 3,914	\$ 4,538	\$ 5,261	\$ 6,098	
AMENITY - 62	S College Road at University Drive	55	\$ 15,000	\$ 16,635	x \$ 19,572	\$ 22,689	\$ 26,303	\$ 30,492	
AMENITY - 159	17th Street at Food Lion Plaza	55	\$ 15,000	\$ 16,635	x \$ 19,572	\$ 22,689	\$ 26,303	\$ 30,492	
AMENITY - 361	17th Street at Doctors Circle	55	\$ 15,000	\$ 16,635	x \$ 19,572	\$ 22,689	\$ 26,303	\$ 30,492	
STOP ACCESS - 20	Shipyard Boulevard & 17th Street	55	\$ 75,000	\$ 83,175	x \$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460	
STOP ACCESS - 122	17th Street at Hospital Plaza Drive	55	\$ 75,000	\$ 83,175	x \$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460	
STOP ACCESS - 134	College Road at Hurst Drive	55	\$ 75,000	\$ 83,175	x \$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460	
STOP ACCESS - 137	College Road at New Center Drive	55	\$ 75,000	\$ 83,175	x \$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460	
STOP ACCESS - 138	College Road at University Drive	55	\$ 75,000	\$ 83,175	x \$ 97,858	\$ 113,444	\$ 131,513	\$ 152,460	
AMENITY - 162	Independence Boulevard at Canterbury Drive	55	\$ 15,000	\$ 16,635	x \$ 19,572	\$ 22,689	\$ 26,303	\$ 30,492	



MASS TRANSPORTATION FUNDING MECHANISMS DATA-EXPENDITURES (CONTINUED)

AMENITY - 45	Market Street at Kerr Avenue	50	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 109	Market Street at Covil Avenue	50	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 163	Independence Boulevard at Oleander Mall (northbound)	50	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 164	Independence Boulevard at Park Avenue	53	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 181	Independence Boulevard at Oleander Mall (southbound)	53	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
STOP ACCESS - 68	Market Street at Cinema Drive	50	\$	75,000	\$	83,175	x	\$	97,858	\$	113,444	\$	131,513	\$	152,460
STOP ACCESS - 195	Carolina Beach Road at Antoinette Drive														
PARK & RIDE - 1	(Monkey Junction)	50	\$	75,000	\$	83,175	x	\$	97,858	\$	113,444	\$	131,513	\$	152,460
PARK & RIDE - 3	Carolina Beach Road at Snow's Cut Bridge	50	\$	3,000	\$	3,327	x	\$	3,914	\$	4,538	\$	5,261	\$	6,098
PARK & RIDE - 6	I-40 at Cape Fear Community College North Campus	50	\$	3,000	\$	3,327	x	\$	3,914	\$	4,538	\$	5,261	\$	6,098
PARK & RIDE - 9	Market Street at Middle Sound Loop Road	48	\$	3,000	\$	3,327	x	\$	3,914	\$	4,538	\$	5,261	\$	6,098
PARK & RIDE - 24	US17 at NC210	48	\$	3,000	\$	3,327	x	\$	3,914	\$	4,538	\$	5,261	\$	6,098
PARK & RIDE - 25	Barclay West	48	\$	3,000	\$	3,327	x	\$	3,914	\$	4,538	\$	5,261	\$	6,098
AMENITY - 96	Fairfield Park	48	\$	3,000	\$	3,327	x	\$	3,914	\$	4,538	\$	5,261	\$	6,098
AMENITY - 355	College Road at University Drive	48	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 130	17th Street at Hospital Plaza Drive	48	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 160	Gordon Road at Food Lion Plaza	48	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 203	Shipyard Boulevard at Commons Drive	48	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 304	Monkey Junction Transfer Station	48	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 326	N Lake Park Boulevard at Town Hall	45	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 334	Shipyard Boulevard at 41st Street	45	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
STOP ACCESS - 51	41st Street at Hoggarth High School	45	\$	75,000	\$	83,175	x	\$	97,858	\$	113,444	\$	131,513	\$	152,460
PARK & RIDE - 7	Shipyard Boulevard at 41st Street	45	\$	3,000	\$	3,327	x	\$	3,914	\$	4,538	\$	5,261	\$	6,098
AMENITY - 254	Market Street at Porters Neck Road	45	\$	3,000	\$	3,327	x	\$	3,914	\$	4,538	\$	5,261	\$	6,098
AMENITY - 186	US17 at Magnolia Greens	45	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
STOP ACCESS - 70	Carolina Beach Road at Medical Center Drive	45	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 21	Carolina Beach Road at Roses	45	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 25	Market Street & Lullwater Drive	45	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 63	Nixon Street at 8th Street	45	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 117	Downtown Transfer Station	45	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 238	College Road at Wilshire Boulevard	45	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 281	Eastwood Road at Rogersville Road	45	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 303	Carolina Beach Road at Independence Boulevard	45	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 329	Carolina Beach Road at Tennessee Avenue	45	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
PARK & RIDE - 19	West Gate Drive at Walmart	45	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 14	Haliburton Memorial Parkway at Ballfields	45	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 230	Independence Boulevard at Converse Drive	43	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 46	Mt. Misery at US74/76	43	\$	3,000	\$	3,327	x	\$	3,914	\$	4,538	\$	5,261	\$	6,098
AMENITY - 76	Princess Place Drive at N 25th Street	40	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 95	Carolina Beach Road at Southern Boulevard	40	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 107	Market Street at Lullwater Drive	40	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 125	Oleander Drive at Hawthorne Drive	40	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 240	College Road at Kmart	40	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 247	Randall Parkway at Brailford Drive	40	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 264	Military Cutoff Road at Old Macumber Station Road	40	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
PARK & RIDE - 13	Carolina Beach Road at Silva Terra Drive	40	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
PARK & RIDE - 18	17th Street at John D Barry Drive	38	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
PARK & RIDE - 35	Village Road at Food Lion	38	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 210	Front Street at Harnett Street	38	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
AMENITY - 47	US17 at US74/76	35	\$	3,000	\$	3,327	x	\$	3,914	\$	4,538	\$	5,261	\$	6,098
AMENITY - 80	US17 at Sidbury Road	35	\$	3,000	\$	3,327	x	\$	3,914	\$	4,538	\$	5,261	\$	6,098
	Leland Town Hall	35	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
	Market Street at 16th Street	35	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
	Signon Road at Walmart	35	\$	15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492
	Oleander Drive at Giles Avenue	35	\$	2 15,000	\$	16,635	x	\$	19,572	\$	22,689	\$	26,303	\$	30,492



MASS TRANSPORTATION FUNDING MECHANISMS DATA-EXPENDITURES(CONTINUED)

AMENITY - 122	Wrightsville Avenue at Jones Road	35	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 165	Wilshire Boulevard at Berkshires at Pecan Cove	35	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 169	Wilshire Boulevard at Kerr Avenue	35	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 270	Mt. Misery Road at Food Lion	35	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 277	Village Road at S Navassa Road	35	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 305	Carl Winner Avenue at Carolina Beach Avenue	33	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 380	10th Street at Meares Street	33	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 401	Greenfield Street at 13th Street	30	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 89	Wrightsville Avenue at Cape Fear Memorial Hospital	30	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 223	Front Street at Ann Street	30	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 505	Town Hall Drive (Leland)	30	\$	15,000	\$	16,635	\$	19,572	\$	\$	22,689	\$	26,303	\$	30,492
PARK & RIDE - 5	I-40 at Holly Shelter Road	30	\$	3,000	\$	3,327	\$	3,914	x	\$	4,538	\$	5,261	\$	6,098
PARK & RIDE - 11	Forden Station	30	\$	3,000	\$	3,327	\$	3,914	\$	\$	4,538	\$	5,261	\$	6,098
PARK & RIDE - 21	Downtown Transfer Station	30	\$	3,000	\$	3,327	\$	3,914	x	\$	4,538	\$	5,261	\$	6,098
AMENITY - 101	New Hanover County Government Center Drive	30	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 111	New Center Drive at Bob King Buick	30	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 308	17th Street at Little John Circle	30	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 387	Cypress Grove Drive at Doctors Circle	30	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 390	Medical Center Drive at Delaney Radiologists	30	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 395	Wellington Avenue at Silver Stream Lane	28	\$	15,000	\$	16,635	\$	19,572	\$	\$	22,689	\$	26,303	\$	30,492
AMENITY - 396	Wellington Avenue at Troy Drive	28	\$	15,000	\$	16,635	\$	19,572	\$	\$	22,689	\$	26,303	\$	30,492
AMENITY - 397	Wellington Avenue at Flint Drive	25	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 398	Wellington Avenue at 17th Street	25	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 265	Main Street at Church Street (Navassa)	25	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 23	4th Street at ABC Alley	25	\$	15,000	\$	16,635	\$	19,572	\$	\$	22,689	\$	26,303	\$	30,492
AMENITY - 259	Front Street at Castle Street (northbound)	25	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 260	Front Street at Castle Street (southbound)	25	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
STOP ACCESS - 23	Dawson Street at 17th Street	25	\$	75,000	\$	83,175	\$	97,858	x	\$	113,444	\$	131,513	\$	152,460
STOP ACCESS - 26	Wooster Street at 17th Street	25	\$	75,000	\$	83,175	\$	97,858	x	\$	113,444	\$	131,513	\$	152,460
STOP ACCESS - 28	Wooster Street at 3rd Street	25	\$	75,000	\$	83,175	\$	97,858	x	\$	113,444	\$	131,513	\$	152,460
STOP ACCESS - 29	Dawson Street at 3rd Street	25	\$	75,000	\$	83,175	\$	97,858	x	\$	113,444	\$	131,513	\$	152,460
PARK & RIDE - 12	River Road (NC133)	25	\$	3,000	\$	3,327	\$	3,914	x	\$	4,538	\$	5,261	\$	6,098
PARK & RIDE - 14	I-140 at Castle Hayne Road	25	\$	3,000	\$	3,327	\$	3,914	x	\$	4,538	\$	5,261	\$	6,098
AMENITY - 11	Princess Place Drive at Montgomery Avenue	25	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 188	Marion Drive at Rutledge Drive	25	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 22	Nixon Street at 5th Street	25	\$	15,000	\$	16,635	\$	19,572	\$	\$	22,689	\$	26,303	\$	30,492
AMENITY - 152	16th Street at Wright Street	23	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 153	16th Street at Kidder Street	23	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 349	5th Street at Ann Street	23	\$	15,000	\$	16,635	\$	19,572	\$	\$	22,689	\$	26,303	\$	30,492
AMENITY - 368	5th Street at Dawson Street	23	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 311	5th Street at Castle Street	23	\$	15,000	\$	16,635	\$	19,572	\$	\$	22,689	\$	26,303	\$	30,492
AMENITY - 314	Dawson Street at 9th Street	23	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 600	Wilmington Multimodal Transportation Center	23	\$	6,861,789	\$	7,609,702	\$	8,953,078	\$	\$	10,379,072	\$	12,032,189	\$	13,948,604
	Phase I		\$	3,000,000	\$	3,326,990	\$	3,914,320	\$	\$	4,537,769	x	5,260,518	\$	6,098,382
	Phase II		\$	3,000,000	\$	3,326,990	\$	3,914,320	\$	\$	4,537,769	\$	5,260,518	\$	6,098,382
	Phase III		\$	861,789	\$	955,721	\$	1,124,439	\$	\$	1,303,533	\$	1,511,152	x	1,751,840
AMENITY - 501	US117/NC133 at Old Blossom Ferry Road	23	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
AMENITY - 502	US421 at Blueberry Road	23	\$	15,000	\$	16,635	\$	19,572	x	\$	22,689	\$	26,303	\$	30,492
STOP ACCESS - 24	Dawson Street & 16th Street	20	\$	75,000	\$	83,175	\$	97,858	x	\$	113,444	\$	131,513	\$	152,460
STOP ACCESS - 25	Wooster Street & 16th Street	20	\$	75,000	\$	83,175	\$	97,858	\$	\$	113,444	x	131,513	\$	152,460
STOP ACCESS - 120	Dawson Street at 8th Street	20	\$	75,000	\$	83,175	\$	97,858	\$	\$	113,444	x	131,513	\$	152,460
STOP ACCESS - 206	Wooster Street 8th Street	20	\$	75,000	\$	83,175	\$	97,858	\$	\$	113,444	x	131,513	\$	152,460
ADDITIONAL SERVICE - 2	Airport Boulevard service to ILM	20	\$	-	\$	-	\$	-	\$	\$	-	x	-	\$	-
PARK & RIDE - 15	I-140 at Cedar Hill Road	20	\$	3,000	\$	3,327	\$	3,914	\$	\$	4,538	x	5,261	\$	6,098

MASS TRANSPORTATION FUNDING MECHANISMS DATA-EXPENDITURES (CONTINUED)

PARK & RIDE - 17	I-140 at US421	20	\$	3,000	\$	3,327	\$	3,914	\$	4,538	\$	5,261	\$	6,098
PARK & RIDE - 20	US421 at Cowpens Landing Road	20	\$	3,000	\$	3,327	\$	3,914	\$	4,538	\$	5,261	\$	6,098
PARK & RIDE - 30	Terminus of Independence Boulevard	20	\$	3,000	\$	3,327	\$	3,914	\$	4,538	\$	5,261	\$	6,098
				Revenue		\$ 16,150,709		\$ 7,715,989		\$ 24,006,359		\$ 8,258,913		\$ 28,156,045
				Cost		\$ 16,139,230	59	\$ 7,666,847	71	\$ 23,735,558	14	\$ 7,481,840	\$	\$ 27,564,688
				Balance		\$ 11,478		\$ 49,142		\$ 272,801		\$ 777,072		\$ 891,357

FERRY FUNDING MECHANISMS DATA-EXPENDITURES

		Year-Bands									
ID	Description	2014 Cost	2015-2020		2021-2025	2026-2030	2031-2035	2036-2040			
F-1	New river class vessel (Southport to Ft. Fisher)	\$ 12,000,000	\$ 13,307,961	X	\$ 15,657,278	\$ 18,151,077	\$ 21,042,073	\$ 24,393,529			
F-2	Southport Additional Mooring Facilities	\$ 1,500,000	\$ 1,663,495	X	\$ 1,957,160	\$ 2,268,885	\$ 2,630,259	\$ 3,049,191			
	Revenue		\$ 6,101,835		\$ 6,140,923	\$ 7,334,601	\$ 8,438,785	\$ 9,718,837			
	Cost		\$ 14,971,457	2	\$ -	\$ -	\$ -	\$ -	0	0	0
	Balance		\$ (8,869,622)		\$ 6,140,923	\$ 7,334,601	\$ 8,438,785	\$ 9,718,837			



AVIATION FUNDING MECHANISMS DATA-EXPENDITURES

ID	Description	2014 Cost	Year-Bands									
			2015-2020	2021-2025	2026-2030	2031-2035	2036-2040					
A-1	GA Apron Development, Phase II	\$ 1,350,000	\$ 1,497,146	x \$ 1,761,444	\$ 2,041,996	\$ 2,367,233	\$ 2,744,272					
A-2	Pipe Ditch in FBO #2 Area Direct to EDDB and Rehab GA Apron Ramp North (Survey, Testing, Design, Bidding and Permitting)	\$ 355,000	\$ 393,694	x								
A-3	Airfield Lighting Replacement (LED)/Vault Upgrade				\$ 536,969	\$ 622,495	\$ 721,642					
A-4	Extend Runway 24 - Phase I of IV	\$ 2,400,000	\$ 2,661,592	x \$ 3,131,456	\$ 3,630,215	\$ 4,208,415	\$ 4,878,706					
A-5	Airport Layout Plan	\$ 5,000,000	\$ 5,544,984		x \$ 7,562,949	\$ 8,767,530	\$ 10,163,971					
A-6	Terminal Improvements Phase I (Design)	\$ 850,000	\$ 942,647	x \$ 1,109,057	\$ 1,285,701	\$ 1,490,480	\$ 1,727,875					
A-7	Terminal Improvements Phase I (Construction)	\$ 850,000	\$ 942,647	x \$ 1,109,057	\$ 1,285,701	\$ 1,490,480	\$ 1,727,875					
A-8	Terminal Improvements Phase II (Design and Construction)	\$ 10,000,000	\$ 11,089,968	x \$ 13,047,732	\$ 15,125,897	\$ 17,535,061	\$ 20,327,941					
A-9	Rehab GA Apron Ramp North; Pipe Ditch in FBO #2 Area; Direct to EDDB (Construction)	\$ 11,000,000	\$ 12,198,965	x \$ 14,352,505	\$ 16,638,487	\$ 19,288,567	\$ 22,360,735					
A-10	Outbound Bag Room Retrofit	\$ 5,000,000	\$ 5,544,984	x \$ 6,523,866	\$ 7,562,949	\$ 8,767,530	\$ 10,163,971					
A-11	Taxiway A and H Widening and Paved Shoulders	\$ 300,000	\$ 332,699	x \$ 391,432	\$ 453,777	\$ 526,052	\$ 609,838					
A-12	BCA/EA for Runway 24 Extension	\$ 5,900,000	\$ 6,543,081	x \$ 7,698,162	\$ 8,924,279	\$ 10,345,686	\$ 11,993,485					
A-13	Extend Runway 24 - Phase II of IV	\$ 300,000	\$ 332,699	x \$ 391,432	\$ 453,777	\$ 526,052	\$ 609,838					
A-14	Design and Construction of Boat Launch for Water Access	\$ 5,000,000	\$ 5,544,984	\$ 6,523,866	x \$ 7,562,949	\$ 8,767,530	\$ 10,163,971					
A-15	Map on Airport Utilities	\$ 50,000	\$ 55,450	x \$ 65,239	\$ 75,629	\$ 87,675	\$ 101,640					
		\$ 5,000	\$ 5,545	x \$ 6,524	\$ 7,563	\$ 8,768	\$ 10,164					
	<b>Revenue</b>	<b>\$ 42,816,530</b>	<b>\$ 47,914,687</b>	<b>\$ 53,914,687</b>	<b>\$ 60,014,767</b>	<b>\$ 67,917,419</b>	<b>\$ 75,941,518</b>					
	Cost	\$ 37,988,685	10 \$ 6,523,866	1 \$ 6,523,866	\$ -	\$ -	\$ -					
	Balance	\$ 4,827,845	\$ 4,827,845	\$ 31,390,821	\$ 40,014,767	\$ 41,977,419	\$ 44,041,518					

RAIL FUNDING MECHANISMS DATA-EXPENDITURES

ID	Description	2014 Cost	Year-Bands									
			2015-2020	2021-2025	2026-2030	2031-2035	2036-2040					
F-1	New river class vessel (Southport to Ft. Fisher)	\$ 12,000,000	\$ 13,307,961	\$ 15,657,278	\$ 18,151,077	\$ 21,042,073	\$ 24,393,529					
F-2	Southport Additional Mooring Facilities	\$ 1,500,000	\$ 1,663,495	\$ 1,957,160	\$ 2,268,885	\$ 2,630,259	\$ 3,049,191					
	Revenue	\$ 6,101,835	\$ 6,140,923	\$ 6,140,923	\$ 7,334,601	\$ 8,438,785	\$ 9,718,837					
	Cost	\$ 14,971,457	\$ -	\$ -	\$ -	\$ -	\$ -					0
	Balance	\$ (8,869,622)	\$ (8,869,622)	\$ 6,140,923	\$ 7,334,601	\$ 8,438,785	\$ 9,718,837					



## **Alternative Funding Sources**

Through the development of the MTP, the WMPO identified and considered a range of alternative funding measures that could supplement the funding anticipated through traditional sources. A wide variety of these measures were identified, including measures currently in place elsewhere in North Carolina as well as mechanisms being considered in other parts of the country. Each measure was explored in greater detail through discussions with the TCC and TAC. Based on these discussions, a subset of preferred alternative funding measures were identified and evaluated to determine potential future funding levels. These funding sources are described in more detail below.

### **Quarter-Cent Local Option Sales Tax**

The local option sales tax is implemented at the county level and typically requires a voter referendum. While several different types of local option sales tax exist, only one may be enacted at a time. Since 2007, North Carolina counties (but not cities) have had the option to increase the sales tax by a quarter of a penny, pending voter referendum, to fund transportation improvements, per North Carolina General Statute 105-535. From November 2007 to November 2012, 90 referendums had been held in 59 counties, and 25 were approved while 65 failed. On May 4th, 2010, New Hanover County voters approved the quarter-cent sales tax referendum, and the sales tax took effect on October 1st. The tax does not apply to groceries, prescription drugs, gasoline, automobile purchases, and utilities. Sales tax revenues can be used to fund any county-maintained service. Additional legislative authority and a new voter referendum would be needed to implement an additional quarter-cent local option sales tax in New Hanover County. Pender County can anticipate generating \$800,000 if they implement the quarter-cent local option sales tax.

### **Quarter-Cent Local Option Sales Tax for Transit**

Similar to the quarter-cent local option sales tax, the quarter-cent local option sales tax is implemented at the county level and requires a voter referendum and county approval. Only counties that operate public transportation systems can consider this sales tax, and the revenues must be used to finance, construct, operate, and maintain the transit system. The enabling legislation for this sales tax can be found in North Carolina General Statute (N.C. G.S.) 105-506. Currently, Durham, Mecklenburg, and Orange Counties are the only counties in North Carolina that have enacted a quarter-cent local sales tax for transit. Improvements eligible for funding through this revenue source can also include projects supportive of the transit system, such as supporting bicycle and pedestrian infrastructure and signal system improvements. New Hanover County can expect to generate anywhere from \$8 million to \$10 million for transit if it were to implement this local option sales tax.

## **Vehicle Registration Fees**

N.C. G.S. 105-570 enables county vehicle registration taxes. Durham and Orange Counties currently charge an annual \$10 vehicle registration fee for all vehicles registered in those counties to fund the financing, construction, operation, and maintenance of transit. Following a successful vote by the board of county of commissioners, a county that operates a transit system can charge a maximum of \$7 for every registered vehicle with some exceptions (as noted in Durham and Orange Counties). New Hanover County could generate approximately \$1 million annually with a \$7 vehicle registration fee. However, Wave Transit's request in 2013 for the implementation of a vehicle registration fee in New Hanover County was not approved. Wave Transit may consider developing a capital improvement program (CIP) which would clearly define projects that may be funded with the revenues from a vehicle registration fee for transit.

## **Motor Vehicle License Tax**

Municipalities can levy an annual general motor vehicle tax up to \$5 based on N.C. G.S. 20-97. The revenues collected from a motor vehicle license tax can be used for any public purpose. Additionally, municipalities that operate a public transportation system may levy an additional tax up to \$5. Revenues from this motor vehicle license tax must be used for the financing, constructing, operating, and maintaining of the transit system. The City of Wilmington could expect to collect \$360,000 annually with a \$5 motor vehicle license tax.

## **Vehicle Rental Tax**

Counties in North Carolina are able to levy taxes on the gross receipts of passenger vehicle rentals at the rate of 1.5%, according to N.C. G.S. 153A-156. Rented passenger vehicles to be taxed include traditional passenger vehicles, cargo vehicles, and trailers and semitrailers. Rentals of heavy equipment, defined as earthmoving, construction, or industrial equipment that is mobile and weighs at least 1,500 pounds, can be taxed at 1.2% per N.C. G.S. 153A-156.1.

## **Statewide Auto Parts Tax**

Across the state of North Carolina, the tax on auto part sales generates \$7.9 million annually. An estimate of revenue based on population indicates that the WMPO region could obtain up to \$184,000 per year.

## **Transportation Bonds**

Transportation bonds require voter approval and allow municipalities to sell bonds to investors, generating funds for transportation projects sooner. Authorized N.C. G.S. 159-43, the investors are typically paid back via a property tax increase. Transportation bonding is a common funding mechanism that has been successful in North Carolina. A \$14 million bond referendum was passed by voters in 2006 to fund five transportation projects in the City of Wilmington with no impact on property tax rates. More recently,



a\$44 million bond referendum was passed that will fund several transportation projects in Wilmington. This bond increased the property tax rate by 2 cents. A\$75 million bond referendum was passed by Raleigh voters in October 2013 to fund 18 projects including 14 roadway projects. This bond increased the property tax rate per\$100 of valuation by 1.12 cents. The previous transportation bond referendum to pass in Raleigh was in 2011 for\$37 million, which is currently funding seven projects.

## **Tolling**

Toll fees are direct charges to road users who have chosen to use the toll facility. The Turnpike Authority was created via N.C. G.S. 136-89, and is authorized to study, plan, develop, construct, operate, and maintain up to nine projects, which currently include the Triangle Expressway, Complete 540 Triangle Expressway Southeast Extension, Monroe Bypass, Mid-Currituck Bridge, Garden Parkway, and Cape Fear Crossing. The Cape Fear Crossing project is an approximately 9.5-mile proposed toll road from the US 17 Bypass in Brunswick County to US 421 near Wilmington. The only active tolling system in North Carolina is the Triangle Expressway, which opened completely in December 2012. According to NCTA's 2013 Third Quarter Operations Statistics Report, tolls along the Triangle Expressway saw 16.7 million transactions in the first nine months of 2013, generating approximately\$8.3 million in toll revenues. Despite the success of the Triangle Expressway, significant opposition to tolls exists in other areas of North Carolina, specifically regarding plans to toll I-77 and I-95. House Bill 267 proposes to set the following restrictions on NCTA's authority to collect tolls on interstate highways: the USDOT must grant permission by permit, NCTA must continue to maintain at least the same number of general purpose non-toll lanes, and the toll revenues must be used to increase capacity on, rebuild, repair, or maintain the interstate corridor on which the tolls were collected include ingress/egress roads. Senate Bill 218, if passed, would prohibit tolls on I-95 for ten years and require approval of the General Assembly for tolling after the ten years.

## **Alternative Funding Projections**

The following table shows the annual funding projections for each of the alternative funding sources considered in the MTP. The table also includes total funding projections for the life of the MTP.

ALTERNATIVE FUNDING MECHANISMS DATA-REVENUES

FY	Alternative Funding Sources													Total
	Quarter-Cent LOST		Quarter-Cent Sales Tax for Transit	Vehicle Registration Fees	Motor Vehicle License Tax						Vehicle Rental Tax		Statewide Auto Part Tax	
	New Hanover County	Pender County	New Hanover County	New Hanover County	Wilmington	Carolina Beach	Wrightsville Beach	Belville	Leland	Navassa	New Hanover County	Pender County	WMPO	
2015	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2016	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2017	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2018	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2019	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2020	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2021	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2022	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2023	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2024	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2025	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2026	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2027	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2028	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2029	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2030	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2031	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2032	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2033	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2034	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2035	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2036	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2037	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2038	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2039	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
2040	\$ 9,000,000	\$ 800,000	\$ 9,000,000	\$ 1,000,000	\$ 360,000	\$ 21,000	\$ 10,000	\$ 8,000	\$ 57,000	\$ 5,000	\$ 1,500,000	\$ 400,000	\$ 184,000	\$ 22,345,000
Total	\$ 207,000,000	\$ 18,400,000	\$ 207,000,000	\$ 23,000,000	\$ 8,280,000	\$ 483,000	\$ 230,000	\$ 184,000	\$ 1,311,000	\$ 115,000	\$ 34,500,000	\$ 9,200,000	\$ 4,232,000	\$ 513,935,000

ALTERNATIVE FUNDING MECHANISMS DATA-EXPENDITURES

Project Information		Year-Bands									
ID	Street/Intersection	2014 Cost	2015-2020	1	2021-2025	2	2026-2030	3	2031-2035	4	2036-2040
R-56	Independence Boulevard Extension	\$ 152,000,000	\$ 168,567,511		\$ 198,325,524		\$ 229,913,638		\$ 266,532,920		\$ 308,984,704
		\$ 36,990,000									
		\$ 59,450,000	\$ 65,929,859	X	\$ 77,568,766		\$ 89,973,459		\$ 104,245,935		\$ 120,849,610
R-57	River Road Widening	\$ 55,560,000	\$ 61,615,861		\$ 72,493,198	X	\$ 84,039,485		\$ 97,424,796		\$ 112,942,041
		\$ 115,483,000	\$ 128,070,276		\$ 150,679,122		\$ 174,678,399		\$ 202,500,140		\$ 234,753,162
		\$ 63,500,000	\$ 70,421,296		\$ 82,853,097		\$ 96,049,448	X	\$ 111,347,634		\$ 129,082,426
		\$ 51,983,000	\$ 57,648,980		\$ 67,826,024		\$ 78,638,952		\$ 91,152,505	X	\$ 105,670,736
R-58	Cape Fear River Crossing	\$ 913,900,000	\$ 1,013,512,160		\$ 1,192,432,213		\$ 1,382,355,750		\$ 1,602,529,182		\$ 1,857,770,534
		\$ 28,000,000	\$ 31,051,910		\$ 36,533,649	X	\$ 42,352,512		\$ 49,098,169		\$ 56,918,235
		\$ 9,050,000	\$ 10,036,421		\$ 11,808,197		\$ 13,688,937	X	\$ 15,869,230		\$ 18,396,787
		\$ 10,700,000	\$ 11,866,266		\$ 13,961,073		\$ 16,184,710		\$ 18,762,515	X	\$ 21,750,897
		\$ 43,800,000	\$ 48,574,059		\$ 57,149,065		\$ 66,251,430		\$ 76,803,565		\$ 89,036,382
***		\$ 822,350,000	\$ 911,983,505		\$ 1,072,980,228		\$ 1,243,878,160		\$ 1,441,995,703		\$ 1,671,668,233
150	CAUSEWAY DR	\$ 9,302,884	\$ 10,316,868		\$ 12,138,154		\$ 10,784,592		\$ 12,502,298		\$ 14,493,590
357	Old Fayetteville Rd B	\$ 3,087,759	\$ 3,424,315		\$ 4,028,825		\$ 4,670,513		\$ 5,414,404		\$ 6,276,778
	Revenue	\$ 65,929,859	\$ 65,929,859	1	\$ 109,925,000		\$ 109,925,000		\$ 109,925,000		\$ 109,925,000
	Cost										
	Balance	\$	\$ 25,141		\$ 898,153		\$ 186,615		\$ 9,980		\$ 118,250

\*\*\* A portion of the Cape Fear River Crossing project is unfunded



# APPENDIX F

## ROADWAY PROJECTS

### TRAVEL DEMAND MODEL

### AND PURPOSE AND NEED INFORMATION



## ROADWAY PROJECTS TRAVEL DEMAND MODEL AND PRELIMINARY PURPOSE & NEED INFORMATION

Cape Fear Transportation 2040 outlines fiscally-constrained project needs for all modes of transportation in the greater Wilmington area. Cape Fear Transportation 2040 is not intended as a full justification of project needs nor does it delve into project design; however, additional evaluation was taken through a travel demand model analysis to evaluate projects identified as having the greatest network implications. The Wilmington MPO Travel Demand Model evaluates the projected effect of the composite set of congestion-mitigating recommendations in this plan.

Roadway projects in particular have far-reaching implications on how people and goods move through an area. Certainly, roadways transport the majority of people and goods in a region based on vehicular movements; but they also facilitate or constrain other modes of transportation such as mass transportation, freight, bicycle and pedestrian, etc. Roadway network development and design also has strong implications on the quality of life experienced within an area. The complexity, cost and impact of future roadway projects necessitates additional investigation to determine if the mixture of projects recommended through this plan serves to benefit the community.

A Wilmington MPO Travel Demand Model was developed in order to evaluate congestion based on the composite recommendations in this plan as is described below. It is important to note that the Wilmington MPO Travel Demand Model is meant to evaluate congestion implications of plan projects in composite on the entire network – in other words, the Wilmington MPO Travel Demand Model was created as a tool to evaluate a snapshot of the plan's implications as a whole, not to evaluate the future performance of particular transportation corridors or areas.

This appendix also outlines preliminary information for each roadway project to describe its overall purpose and need.

### **Developments of land use –based components of the Wilmington MPO Travel Demand Model**

The Wilmington MPO Travel Demand Model has two major input components: A land use component and a transportation network component. The land use component of the Wilmington MPO Travel Demand Model approximates where trip origin and destinations will occur (and how many origins and destinations will occur) based on existing and future land uses.

## Control Total Development

A critical initial step in the development of a regional travel demand model is the development of control totals. Control totals describe the overall number of people, households, and jobs that will occur within a region. The development of control totals for the planning area of the WMPO grounded future growth projections in realism by comparing the future growth projections of the WMPO to those from around the state and to the growth projections for the entire state as a whole.

Population and household base year data was derived from the 2010 Decennial Census data clipped to the WMPO Planning Area Boundary. North Carolina Statewide Travel Model (NCSTM) data was used for future year projections which were themselves based on Woods & Poole data purchased for the state. Employment base year data was derived from the North Carolina Employment Security Commission which was developed through analysis of Info USA data purchased for the state. NCSTM growth rates were then applied to develop future year employment projections. The control totals adopted by the WMPO TAC in July 2013 are shown in the tables below.

WMPO Population Control Totals	
253,738	(2010)
288,729	(2020)
330,398	(2030)
365,927	(2040)

W

WMPO Employment Control Totals	
109,323	(2010)
119,278	(2020)
134,917	(2030)
150,557	(2040)

WMPO Household Control Totals	
106,265	(2010)
121,610	(2020)
150,146	(2030)
178,689	(2040)

### **Disaggregation of Control Totals**

In order to project how future homes and employment centers would generate trips on the WMPO transportation network, the projected future growth (the control totals) had to be disaggregated to smaller geographies. Transportation Analysis Zones (TAZs) were developed to define geographies based on combinations of census blocks in order to determine which transportation corridors would be effected by growth. TAZs represent combinations of census blocks that are bounded by major transportation corridors.

WMPO staff then worked with land use, utility, and growth experts from member jurisdictions to collaboratively distribute the growth identified in the control totals to each TAZ in terms of population, households, and employment. This exercise determined the inputs into the Wilmington MPO Travel Demand Model that generated the location and volume of trip origins and destinations.

### **Developments of network –based components of the Wilmington MPO Travel Demand Model**

The Wilmington MPO Travel Demand Model has two major input components: A land use component and a transportation network component. The transportation network component of the Wilmington MPO Travel Demand Model determined what routes could be taken between trip origins and destinations based on corridor location and capacity. (Note: Additional details on the Wilmington MPO Travel Demand Model can be found in the technical report titled Wilmington MPO Travel Demand Model Development and Validation Report available from the North Carolina Department of Transportation's Transportation Planning Branch.)

### **Use of TransCAD to develop Base Year network**

The existing transportation network was coded into a travel demand modeling software called TransCAD. Elements such as a roadway's geographic location, facility type, and cross-section were coded into the model in order to develop a capacity for each link of each transportation corridor.

Running the Wilmington MPO Travel Demand Model involves inputting the (1) land use data and the (2) corridors upon which trips could run. The output of the Wilmington MPO Travel Demand Model shows an approximation of which routes trips will take between their origins and destinations. The combination of the projected routes for the thousands of trips that will occur in the Wilmington MPO ultimately allows the Wilmington MPO Travel Demand Model to project where congestion will occur on the network.

## **Use of TransCAD to develop Build and No-build Scenarios**

After the base year (2010) network is verified as appropriately approximating real-world conditions; the horizon year projected growth (2040 projected trip origins & destinations) and Cape Fear Transportation 2040 horizon year capacity-affecting roadway projects (2040 transportation network) are coded into the model in order to develop a “Build” scenario. A “No-Build” scenario is also developed by coding in the horizon year projected growth (2040 projected trip origins & destinations) into a model run with the base year transportation network.

## **Analysis of Build and No-Build Scenarios**

A comparison of the “Build” and “No-Build” model runs evaluated the projected systems-level impacts of Cape Fear Transportation 2040 by evaluating what is projected to occur if the projects are constructed according to this plan (“Build” scenario) versus what is projected to occur if no additional capacity-increasing roadway projects will be constructed from now through 2040 (“No-Build” scenario).

Several metrics of analysis that are outputs of the Wilmington MPO Travel Demand Model and their results are described below to include level of service, volume to capacity ratio, vehicle hours travelled, and vehicle miles travelled.

### **LOS Analysis**

Level of service (LOS) analysis of transportation corridor performance is a measurement of the density of users on a particular segment based on that segment’s facility type. The numerical metrics of analysis for LOS vary based on the facility type; but LOS is communicated in terms of an alphanumeric score which is described as follows:

LOS A-C – corridor has additional capacity

LOS D – corridor is almost approaching capacity

LOS E – corridor is approaching capacity

LOS F – corridor is at or over capacity

“Build” and “No-Build” 2040 LOS maps are included at the end of this appendix. Based on the comparison of the “Build” and “No-Build” scenarios, the projects recommended in this plan will provide an overall improvement to the LOS experienced in the WMPO transportation network by 2040. Note that these maps illuminate a system-wide LOS and should not be used to directly project the future LOS of a particular transportation corridor, link, or area. The scale of analysis of the Wilmington MPO Travel Demand Model is for the entire WMPO network and is not designed to directly project the future LOS of a particular transportation corridor segment.

## **Volume to Capacity Ratio Analysis**

Volume to Capacity (V/C) ratio analysis of transportation corridor performance is a measurement of the ratio of the demand flow rate to capacity. Except at capacity, V/C ratios are not directly discernable to roadway users. However, analysis of the V/C ratio illuminates the sufficiency of the system to accommodate vehicular demand. As the V/C ratio approaches 1.0, traffic flow may become more congested with delay and queueing likely. The metrics of analysis for V/C ratios are described as follows:

0.80 and below – corridor accommodates demand

0.80 to 1.00 – corridor approaching unstable traffic flow conditions

1.00 and above – overcapacity corridor

“Build” and “No-Build” 2040 V/C ratio maps are included at the end of this appendix. Based on the comparison of the “Build” and “No-Build” scenarios, the projects recommended in this plan will provide an overall improvement to the V/C ratio experienced in the WMPO transportation network by 2040. Note that these maps illuminate a system-wide V/C ratio and should not be used to directly project the future V/C ratio of a particular transportation corridor, link, or area. The scale of analysis of the Wilmington MPO Travel Demand Model is for the entire WMPO network and is not designed to directly project the future V/C ratio of a particular transportation corridor segment.

## **Vehicle Hours Travelled Analysis**

In addition to LOS & V/C maps, the Wilmington MPO Travel Demand Model is used to project system level impacts to the amount of vehicle hours travelled (VHT) in the study area.

The horizon year VHT was projected for both the “Build” and “No-Build” 2040 scenarios. ## VHT are projected in 2040 in the “Build” scenario versus ## VHT in the “No-Build” scenario. Based on the comparisons of the “Build” and “No-Build” scenarios, the projects recommended in this plan will provide an overall reduction in the VHT experienced in the WMPO transportation network by 2040.

## **Vehicle Miles Travelled Analysis**

In addition to LOS & V/C maps, the Wilmington MPO Travel Demand Model is used to project system level impacts to the amount of vehicle miles travelled (VMT) in the study area.

The horizon year VMT was projected for both the “Build” and “No-Build” 2040 scenarios. ## VMT are projected in 2040 in the “Build” scenario versus ## VMT in the “No-Build” scenario. Based on the comparisons of the “Build” and “No-Build” scenarios, the projects recommended in this plan will provide an overall reduction in the VMT experienced in the WMPO transportation network by 2040.



## Preliminary Purpose & Need Discussion of Roadway Projects

Additional information describing the purpose & need for which roadway projects were suggested in this plan is provided below. This information is provided in order to illuminate which projects were evaluated as “congestion-mitigating” in the Wilmington MPO Travel Demand Model analysis and may be used to help define the purpose and need of a project during initial stages of a project’s environmental analysis. Projects assumed to be “congestion-mitigating” that were used in the 2040 “Build” scenario are denoted with an asterisk in the list below.

R-1*	Kerr Avenue Widening	Congestion/Access Management
R-2*	I-140 Wilmington Bypass	Congestion/Access Management
R-3*	Military Cutoff Road Extension	Congestion/Access Management
R-4*	NC 133/Castle Hayne Road Widening	Congestion/Access Management
R-5*	US117/NC132/College Road Widening	Congestion/Access Management
R-6*	Gordon Road Widening	Congestion/Access Management
R-7*	US117/NC132/College Road Widening	Congestion/Access Management
R-8*	US421/Carolina Beach Road Widening	Congestion/Access Management
R-9	US17BUS/Market Street Road Diet	Economic Enhancement
R-10	US17BUS/Market Street Access Management	
R-11	US17BUS/Market Street Access Management	
R-12	US17 Superstreet	Congestion/Access Management
R-13*	US117/NC132/College & US76/Oleander Intersection	Congestion/Access Management
R-14	US17BUS/Market Street Access Management	
R-15*	US421/Front Street Widening	Congestion/Access Management
R-16*	US74/Eastwood Road & Military Cutoff Road	Congestion/Access Management
R-17*	Carolina Beach Road & College Road Flyovers	Congestion/Access Management
R-18*	Isabel Holmes Bridge Flyovers	Congestion/Access Management
R-19*	US117/NC132/College & MLK Pkwy Intersection	Congestion/Access Management

# Cape Fear

## Transportation 2040

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R-20*	Kerr Avenue/MLK Jr Pkwy Intersection	Congestion/Access Management
R-21	US421/Carolina Beach Road Upgrade	Economic Enhancement
R-22*	Hurst Drive Extension	Congestion/Access Management
R-23	Dawson Street Streetscape	Economic Enhancement
R-24	Wooster Street Streetscape	Economic Enhancement
R-25	US17BUS/Market Street & 17th Street Intersection	Safety
R-26	Wrightsville Avenue & Wallace Avenue Roundabout	Safety
R-27	Oleander Drive & Pine Grove Intersection	Safety
R-28	Pine Grove Drive & MacMillan Avenue Intersection	Safety
R-29*	Love Grove Additional Access	Congestion/Access Management
R-30	Pine Grove Drive & Greenville Loop Road Roundabout	Safety
R-31	Pine Grove Drive & Holly Tree Road Roundabout	Safety
R-32*	Rice Gate Way Extension	Congestion/Access Management
R-33*	Kerr Avenue Widening	Congestion/Access Management
R-34*	Old Fayetteville Road Widening	Congestion/Access Management
R-35*	N 23rd Street Widening	Congestion/Access Management
R-36	NC210 Improvements	Safety
R-37*	Wilshire Boulevard Extension	Economic Enhancement
R-38*	Hampstead Bypass	Congestion/Access Management
R-39	Country Club/Doral Drive and Sloop Point Loop Road	Congestion/Access Management
R-40*	Kerr Avenue Extension	Congestion/Access Management
R-41*	I-74 Upgrade	Congestion/Access Management
R-42	NC133/Castle Hayne Road & 23rd Street Roundabout	Safety
R-43	Front Street & Carolina Beach Road Intersection	Safety
R-44*	Old Fayetteville Road Interchange	Congestion/Access Management
R-45*	New Centre Drive & Market Street Intersection	Congestion/Access Management
R-46	Greenville Avenue & Oleander Drive Intersection	Congestion/Access Management
R-47	Shipyard Boulevard Access Management (F/R)	Safety

R-48	Carolina Beach Road & Shipyard Boulevard Intersection (wb right turn) (F/R)	Safety
R-49	Shipyard Boulevard Widening (F/R)	Congestion/Access Management
R-50	Burnett Boulevard Widening (F/R)	Congestion/Access Management
R-51	Shipyard Boulevard Speed Sensors and Warning activation at NC Port of Wilmington (F/R)	Safety
R-52*	US17 to NC133 Connection	Congestion/Access Management
R-53*	NC 133/River Road Widening	Congestion/Access Management
R-54*	Market Street/MLK Jr. Pkwy Flyovers	Congestion/Access Management
R-55	Cape Fear River Crossing - Phase I	Congestion/Access Management
R-56	Independence Boulevard Extension - Phase I	Congestion/Access Management
R-58*	River Road Widening	Congestion/Access Management

### **Congestion/Access Management Projects**

Congestion/Access Management roadway projects have been identified as necessary for the WMPO transportation network to meet an existing and/or projected capacity issue or to improve traffic flow.

### **Economic Enhancement Projects**

Economic Enhancement roadway projects have been identified as necessary to improve the relationship between land use and transportation by either (or both) (1) beautifying the corridor or (2) increasing the multimodality of an existing transportation corridor. Economic Enhancement projects are expected to increase the economic investment in parcels surrounding the transportation corridor.

### **Safety Projects**

Safety roadway projects have been identified as necessary to meet existing and documented safety concerns on the WMPO transportation network.



# APPENDIX G

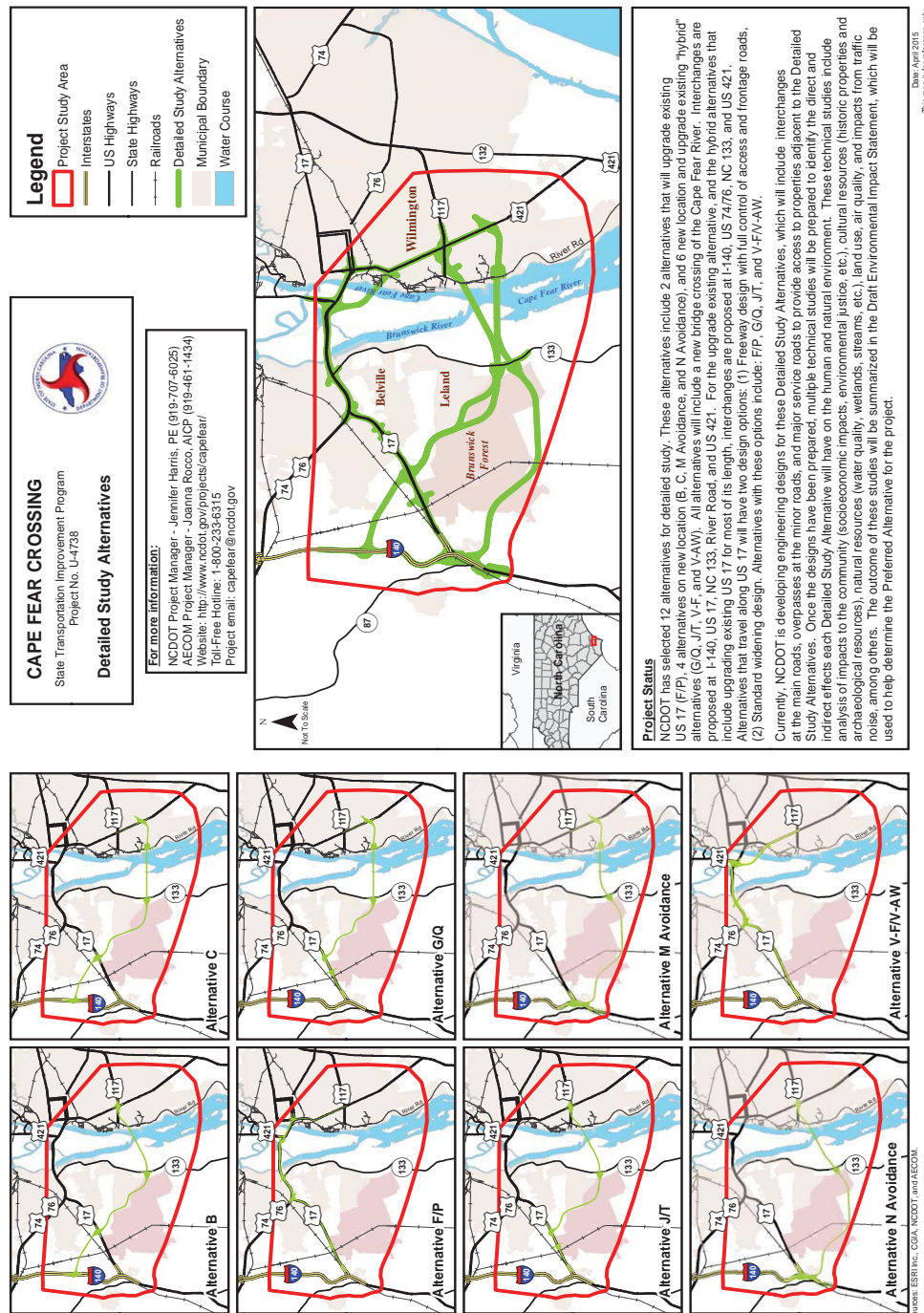
## ROADWAY PROJECTS

### WITH MULTIPLE ROUTES UNDER STUDY



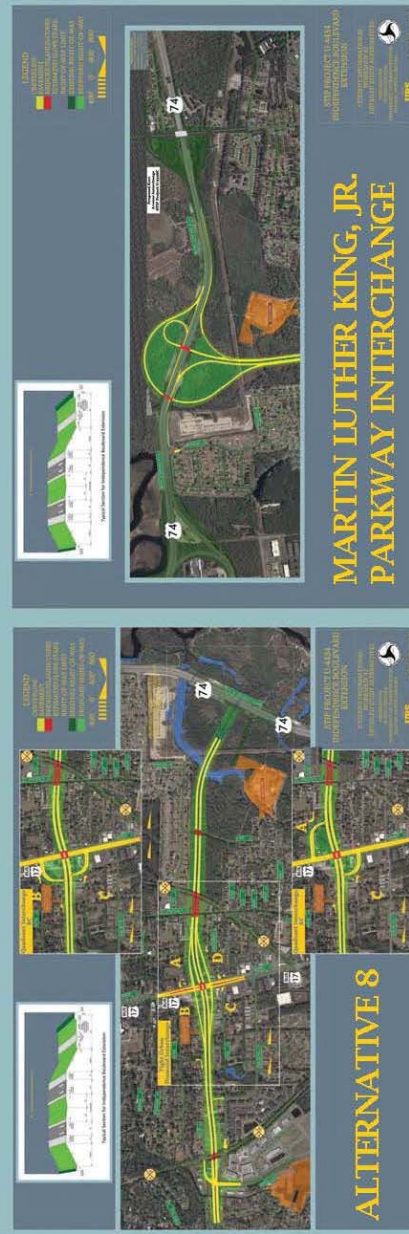
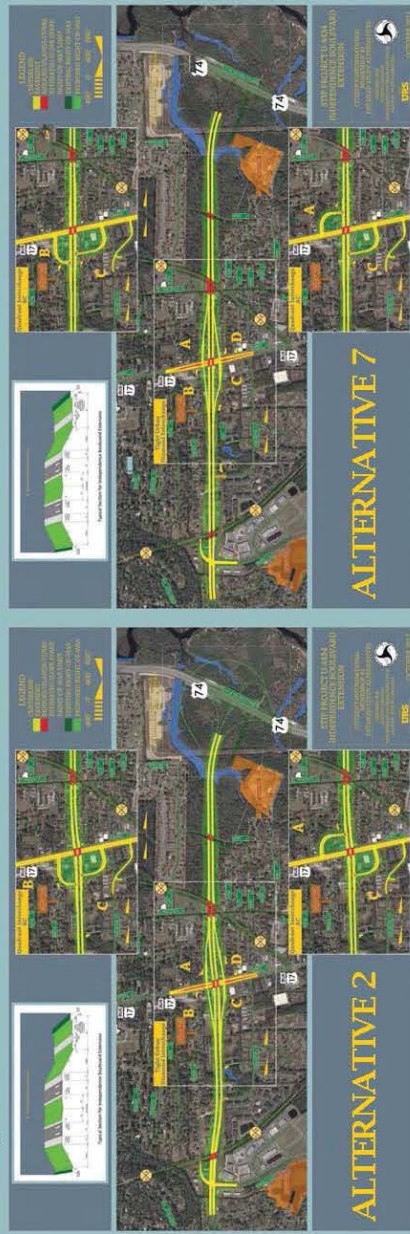
# ROADWAY PROJECTS WITH MULTIPLE ROUTES UNDER STUDY

## Cape Fear River Crossing



## Independence Boulevard Extension

# U-4434 INDEPENDENCE BOULEVARD EXTENSION PROJECT ALTERNATIVES



### Project Status

NCDOT has selected three alignment options, three Market Street interchange options and one Martin Luther King, Jr. Parkway interchange option for further detailed study. Multiple technical studies will need to be prepared to identify the direct and indirect effects each alternative will have on the human and natural environment. The outcome of these studies will be summarized in the Draft Environmental Impact Statement (DEIS), which will be used to help determine the Preferred Alternative for the project. **NCDOT and the WMPO are currently determining if the DEIS and corresponding studies should be completed, given the project did not score well in the latest funding study conducted by NCDOT (Strategic Transportation Investments).**

### Preliminary - Subject to Change



# APPENDIX H

## POTENTIAL COMPREHENSIVE TRANSPORTATION PLAN PROJECTS

## POTENTIAL COMPREHENSIVE TRANSPORTATION PLAN PROJECTS

Presented in the tables below are the recommended projects categorized by mode that are not in the fiscally constrained MTP, but are needed to meet the growth and mobility aspiration of citizens within the WMPO's planning area boundary over the long term. These projects should be considered part of the WMPO's Comprehensive Transportation Plan (CTP).

### Bicycle and Pedestrian Transportation

ID	LOCATION	FROM	TO
BP-74	A BRUNSWICK NATURE PARK CONNECTOR	OCEAN HWY E	MALLORY CREEK
BP-75	VILLAGE RD NE	WAYNE RD	OLD MILL RD
BP-76	CLARENDON AVENUE	DOW ROAD	LAKE
BP-77	SAINT JOSEPH ST	LEWIS DR	LEES LN
BP-78	BRUNSWICK FOREST FRONTAGE PATH	BRUNSWICK FOREST PKWY	WIRE ROAD
BP-79	LANVALE RD NE	VILLAGE RD	OLD FAYETTEVILLE RD NE
BP-80	Lincoln Rd NE	WALKER ST	POST OFFICE RD
BP-81	S Navassa Rd	VILLAGE RD	LOOP RD
BP-82	PARK AVENUE BRADLEY CREEK BRIDGE	GREENVILLE AVE	WRIGHTSVILLE AVE
BP-83	LELAND SCHOOL RD NE	MT. MISERY RD NE	VILLAGE RD
BP-84	LAKE PARK BLVD	CAROLINA SANDS DR	ALABAMA AVE
BP-85	MASONBORO LOOP RD	ANDREWS REACH LOOP	PARSELY ELEMEN- TARY SCHOOL
BP-86	WINDING TRAIL DR	TIMBER LN NE	OCEAN HWY E
BP-87	OLD MILL RD B	LANVALE RD	LELAND SCHOOL RD
BP-88	FLETCHER RD NE	MT. MISERY RD NE	END
BP-89	DOW RD	OCEAN BLVD	CLARENDON AVE
BP-90	MARKET ST	MARSH OAKS DR	PORTERS NECK RD
BP-91	PINE GROVE DR	HOLLY TREE RD	GREENVILLE LOOP RD
BP-92	S NAVASSA RD	LOOP RD	BROADWAY ST
BP-93	S NAVASSA RD	BROADWAY ST	OLD MILL RD
BP-94	SLOOP PT LOOP RD	COUNTRY CLUB DR	US HWY 17
BP-95	FORT FISHER BLVD	S FIFTH AVE	S FORT FISHER BLVD END



BP-96	PINE GROVE DR	QUAIL RIDGE RD	HOLLY TREE RD
BP-97	COUNTRY CLUB ROAD	HWY 17/JENKINS ROAD	SLOOP POINT/DORAL DRIVE
BP-98	JENKINS RD	US17	ST JOHNS CHURCH RD
BP-99	K AVE	5TH AVE	DOW RD
BP-100	OLD MILL RD	N NAVASSA RD	MAIN ST
BP-101	OLD MILL RD	MAIN ST	WINDING TRAIL EX- TENSION
BP-102	OLD MILL RD	WINDING TRAIL EX- TENSION	LINCOLN RD
BP-103	PINE GROVE DR	MASONBORO LOOP RD	QUAIL RIDGE RD
BP-104	WINDING TRAIL DR EX- TENSION	VILLAGE RD	OLD MILL RD
BP-105	PICKET RD NE EXTEN- SION	TIMBER LN NE	VILLAGE RD NE
BP-106	B BRUNSWICK NATURE PARK CONNECTOR	MALLORY CREEK	BRUNSWICK NATURE PARK
BP-107	LANVALE RD NE	OLD FAYETTEVILLE RD NE	GRANDIFLORA DR
BP-108	MARKET ST	BAYSHORE DR	MARSH OAKS DR
BP-109	MALLORY CREEK PATH	ST KITTS WAY	LOW COUNTRY BLVD
BP-110	GRANDIFLORA DR	LANVALE RD NE	TIMBER LN NE
BP-111	LANVALE RD NE	GRANDIFLORA DR	OCEAN HWY
BP-112	PLOOF RD SE	OCEAN HWY E	CHAPPELL LOOP RD
BP-113	PORTERS NECK RD	MARKET ST	EDGEWATER CLUB RD
BP-114	JAKEYS CREEK CON- NECTOR	NIGHT HARBOR DR	JACKEY'S CREEK LN
BP-115	ST JOHNS CHURCH RD	JENKINS RD	END
BP-116	DOW RD	K AVE	OCEAN BLVD
BP-117	CHAPPELL LOOP RD E	BLACKWELL RD	CHAPPEL LOOP RD
BP-118	MARKET ST	FUTCH CREEK RD	PENDER-NEW HA- NOVER LINE
BP-119	TORCHWOOD BLVD	US 17 MARKET STREET	OGDEN PARK CON- NECTOR TRAIL
BP-120	OCEAN BLVD	GREENWAY PLAN PATH	DOW RD S
BP-121	OCEAN BLVD	MIKE CHAPPELL PARK	N LAKE PARK BLVD
BP-122	BLACKWELL RD SE	RIVER RD	CHAPPELL LOOP RD

BP-123	NC 133 RIVER RD	BLACKWELL RD	MORECAMBLE BLVD SE
BP-124	NC 133 RIVER RD	MORECAMBLE BLVD	JACKEYS CREEK LN SE
BP-125	NC 133 RIVER RD	JACKEYS CREEK LN SE	WESTPORT DR
BP-126	NC 133 RIVER RD	MALLORY CREEK DR	WESTPORT DR
BP-127	SOUTH SMITH CREEK CONNECTOR TRAIL	SMITH CREEK PARK	OGDEN PARK CONNECTOR PATH
BP-128	SMITH CREEK MURRAYVILLE CONNECTION	MURRAYVILLE RD	NORTH SMITH CREEK TRAIL
BP-129	PENINSULA DR	TEAKWOOD DR	ISLAND MARINE DR
BP-130	CEDAR HILL RD	OLD MILL RD	ROYSTER RD NE
BP-131	NC 133 RIVER RD	MALLORY CREEK DR	SOUTHERN BLVD
BP-132	NC 133 RIVER RD	SOUTHERN BLVD	HICKORY LN SE
BP-133	CEDAR HILL RD	ROYSTER RD NE	WINDING TRAIL EXTENSION
BP-134	ALABAMA AVE	PROP TRAIL WEST OF SPOT LN	LAKE PARK BLVD
BP-135	OGDEN PARK CONNECTOR PATH	SMITH CREEK PARK CONNECTOR PATH	TORCHWOOD BLVD
BP-136	RAIL CORRIDOR TRAIL	US 421	QUALITY DR NE
BP-137	DORAL DR	SLOOP POINT RD	MASTER LN
BP-138	MASTER LN	DORAL DR	SLOOP POINT RD
BP-139	MARKET ST	END	FUTCH CREEK RD
BP-140	US 421	ISABEL HOLMES BRIDGE	RAIL CORRIDOR
BP-141	PORTERS NECK RD	EDGEWATER CLUB RD	BLAD EAGLE LN
BP-142	FUTCH CREEK RD	OLD MARKET ST	CHAMPS DAVIS RD
BP143	FUTURE RIVER RD ALIGNMENT	BARNARDS CREEK	SILVER LAKE RD
BP144	FUTURE RD	BLUE CLAY RD	FUTURE ROAD
BP145	MALLARD ST TRAIL	RILL RD	NE OF WIDGEON DR
BP146	13TH ST	CASTLE ST	LEE DR
BP147	19TH ST	ANN ST	COLWELL AVE
BP148	23RD ST	AIRPORT BLVD	ONE TREE HILL WAY
BP149	BALD EAGLE LN	PORTERS NECK RD	FUTCH CREEK RD
BP150	BARCLAY HILLS DR	PRINCESS PLACE DR	KERR AVE
BP151	BAYFIELD DR	BAYSHORE DR	MARSH OAKS DR
BP152	BAYSHORE DR	TORCHWOOD BLVD	BAYFIELD DR

BP153	BEASLEY RD	JAMES E L WADE PARK	MASONBORO LOOP RD
BP154	BLUE CLAY RD	HOLLY SHELTER RD	SIDBURY RD
BP155	BLUE CLAY RD	PROP TRAIL AT RAIL CORRIDOR	SIDBURY RD
BP156	BRENTWOOD DR	PROP TRAIL AT VICTORIA DR	CASTLE HAYNE RD
BP157	BURNETT BLV	FRONT ST	SHIPYARD BLVD
BP158	CANAL DR	FLORIDA AVE	CAROLINA BEACH AVE
BP159	CARDINAL DR	CLEAR RUN DR	EASTWOOD RD
BP160	CARDINAL EXTENSION DR	MARKET ST	EASTWOOD RD
BP161	CAROLINA BEACH AVE	LAKE PARK BLVD	HAMLET AVE
BP162	CAROLINA BEACH AVE	CAPE FEAR BLVD	SALT MARSH LN
BP163	CASTLE HAYNE RD	MCRAE ST	BRENTWOOD DR
BP164	CASTLE HAYNE RD	NORTH OF 1-140	CHAIR RD
BP165	CATHAY RD	RIVER RD	CAROLINA BEACH RD
BP166	CHADWICK AVE	PROP TRAIL	CASTLE HAYNE RD
BP167	CHAMP DAVIS RD	FUTCH CREEK RD	PORTERS NECK RD
BP168	CHESTNUT ST	23RD ST	MARKET ST
BP169	CLEAR RUN DR	COLLEGE ACRES DR	MALLARD ST
BP170	COVIL FARM RD	MILITARY CUTOFF RD	RED CEDAR RD
BP171	EIGHTH ST	CLARENDON AVE	HARPER AVE
BP172	FAULKENBERRY RD	CAROLINA BEACH RD	MYRTLE GROVE RD
BP173	FLORIDA AVE	CANAL DR	CAROLINA BEACH AVE
BP174	FOURTH ST	PROP TRAIL WEST OF SIXTH ST	HARPER AVE
BP175	FRONT ST	ANN ST	CAPE FEAR MEMORIAL BRIDGE
BP176	FUTCH CREEK RD	CHAMP DAVIS RD	BALD EAGLE LN
BP177	GLEN MEADE RD	17TH ST	ECHO LN
BP178	GORDON RD	WHITE RD	OGDEN PARK DR
BP179	GREENVILLE AVE	WRIGHTSVILLE AVE	PARK AVE
BP180	ISLAND CREEK RD	IDEAL CEMENT RD	ROYAL OAKS DR
BP181	HOLLY SHELTER RD	I-40	BLUE CLAY RD
BP182	KERR AVE	MARKET ST	RANDALL PKWY
BP183	KERR AVE	MARKET ST	MARTIN LUTHER KING JR PKWY

BP184	KERR AVE	BLUE CLAY RD	TRUESDALE RD
BP185	LAKE PARK BLV	FAYETTEVILLE AVE	DRIFTWOOD LN
BP186	LAKE PARK BLV	SPENCER FARLOW DR	RISLEY RD
BP187	LEWIS DR	LAKE PARK BLVD	SAINT JOSEPH ST
BP188	LIVE OAK PKY	PARK AVE	GILLETTE DR
BP189	LOGANBERRY RD	NORTH END	BLUEBERRY RD
BP190	LYNNWOOD DR	SOUTH END	WAVERLY DR
BP191	MACMILLAN AVE	PINEGROVE DR	OLD MEARES RD
BP192	MERCER AVE	MARKET ST	INDEPENDENCE BLVD
BP193	METTS AVE	15TH ST	PROP TRAIL AT CREEK
BP194	OLD AVE	CASTLE HAYNE PARK	PARMELE RD
BP195	OYSTER LN	BRIGHT LEAF RD	MIDDLE SOUND LOOP RD
BP196	PARMELE RD	CASTLE HAYNE RD	COLLEGE RD
BP197	PEIFFER AVE	SOUTH END	OLEANDER DR
BP198	PRINCESS PLACE DR	PROP TRAIL AT CREEK	FUTURE INDEPENDENCE BLVD EXTENSION
BP199	PRINCESS ST	5TH AVE	20TH ST
BP200	PRIVATE	KERR AVE	FUTURE ROAD
BP201	SAINT NICHOLAS RD	ELISHA DR	NOBILE SCHOOL RD
BP202	SIDBURY RD	BLUE CLAY RD	DAIRY FARM RD
BP203	THAIS TRL	BRIGHT LEAF RD	BAYSHORE DR
BP204	TRAILS END RD	MASONBORO LOOP RD	EAST END
BP205	TROY DR	WELLINGTON AVE	SHIPYARD BLVD
BP206	WRIGHTSVILLE AVE	DONNA AVE	GREENVILLE AVE
BP207	YAUPON DR	LAKE SHORE DR	17TH ST
BP208	CHESTNUT ST	PRINCESS ST	23RD ST
BP209	23RD ST	PRINCESS PLACE DR	CHESTNUT ST
BP210	KERR AVE	CASTLE HAYNE RD	BLUE CLAY RD
BP211	KERR AVE	TRUESDALE RD	COLLEGE RD
BP212	5TH AVE	NIXON ST	PROP TRAIL AT DOWNTOWN RAIL CORRIDOR
BP213	CASTLE HAYNE RD	I-140	PARMELE RD
BP214	US 117	PENDER-NEW HANOVER LINE	HOLLY SHELTER RD
BP215	CASTLE HAYNE RD	PARMELE RD	HOLLY SHELTER RD
BP216	CASTLE HAYNE RD	KERR AVE	BRENTWOOD DR

BP217	LAKE PARK BLV	CAROLINA SANDS DR	DRIFTWOOD LN
BP218	LUMINA AVE	SALISBURY ST	CAUSEWAY DR
BP219	RANDALL DR	COLLEGE RD	REYNOLDS DR
BP220	OAK BLUFF LN	OAK BLUFF LN	FUXTON WAY SOUTH END
BP221	HAMLET AVE	CAROLINA BEACH AVE	CAROLINA BEACH WATERFRONT GRE-ENWAY
BP222	MCRAE ST	BESS ST	CASTLE HAYNE RD
BP223	LAKE PARK BLV/SAINT JOSEPH ST TO LEES LN	LEES LN	CARL WINNER AVE
BP224	FRONT ST	WRIGHT ST	MARSTELLAR ST
BP225	K AVE	FORT FISHER BLD	ATLANTIC AVE
BP226	NIXON ST	5TH AVE	MCRAE ST
BP227	OLD MILL RD	NC 133	RAIL CORRIDOR
BP228	COLLEGE RD	NEW CENTRE DR	MARKET ST
BP229	KERR AVE	HOGGARD DR	RANDALL PKWY
BP230	WRIGHTSVILLE AVE	S KERR AVE	WILSHIRE BLVD
BP231	DOGWOOD LN EXTENSION	OLEANDER DR	GREENVILLE LOOP RD
BP232	WELLINGOTN AVE	S 17TH ST	FLINT DR
BP233	GILLETTE DR	LAKESHORE DR	S LIVE OAK PKWY
BP234	CAROLINA BEACH RD	Independence Boulevard	St Andrews Dr
BP235	HARNETT ST	3RD ST	5TH AVE
BP236	5TH AVE	TAYLOR ST	NIXON ST
BP237	CHESTER ST	CARDINAL RD	ELISHA DR
BP238	FRONT ST	CAMPBELL ST	CHESTNUT ST
BP239	SWORDFISH LN	ALABAMA AVE	TENNESSEE AVE
BP240	NETHERLANDS DR	GORDON RD	AMSTERDAM WAY
BP241	WINERY WAY	SHIRAZ WAY	RIESLING AVE
BP242	SHIRAZ WAY	PORTERS NECK RD	WINERY WAY
BP243	LUMINA AVE	SOUTH RIDGE LN	SALISBURY ST
BP244	CORNING CONNECTION	RINGO DR	RACINE DR
BP245	RACINE DR	RANDALL DR	END
BP246	CAHILL DR	END	WALTON DR
BP247	SEAHAWK LANDING DR	CAHILL DR	PRICE DR
BP248	PRICE DR	RIEGEL RD	WALTON DR
BP249	CARDINAL EXTENSION DR	MARKET ST	CHESTER ST



BP250	TIMBER LN	CARDINAL DR	LONG LEAF ACRES DR
BP251	LONG LEAF ACRES DR	EASTWOOD RD	TOULON DR
BP252	TOULON DR	LONG LEAF ACRES DR	GREEN MEADOWS DR
BP253	GREEN MEADOWS DR B	SAINT NICHOLAS RD	TOULON DR
BP254	GREEN MEADOWS DR C	MARKET ST	SAINT NICHOLAS RD
BP255	MARKET ST SEGMENT	CARDINAL EXTENSION DR	JUDGES RD
BP256	N JUDGES RD	ALBEMARLE RD	MARKET ST
BP257	ALBEMARLE RD	JUDGES RD	DARWIN DR
BP258	FITZGERALD DR	LORD TENNYSON RD	ALBEMARLE RD
BP259	LORD TENNYSON RD	DARWIN DR	FITZGERALD DR
BP260	KINGS GRANT RD	PRIVATE	KINGS DR
BP261	ELISHA Dr	LONG LEAF ACRES DR	TANBRIDGE RD
BP262	TANBRIDGE RD	CAMBERLY DR	WELLS RD
BP263	WELLS RD	TANBRIDGE RD	MONUMENT DR
BP264	MONUMENT DR	WELLS RD	TOWN CENTER DR
BP265	MILITARY CUTOFF RD	GORDON RD	STATION RD
BP266	OLEANDER DRIVE BRADLEY CREEK	GREENVILLE LOOP RD	PRIVATE
BP267	OLEANDER DRIVE D	HINTON AVE	GREENVILLE LOOP RD
BP268	OLEANDER DRIVE C	HAWTHORNE DR	HINTON AVE
BP269	OLEANDER DRIVE B	WALLACE AVE	HAWTHORNE DR
BP270	OLEANDER DRIVE A	S COLLEGE RD	WALLACE AVE
BP271	ROSE AVE	RIEGEL RD	WRIGHTSVILLE AVE
BP272	HINTON AVE	MICHELLE DR	PARK AVE
BP273	MICHELLE DR	WRIGHTSVILLE AVE	HINTON AVE
BP274	ANDOVER RD	ROSE AVE	WRIGHTSVILLE AVE
BP275	FRENCH RD	PARK AVE	END
BP276	HARLEY RD	ALBEMARLE RD	MARKET ST
BP277	WHITE ROAD	GORDON RD	END
BP278	HARRIS ROAD/SHENANDOAH ST	CREEK RIDGE RD	GORDON RD
BP279	EDGEWATER CLUB ROAD	PORTERS NECK RD	END
BP280	MARSHFIELD DR	PORTERS NECK RD TRAIL	END
BP281	SALEM CT	PORTERS NECK RD TRAIL	END

BP282	SCOTTS HILL LOOP RD	SALEM CT	GREAT PINE CT
BP283	BEHIND PORTERSNECK LOWES	CYPRESS POND WAY	MARKET ST
BP284	CONNECTION FROM LOWES TO PLANTATION RD	PLANTATION RD	LILLY POND LN
BP285	PLANTATION RD	CROOKED PINE RD	END
BP286	MARSH OAKS DR	MARKET ST	MONARCH DR
BP287	MONARCH DR	MARSH OAKS DR	AQUARIUS DR
BP288	AQUARIUS Dr	MONARCH DR	SCORPION DR
BP289	SCORPION DR	AQUARIUS DR	BAYSHORE DR
BP290	TORCHWOOD BLVD	OGDEN PARK CON- NECTOR TRAIL	END
BP291	OGDEN PARK DR	DAYBREAK LN	GORDON RD
BP292	DAYBREAK LN	FARRINGTON FARMS DR	OGDEN PARK DR
BP293	FARRINGTON FARMS RD	DAYBREAK LN	SUN COAST DR
BP294	SUN COAST DR	SAPLING CIR	END
BP295	SAPLING CIR	SUN COAST DR	ALAMOSA DR
BP296	ALAMOSA DR	SAPLING CIR	BRODICK CT
BP297	BRODICK CT	ASHBY DR	ALAMOSA DR
BP298	ASHBY DR	BRODICK CT	WOODHALL DR
BP299	WOODHALL DR	ASHBY DR	BRITTANY LAKES DR
BP300	BRITTANY LAKES DR	POTOMAC DR	WOODHALL DR
BP301	POTOMAC Dr	SHEFFIELD CT	BRITTANY LAKES DR
BP302	SHEFFIELD CT	SHENANDOAH ST	POTOMAC DR
BP303	CREEK RIDGE RD	SHENANDOAH ST	BRITTANY RD
BP304	BRITTANY RD	CREEK RIDGE RD	NORTH SMITH CREEK TRAIL
BP305	SUN COAST Dr	HARRIS RD	SAPLING CIR
BP306	WALKER ST NE	MT. MISERY RD NE	LINCOLN RD NE
BP307	REED RD NE	MT. MISERY RD NE	LAKE NORMAN LN
BP308	MT. MISERY RD NE	LINCOLN RD NE	CEDAR HILL RD NE
BP309	PARALLEL NE CAPE FEAR RIVER	Navassa	Northeast
BP310	LOW COUNTRY BLVD	BRUNSWICK FOREST PKWY	RICE GATE WAY
BP311	WINDING TRAIL DR EX- TENSION	OLD MILL RD	CEDAR HILL RD
BP312	CHAPPELL LOOP RD SE	PLOOF RD	EAST WOOD LN
BP313	EASTWOOD LN SE	CHAPPELL LOOP RD	PINE BRANCHES CIR

BP314	TWO PINE RD	EAST WOOD LN	WINDING BRANCHES DR
BP315	WINDING BRANCHES DR	PINE BRANCHES CIR	WINDSOR DR
BP316	WINDSOR DR SE	WINDING BRANCHES DR	N. OLDE TOWNE WYND
BP317	N OLDE TOWNE WYND SE	WINDSOR DR	BRUNSWICK PL
BP318	BRUNSWICK PL	N. OLDE TOWNE WYND	S. OLDE TOWN WYND
BP319	S OLDE TOWNE WYND SE	BRUNSWICK PL	RIVER RD
BP320	CAUSEWAY	RIVER RD	HWY 133/US 421
BP321	OLDE WATERFORD WAY	OCEAN HWY	PALM RIDGE DR
BP322	PALM RIDGE DR	OLDE WATERFORD WAY	OLDE VILLAGE CIR
BP323	OLD VILLAGE CIR	PALD RIDGE DR	END
BP324	PINE HARVEST DR	OLDE V ILLAGE CIR	GRANDIFLORA DR
BP325	GRANDIFLORA DR	TIMBER LN NE	OCEAN HWY E
BP326	TIMBER LN NE	GRANDIFLORA DR	PICKETT RD
BP327	LOSSEN LN	OLD FAYETTVILLE RD	VILLAGE RD
BP328	OLD FAYETTEVILLE RD A	LOSSEN LN	BASIN ST
BP329	BASIN ST	OLD FAYETTEVILLE RD	RAMPART ST
BP330	RAMPART ST	BASIN ST	ROYAL ST
BP331	ROYAL ST	RAMPART ST	WAYNE ST
BP332	WAYNE ST NE	ROYAL ST	VILLAGE RD
BP333	VILLAGE RD C	LOSSEN LN	S NAVASSA RD
BP334	CEDAR HILL RD	WINDING TRAIL EX- TENSION	DANIELS RD
BP335	MARLBORO ST	RANDALL PKY	MARKET ST
BP336	ST ROSEA RD	PRINCESS PLACE DR	MCCLELLAND DR
BP337	MCCLELLAND DR	SAINT ROSEA DR	NEW CENTRE DR
BP338	S SMITH CREEK	COLONIAL DR	END
BP339	WASHINGTON ST PATH	BELL ST	KENTUCKY AVE
BP340	WRIGHT ST	FRONT ST	S 16TH ST
BP341	MEARES ST	FRONT ST	S 16 ST
BP342	S 41ST ST	OLEANDER DR	SHIPYARD BLV
BP343	HALIFAX RD	LAKE AVE	FORDHAM RD
BP344	CENTRAL BLVD MORN- INGSIDE DR	BURNETT BLV	YAUPON DR

BP345	MONKEY JUNCTION CONNECTION	CAROLINIA BEACH RD TRAIL	HONEYBEE LN
BP346	GATE POST PRIOR WILLOUGHBY PARK CONNECTION	WILLOUGHBY PARK CT	PRIOR DR
BP347	ANTOINETTE DR	CAROLINA BEACH RD	NORMANDY DR
BP348	GABRIEL ST PATH EXTENSION	MCQUILLAN DR	BANCROFT DR
BP349	HURON DR CONNECTION	OKEECHOBEE RD	END
BP350	HALYBURTON MEMORIAL PKY CONNECTOR	OKEECHOBEE RD	HALYBURTON MEMORIAL PKWY
BP351	RIVER BREEZE DR	HALYBURTON MEMORIAL PKY	RIVERBREEZE DR.
BP352	SEDGLEY DR PATH EXTENSION	THE CAPE BLV	PRIVATE
BP353	CATAMARAN DR PATH EXTENSION	CATAMARAN DR	END
BP354	SPENCER FARLOW DR	ISLAND MARINA DR	ACCESS RD
BP355	ACCESS RD	SPENCER FARLOW DR	BERTRAM DR
BP356	CANAL DR	VIRGINIA AVE	CARL WINNER AVE
BP357	S 6TH AVE	K AVE	H AVE
BP358	S 5TH AVE	H AVE	S FORT FISHER BLVD
BP359	HOLLY TREE RD	S COLLEGE RD	PINE GROVE DR
BP360	BEASLEY RD	PINE GROVE DR	WHISPER CREEK LN
BP361	MARSH HAWK CT	BRAGG DR	AMBER DR
BP362	ASTER CT	GREENWAY PLAN PATH	BETHEL RD END
BP363	WALTMOOR RD	S COLLEGE RD	GREENWICH LN
BP364	GREENWICH LN	WALTMOOR RD	LANDSDOWNE RD
BP365	DEVONSHIRE LN	DOVER RD	LANDSDOWNE RD
BP366	LANDSDOWNE RD	DEVONSHIRE LN	NAVAHO TRL
BP367	NAVAHO TRL	MASONBORO LOOP RD	END
BP368	N COLLEGE RD A	CASTLE HAYNE RD	N COLLEGE RD
BP369	COLLEGE TO CASTLE HAYNE PARK	N COLLEGE RD	END
BP370	CASTLE HAYNE PARK CONNECTOR B	GREENWAY PLAN PATH	JUVENILE CENTER DR
BP371	NORTHCHASE PKY	N COLLEGE RD	NEW VILLAGE RD
BP372	MURRAYVILLE RD A	N COLLEGE RD	I-40

Cape Fear  
**Transportation 2040**

BP373	GORDON RD B	N KERR AVE	N COLLEGE RD
BP374	LAUREL DR	CASTLE HAYNE RD	N KERR AVE
BP375	BLUE CLAY RD PATH CONNECTOR	DAIRY FARM RD	I-140 WEST TRAIL
BP376	NC 210	MERRICKS CREEK	NAVILLUS BLVD
BP377	ISLAND CREEK RD	ROYAL OAK CT	US HWY 17
BP378	US 17 HAMPSTEAD	WHITEBRIDGE RD	LODGE RD
BP379	COUNTRY CLUB DR	US HWY 17	SLOOP POINT LOOP RD
BP380	US 17 HAMPSTEAD FRONTAGE PATH	WHITEBRIDGE RD	SCOTTS HILL LOOP RD
BP381	SIDBURY RD	US HWY 17	DAIRY FARM RD
BP382	HAMPSTEAD BYPASS PATH	DAIRY FARM RD	OLD WHITFIELD RD
BP383	US 17 HAMPSTEAD CONNECTION	POWER EASEMENT	US HWY 17
BP384	NC HWY 133	CHESHIRE RD	US 117
BP385	NC 210	CHESHIRE RD	US 117
BP386	CHESHIRE RD	NC HWY 210	NC HWY 133
BP387	US HWY 117 S	NC 210	NC 133
BP388	CLARKS LANDING LOOP	NC HWY 210	END
BP389	US 421 N	MONTAGUE RD	PENDER-NEW HA- NOVER LINE
BP390	BLUEBERRY RD	MONTAGUE RD	END
BP391	US 421 S	BLUEBERRY RD	EXISTING GREENWAY ROUTE
BP392	BRUNSWICK FOREST PKWY	OCEAN HWY	BRUNSWICK VILLAGE BLVD
BP393	W GATE DR	WEST GATE DR	CORAL STONE CT
BP394	BRUNSWICK FOREST PKY B	LOW COUNTRY BLVD	END
BP395	LOW COUNTRY BLVD	BRUNSWICK FOREST PKWY	RICE GATE WAY
BP396	CAPE FEAR NATIONAL DR	LOW COUNTRY BLVD	END
BP397	NC 133 RIVER RD S	HICKORY LN	END
BP398	WALLACE AVE	PINE GROVE DR	WRIGHTSVILLE AVE
BP399	CAROLINA BEACH RD	BURNETT BLVD	SHIPYARD BLVD
BP400	CAROLINA BEACH RD	SHIPYARD BLVD	INDEPENDENCE BLVD
BP401	K AVE	6TH AVE	FORT FISHER BLVD N
BP402	SPOT LN PATH	ALABAMA AVE	OCEAN BLVD



BP403	MIKE CHAPPEL PARK PATH	ALABAMA AVE	CLARENDON AVE
BP404	N 7TH ST	HARPER AVE	DOW RD
BP405	CAROLINA BEACH WATERFRONT	HAMLET AVE	CARL WINNER AVE
BP406	OTTER RD	LEWIS DR	TEAKWOOD DR
BP407	TEAKWOOD DR	OTTER RD	PENINSULA DR
BP408	ISLAND MARINE DR	PENINSULA DR	SPENCER FARLOW DR
BP409	SPENCER FARLOW DR	BRIDGE BARRIER RD	N LAKE PARK BLVD
BP410	SNOW CUT BRIDGE	SOUNDSIDE DR	SPENCER FARLOW DR
BP411	HARPER AVE	N 3RD ST	N CAROLINA BEACH AVE
BP412	SNOWS CUT BRIDGE	SOUNDSIDE DR	SPENCER FARLOW DR
BP413	RIVER ROAD	SOUNDSIDE DR	CYPRESS ISLAND DR
BP414	RIVER RD	CYPRESS ISLAND DR	SEDGLEY DR
BP415	RIVER RD	SEDGLEY DR	THE CAPE BLVD
BP416	RIVER RD	HALYBURTON MEMORIAL PKWY	THE CAPE BLVD
BP417	RIVER RD	CATHAY RD	HALYBURTON MEMORIAL PKWY
BP418	RIVER RD	CATHAY RD	SANDERS RD
BP419	RIVER RD	SANDERS RD	SILVER LAKE RD
BP420	RIVER RD	BARNARDS CREEK	INDEPENDENCE BLVD
BP421	HALYBURTON MEMORIAL PARKWAY	RIVER RD	LURE LN
BP422	HALYBURTON MEMORIAL PKWY	LURE LN	CAROLINA BEACH RD
BP423	SANDERS RD	RIVER RD	CAROLINA BEACH RD
BP424	SILVER LAKE RD	ILEX DR	RIVER RD
BP425	SILVER LAKE RD	ILEX DR	CAROLINA BEACH RD
BP426	SOUTHERN CAPE FEAR RIVER CROSSING	BRUNSWICK COUNTY	NEW HANOVER COUNTY
BP427	BARNARDS CREEK PATH	BARNARDS LANDING RD	RIVER RD
BP428	BARNARDS LANDING RD	END	PLEASANT DALE DR
BP429	PLEASANT DALE DR	BARNARDS LANDING RD	HEDINGHAM LN
BP430	HEDINGHAM LN	PLEASANT DALE DR	LINDEN RIDGE RD

BP431	LINDEN RIDGE RD	HEDINGHAM CT	DELHAM CT
BP432	ST ANDREWS DR PATH	LINDEN RIDGE RD	CAROLINA BEACH RD
BP433	SHIPYARD BLVD	LONGSTREET DR	S 41ST ST/HOLLY-TREE
BP434	SHIPYARD BLVD	S 41ST/HOLLY TREE	S COLLEGE RD
BP435	CAROLINA BEACH RD	ST ANDREWS DR	SILVER LAKE RD
BP436	CAROLINA BEACH RD	SILVER LAKE RD	ANTOINETTE DR
BP437	CAROLINA BEACH RD	PINER RD	SANDERS RD
BP438	CAROLINA BEACH RD	SANDERS RD	CATHAY RD
BP439	CAROLINA BEACH RD	CATHAY RD	HALYBURTON MEMO-RIAL PKWY
BP440	CAROLINA BEACH RD	HALYBURTON ME-MORIAL PKWY	MYRTLE GROVE RD
BP441	CAROLINA BEACH RD	MYRTLE GROVE RD	MCQUILLAN DR
BP442	CAROLINA BEACH RD	MCQUILLAN DR	THE CAPE BLVD
BP443	CAROLINA BEACH RD	THE CAPE BLVD	SOUNDSIDE DR
BP444	MYRTLE GROVE RD	CAROLINA BEACH RD	FAULKENBERRY RD
BP445	MYRTLE GROVE RD	FAULKENBERRY RD	PINER RD
BP446	PINER RD	S COLLEGE RD	MYRTLE GROVE RD
BP447	S COLLEGE RD	PINER RD	MONKEY JUNCTION SHOPPING EN-TRANCE
BP448	S COLLEGE RD	MONKEY JUNCTION SHOPPING EN-TRANCE	MOHICAN TRL
BP449	S COLLEGE RD	MOHICAN TRL	S 17TH ST
BP450	S COLLEGE RD	S 17TH ST	PINE VALLEY DR
BP451	S COLLEGE RD	PINE VALLEY DR	S 41ST ST/HOLLY TREE RD
BP452	COLLEGE RD	SHIPYARD BLVD	LAKE AVE
BP453	COLLEGE RD	LAKE AVE	OLEANDER DR
BP454	COLLEGE RD	OLEANDER DR	WRIGHTSVILLE AVE
BP455	COLLEGE RD	WILSHIRE BLVD	HURST DR
BP456	NEW CENTRE DR	COLUMB DR	MARKET ST
BP457	ST ANDREWS RD	CAROLINA BEACH RD	S 17TH ST
BP458	JOHN D BARRY DR	S 17TH ST	ROBERT E LEE DR
BP459	ROBERT E LEE DR	JOHN D BARRY DR	PINE VALLEY DR
BP460	ROBERT E LEE DR	PINE VALLEY DR	BEAUREGARD DR
BP461	PINE VALLEY PATH	S COLLEGE RD	ROBERT E LEE DR
BP462	HOLLY TREE DR	SHIPYARD BLVD	S COLLEGE RD

BP463	LAKE AVE	HALIFAX RD	S COLLEGE RD
BP464	INDEPENDENCE MALL FRONTAGE	FORDHAM RD	INDEPENDENCE BLVD
BP465	S 17TH ST	WELLINGTON AVE	SHIPYARD BLVD
BP466	S 17TH ST	WELLINGTON AVE	SAVANNAH CT
BP467	PETTIGREW DR PATH	INDEPENDENCE BLVD	BUCKNER DR
BP468	BUCKNER DR	INDEPENDENCE BLVD	STONEWALL JACK- SON DR
BP469	STONEWALL JACKSON DR	BUCKNER DR	LONGSTREET DR
BP470	LONGSTREET DR	STONEWALL JACK- SON DR	SHIPYARD BLVD
BP471	CONVERSE RD	SHIPYARD BLVD	INDEPENDENCE BLVD
BP472	ALDERMAN TRAIL	CANTERBURY RD	CONVERSE DR
BP473	CANTERBURY RD	INDEPENDENCE BLVD	FORDHAM RD
BP474	INDEPENDENCE BLVD	CANTERBURY RD	INDEPENDENCE MALL
BP475	SWEETBRIAR RD	INDEPENDENCE BLVD	FORDHAM RD
BP476	FORDHAM RD	CANTERBURY RD	EDGEWOOD RD
BP477	LINCOLN FOREST TRAIL	INDEPENDENCE MALL	HALIFAX RD
BP478	LINCOLN FOREST TRAIL	HALIFAX RD	HOGGARD HIGH SCHOOL
BP479	RIVERWALK SOUTH	NUN ST	WRIGHT ST
BP480	MASONBORO LOOP RD	PINER RD	MOHICAN TRL
BP481	MASONBORO LOOP RD	MOHICAN TRL	TRAILS END RD
BP482	MASONBORO LOOP RD	TRAILS END RD	MASONBORO SOUND RD
BP483	MASONBORO LOOP RD	MASONBORO SOUND RD	DAWNING CREEK WAY/TREYBROOK DR
BP484	MASONBORO LOOP RD	TREYBROOKE DR/ DAWNING CREEK WAY	PARSELY ELEMEN- TARY SCHOOL
BP485	MASONBORO LOOP RD	ANDREWS REACH LOOP	JASPER PL
BP486	MASONBORO SOUND RD	JASPER PL	MAGNOLIA DR
BP487	MASONBORO SOUND RD	MAGNOLIA DR	FINIAN DR
BP488	MASONBORO SOUND RD	FINIAN DR	DAWNING CREEK WAY

BP489	MASONBORO SOUND RD	DAWNING CREEK WAY	MASONBORO LOOP RD
BP490	MAGNOLIA DR	MASONBORO SOUND RD	SYLVAN LN
BP491	HEWLETTS CREEK BRIDGE	MAGNOLIA DR	HEAD RD
BP492	HEAD ROAD EXTENSION	HEWLETTS CREEK BRIDGE	HEAD ROAD
BP493	HEAD RD	GREENVILLE LOOP RD	HEAD ROAD
BP494	HEWLETTS CREEK TRAIL	S COLLEGE RD	PINE GROVE DR
BP495	PINE GROVE DR	WALLACE AVE	GREENVILLE LOOP RD
BP496	PINE GROVE DR	WALLACE AVE	OLEANDER DR
BP497	GREENVILLE LOOP RD	PINE GROVE DR	DOGWOOD LN EX- TENSION
BP498	GREENVILLE LOOP RD	DOGWOOD LN EX- TENSION	OAK BLUFF LN
BP499	GREENVILLE LOOP RD	OAK BLUFF LN	HEAD RD
BP500	GREENVILLE LOOP RD	HEAD RD	OLD MILITARY RD
BP501	GREENVILLE LOOP RD	OLD MILITARY RD	TURTLE HALL DR
BP502	GREENVILLE LOOP RD	TURTLE HALL DR	OLEANDER DR
BP503	DOGWOOD LN EXTEN- SION	WRIGHTSVILLE AVE	OLEANDER DR
BP504	DOGWOOD LN EXTEN- SION	GREENVILLE LOOP RD	PINE GROVE DR
BP505	BRADLEY CREEK PATH	RUXTON WAY	PFEIFFER AVE
BP506	PELICAN DR	MARINA ST	KEEL ST
BP507	PELICAN DR	KEEL ST	END
BP508	SALISBURY ST	PELICAN AVE	LUMINA AVE
BP509	BRUNSWICK FOREST PKWY	BRUNSWICK VIL- LAGE BLVD	LOW COUNTRY BLVD
BP510	BRUNSWICK VILLAGE BLVD	BRUNSWICK FOREST PKWY	END
BP511	Cedar Hill Rd	DANIELS RD	MT. MISERY RD
BP512	Mt. Misery Rd NE	VILLAGE RD	LELAND SCHOOL RD
BP513	Mt. Misery Rd NE	LELAND SCHOOL RD	LINCOLN RD NE
BP514	Mt. Misery Rd NE	CEDAR HILL RD NE	DOGWOOD RD NE
BP515	USS NORTH CAROLINA RD	US 421	END
BP516	THOMAS RHODES BRIDGE	USS NORTH CARO- LINA RD	ISABEL HOLMES BRIDGE

BP517	US 421	RAIL CORRIDOR TRAIL	SAMPSON ST
BP518	US 421	SAMPSON ST	SUTTON STEAM PLANT RD
BP519	SUTTON STEAM PLANT RD	US 421	STEAM PLANT ENTRANCE
BP520	SUTTON STEAM PLANT ACCESS	SUTTON STEAM PLANT RD	END
BP521	US 421 RAIL CORRIDOR	SUTTON STEAM PLANT RD	SUTTON LAKE RD
BP522	SUTTON LAKE RD	US 421	US 421 RAIL CORRIDOR
BP523	SUTTON LAKE RD	US 421 RAIL CORRIDOR	SUTTON LAKE
BP524	US 421 RAIL CORRIDOR	SUTTON LAKE RD	PENDER-NEW HANOVER LINE
BP525	MONTAGUE RD	END	US 421
BP526	MONTAGUE RD	US 421	NC 210
BP527	NC HWY 210	MONTAGUE RD	CLARK LANDING LOOP RD
BP528	NC HWY 210	CLARK LANDING LOOP RD	NC 133/NC210 CONFLUENCE
BP529	NC 210	NC HWY 133/ NC 210 CONFLUENCE	CHESHIRE RD
BP530	NC 210	US 117	I-40
BP531	NC HWY 133	NC 210/NC 133 CONFLUENCE	CHESHIRE RD
BP532	US 117	NC 133	PENDER-NEW HANOVER LINE
BP533	VICTORIA RD CONNECTOR PATH	VICTORIA RD	CHADWICK AVE
BP534	I-140 PATH	RAIL CORRIDOR	END
BP535	RIVERWALK NORTH	N 3RD ST	CONVENTION CENTER
BP536	DOWNTOWN RAIL CORRIDOR	WATER ST	N 3RD ST
BP537	DOWNTOWN RAIL CORRIDOR	N 3RD ST	MCRAE ST
BP538	DOWNTOWN RAIL CORRIDOR	MCRAE ST	BESS ST
BP539	BESS ST	N 3RD ST	MCRAE ST
BP540	CORNELIUS HARNETT DR CONNECTOR	JEL WADE DR	N 3RD ST



BP541	CORNELIUS HARNETT DR	JEL WADE DR	MCRAE ST
BP542	RAILROAD ST	DOWNTOWN RAIL CORRIDOR	STANLEY ST
BP543	ARCHIE BLUE TRAIL	RAILROAD ST	SMITH CREEK BLVD EXTENSIO
BP544	SMITH CREEK BRIDGE	ARCHIE BLUE PARK	SMITH CREEK BLVD
BP545	SMITH CREEK BLVD	N 23RD ST	END
BP546	23RD ST	AIRPORT BLVD	CASTLE HAYNE RD
BP547	COLONIAL DR	PARK AVE	FOREST HILLS DR
BP548	DIVISION DR	CASTLE HAYNE RD	RAILROAD BED
BP549	AIRPORT AREA PATH	DIVISION DR	GARDNER RD
BP550	GARDNER RD	HEWLETT DR	BLUE CLAY RD
BP551	BLUE CLAY RD	GARDNER DR	N KERR AVE
BP552	BLUE CLAY RD	N KERR AVE	OLD MILL RD
BP553	BLUE CLAY RD	OLD MILL RD	RAILROAD TRACKS
BP554	RAILROAD CORRIDOR	BLUE CLAY RD	I-140
BP555	CASTLE HAYNE RD	LAUREL DR	KERR AVE
BP556	CASTLE HAYNE RD	LAUREL DR	OLD MILL RD
BP557	CASTLE HAYNE RD	OLD MILL RD	CHAIR RD
BP558	RAILROAD CORRIDOR	I-140	JUVENILE CENTER RD
BP559	PARK AVE	S KERR AVE	S COLLEGE RD
BP560	PARK AVE	S COLLEGE RD	WALLACE AVE
BP561	PARK AVE	52ND ST	FRENCH RD
BP562	PARK AVE	FRENCH RD	DOGWOOD LN EX-TENSION
BP563	PARK AVE	DOGWOOD LN EX-TENSION	HINTON AVE
BP564	PARK AVE	HINTON AVE	GREENVILLE AVE
BP565	WRIGHTSVILLE AVE	MILITARY CUTOFF RD	ROGERSVILLE RD
BP566	WRIGHTSVILLE AVE	ROGERSVILLE RD	HOOVER RD
BP567	HOOVER RD	WRIGHTSVILLE AVE	ROSE AVE
BP568	ROGERSVILLE RD	WRIGHTSVILLE AVE	LANDIS FARMS RD
BP569	WRIGHTSVILLE AVE	HOOVER RD	GREENVILLE AVE
BP570	WRIGHTSVILLE AVE	GREENVILLE AVE	ANDOVER RD
BP571	WRIGHTSVILLE AVE	ANDOVER RD	FRENCH RD
BP572	WRIGHTSVILLE AVE	N WALLACE AVE	S KERR AVE
BP573	WRIGHTSVILLE AVE	WILSHIRE BLVD	COLONIAL DR
BP574	WRIGHTSVILLE AVE	COLONIAL DR	DAWSON ST
BP575	MILITARY CUTOFF RD	WRIGHTSVILLE AVE	EASTWOOD RD
BP576	KERR AVE	WILSHIRE AVE	WRIGHTSVILLE AVE

BP577	KERR AVE	HOGGARD DR	WILSHIRE AVE
BP578	HURST DR EXTENSION	KERR AVE	COLLEGE RD
BP579	MCRARY PARK SOUTH LOOP	ROSEMONT AVE	RANDALL PKWY
BP580	SUNGLOW DRIVE PATH	SUNGLOW DR	BARCLAY HILLS DR
BP581	MLK PARKWAY SOUTHERN PATH	KERR AVE	INDEPENDENCE BLVD EXTENSION
BP582	MLK PKWY SOUTHERN PATH	INDEPENDENCE BLVD EXTENSION	N 30TH ST
BP583	MLK BLVD SOUTHERN PATH	N 30TH ST	23RD ST
BP584	STATION RD	MILITARY CUTOFF RD	ST NICHOLAS RD
BP585	ST NICHOLAS RD EXTENSION	NOBLE SCHOOL RD	STATION RD
BP586	COLUMB DR	NEW CENTRE DR	RINGO DR
BP587	RINGO DR	COLUMB DR	CANDO ST
BP588	BLAIR SCHOOL RD	MARKET ST	CHESTER ST
BP589	AMSTERDAM WAY	NETHERLANDS DR	N GREEN MEADOWS DR
BP590	N GREEN MEADOWS DR	AMSTERDAM WAY	MARKET ST
BP591	ALBEMARLE RD	DARWIN DR	HARLEY RD
BP592	DARWIN DR	LORD TENNYSON RD	ALBEMARLE RD
BP593	LORD TENNYSON RD	DARWIN DR	ALBEMARLE RD
BP594	KINGS GRANT RD	KINGS DR	LORD TENNYSON RD
BP595	KINGS RD	KINGS GRANT RD	SPRING BRANCH RD
BP596	I-40	KINGS DR	KINGS GRANT CREEK
BP597	I-40	KINGS GRANT CREEK	GORDON RD
BP598	KINGS GRANT CREEK	I-40	GORDON RD
BP599	SPRING BRANCH CREEK PATH	N KERR AVE	NOLAND DR
BP600	GRATHWOL DR	N KERR AVE	CHERYL LN
BP601	CHERYL LN	GRATHWOL DR	END
BP602	BRAMTON RD	SPRING BRANCH RD	END
BP603	SPRING BRANCH RD	KINGS DR	BRAMTON RD
BP604	I-40	KINGS DR	KINGS GRANT CREEK
BP605	I-40	KINGS GRANT CREEK	GORDON RD
BP606	KINGS GRANT CREEK	I-40	N KERR AVE
BP607	N KERR AVE	KINGS GRANT CREEK	GORDON RD

BP608	N KERR AVE	GORDON RD	BAVARIAN LN
BP609	GORDON RD	COLLEGE RD	HARRIS RD
BP610	GORDON RD	HARRIS RD	WHITE RD
BP611	GORDON RD	OGDEN PARK DR	MARKET ST
BP612	GORDON RD	MARKET ST	MILITARY CUTOFF RD
BP613	MILITARY CUTOFF RD	GORDON RD	MARKET ST
BP614	MARKET STREET	MILITARY CUTOFF RD	OGDEN PARK DR
BP615	MARKET ST	CAPE HARBOR DR	OGDEN PARK DR
BP616	MARKET ST	OGDEN PARK DR	LENDIRE RD
BP617	MARKET ST	LENDIRE RD	TORCHWOOD BLVD
BP618	OGDEN PARK CONNEC- TOR TRAIL	TORCHWOOD BLVD	PLANTATION RD
BP619	HAMPSTEAD BYPASS	PLANTATION RD	SIDBURY RD
BP620	HAMPSTEAD BYPASS	NC 210	SIDBURY RD
BP621	I-140	CASTLE HAYNE RD	RAILROAD CORRIDOR
BP622	I-140	BLUE CLAY RD	N COLLEGE RD
BP623	GLEN EDEN DR	N COLLEGE RD	EDUCATION LOOP
BP624	N COLLEGE RD	GLEN EDEN DR	PARMELE RD
BP625	N COLLEGE RD	PARMELE RD	PRINCE GEORGE CREEK
BP626	CASTLE HAYNE EL- EMENTARY SCHOOL PATH	N COLLEGE RD	HOLLY SHELTER RD
BP627	ORANGE ST	HOLLY SHELTER RD	CAPE LANDING RD
BP628	N COLLEGE RD	BAVARIAN LN	LOGANBERRY RD
BP629	LOGANBERRY RD	BLUEBERRY RD	GORDON RD
BP630	SMITH CREEK PARK TRAIL	BRITTANY RD	GORDON RD
BP631	BRITTANY RD	SMITH CREEK PARK TRAIL	MURRAYVILLE RD
BP632	MURRAYVILLE RD	BRITTANY RD	I-40
BP633	SMITH CREEK TRAIL	COLLEGE RD	MURRAYVILLE RD
BP634	I-40	MURRAYVILLE RD	I-140
BP635	I-140	I-40	CROOKED PINE RD
BP636	I-140	CROOKED PINE RD	MARKET ST
BP637	MARKET ST	PORTERS NECK RD	I-140
BP638	MENDENHALL DR	MARKET ST	PLACID DR
BP639	PLACID DR	MENDENHALL DR	COUNTRY HAVEN DR
BP640	COUNTRY HAVEN DR	PLACID DR	LILLY POND DR
BP641	LILLY POND DR	COUNTRY HAVEN DR	CONNECTION TO PLANTATION RD

BP642	CONNECTION FROM LOWES TO PLANTATION RD	CYPRESS POND WAY	LILLY POND DR
BP643	CYPRESS POND WAY	MARKET ST	CONNECTION TO PLANTATION RD
BP644	HOLLY SHELTER RD	CASTLE HAYNE RD	I-40
BP645	HOLLY SHELTER RD	BLUE CLAY RD	IDEAL CEMENT RD
BP646	NC 210	I 40	NORTHEAST CAPE FEAR RIVER
BP647	210 B	NORTHEAST CAPE FEAR RIVER	MERRICKS CREEK
BP648	NC 210	NAVILLUS BLVD	ROYAL OAKS DR
BP649	RED CEDAR RD	HAWK RD	MIDDLE SOUND LOOP RD
BP650	MIDDLE SOUND LOOP RD EXTENSION	MARKET ST	MARKET ST RAIL CORRIDOR
BP651	MIDDLE SOUND LOOP RD	MARKET ST	RED CEDAR RD
BP652	MIDDLE SOUND LOOP RD	RED CEDAR RD	DARDEN RD
BP653	MIDDLE SOUND LOOP RD	RED CEDAR RD	PROVIDENCE RD/ WELLINGTON DR
BP654	MIDDLE SOUND LOOP RD	PROVIDENCE RD/ WELLINGTON DR	STONEBROOK RD
BP655	MIDDLE SOUND LOOP RD	STONEBROOK RD	ANCHORS BEND WAY
BP656	ANCHORS BEND WAY PATH	LORD DR	MIDDLE SOUND LOOP RD
BP657	MIDDLE SOUND LOOP RD	ANCHORS BEND WAY	DUNBAR RD
BP658	MIDDLE SOUND LOOP RD	RED CEDAR RD	DUNBAR RD
BP659	BRIGHT LEAF RD	OYSTER LN	WENDOVER LN
BP660	WENDOVER LN	BRIGHT LEAF RD	OYSTER LN
BP661	MARSH OAKS RD	BAYSHORE DR	MARSH REACH DR
BP662	MARSH REACH DR	MARSH OAKS RD	FOLLY ISLAND CT
BP663	FOLLY ISLAND CT	MARSH REACH DR	END
BP664	PORTERS CROSSING WAY	PORTERS NECK RD	END
BP665	RIESLING AVE	WINERY WAY	FUTCH CREEK RD
BP666	PENDER-NEW HANOVER LINE	MARKET ST	FUTCH CREEK
BP667	ATLANTIC AVE	K AVE	N AVE

BP668	TENNESSEE AVE	SWORDFISH LN	N LAKE PARK BLVD
BP669	MANNASSAS DR	CAROLINA BEACH RD	APPOMATTOX DR
BP670	SONDEY RD EXTENSION	CASTLE HAYNE RD	RAILROAD
BP671	PENDER CONNECTOR TRAIL	OGDEN PARK CONNECTOR TRAIL	COUNTY LINE
BP672	ISLAND CREEK RD	IDEAL CEMENT RD	ROYAL OAKS DR
BP673	Scotts Hill Loop Rd	SALEM CT	GREAT PINE CT
BP674	NC 210	MERRICKS CREEK	NAVILLUS BLVD
BP675	ISLAND CREEK RD	ROYAL OAK CT	US HWY 17
BP676	US 17 Hampstead	WHITEBRIDGE RD	LODGE RD
BP677	Country Club Dr	US HWY 17	SLOOP POINT LOOP RD
BP678	Sloop Pt Loop Rd	COUNTRY CLUB DR	US HWY 17
BP679	US 17 Hampstead Frontage Path	WHITEBRIDGE RD	SCOTTS HILL LOOP RD
BP680	HAMPSTEAD BYPASS PATH	DAIRY FARM RD	OLD WHITFIELD RD
BP681	US 17 HAMPSTEAD CONNECTION	POWER EASEMENT	US HWY 17
BP682	NC HWY 133	CHESHIRE RD	US 117
BP683	NC 210	CHESHIRE RD	US 117
BP684	CHESHIRE RD	NC HWY 210	NC HWY 133
BP685	US HWY 117 S	NC 210	NC 133
BP686	CLARKS LANDING LOOP	NC HWY 210	END
BP687	US 421 N	MONTAGUE RD	PENDER-NEW HANOVER LINE
BP688	BLUEBERRY RD	MONTAGUE RD	END
BP689	US 421 S	BLUEBERRY RD	EXISTING GREENWAY ROUTE
BP690	MONTAGUE RD	US 421	NC 210
BP691	NC HWY 210	MONTAGUE RD	CLARK LANDING LOOP RD
BP692	NC HWY 210	CLARK LANDING LOOP RD	NC 133/NC210 CONFLUENCE
BP693	NC 210	NC HWY 133/ NC 210 CONFLUENCE	CHESHIRE RD
BP694	NC 210	US 117	I-40
BP695	NC HWY 133	NC 210/NC 133 CONFLUENCE	CHESHIRE RD
BP696	US 117	NC 133	PENDER-NEW HANOVER LINE



BP697	HAMPSTEAD BYPASS	NC 210	SIDBURY RD
BP698	NC 210	NAVILLUS BLVD	ROYAL OAKS DR
BP699	SCOTTS HILL LOOP ROAD	US17	LAFAYETTE ST
BP700	US 17 HAMPSTEAD FRONTAGE PATH	SCOTTS HILL LOOP RD	LEA DR EXT
BP701	FACTORY ROAD	US17	LEA DR EXT
BP702	LEA DR EXT	LEA DR EXT	US 17
BP703	HOOVER ROAD	US17	TIM MOORE DR
BP704	HOOVER ROAD	TIM MOORE DR	HIGHLANDS DR
BP705	OLDE POINT ROAD	COUNTRY CLUB ROAD	KINGS LANDING ROAD
BP706	KINGS LANDING ROAD	OLDE POINT RD	COUNTRY CLUB RD
BP707	AVILA DR EXT	US17	COUNTRY CLUB RD
BP708	LEWIS RD	SLOOP POINT LOOP RD	END
BP709	POWER LINE EASEMENT	SLOOP POINT RD	STRICKLAND DR
BP710	SNOWS CUT BRIDGE PATH	OLD DOW ROAD	ANNIE DRIVE
BP711	WOOSTER STREET	8TH STREET	OLEANDER DRIVE
BP712	PEACHTREE DRIVE	PARK AVE	MACMILLAN AVE
BP713	CORAL DRIVE	CAUSEWAY DRIVE	4TH AVE
BP714	VETERANS PARK TRAIL	HALYBURTON MEMORIAL PARKWAY	ATHLETIC FIELDS
BP715	FLORAL PARKWAY	WRIGHTSVILLE AVE	FORDHAM RD ENTRANCE TO MALL
BP716	MARKET ST & MARTIN LUTHER KING JR PKWY/ EASTWOOD RD	N/A	N/A
BP717	MARKET ST & COLLEGE RD WEST RAMP	N/A	N/A
BP718	COLLEGE RD & MARTIN LUTHER KING JR PKWY	N/A	N/A
BP719	MARKET ST & NEW CENTRE DR	N/A	N/A
BP720	MARKET ST & KERR AVE	N/A	N/A
BP721	KERR AVE & MARTIN LUTHER KING JR PKWY	N/A	N/A
BP722	KERR AVE & RANDALL PKWY	N/A	N/A
BP723	KERR AVE & WILSHIRE BLVD	N/A	N/A

BP724	KERR AVE & WRIGHTS-VILLE AVE	N/A	N/A
BP725	COLLEGE RD & RANDALL PKWY	N/A	N/A
BP726	COLLEGE RD & WRIGHTSVILLE AVE	N/A	N/A
BP727	COLLEGE RD & PEACHTREE AVE	N/A	N/A
BP728	COLLEGE RD & 17TH ST/WALTMOOR RD	N/A	N/A
BP729	COLLEGE RD & SHIPYARD BLVD/LONG LEAF HILLS	N/A	N/A
BP730	17TH ST & INDEPENDENCE BLVD	N/A	N/A
BP731	CAROLINA BEACH RD & SHIPYARD BLVD	N/A	N/A
BP732	OLEANDER DR & INDEPENDENCE BLVD	N/A	N/A
BP733	17TH ST & DAWSON ST	N/A	N/A
BP734	16TH ST & DAWSON ST	N/A	N/A
BP735	16TH ST & DAWSON ST	N/A	N/A
BP736	17TH ST & WOOSTER ST	N/A	N/A
BP737	5TH AVE & WOOSTER ST	N/A	N/A
BP738	3RD ST & WOOSTER ST	N/A	N/A
BP739	3RD ST & DAWSON ST	N/A	N/A
BP740	17TH ST & MARKET ST	N/A	N/A
BP741	16TH ST & MARKET ST	N/A	N/A
BP742	3RD ST & MARKET ST	N/A	N/A
BP743	MARTIN LUTHER KING BLV /3RD ST & FRONT ST/DAVIS ST	N/A	N/A
BP744	OLEANDER DR & FLO-RAL PKWY/FORDHAM RD	N/A	N/A
BP745	OLEANDER DR & 39TH ST	N/A	N/A
BP746	OLEANDER DR & MALL ENTRANCE	N/A	N/A
BP747	OLEANDER DR & AUDUBON BLVD/LINCOLN RD	N/A	N/A
BP748	OLEANDER DR & 41ST ST	N/A	N/A

BP749	OLEANDER DR & 42ND ST	N/A	N/A
BP750	INDEPENDENCE BLVD & PARK AVE	N/A	N/A
BP751	WRIGHTSVILLE AVE & FLORAL AVE	N/A	N/A
BP752	OLEANDER DR & DAWSON ST	N/A	N/A
BP753	OLEANDER DR & COUNTRY CLUB RD	N/A	N/A
BP754	OLEANDER DR & HAWTHORNE DR	N/A	N/A
BP755	COLLEGE RD & HOLLY TREE RD	N/A	N/A
BP756	SHIPYARD BLVD & HOLLY TREE RD/41ST ST	N/A	N/A
BP757	INDEPENDENCE BLVD & CANTERBURY RD	N/A	N/A
BP758	WRIGHTSVILLE AVE & DAWSON ST	N/A	N/A
BP759	WRIGHTSVILLE AVE & INDEPENDENCE BLVD	N/A	N/A
BP760	INDEPENDENCE/COVIL & RANDALL/MERCER	N/A	N/A
BP761	WRIGHTSVILLE AVE & WILSHIRE BLVD	N/A	N/A
BP762	COLLEGE RD & KMART SHOPPING CENTER	N/A	N/A
BP763	COLLEGE RD & RIEGEL DR	N/A	N/A
BP764	CAROLINA BEACH RD & NORTHERN BLVD	N/A	N/A
BP765	CAROLINA BEACH RD & CENTRAL BLVD	N/A	N/A
BP766	CAROLINA BEACH RD & SOUTHERN BLVD	N/A	N/A
BP767	CAROLINA BEACH RD & RALEIGH ST/PARKWAY BLV	N/A	N/A
BP768	CAROLINA BEACH RD & INDEPENDENCE BLVD	N/A	N/A

BP769	CAROLINA BEACH RD & G ANDERSON/ECHO FARMS	N/A	N/A
BP770	23RD ST & MARKET ST	N/A	N/A
BP771	MARKET ST & FOREST HILLS DR	N/A	N/A
BP772	MARKET ST & COVIL AVE	N/A	N/A
BP773	MARKET ST & BARCLAY HILLS DR	N/A	N/A
BP774	MARKET ST & NORTH 17 SHOPPING CENTER	N/A	N/A
BP775	MARKET ST & LULLWATER DR	N/A	N/A
BP776	MARKET ST & COLLEGE RD EAST RAMP	N/A	N/A
BP777	MARKET ST & BLAIR SCHOOL RD	N/A	N/A
BP778	MILITARY CUTOFF RD & GORDON RD	N/A	N/A
BP779	EASTWOOD RD & ROGERSVILLE RD	N/A	N/A
BP780	EASTWOOD RD & PLAZA EAST/HAMPTON INN	N/A	N/A
BP781	WRIGHTSVILLE AVE & MILITARY CUTOFF RD	N/A	N/A
BP782	WIRGHTSVILLE AVE & HAWTHORNE DR	N/A	N/A
BP783	WRIGHTSVILLE AVE & MACMILLAN AVD	N/A	N/A
BP784	WRIGHTSVILLE AVE & COLONIAL DR/COUNTRY CLUB DR	N/A	N/A
BP785	17TH ST & CASTLE ST	N/A	N/A
BP786	16TH ST & CASTLE ST	N/A	N/A
BP787	17ST ST & DOCK ST	N/A	N/A
BP788	16TH ST & DOCK ST	N/A	N/A
BP789	17TH AND GRACE ST/ PRINCESS PL DR	N/A	N/A
BP790	2ND ST & MARKET ST	N/A	N/A
BP791	FRONT ST & MARKET ST	N/A	N/A
BP792	FRONT ST & GRACE ST	N/A	N/A

BP793	3RD ST N & PRINCESS ST	N/A	N/A
BP794	3RD ST N & CHESTNUT ST	N/A	N/A
BP795	3RD ST N & GRACE ST	N/A	N/A
BP796	3RD ST N & WALNUT ST	N/A	N/A
BP797	2ND ST & PRINCESS ST	N/A	N/A
BP798	2ND ST & CHESTNUT ST	N/A	N/A
BP799	2ND ST & GRACE ST	N/A	N/A
BP800	3RD ST N & RED CROSS ST	N/A	N/A
BP801	4TH ST & GRACE ST	N/A	N/A
BP802	5TH AVE & GRACE ST	N/A	N/A
BP803	4TH ST & CHESTNUT ST	N/A	N/A
BP804	5TH AVE & CHESTNUT ST	N/A	N/A
BP805	4TH ST & PRINCESS ST	N/A	N/A
BP806	5TH AVE & PRINCESS ST	N/A	N/A
BP807	4TH ST & MARKET ST	N/A	N/A
BP808	5TH AVE & MARKET ST	N/A	N/A
BP809	3RD ST & CASTLE ST	N/A	N/A
BP810	5TH AVE & CASTLE ST	N/A	N/A
BP811	MARKET ST & 10TH ST	N/A	N/A
BP812	16TH ST & CHESTNUT ST	N/A	N/A
BP813	16TH ST & PRINCESS ST	N/A	N/A
BP814	5TH AVE & RED CROSS ST	N/A	N/A
BP815	8TH ST/MCRAE ST & RED CROSS ST/RANKIN ST	N/A	N/A
BP816	RANKIN ST & 10TH ST	N/A	N/A
BP817	3RD ST & GREENFIELD ST	N/A	N/A
BP818	GREENFIELD ST & 5TH AVE	N/A	N/A
BP819	16TH ST & GREENFIELD ST	N/A	N/A
BP820	GREENFIELD ST & 13TH ST	N/A	N/A
BP821	13TH ST & DAWSON ST	N/A	N/A



BP822	5TH AVE & DAWSON ST	N/A	N/A
BP823	8TH ST & DAWSON ST	N/A	N/A
BP824	10TH ST & DAWSON ST	N/A	N/A
BP825	17TH ST & SAVANNAH CT/HOSPITAL PLAZA DR	N/A	N/A
BP826	16TH ST & ROBIN HOOD RD	N/A	N/A
BP827	17TH ST & MEDICAL CENTER DR	N/A	N/A
BP828	17TH ST & GLEN MEADE RD	N/A	N/A
BP829	17TH ST & WELLINGTON AVE	N/A	N/A
BP830	17TH ST & J D BARRY DR/ST ANDREWS DR	N/A	N/A
BP831	SHIPYARD BLVD & LONGSTREET DR/CON- VERSE RD	N/A	N/A
BP832	COLLEGE RD & LAKE AVE	N/A	N/A
BP833	41ST ST & LAKE AVE	N/A	N/A
BP834	INDEPENDENCE BLVD & MALL ENTRANCE	N/A	N/A
BP835	OLEANDER DR & CO- LUMBUS CIR/ MIMOSA PL	N/A	N/A
BP836	COLLEGE RD & HOG- GARD DR/HURST DR	N/A	N/A
BP837	COLLEGE RD & UNIVER- SITY DR	N/A	N/A
BP838	RACINE DR & NEW CEN- TRE DR	N/A	N/A
BP839	COLLEGE RD & UNIVER- SITY SHOP CENTERS	N/A	N/A
BP840	COLLEGE RD & ORIOLE DR	N/A	N/A
BP841	RACINE DR & ORIOLE DR	N/A	N/A
BP842	EASTWOOD RD & RA- CINE DR	N/A	N/A
BP843	COLLEGE RD & HUNT- ERS TRL	N/A	N/A

BP844	23RD ST & PRINCESS PLACE DR	N/A	N/A
BP845	PRINCESS PLACE DR & 30TH ST	N/A	N/A
BP846	PINE GROVE RD & HOLLY TREE RD	N/A	N/A
BP847	COLLEGE RD & PINE VALLEY RD	N/A	N/A
BP848	COLLEGE RD & BRAGG DR	N/A	N/A
BP849	PRINCESS PLACE DR & FIRE STATION	N/A	N/A
BP850	RACINE DR & CARL ST	N/A	N/A
BP851	NEW CENTRE DR & BOB KING DR	N/A	N/A
BP852	COLLEGE RD & KINGS DR	N/A	N/A
BP853	NEW CENTRE DR & SHOPPING CENTER	N/A	N/A
BP854	RANDALL PKWY & SHOPPING CENTER	N/A	N/A
BP855	OLEANDER DR & WAL-LACE AVE	N/A	N/A
BP856	PINE GROVE DR & WAL-LACE AVE	N/A	N/A
BP857	PINE GROVE DR & LONG LEAF HILLS DR	N/A	N/A
BP858	421/133/117	N/A	N/A
BP859	4TH ST & RED CROSS ST	N/A	N/A
BP860	16TH ST & GRACE ST	N/A	N/A
BP861	13TH ST & WOOSTER ST	N/A	N/A
BP862	10TH ST & WOOSTER ST	N/A	N/A
BP863	8TH ST & CASTLE ST	N/A	N/A
BP864	10TH ST & CASTLE ST	N/A	N/A
BP865	13TH ST & CASTLE ST	N/A	N/A
BP866	CAROLINA BEACH RD & FIRE STATION	N/A	N/A
BP867	SHIPYARD BLVD & HOG-GARD H S/SHOPPING CENTER	N/A	N/A

BP868	COLLEGE RD & CAS- CADE RD/SHOPPING CENTER	N/A	N/A
BP869	COLLEGE RD & PINE- CLIFF DR/CFA SCHOOL	N/A	N/A
BP870	6TH ST BRIDGE	N/A	N/A
BP871	MILITARY CUTOFF RD & COVIL FARM RD	N/A	N/A
BP872	MILITARY CUTOFF RD & SIR TYLER DR/MAIN ST	N/A	N/A
BP873	MILITARY CUTOFF RD & DESTINY WAY_FRESCO DR	N/A	N/A
BP874	MILITARY CUTOFF RD & PARKER FARM DR	N/A	N/A
BP875	MILITARY CUTOFF RD & DRYSDALE DR	N/A	N/A
BP876	EASTWOOD RD & PEM- BROKE JONE DR/LIONS GATE	N/A	N/A
BP877	17TH ST & GEORGE AN- DERSON DR	N/A	N/A
BP878	N 23RD ST & MAR- TIN LUTHER KING BLV RAMP	N/A	N/A
BP879	RANDALL DR & RACINE DR	N/A	N/A
BP880	HAMILTON DR & HURST DR	N/A	N/A
BP881	MARKET ST & CARDI- NAL DR	N/A	N/A
BP882	MARTIN LUTHER KING JR PKWY & ISABEL HOLMES BRIDGE	N/A	N/A
BP883	ISABEL HOLMES BRIDGE	N/A	N/A
BP884	N 23RD ST & MAR- TIN LUTHER KING BLV RAMP	N/A	N/A
BP885	N 23RD ST & AIRPORT BLV	N/A	N/A
BP886	N 23RD ST & BLUE CLAY RD	N/A	N/A

BP887	N 23RD ST & CASTLE HAYNE RD	N/A	N/A
BP888	MILITARY CUTOFF RD & FIRE STATION 9	N/A	N/A
BP889	MARKET ST & BAY-SHORE DR_TORCH-WOOD BLV	N/A	N/A
BP890	MARKET ST & MILITARY CUTOFF RD	N/A	N/A
BP891	MILITARY CUTOFF RD & ARBORETUM DR	N/A	N/A
BP892	MILITARY CUTOFF RD & STATION RD	N/A	N/A
BP893	MILITARY CUT OFF RD & CAYMAN CT/TOWN CENTER DR	N/A	N/A
BP894	CAROLINA BEACH RD & SILVA TERRA DR	N/A	N/A
BP895	CAROLINA BEACH RD & ANTOINETTE DR	N/A	N/A
BP896	CAROLINA BEACH RD & COLLEGE RD/PINER RD	N/A	N/A
BP897	CAROLINA BEACH RD & SERVICE RD	N/A	N/A
BP898	CAROLINA BEACH RD & SANDERS RD	N/A	N/A
BP899	COLLEGE RD & LOWES/ NHC LIBRARY DRIVES	N/A	N/A
BP900	COLLEGE RD & MOHICAN TRL	N/A	N/A
BP901	CAROLINA BEACH RD & MEDICAL CENTER DR	N/A	N/A
BP902	WOOSTER ST & 8TH ST	N/A	N/A
BP903	17TH ST & NEW HANOVER MED PARK_ ROBIN HOOD DR	N/A	N/A
BP904	3RD ST N & BRUNSWICK ST	N/A	N/A
BP905	CAROLINA BEACH RD & ROSA PARKS LN	N/A	N/A
BP906	WOOSTER ST & 8TH ST	N/A	N/A
BP907	DOGWOOD LN & OLEANDER DR	N/A	N/A

BP908	EASTWOOD RD & DUN- GANNON BLVD/ LONG LEAF ACRES DR	N/A	N/A
BP909	N COLLEGE RD & KINGS GRANT RD	N/A	N/A
BP910	US 17/MARKET ST & N GREEN MEADOWS DR	N/A	N/A
BP911	US 17 MARKET ST & OGDEN PARK DR	N/A	N/A
BP912	GORDON RD & I-40 ON- RAMP	N/A	N/A
BP913	N COLLEGE RD & GOR- DON RD	N/A	N/A
BP914	GORDON RD & NETHER- LANDS DR	N/A	N/A
BP915	GORDON RD & OGDEN PARK DR	N/A	N/A
BP916	GORDON RD & GORDON ACRES DR	N/A	N/A
BP917	GORDON RD & WHITE RD	N/A	N/A
BP918	GORDON RD & HARRIS RD	N/A	N/A
BP919	N COLLEGE RD & LONG RIDGE DR	N/A	N/A
BP920	N COLLEGE RD & NEW VILLAGE WY	N/A	N/A
BP921	PLANTATION RD & MILI- TARY CUTOFF EXTEN- SION	N/A	N/A
BP922	MIDDLE SOUND LOOP RD & RED CEDAR RD	N/A	N/A
BP923	MIDDLE SOUND LOOP RD & DARDEN RD	N/A	N/A
BP924	BISCAYNE DR & SCOR- PION DR	N/A	N/A
BP925	US 17/MARKET ST & MARSH OAKS DR	N/A	N/A
BP926	PORTERS NECK RD & EDGEWATER CLUB RD	N/A	N/A
BP927	SHENANDOAH ST & SUNCOAST DR	N/A	N/A

BP928	WHITE RD & SUNCOAST DR	N/A	N/A
BP929	I-140 & ROYSTER RD NE	N/A	N/A
BP930	I-140 & CEDAR HILL RD	N/A	N/A
BP931	US 74/ANDREW JACKSON HWY & OLD FAYETTEVILLE RD	N/A	N/A
BP932	LANVALE RD & LELAND SCHOOL RD NE	N/A	N/A
BP933	MT MISERY RD & CEDAR HILL RD NE	N/A	N/A
BP934	GRANDIFLORA DR & TIMBER LN EXTENSION	N/A	N/A
BP935	US 74 ANDREW JACKSON HIGHWAY & MERCANTILE DR NE	N/A	N/A
BP936	WILSHIRE BLVD & PAGE AVE	N/A	N/A
BP937	WILSHIRE BLVD & BONHAM AVE	N/A	N/A
BP938	NEW CENTRE DR & DAPPLE CT	N/A	N/A
BP939	CHESTNUT ST & 23RD ST	N/A	N/A
BP940	SHIPYARD BLV & WORTH DR	N/A	N/A
BP941	CAROLINA BEACH RD	N/A	N/A
BP942	CAROLINA BEACH RD & SAINT ANDREWS DR	N/A	N/A
BP943	CAROLINA BEACH RD & SILVER LAKE RD	N/A	N/A
BP944	RIVER RD & NORTH RIVER RD TRAIL	N/A	N/A
BP945	S FORT FISHER BLVD & PRIVATE RD	N/A	N/A
BP946	HOLLY TREE RD & PINE GROVE DR	N/A	N/A
BP947	US HWY 17 & COUNTRY CLUB RD	N/A	N/A
BP948	US HWY 210 & US HWY 17	N/A	N/A
BP949	US HWY 17 & FACTORY RD	N/A	N/A



BP950	US HWY 17 & HOOVER RD	N/A	N/A
BP951	US HWY 17 & SCHOOLS	N/A	N/A
BP952	US HWY 17	N/A	N/A
BP953	SIDBURY RD & US HWY 17	N/A	N/A
BP954	US HWY 17 & SCOTTS HILL LOOP RD	N/A	N/A
BP955	US HWY 17 & SCOTTS HILL LOOP RD	N/A	N/A
BP956	NC HWY 210/NC HWY 133/CLARKS LANDING RD	N/A	N/A
BP957	OCEAN AVE & ISLAND GREENWAY	N/A	N/A
BP958	SPARTANBURG AVE & ISLAND GREENWAY	N/A	N/A
BP959	SUMTER AVE & ISLAND GREENWAY	N/A	N/A

## Ferry and Water Transportation

ID	Description
F-3	DOWNTOWN WILMINGTON DOCK MOORING FACILITY
F-4	LOW-DRAFT RIVER CLASS VESSELS (3)
F-5	TOWN OF NAVASSA MOORING FACILITY
F-6	CAROLINA BEACH MOORING FACILITY
F-7	WRIGHTSVILLE BEACH MOORING FACILITY
F-8	TOWN OF NAVASSA TERMINAL/MULTI-MODAL HUB
F-9	CENTRAL MARINA/INDEPENDENCE BLVD TERMINAL/MULTI-MODAL HUB

## Freight/Rail

ID	Description
FR-14	FOURTH CROSSING OF THE CAPE FEAR RIVER
FR-15	LELAND CAUSEWAY MITIGATE CONGESTION ISSUES
FR-16	FREIGHT RAIL CONNECTION FROM CASTLE HAYNE TO WALLACE
FR-17	CONSTRUCT RAIL ACROSS THE CAPE FEAR RIVER BETWEEN NC PORT OF WILMINGTON AND DAVIS YARD
FR-18	RIVER ROAD REALIGNMENT TO ENCAPSULATE CHASSIS YARD
FR-19	RIVER ROAD REALIGNMENT TO RALEIGH STREET FOR NON-PORT TRAFFIC
FR-20	NC PORT OF WILMINGTON NORTH GATE AND SOUTH GATE RAIL CROSSING GRADE SEPARATIONS
FR-21	GREENFIELD STREET TO WOODBINE STREET CONNECTION
FR-22	CAROLINA BEACH ROAD AT SHIPYARD BOULEVARD TRUCK STAGING AREA ADDITION AND SAFER LEFT TURN MOVEMENTS
FR-23	PASSENGER RAIL FROM WILMINGTON TO RALEIGH
FR-24	WILMINGTON MULTIMODAL TRANSPORTATION CENTER
FR-25	DEDICATED TRUCK INTERSTATE ACCESS TO NC PORT OF WILMINGTON

## Roadway

ID	Street/Intersection	From	To
R-55	CAPE FEAR RIVER CROSSING - PHASE II	US17	US421/CAROLINA BEACH ROAD
R-56	INDEPENDENCE BOULEVARD EXTENSION - PHASE II	RANDALL PARKWAY	US74/MARTIN LUTHER KING JR. PARKWAY

# Cape Fear Transportation 2040

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R-57	CAPE FEAR MEMORIAL BRIDGE REPLACEMENT	3RD STREET	US421
R-59	CAUSEWAY WIDENING	US17/74/421 CONFLUENCE	NC133/RIVER ROAD
R-60	US117/NC132/COLLEGE ROAD UP-GRADE	NEW CENTRE DRIVE	GORDON ROAD
R-61	HEAD ROAD EXTENSION	GREENVILLE LOOP ROAD	MASONBORO SOUND ROAD
R-62	US421/CAROLINA BEACH ROAD UP-GRADE	US117/SHIPYARD BOULEVARD	GEORGE ANDERSON DRIVE
R-63	US117/NC132/COLLEGE ROAD UP-GRADE	US17BUS/MARKET STREET	RANDALL PARKWAY
R-64	VILLAGE ROAD WIDENING	OLD FAYETTEVILLE ROAD	LANVALE ROAD
R-65	US117/NC132/COLLEGE ROAD UP-GRADE	RANDALL PARKWAY	US76/OLEANDER DRIVE
R-66	DOGWOOD LANE EXTENSION	WRIGHTSVILLE AVENUE	PINE GROVE DRIVE
R-67	NORTH COLLEGE ROAD WIDENING	MURRAYVILLE ROAD	NC133/CASTLE HAYNE ROAD
R-68	RANDALL DRIVE EXTENSION	REYNOLDS DRIVE	HOOKER ROAD
R-69	US17BUS/MARKET STREET IMPROVEMENTS	NEW CENTRE DRIVE	GORDON ROAD
R-70	NC133 RIVER ROAD UPGRADE	US17/74/76	OLD RIVER ROAD
R-71	OLEANDER DR/MILITARY CUTOFF RD ACCESS MANAGEMENT	PINE GROVE DRIVE	DRYSDALE DRIVE
R-72	US17 STREETScape	US74/76	I-140
R-73	COUNTRY CLUB DRIVE WIDENING	US17	SLOOP POINT ROAD
R-74	SCIENTIFIC PARK DRIVE EXTENSION	23RD STREET	MCCLAMMY STREET

R-75	CASTLE HAYNE ROAD STREETSCAPE	NORTHEAST CAPE FEAR RIVER	US117/NC132/COLLEGE ROAD
R-76	GREENVILLE LOOP ROAD WIDENING	PINE GROVE DRIVE	US76/OLEANDER DRIVE
R-77	HOLIDAY DRIVE EXTENSION	NC 210	HOOVER ROAD
R-78	VILLAGE ROAD STREETSCAPE	TOWN HALL DRIVE	US74/76
R-79	SAINT NICHOLAS ROAD EXTENSION	CARDINAL DRIVE	STATION ROAD
R-80	SANDERS ROAD WIDENING	RIVER ROAD	US421/CAROLINA BEACH ROAD
R-81	BASIN STREET EX- TENSION	OLD FAYETTEVILLE ROAD	VILLAGE ROAD
R-82	WRIGHTSVILLE AVENUE IMPROVE- MENTS	PAVILLION PLACE	HEIDE-TRASK DRAWBRIDGE
R-83	MURRAYVILLE ROAD WIDENING	US117/NC132/COL- LEGE ROAD	PLANTATION ROAD
R-84	WAYNE STREET EXTENSION	WAYNE STREET NE	ROYAL STREET NE
R-85	WRIGHTSVILLE AV- ENUE ROAD DIET	CASTLE STREET	INDEPENDENCE BOULEVARD
R-86	CENTER DRIVE EX- TENSION	WASHINGTON ACRES ROAD	FACTORY ROAD
R-87	WILSHIRE BOULE- VARD IMPROVE- MENTS	WRIGHTSVILLE AVENUE	MACMILLAN AVENUE
R-88	WRIGHTSVILLE AVENUE IMPROVE- MENTS	US117/NC132/COL- LEGE ROAD	HAWTHORNE DRIVE
R-89	WRIGHTSVILLE AVENUE IMPROVE- MENTS	INDEPENDENCE BOU- LEVARD	US117/NC132/COLLEGE ROAD
R-90	CEDAR HILL ROAD EXTENSION	CEDAR HILL RD NE	VILLAGE ROAD NE
R-91	NATURES LANE EXTENSION	MOUNT MISERY ROAD	CEDAR HILL ROAD
R-92	MAGNOLIA DRIVE EXTENSION	MOUNT MISERY ROAD	OLD MILL ROAD



# ACKNOWLEDGEMENTS

Cape Fear Transportation 2040 was created as the metropolitan transportation plan for the Wilmington Urban Area Metropolitan Planning Organization (WMPO) planning area. In addition to WMPO Staff members, many people were directly involved in the creation of this document. The policymaking board of the WMPO, the Transportation Advisory Committee, appointed a Citizens Advisory Committee to guide the development of this plan.

## Transportation Advisory Committee

- Laura Padgett, City of Wilmington, Chair
- Pat Batleman, Town of Leland, Vice-Chair
- Jonathan Barfield, New Hanover County
- Joe Breault, Town of Belville
- Gary Doetsch, Town of Carolina Beach
- Dean Lambeth, Town of Kure Beach
- John Lennon, North Carolina Board of Transportation
- Hank Miller, Town of Wrightsville Beach
- David Piepmeyer, Pender County
- Earl Sheridan, City of Wilmington
- Skip Watkins, New Hanover County
- Frank Williams, Brunswick County
- Eulis Willis, Town of Navassa

## Citizens Advisory Committee

The Citizens Advisory Committee for Cape Fear Transportation 2040 was composed of a dedicated group of appointed citizens serving in a volunteer capacity. Because of their work and dedication to public outreach, this plan represents the input of thousands of citizens from the greater Wilmington region.

- Howard Loving, North Carolina Board of Transportation, Chair
- Howard Capps, Cape Fear Public Transportation Authority
- Eric Coffey, New Hanover County
- Scott Cromartie, City of Wilmington
- John Ellen, Town of Kure Beach
- Al Freimark, Pender County
- David Hollis, Brunswick County
- John Melia, City of Wilmington
- Ernest Mooring, Town of Navassa
- Terry Obrock, Town of Navassa
- Jim Smith, Town of Wrightsville Beach
- Stuart Smith, Town of Belville
- Steve Stanton, Town of Carolina Beach
- Earnest Mooring, Town of Navassa

## Consultants

- Klmley Horn and Associates, Inc.



