2016 Biennial Data Report

WILMINGTON URBAN AREA
METROPOLITAN PLANNING ORGANIZATION

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INTRODUCTION

In 2012, the Federal Highway Administration (FHWA) designated the Wilmington Urban Area Metropolitan Planning Organization (WMPO) as a Transportation Management Area (TMA). As a TMA, the WMPO is required to prepare and adopt a Congestion Management Process (CMP) to evaluate and manage congestion in a regionally-agreed upon manner. The CMP, adopted in December of 2013, establish performance measures for evaluating and monitoring system performance using data collected from the WMPO and partner agencies.

The WMPO publishes the Biennial Data Report to demonstrate how the WMPO's regional network is performing according to the performance measures established in the CMP. This being the first Biennial Report prepared by the WMPO there could be need for a reassessment of how the Congestion Management Process defines the criteria and evaluation of the roadway segments. The report provides snapshots for each of the 29 roadway segments within the system that analyze the datasets and congestion mitigation techniques. The analysis will demonstrates the effectiveness of the current strategies in place and where there are opportunities for improvement in the future.

COLLECTING DATA AND EVALUATING CMP SEGMENTS

The CMP outlines the criteria for evaluating and ranking each corridor segment. Currently, congestion is one of the highest concerns on the region's roadway network within the Metropolitan Planning Area. This indicates a need for strategies to be prioritized in order to focus efforts on projects that will be most beneficial to the region.

The criteria and data used to evaluate each segment for this biennial report was collected between 2014 and 2016 and includes:

1.) Travel Time Performance Measures

- Average Travel Time AM/PM: Data was collected by WMPO and City of Wilmington Traffic Engineering staffs over the course of two years. The data was collected through a traffic monitoring method called floating car studies which used GPS devices to collect data on speed and travel time.
- Average Delay AM/PM: Data was collected by WMPO and City of Wilmington Traffic Engineering staffs over the course of two years. The data was collected through a traffic monitoring method called floating car studies which used GPS devices to collect data on location and duration of delays.
- Hotspot identification: Data was collected by WMPO and City of Wilmington Traffic Engineering staffs over the course of two years. The data was collected through a traffic monitoring method called floating car studies which used GPS devices to identify specific points of congestion along the segments.

2.) Safety Performance Measures

- Rear End Collisions: This data was collected by the NCDOT Traffic Safety Unit through their TEAAS Program which aggregates and geo-locates traffic incidents from law enforcement officials throughout the state of North Carolina.

- Bicycle Crashes: This data was collected by the NCDOT Traffic Safety Unit through their TEAAS Program which aggregates and geo-locates traffic incidents from law enforcement officials throughout the state of North Carolina. The NCDOT Bicycle and Pedestrian Division has created a sub-set of the TEAAS data to further analyze bicycle crashes. Note that, due to the additional analysis needed to create this data sub-set, there is a lag time in the data availability and the most current data available for this report represents crashes that occurred in 2012 and 2013.

- Pedestrian Crashes: This data was collected by the NCDOT Traffic Safety Unit through their TEAAS Program which aggregates and geo-locates traffic incidents from law enforcement officials throughout the state of North Carolina. The NCDOT Bicycle and Pedestrian Division has created a sub-set of the TEAAS data to further analyze pedestrian crashes. Note that, due to the additional analysis needed to create this data sub-set, there is a lag time in the data availability and the most current data available for this report represents crashes that occurred in 2012 and 2013.

3.) Volume Performance Measures

- Average Vehicle Count: This data was collected by the WMPO through pneumatic tube counters at various locations along CMP segments. The data represents raw traffic counts collected at point locations averaged along each segment.
- Truck percentage: This data was collected along CMP freight corridors by the WMPO through the use of Hi-Star portable traffic analyzers by utilizing vehicle magnetic imaging technology. It represents truck volume as a percentage of the overall vehicular volume over a 24 hour period at a specific location along the corridor.
- Bicycle Counts AM/PM:This data was collected along CMP commercial and destination corridors by the WMPO through manual counts and review of VHS recordings of select intersections for one day during peak hours.
- Pedestrian Counts AM/PM: This data was collected along CMP commercial and destination corridors by the WMPO through manual counts and review of VHS recordings of select intersections for one day during peak hours.

4.) Transit Performance Measure

- Transit Boarding - Cape Fear Public Transportation Authority provided fixed route passenger totals for FY 2015. This data was aggregated for each CMP roadway segment.

SEGMENT SCORING

The WMPO staff developed a systematic process to equally disperse performance measure points to represent the collected data in order to compare data performance across segments. This was done by allocating the most points to the roadway segment that ended up with the highest combined data. For example a roadway segment with 200 rear end collisions will be given more points than a roadway segment with 100 rear end collisions and a roadway segment with an average vehicle volume of 20,000 will be given more points than a roadway segment with an average vehicle volume of 10,000.

Each data-set was broken up by performance measure to give a clear picture of where to focus roadway segment strategies and improvements in the future.

The number of points available for each performance measure is listed in the table below:

Performance Measures	Points Possible
Travel Time	2 points per minute of delay
Safety	30
Volume	50
Transit Performance	10

SEGMENT CONGESTION MANAGEMENT RESULTS

Using the collected data and Congestion Management Process's scoring criteria, this is how each roadway segment ranked in terms of congestion management needs:

Most Congested Corridors in the WMPO Region		
Segment	**Roadway**	**Total Score**
1	College Road - Gordon Rd to Wilshire Blvd	65
2	Market Street - 3rd St to College Rd	61
3	Carolina Beach Road - Alabama Ave to College Rd	61
4	College Road - Wilshire Blvd - Pinecliff Dr	52
5	Oleander Drive - 5th Ave to Treadwell St	48
6	Oleander Drive/Military Cutoff Road - Treadwell St to Gordon Rd	46
7	New Center Drive - Market St to Racine Dr	45
8	Kerr Avenue - MLK Jr. Pkwy to Randall Pkwy	43
9	Gordon Road - Kerr Ave to Military Cutoff Rd	41
10	Randall Parkway - Independence Blvd to Racine Dr	41
11	Market Street - College Road to Torchwood Dr/Bayshore Dr	40
12	Eastwood Road/US 76/Causeway Dr - Military Cutoff Rd to Lumina Ave	39
13	US 421/Carolina Beach Road - Halyburton Pkwy to Atlanta Ave	38
14	17th Street - Savannah Ct to Shipyard Blvd	36
15	US 17 - Washington Acres Rd to Sloop Point Loop Rd	35
16	Shipyard Boulevard - River Rd to College Rd	33
17	Racine Drive - Randall Pkwy to Eastwood Rd	29
18	US117/College Road - Holly Shelter Rd to Gordon Rd	28
19	US 17/74/76 - River Road to 5th Ave	28
20	College Road/Carolina Beach Road - Pinecliff Dr to Halyburton Pkwy	27
21	US 17/US 421/NC 133 - USS North Carolina Rd to 3rd St	26
22	US 17/Market Street - Marsh Oaks Dr/Mendenhall Dr to Sidbury Rd	24
23	Ocean Highway - Lanvalle Rd -to US 74/76 Andrew Jackson Hwy	24
24	Village Road/NC 133 - Navassa Rd to Jackey's Creek Ln	23
25	US 74/76 - Maco Rd to NC 133	23
26	MLK Jr. Parkway/Eastwood Road - College Rd to Racine Dr	22
27	Front Street - Lake Shore Dr to Cape Fear Memorial Bridge	21
28	3rd Street - Kentucky Ave to Wooster St	13
29	US421/Lake Park Blvd - Atlanta Ave to Buzzards Bay	11

To get a more thorough understanding of the individual roadway segments and to get a detailed analysis of the components that factored into the congestion ranking results please refer to the snapshots following this section.

SEGMENT SNAPSHOTS

Segment snapshots provide the WMPO and member jurisdictions a quick understanding of a specific corridor by concisely illustrating the corridor's performance and showing the data that has been collected over a two-year period.

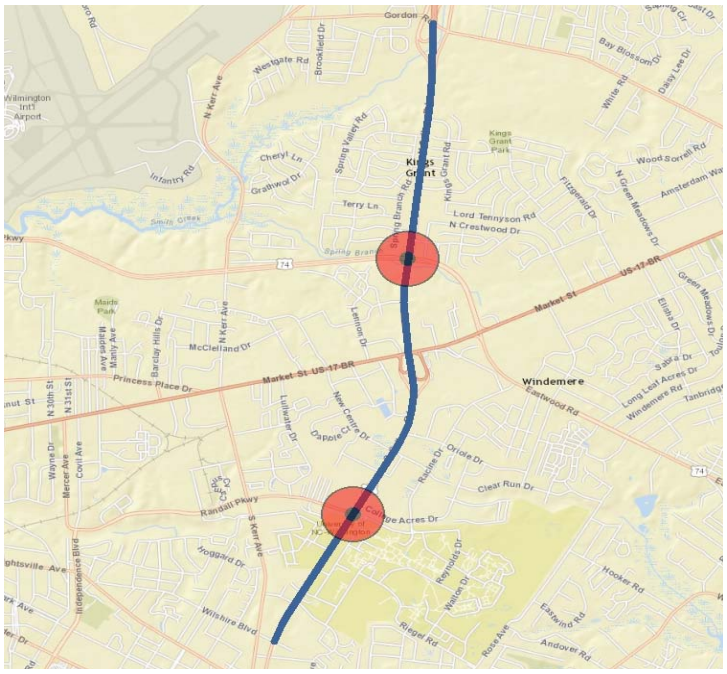
The top of the snapshots include the name of the segment analyzed and identify the intersecting road that begins and ends the segment. The following section includes the segment's rank and a map showing the entire segment with each hotspot circled in red. Adjacent to the map, there is additional information about the segment including; its functional type, the mileage along the corridor, the hotspot intersections, the peak hours of the segment, and alternate routes that could potentially relieve demand and congestion along that corridor.

As explained in the segment scoring, each segment's overall score correlates with the performance measure data and is ranked accordingly. The corridors with the highest ranking are in need of the most attention per the congestion management process.

The WMPO Congestion Mitigation Techniques represent the strategies previously listed in the adopted Congestion Management Process. These Congestion Mitigation Techniques need to be applied to manage congestion along the segment. Below the techniques are the Current Implementation Projects and Plans; these are existing funded projects or existing plans that are already set in place to improve or implement one or many of the needed strategies in the future.

Segment 1 College Road

Gordon Road to Wilshire Boulevard



CONGESTION RANK: 1 OF 29

CORRIDOR FUNCTIONAL TYPES:
Commercial Corridor Commuting Corridor
Destination Corridor Tourist Route

MILEAGE ALONG CORRIDOR: 4.3 Miles

NUMBER OF HOTSPOTS: 2
1. Martin Luther King Jr. Parkway
2. Randall Parkway

PEAK HOURS: 7:00-9:00AM / 4:45-6:45PM

ALTERNATE ROUTE:
Kerr Avenue and Independence Boulevard

SEGMENT OVERALL SCORE: 65

Data		
Average Travel Time AM/PM	6:44 / 7:56	
Average Delay AM/PM	1:52 / 3:09	
Rear End Collisions	462	
Bicycle Crashes	6	10
Pedestrian Crashes	4	
Average Vehicle Volume	52,822	
Truck Percentage	N/A	
Bicycle Counts AM/PM	62 / 14	
Pedestrian Counts AM/PM	63 / 36	
Transit Boarding	97,819	

Performance Measure Points	
Travel Time	10
Safety	14
Volume	32
Transit Performance	9

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:
- Alternative Roadways: Improve usage of non-CMP roadways to remove demand on CMP network

SHIFT MODE OF TRIP STRATEGIES:
- Expand pedestrian and bicycle network
- Improve multimodal access at intersections
- Implement Bicycle Sharing Program

IMPROVE OPERATIONS STRATEGIES:
- Access Management: Limits access to land uses through limiting turning movements and conflict points

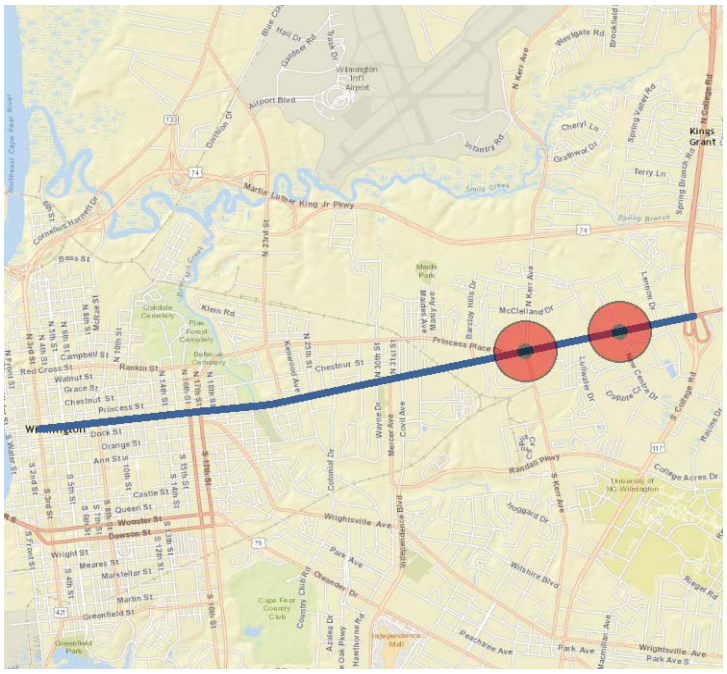
INCREASE CAPACITY STRATEGIES:
- Convert intersections to interchange: Improves capacity with at-grade or grade separated alternative

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-4434 - Independence Blvd Ext: Multi-lanes on new location
- U-3338 - Kerr Ave: Widen to multi-lanes
- COW Transportation Bond 2014 - Kerr Area Improvements: Multi-use paths and crosswalks at Wilshire Blvd & College Rd and Wilshire Blvd & Kerr Ave
- UNCW Bike Share Program
- U-5702 - College Rd: Access management and travel time improvements
- U-5792 - MLK Jr. Pkwy and College Rd: Convert at-grade intersection to interchange

Segment 2 Market Street

3rd Street to College Road



CONGESTION RANK: 2 OF 29

CORRIDOR FUNCTIONAL TYPES:
Destination Corridor

MILEAGE ALONG CORRIDOR: 4.4 Miles

NUMBER OF HOTSPOTS: 2
1. Kerr Avenue
2. New Center Drive

PEAK HOURS: 7:00-9:00AM / 4:30-6:30PM

ALTERNATE ROUTE:
Martin Luther King Jr. Parkway

SEGMENT OVERALL SCORE: 61

Data		
Average Travel Time AM/PM	8:08 / 9:24	
Average Delay AM/PM	1:12 / 2:28	
Rear End Collisions	269	
Bicycle Crashes	8	20
Pedestrian Crashes	12	
Average Vehicle Volume	36,837	
Truck Percentage	N/A	
Bicycle Counts AM/PM	77 / 87	
Pedestrian Counts AM/PM	134 / 117	
Transit Boarding	71,702	

Performance Measure Points	
Travel Time	7
Safety	17
Volume	30
Transit Performance	7

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:
- Land Use - Manage Growth: Encourage growth in appropriate areas
- Alternative Roadways: Improve usage of non-CMP roadways to remove demand on CMP network

SHIFT MODE OF TRIP STRATEGIES:
- Transit - Increase frequency: Increase existing public transit fixed routes
- Expand pedestrian and bicycle network
- Improve multimodal access at intersections

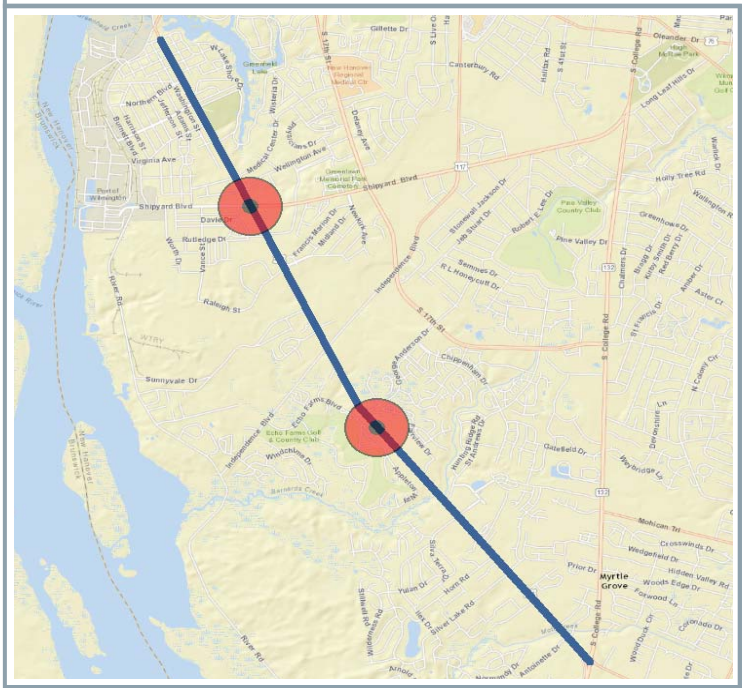
IMPROVE OPERATIONS STRATEGIES:
- Access Management: Limit access to land uses through limiting turning movements and conflict points
- Geometric Intersection Improvements: Change intersection use by changing the physical layout

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-5792 - MLK Jr. Pkwy and College Rd: Convert at grade intersection to interchange
- U-4902B - Colonial Dr to MLK Jr. Pkwy: Improve access management
- U-5869 - S.17th St to Covil Ave: Construct a road diet
- U-3338B - Kerr Ave - Randall Pkwy to MLK Jr. Pkwy: Widen to multi-lanes
- U-3338C - Kerr Ave at MLK Jr. Pkwy: Convert intersection to interchange

Segment 3 Carolina Beach Road

Alabama Avenue to College Road



CONGESTION RANK: 3 OF 29

CORRIDOR FUNCTIONAL TYPES:
Freight Corridor Commercial Corridor
Tourist Route

MILEAGE ALONG CORRIDOR: 5.7 Miles

NUMBER OF HOTSPOTS: 2
1. Shipyard Boulevard
2. Codington Elementary School Vicinity (AM)

PEAK HOURS: 7:00-9:00AM / 4:45-6:45PM

ALTERNATE ROUTE: None

SEGMENT OVERALL SCORE: 61

Data		
Average Travel Time AM/PM	8:48 / 9:46	
Average Delay AM/PM	1:16 / 2:13	
Rear End Collisions	106	
Bicycle Crashes	6	11
Pedestrian Crashes	5	
Average Vehicle Volume	31,783	
Truck Percentage	4.35%	
Bicycle Counts AM/PM	42 / 38	
Pedestrian Counts AM/PM	71 / 56	
Transit Boarding	118,850	

Performance Measure Points	
Travel Time	6
Safety	12
Volume	33
Transit Performance	10

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:
- Land Use - Accommodate all modes in new development
- Land Use - Construct supportive collector street network with new development

SHIFT MODE OF TRIP STRATEGIES:
- Transit - Increase frequency: Increase existing public transit fixed routes
- Expand pedestrian and bicycle network
- Improve multimodal access at intersections

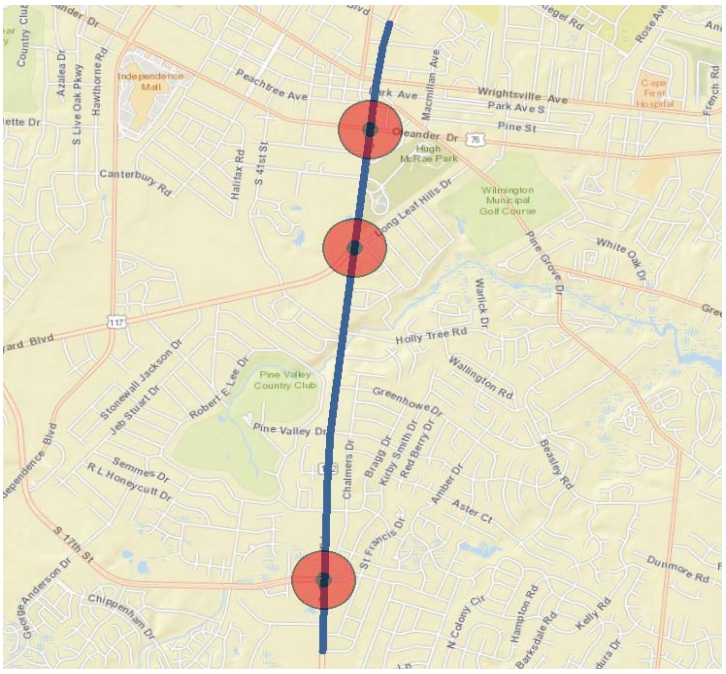
IMPROVE OPERATIONS STRATEGIES:
- Access Management: Limit access to land uses through limiting turning movements and conflict points
- Geometric Intersection Improvements: Change intersection use by changing the physical layout

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- Carolina Beach Corridor Plan: Provides strategies for making Carolina Beach Road less congested
- U-5729 - Carolina Beach Rd: Access management and travel time improvements
- COW Transportation Bond 2014 - Carolina Beach Rd Streetscape: Landscaped median, pedestrian upgrades, etc.
- Carolina Beach Rd and Shipyard Blvd Improvements: Anticipated in 2017 STIP

Segment 4 College Road

Wilshire Boulevard to Pinecliff Drive



CONGESTION RANK: 4 OF 29

CORRIDOR FUNCTIONAL TYPES:
Commercial Corridor Tourist Route

MILEAGE ALONG CORRIDOR: 3.4 Miles

NUMBER OF HOTSPOTS: 3
1. Oleander Drive
2. Shipyard Blvd
3. 17th Street

PEAK HOURS: 7:00-9:00AM / 4:45-6:45PM

ALTERNATE ROUTE:
Independence Boulevard

SEGMENT OVERALL SCORE: 52

Data		
Average Travel Time AM/PM	7:34 / 8:06	
Average Delay AM/PM	3:00 / 3:36	
Rear End Collisions	251	
Bicycle Crashes	4	7
Pedestrian Crashes	3	
Average Vehicle Volume	47,535	
Truck Percentage	N/A	
Bicycle Counts AM/PM	35 / 14	
Pedestrian Counts AM/PM	25 / 30	
Transit Boarding	29,247	

Performance Measure Points	
Travel Time	13
Safety	11
Volume	26
Transit Performance	2

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:
- Alternative Roadways: Improve usage of non-CMP roadways to remove demand on CMP network

SHIFT MODE OF TRIP STRATEGIES:
- Expand pedestrian and bicycle network
- Improve multimodal access at intersections

IMPROVE OPERATIONS STRATEGIES:
- Access Management: Limits access to land uses through limiting turning movements and conflict points

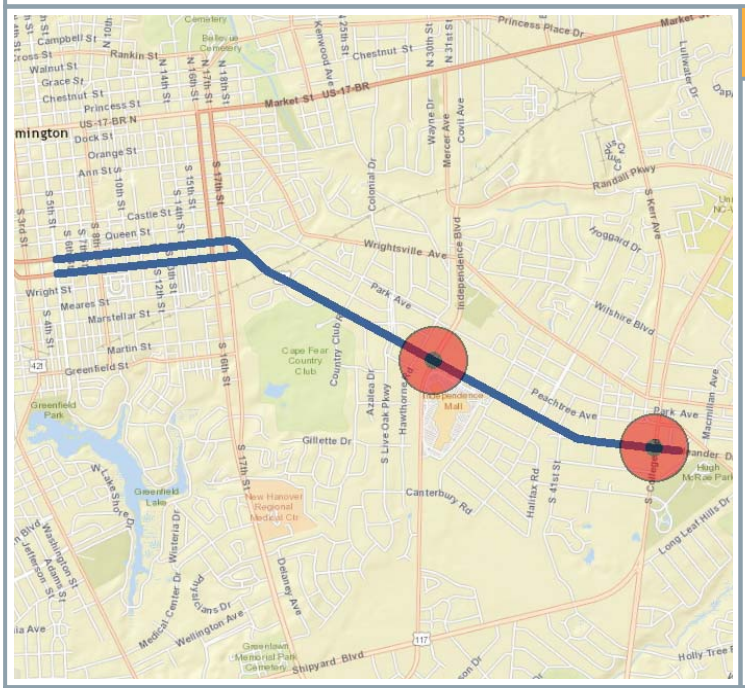
INCREASE CAPACITY STRATEGIES:
- Convert intersection to interchange: Improves capacity with at-grade or grade separated alternative

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-4434 - Independence Blvd Ext: Multi-lanes on new location
- COW Transportation Bond 2014 - South College Rd Trail: 1.3 mile multi-use path along South College Rd
- U-5702 - College Rd: Access management and travel time improvements
- U-5704 - College Rd: Access management and travel time improvements including interchange with US 76

Segment 5 Oleander Drive

5th Avenue to Treadwell Street



CONGESTION RANK: 5 OF 29

CORRIDOR FUNCTIONAL TYPES:
Commercial Corridor

MILEAGE ALONG CORRIDOR: 4.7

NUMBER OF HOTSPOTS: 2
1. Independence Boulevard
2. College Road

PEAK HOURS: 7:00-9:00AM / 4:30-6:30PM

ALTERNATE ROUTE:
Wrightsville Avenue

SEGMENT OVERALL SCORE: 48

Data		
Average Travel Time AM/PM	8:33 / 8:32	
Average Delay AM/PM	2:52 / 2:52	
Rear End Collisions	10	
Bicycle Crashes	7	16
Pedestrian Crashes	9	
Average Vehicle Volume	25,021	
Truck Percentage	N/A	
Bicycle Counts AM/PM	18 / 20	
Pedestrian Counts AM/PM	28 / 37	
Transit Boarding	82,525	

Performance Measure Points	
Travel Time	11
Safety	10
Volume	19
Transit Performance	8

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:
- TDM - Encourage carpools & vanpools
- TDM - Encourage employer shuttles: A shuttle to provide transportation connections for employees

SHIFT MODE OF TRIP STRATEGIES:
- Transit Express Routes - Encourage new transit express routes along corridor
- Expand pedestrian network
    - Improve multi-modal access at intersections

IMPROVE OPERATIONS STRATEGIES:
- Access Management: Limit access to land uses through limiting turning movements and conflict points

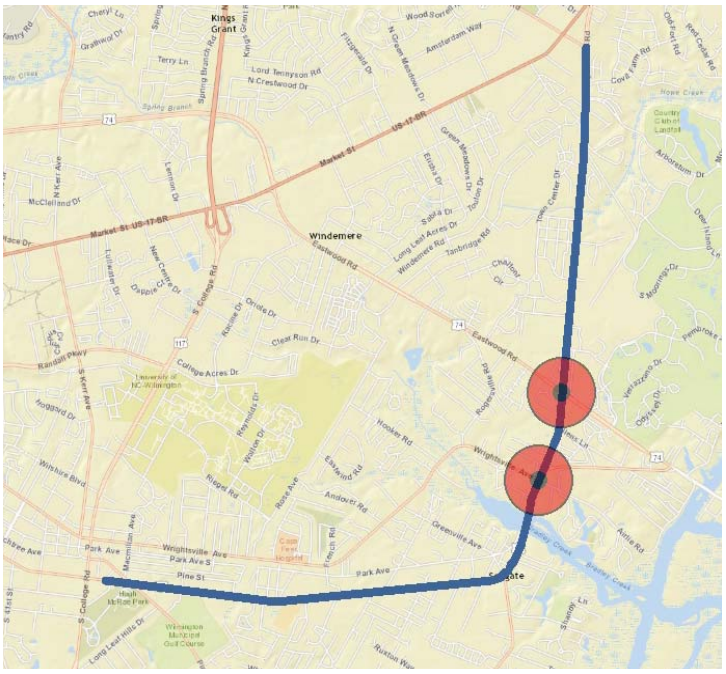
INCREASE CAPACITY STRATEGIES:
- Convert intersection to interchange: Improves capacity with at-grade or grade separated alternative

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- COW Transportation Bond 2014 - Dawson/Wooster/17th St Area Improvements: Streetscapes along Dawson & Wooster Streets with sidewalks and crosswalks at various intersections
- U-5704 - College Rd: Travel time improvements including interchange with Oleander Dr

Segment 6 Oleander Dr/Military Cutoff Rd

Treadwell Street to Gordon Road



CONGESTION RANK: 6 OF 29

CORRIDOR FUNCTIONAL TYPES:
Commuting Corridor Commercial Corridor

MILEAGE ALONG CORRIDOR: 6.3 Miles

NUMBER OF HOTSPOTS: 2
1. Eastwood Road
2. Wrightsville Avenue/Airlie Road

PEAK HOURS: 7:00-9:00AM / 4:30-6:30PM

ALTERNATE ROUTE: None

SEGMENT OVERALL SCORE: 46

Data		
Average Travel Time AM/PM	10:55 / 13:42	
Average Delay AM/PM	2:16 / 5:03	
Rear End Collisions	6	
Bicycle Crashes	2	4
Pedestrian Crashes	2	
Average Vehicle Volume	37,937	
Truck Percentage	N/A	
Bicycle Counts AM/PM	19 / 29	
Pedestrian Counts AM/PM	16 / 24	
Transit Boarding	76,584	

Performance Measure Points	
Travel Time	14
Safety	3
Volume	22
Transit Performance	7

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:
- Land Use - Accommodate all modes in new development

SHIFT MODE OF TRIP STRATEGIES:
- Transit Express Routes - Encourage new transit express routes along corridor
- Improve multimodal access at intersection

IMPROVE OPERATIONS STRATEGIES:
- Geometric intersection improvements: Change intersection use by changing the physical layout

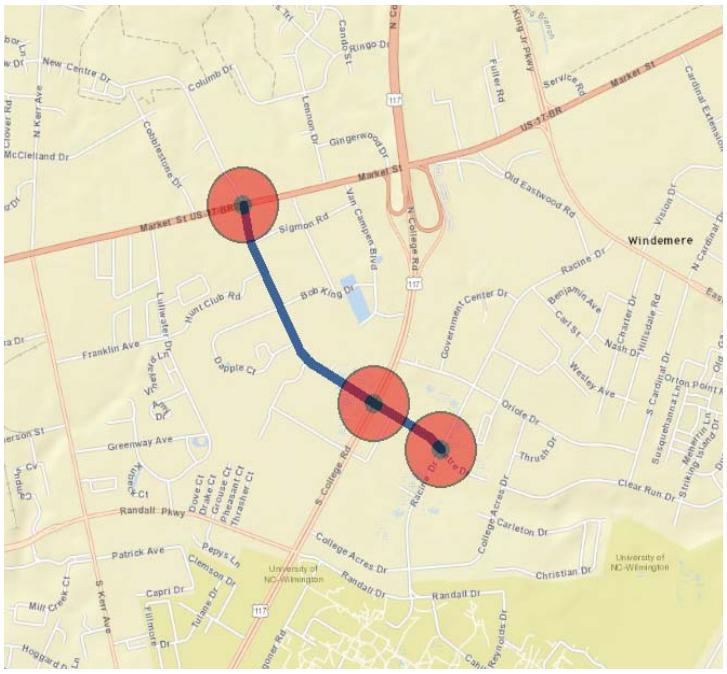
INCREASE CAPACITY STRATEGIES:
- Add turning lanes
- Convert intersection to interchange: Improves capacity with at-grade or grade separated alternative

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- Greenville Loop Rd & Oleander Rd: Safety and mobility improvements planned with future development, widening Greenville Loop Rd and adding additional turn lanes throughout the development
- Cape Fear Transportation 2040: Pilot express bus routes on major corridors
- COW Transportation Bond 2014 - Pine Grove Dr Improvements: Realignment of Pine Grove Dr/Oleander Dr intersection

Segment 7 New Center Drive

Market Street to Racine Drive



CONGESTION RANK: 7 OF 29

CORRIDOR FUNCTIONAL TYPES:
Commercial Corridor

MILEAGE ALONG CORRIDOR: 0.9 Miles

NUMBER OF HOTSPOTS: 3

1. Market Street
2. College Road
3. Racine Drive

PEAK HOURS: 7:00-9:00AM / 4:45-6:45PM

ALTERNATE ROUTE: None

SEGMENT OVERALL SCORE: 45

Data		
Average Travel Time AM/PM	4:16 / 5:13	
Average Delay AM/PM	2:31 / 3:28	
Rear End Collisions	28	
Bicycle Crashes	5	9
Pedestrian Crashes	4	
Average Vehicle Volume	16,608	
Truck Percentage	N/A	
Bicycle Counts AM/PM	13 / 13	
Pedestrian Counts AM/PM	34 / 25	
Transit Boarding	95,582	

Performance Measure Points	
Travel Time	12
Safety	7
Volume	17
Transit Performance	9

WMPO CONGESTION MITIGATION TECHNIQUES

SHIFT MODE OF TRIP STRATEGIES:

- Transit - Increase frequency: Increase existing public transit fixed routes
- Expand pedestrian and bicycle network
- Improve multimodal access at intersections
- Improve bicycle storage

IMPROVE OPERATIONS STRATEGIES:

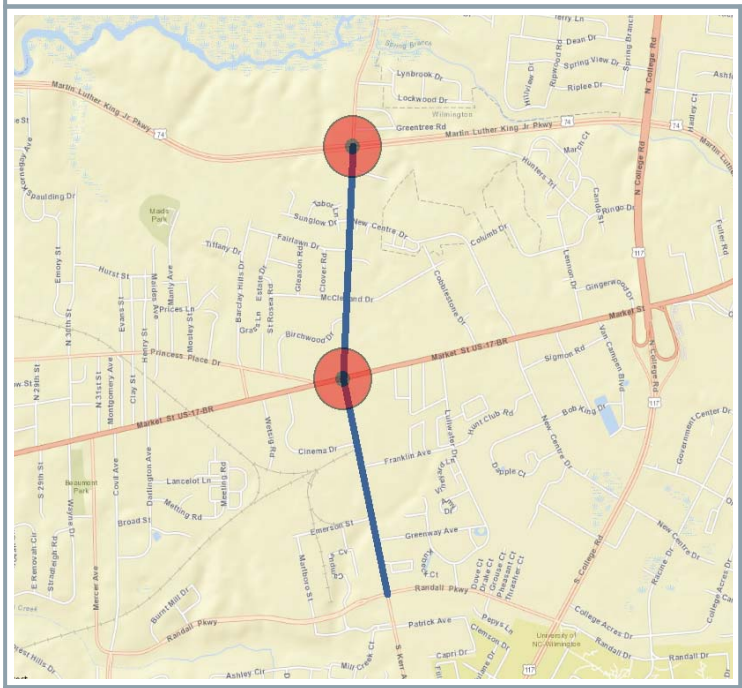
- Geometric Intersection Improvements: Change intersection use by changing the physical layout

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- H150357 - New Center Dr & Market St Intersection - Anticipated in 2017 STIP
- U-5702 - College Rd: Access management and travel time improvements

Segment 8 Kerr Avenue

Martin Luther King Jr. Parkway to Randall Parkway



CONGESTION RANK: 8 OF 29

CORRIDOR FUNCTIONAL TYPES:
Commercial Corridor

MILEAGE ALONG CORRIDOR: 1.5 Miles

NUMBER OF HOTSPOTS: 2
1. Martin Luther King Jr. Parkway
2. Market Street

PEAK HOURS: 7:00-9:00AM / 4:45-6:45PM

ALTERNATE ROUTE:
College Road

SEGMENT OVERALL SCORE: 43

Data		
Average Travel Time AM/PM	5:33 / 9:20	
Average Delay AM/PM	2:46 / 6:33	
Rear End Collisions	88	
Bicycle Crashes	2	2
Pedestrian Crashes	0	
Average Vehicle Volume	19,804	
Truck Percentage	N/A	
Bicycle Counts AM/PM	4 / 7	
Pedestrian Counts AM/PM	5 / 11	
Transit Boarding	84,216	

Performance Measure Points	
Travel Time	18
Safety	6
Volume	11
Transit Performance	8

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:
- Alternative Roadways: Improve usage of non-CMP roadways to remove demand on CMP network

SHIFT MODE OF TRIP STRATEGIES:
- Transit - Increase frequency: Increase existing public transit fixed routes
- Land Use - TOD: Utilize mixed-use areas designed to maximize access to public transit
- Expand pedestrian and bicycle network
- Improve multimodal access at intersections
- Implement bicycle sharing program

IMPROVE OPERATIONS STRATEGIES:
- Geometric Intersection Improvements: Change intersection use by changing the physical layout

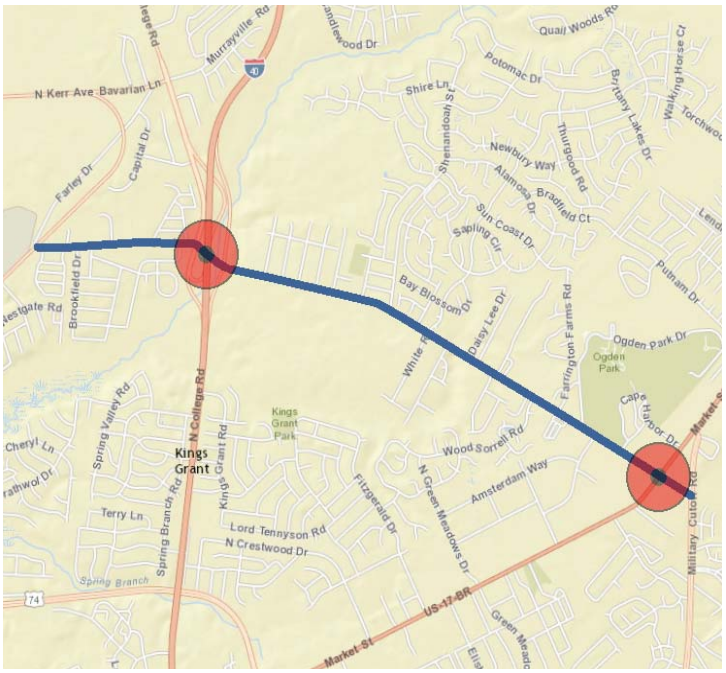
INCREASE CAPACITY STRATEGIES:
- Convert intersections to interchange: Improves capacity with at-grade or grade separated alternative

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-5702 - College Rd: Access management and travel time improvements
- U-3338B - Kerr Ave - Randall Pkwy to MLK Jr. Pkwy: Widen to multi-lanes
- U-3338C - Kerr Ave at MLK Jr. Pkwy: Intersection to interchange

Segment 9 Gordon Road

Kerr Avenue to Military Cutoff Road



CONGESTION RANK: 9 OF 29

CORRIDOR FUNCTIONAL TYPES:
Commuting Corridor

MILEAGE ALONG CORRIDOR: 3.5 Miles

NUMBER OF HOTSPOTS: 2
1. Market Street
2. North College Road

PEAK HOURS: 7:00-9:00AM / 4:45-6:45PM

ALTERNATE ROUTE: None

SEGMENT OVERALL SCORE: 41

Data		
Average Travel Time AM/PM	8:23 / 10:35	
Average Delay AM/PM	3:28 / 5:46	
Rear End Collisions	115	
Bicycle Crashes	0	0
Pedestrian Crashes	0	
Average Vehicle Volume	15,952	
Truck Percentage	N/A	
Bicycle Counts AM/PM	11 / 5	
Pedestrian Counts AM/PM	10 / 7	
Transit Boarding	63,757	

Performance Measure Points	
Travel Time	18
Safety	6
Volume	11
Transit Performance	6

WMPO CONGESTION MITIGATION TECHNIQUES

SHIFT MODE OF TRIP STRATEGIES:
- Transit - Increase frequency: Increase existing public transit fixed routes
- Land Use - TOD: Utilize mixed-use areas designed to maximize access to public transit
- Expand pedestrian and bicycle network
- Improve multimodal access at intersections

IMPROVE OPERATIONS STRATEGIES:
- Access Management: Limit access to land uses through limiting turning movements and conflict points

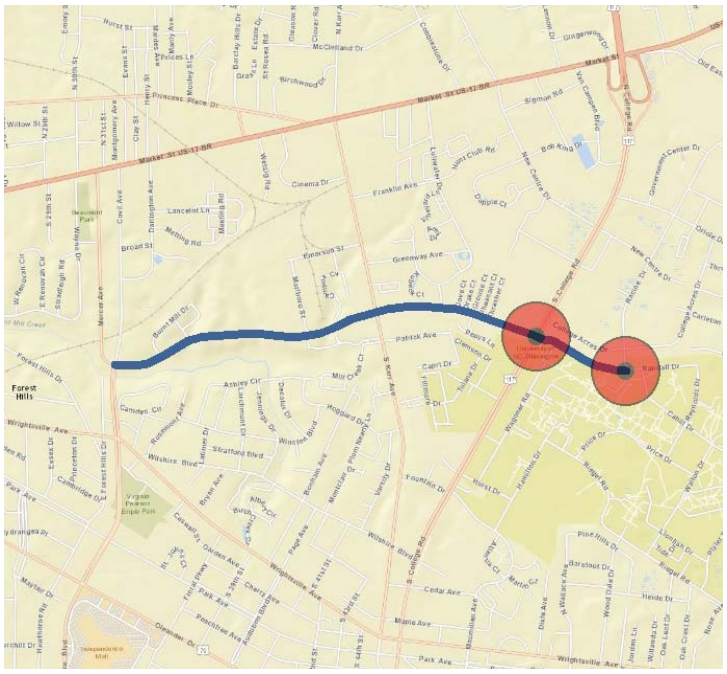
INCREASE CAPACITY STRATEGIES:
- Add general purpose lane

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-3831 - Gordon Rd: Widen to multi-lanes
- U-4751 - Military Cutoff Rd Ext: Multi-lanes on new location

Segment 10 Randall Parkway

Independence Boulevard to Racine Drive



CONGESTION RANK: 10 OF 29

CORRIDOR FUNCTIONAL TYPES:
Commuting Corridor

MILEAGE ALONG CORRIDOR: 2.0 Miles

NUMBER OF HOTSPOTS: 2
1. College Road
2. UNCW Campus

PEAK HOURS: 7:00-9:00AM / 4:45-6:45PM

ALTERNATE ROUTE:
Wrightsville Avenue

SEGMENT OVERALL SCORE: 41

Data		
Average Travel Time AM/PM	5:52 / 6:57	
Average Delay AM/PM	2:05 / 3:11	
Rear End Collisions	9	
Bicycle Crashes	10	10
Pedestrian Crashes	0	
Average Vehicle Volume	18,391	
Truck Percentage	N/A	
Bicycle Counts AM/PM	31 / 3	
Pedestrian Counts AM/PM	21 / 7	
Transit Boarding	127,871	

Performance Measure Points	
Travel Time	10
Safety	6
Volume	15
Transit Performance	10

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:
- Land Use - Construct supportive collector street network with new development

SHIFT MODE OF TRIP STRATEGIES:
- Transit - Increase frequency: Increase existing public transit fixed routes
- Improve multimodal access at intersections
- Improve bicycle storage
- Implement bicycle sharing program

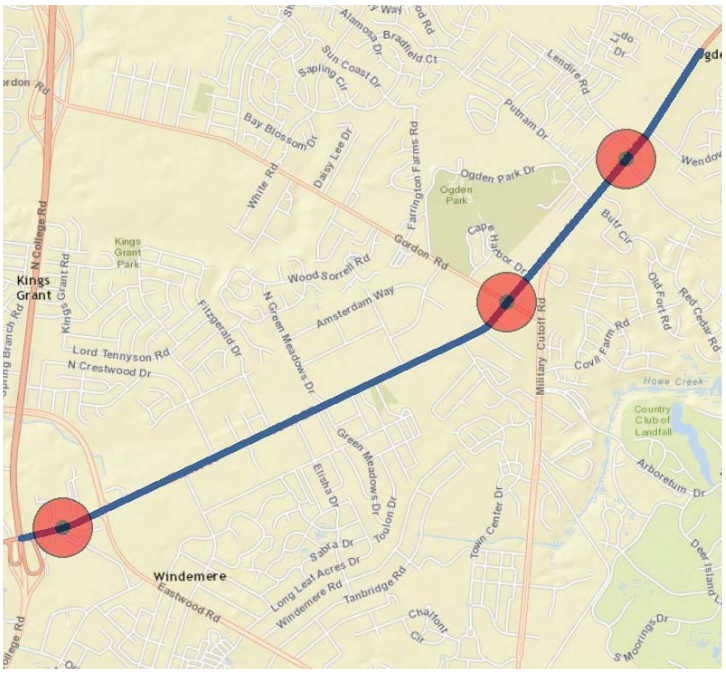
IMPROVE OPERATIONS STRATEGIES:
- Geometric Intersection Improvements: Change intersection use by changing the physical layout

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-3338B - Kerr Ave - Randall Pkwy to MLK Jr. Pkwy: Widen to multi-lanes
- U-5702 - College Rd: Access management and travel time improvements
- UNCW Bike Share Program

Segment 11 Market Street

College Road to Torchwood Drive/Bayshore Drive



CONGESTION RANK: 11 OF 29

CORRIDOR FUNCTIONAL TYPES:
Commercial Corridor

MILEAGE ALONG CORRIDOR: 4.2 Miles

NUMBER OF HOTSPOTS: 3
1. Eastwood Road
2. Gordon Road
3. Middlesound Loop Road

PEAK HOURS: 7:00-9:00AM / 4:30-6:30PM

ALTERNATE ROUTE:
Military Cutoff Road Extension (future)

SEGMENT OVERALL SCORE: 40

Data		
Average Travel Time AM/PM	7:51 / 7:21	
Average Delay AM/PM	1:51 / 1:21	
Rear End Collisions	59	
Bicycle Crashes	5	7
Pedestrian Crashes	2	
Average Vehicle Volume	45,267	
Truck Percentage	N/A	
Bicycle Counts AM/PM	11 / 9	
Pedestrian Counts AM/PM	11 / 10	
Transit Boarding	N/A	

Performance Measure Points	
Travel Time	6
Safety	7
Volume	27
Transit Performance	N/A

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:
- Alternative Roadways: Improve usage of non-CMP roadways to remove demand on CMP network
- Land Use - Construct supportive collector street network with new development

SHIFT MODE OF TRIP STRATEGIES:
- Expand pedestrian and bicycle network
- Improve multimodal access at intersections

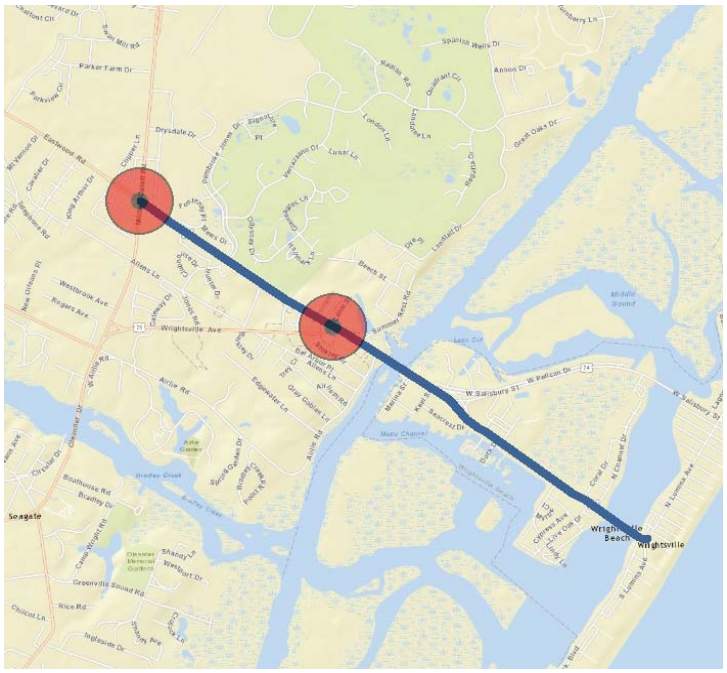
IMPROVE OPERATIONS STRATEGIES:
- Access Management: Limit access to land uses through limiting turning movements and conflict points
- Geometric Intersection Improvements: Change intersection use by changing the physical layout

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-4751 - Military Cutoff Rd Ext: Multi-lanes on new location
- Market Street Corridor Study: Provides collector street map to show critical connection points throughout the corridor
- U-4902C - Market St - MLK Jr. Pkwy to Station Rd: Improve access management
- U-4902D - Market St - Lendire Rd to Marsh Oaks Dr: Improve access management
- FS-1503A - US 74 and Market St: Convert at-grade intersection to an interchange

Segment 12 Eastwood Rd/US 76/Causeway Dr

Military Cutoff Road to Lumina Avenue



CONGESTION RANK: 12 OF 29

CORRIDOR FUNCTIONAL TYPES:
Commercial Corridor Destination Corridor
Tourist Route

MILEAGE ALONG CORRIDOR: 2.4 Miles

NUMBER OF HOTSPOTS: 2
1. Military Cutoff Road
2. Wrightsville Avenue

PEAK HOURS: 7:00-9:00AM / 4:45-6:45PM

ALTERNATE ROUTE: NONE

SEGMENT OVERALL SCORE: 39

Data		
Average Travel Time AM/PM	5:43 / 5:53	
Average Delay AM/PM	1:47 / 1:57	
Rear End Collisions	58	
Bicycle Crashes	3	6
Pedestrian Crashes	3	
Average Vehicle Volume	20,045	
Truck Percentage	N/A	
Bicycle Counts AM/PM	69 / 33	
Pedestrian Counts AM/PM	59 / 51	
Transit Boarding	N/A	

Performance Measure Points	
Travel Time	7
Safety	7
Volume	25
Transit Performance	N/A

WMPO CONGESTION MITIGATION TECHNIQUES

SHIFT MODE OF TRIP STRATEGIES:
- Improve multimodal access at intersections
- Improve bicycle storage
- Implement bicycle sharing program

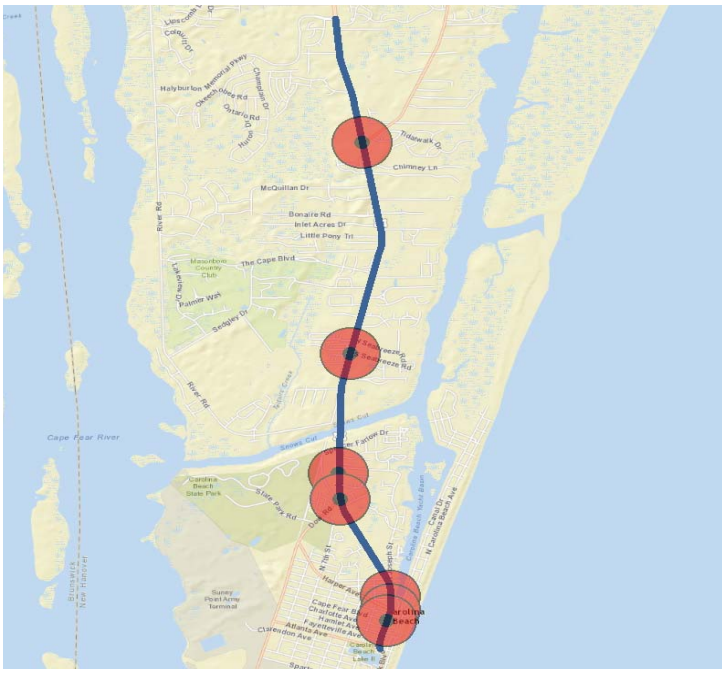
INCREASE CAPACITY STRATEGIES:
- Convert intersection to interchange: Improves capacity with at-grade or grade separated alternative

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- STP-DA - Heide Trask Drawbridge Walkway: Construction of walkway/pier underneath drawbridge
- U-5710 - Eastwood Rd and Military Cutoff Rd: Convert at grade intersection to a interchange

Segment 13 US 421 / Carolina Beach Road

Halyburton Parkway to Atlanta Avenue



CONGESTION RANK: 13 OF 29

CORRIDOR FUNCTIONAL TYPES:
Commercial Corridor Destination Corridor
Tourist Route

MILEAGE ALONG CORRIDOR: 5.2 Miles

NUMBER OF HOTSPOTS: 7

1. Myrtle Grove Road
2. Seabreeze Road
3. Access Road
4. Risley Road/Dow Road
5. Carl Winner Avenue
6. Cape Fear Boulevard
7. Harper Avenue

PEAK HOURS: 6:30-8:30AM / 5:00-7:00PM

ALTERNATE ROUTE:
River Road and Dow Road

SEGMENT OVERALL SCORE: 38

Data		
Average Travel Time AM/PM	7:49 / 7:57	
Average Delay AM/PM	0:44 / 0:53	
Rear End Collisions	59	
Bicycle Crashes	1	4
Pedestrian Crashes	3	
Average Vehicle Volume	22,977	
Truck Percentage	N/A	
Bicycle Counts AM/PM	42 / 33	
Pedestrian Counts AM/PM	66 / 67	
Transit Boarding	12,549	

Performance Measure Points	
Travel Time	3
Safety	6
Volume	27
Transit Performance	2

WMPO CONGESTION MITIGATION TECHNIQUES

SHIFT MODE OF TRIP STRATEGIES:

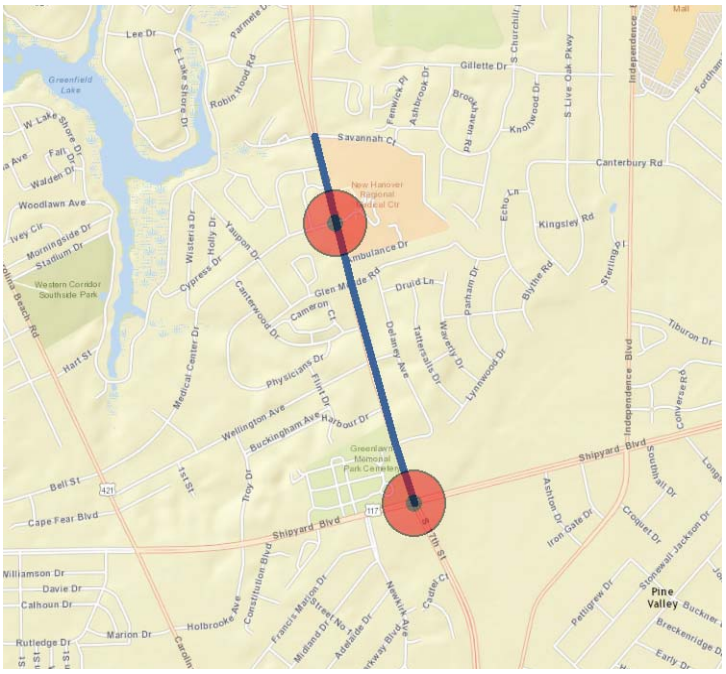
- Transit - Increase frequency: Increase existing public transit fixed routes
- Establish Park & Ride
- Expand pedestrian and bicycle network

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- Cape Fear Transportation 2040 - River Road Widening: Independence Blvd to Carolina Beach Rd

Segment 14 17th Street

Savannah Court to Shipyard Boulevard



CONGESTION RANK: 14 OF 29

CORRIDOR FUNCTIONAL TYPES:
Destination Corridor

MILEAGE ALONG CORRIDOR: 1.1 Miles

NUMBER OF HOTSPOTS: 2
1. Shipyard Boulevard
2. Medical Center Drive

PEAK HOURS: 7:00-9:00AM / 4:45-6:45PM

ALTERNATE ROUTE:
Independence Boulevard
Carolina Beach Road

SEGMENT OVERALL SCORE: 36

Data		
Average Travel Time AM/PM	3:19/3:51	
Average Delay AM/PM	1:34/2:05	
Rear End Collisions	37	
Bicycle Crashes	0	1
Pedestrian Crashes	1	
Average Vehicle Volume	28,982	
Truck Percentage	N/A	
Bicycle Counts AM/PM	5 / 3	
Pedestrian Counts AM/PM	29 / 36	
Transit Boarding	91,609	

Performance Measure Points	
Travel Time	7
Safety	3
Volume	16
Transit Performance	9

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:
- TDM - Encourage alternate work schedules
- TDM - Encourage carpools & vanpools
- TDM - Encourage employer shuttles: A shuttle to provide transportation connections for employees

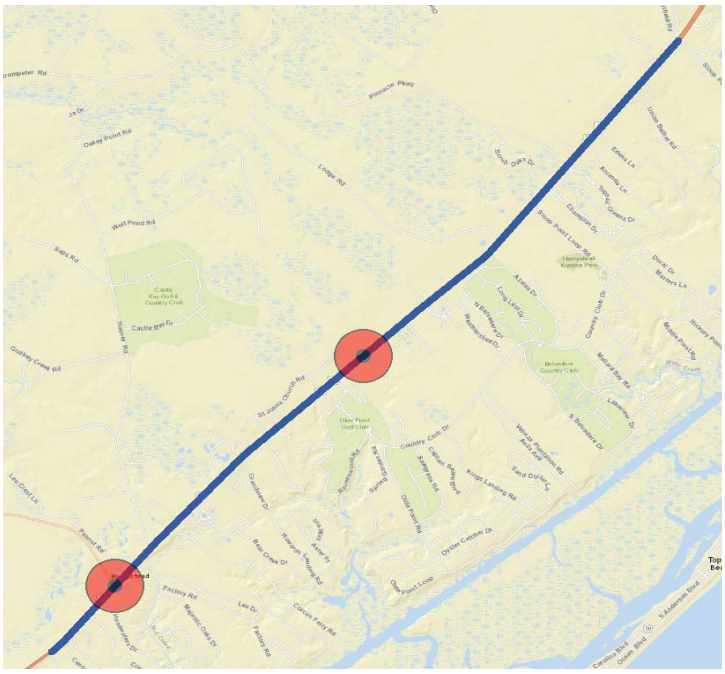
SHIFT MODE OF TRIP STRATEGIES:
- Transit - Increase frequency: Increase existing public transit fixed routes
- Expand pedestrian and bicycle network
- Improve multimodal access at intersections
- Improve bicycle storage

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- EB-5600 - South 17th Street Multi-use Path: Construct multi-use path

Segment 15 US 17

Washington Acres Road to Sloop Point Loop Road



CONGESTION RANK: 15 OF 29

CORRIDOR FUNCTIONAL TYPES:

Commercial Corridor — Commuting Corridor
Freight Corridor — Tourist Route

MILEAGE ALONG CORRIDOR: 7.4 Miles

NUMBER OF HOTSPOTS: 2

1. NC 210
2. Topsail High School Vicinity (AM)

PEAK HOURS: 7:00-9:00AM / 4:45-6:45PM

ALTERNATE ROUTE:
Hampstead Bypass (future)

SEGMENT OVERALL SCORE: 35

Data		
Average Travel Time AM/PM	13:00 / 10:35	
Average Delay AM/PM	4:30 / 1:49	
Rear End Collisions	149	
Bicycle Crashes	0	4
Pedestrian Crashes	4	
Average Vehicle Volume	35,896	
Truck Percentage	1.39%	
Bicycle Counts AM/PM	5 / 8	
Pedestrian Counts AM/PM	6 / 6	
Transit Boarding	N/A	

Performance Measure Points	
Travel Time	12
Safety	8
Volume	15
Transit Performance	N/A

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:

- Alternative Roadways: Improve usage of non-CMP roadways to remove demand on CMP network

SHIFT MODE OF TRIP STRATEGIES:

- Expand pedestrian and bicycle network
- Improve multimodal access at intersections

IMPROVE OPERATIONS STRATEGIES:

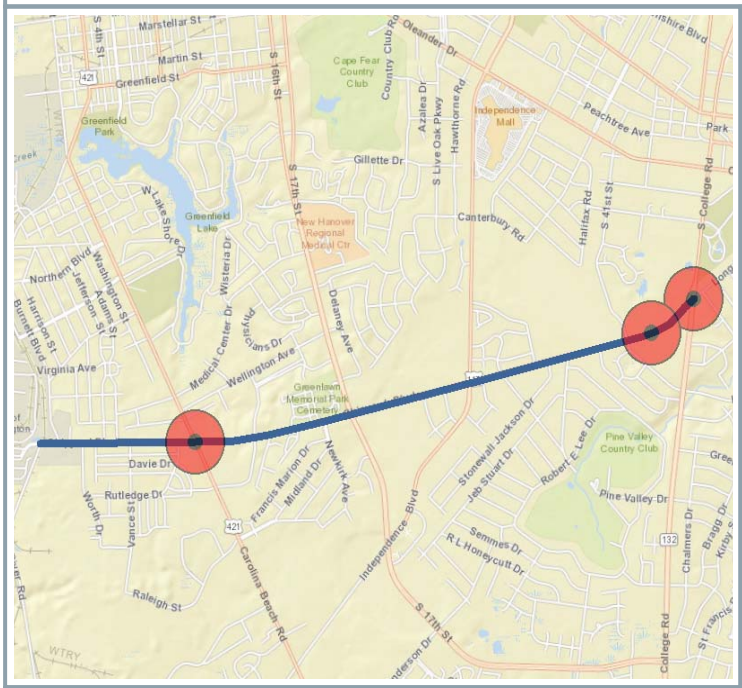
- Access Management: Limit access to land uses through limiting turning movements and conflict points

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- H090215 A/B - Hampstead Bypass: Anticipated in 2017 STIP
- U-5732 - US 17 Washington Acres Rd to Sloop Point Loop Rd: Convert to superstreet

Segment 16 Shipyard Boulevard

River Road to College Road



CONGESTION RANK: 16 OF 29

CORRIDOR FUNCTIONAL TYPES:
Commercial Corridor

MILEAGE ALONG CORRIDOR: 3.6 Miles

NUMBER OF HOTSPOTS: 3
1. Carolina Beach Road
2. College Road
3. Hoggard High School Vicinity (AM)

PEAK HOURS: 7:00-9:00AM / 4:30-6:30PM

ALTERNATE ROUTE: None

SEGMENT OVERALL SCORE: 33

Data		
Average Travel Time AM/PM	6:18 / 7:49	
Average Delay AM/PM	1:43 / 3:26	
Rear End Collisions	4	
Bicycle Crashes	2	4
Pedestrian Crashes	2	
Average Vehicle Volume	22,524	
Truck Percentage	11.72%	
Bicycle Counts AM/PM	N/A	
Pedestrian Counts AM/PM	N/A	
Transit Boarding	68,672	

Performance Measure Points	
Travel Time	10
Safety	3
Volume	14
Transit Performance	6

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:
- Land Use - Accommodate all modes in new development
- Land Use - Construct supportive collector street network with new development

SHIFT MODE OF TRIP STRATEGIES:
- Transit - Increase frequency: Increase existing public transit fixed routes
- Land Use - TOD: Utilize mixed-use areas designed to maximize access to public transit

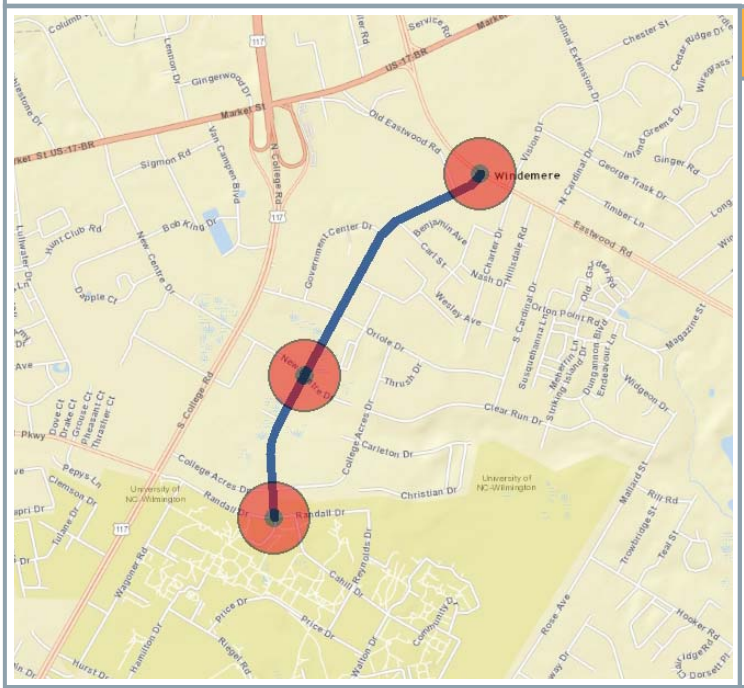
IMPROVE OPERATIONS STRATEGIES:
- Access Management: Limits access to land uses through limiting turning movements and conflict points

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- STP-DA - Shipyard Blvd Bus Pull-out and Sidewalks: Bus pull-out and loading area along Shipyard Blvd with sidewalk from Rutledge Dr to Vance St
- Carolina Beach Rd and Shipyard Blvd Improvements: Anticipated in 2017 STIP

Segment 17 Racine Drive

Randall Parkway to Eastwood Road



CONGESTION RANK: 17 OF 29

CORRIDOR FUNCTIONAL TYPES:
Commercial Corridor Commuting Corridor

MILEAGE ALONG CORRIDOR: 2.3 Miles

NUMBER OF HOTSPOTS: 3
1. Randall Drive
2. Eastwood Road
3. New Centre Drive

PEAK HOURS: 7:00-9:00AM / 4:45-6:45PM

ALTERNATE ROUTE:
College Road

SEGMENT OVERALL SCORE: 29

Data		
Average Travel Time AM/PM	3:43 / 4:20	
Average Delay AM/PM	1:32 / 2:09	
Rear End Collisions	1	
Bicycle Crashes	5	9
Pedestrian Crashes	4	
Average Vehicle Volume	15,087	
Truck Percentage	N/A	
Bicycle Counts AM/PM	N/A	
Pedestrian Counts AM/PM	N/A	
Transit Boarding	110,646	

Performance Measure Points	
Travel Time	7
Safety	6
Volume	6
Transit Performance	10

WMPO CONGESTION MITIGATION TECHNIQUES

SHIFT MODE OF TRIP STRATEGIES:
- Transit Express Routes
- Transit - Increase frequency: Increase existing public transit fixed routes
- Expand pedestrian and bicycle network
- Improve multimodal access at intersections
- Improve bicycle storage

Segment 18 US 117/College Road

Holly Shelter Road to Gordon Road

CONGESTION RANK: 18 OF 29

CORRIDOR FUNCTIONAL TYPES:
Community Corridor

MILEAGE ALONG CORRIDOR: 5.8 Miles

NUMBER OF HOTSPOTS: 4

1. E.A. Laney School Vicinity
2. Bavarian Lane/Murrayville Road
3. Castle Hayne Road
4. Blue Clay Road

PEAK HOURS: 7:00-9:00AM / 4:45-6:45PM

ALTERNATE ROUTE:
Castle Hayne Road and I-40

SEGMENT OVERALL SCORE: 28

Data		
Average Travel Time AM/PM	12:23/11:33	
Average Delay AM/PM	3:10/2:33	
Rear End Collisions	138	
Bicycle Crashes	0	2
Pedestrian Crashes	2	
Average Vehicle Volume	17,584	
Truck Percentage	N/A	
Bicycle Counts AM/PM	N/A	
Pedestrian Counts AM/PM	N/A	
Transit Boarding	44,064	

Performance Measure Points	
Travel Time	11
Safety	7
Volume	6
Transit Performance	4

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:
- Land Use - Accommodate all modes in new development

SHIFT MODE OF TRIP STRATEGIES:
- Transit - Increase frequency: Increase existing public transit fixed routes
- Expand pedestrian and bicycle network
- Improve multimodal access at intersections

IMPROVE OPERATIONS STRATEGIES:
- Access Management: Limit access to land uses through limiting turning movements and conflict points

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- Laney High School Multi-Use Trail: Coordination between developer, Laney High School and NCDOT

Segment 19 US 17/74/76

River Road to 5th Avenue

CONGESTION RANK: 19 OF 29

CORRIDOR FUNCTIONAL TYPE:
Commuting Corridor Freight Corridor
Tourist Route

MILEAGE ALONG CORRIDOR: 3.2 Miles

NUMBER OF HOTSPOTS: 4
1. Cape Fear Memorial Bridge
2. 3rd Street
3. US 421 Interchange
4. US 74/76 Causeway Widening Construction Zone

PEAK HOURS: 7:00-9:00AM / 4:45-6:45PM

ALTERNATE ROUTE: None

SEGMENT OVERALL SCORE: 28

Data		
Average Travel Time AM/PM	4:17 / 4:31	
Average Delay AM/PM	0:41 / 0:58	
Rear End Collisions	60	
Bicycle Crashes	0	1
Pedestrian Crashes	1	
Average Vehicle Volume	56,367	
Truck Percentage	9.70%	
Bicycle Counts AM/PM	N/A	
Pedestrian Counts AM/PM	N/A	
Transit Boarding	14,359	

Performance Measure Points	
Travel Time	3
Safety	4
Volume	19
Transit Performance	2

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:
- Alternative Roadways: Improve usage of non-CMP roadways to remove demand on CMP network
- TDM - Encourage alternate work schedules
- TDM - Encourage carpools & vanpools
- TDM - Encourage employer shuttles: A shuttle to provide transportation connections for employees

SHIFT MODE OF TRIP STRATEGIES:
- Transit - Increase frequency: Increase existing public transit fixed routes
- Establish Park and Ride lots

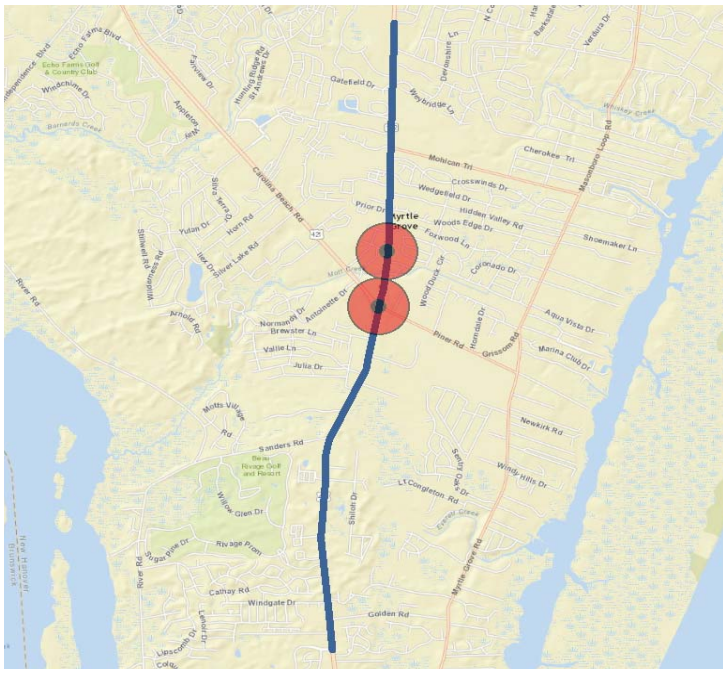
INCREASE CAPACITY STRATEGIES:
- Add general purpose lane

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-4738 - Cape Fear Crossing: Construct new facility with structure over Cape Fear River
- R-3601 - US 17/US 74/US 76: Add additional lanes on north and southbound lanes and widen bridges

Segment 20 College Rd/Carolina Beach Rd

Pinecliff Drive to Halyburton Parkway



CONGESTION RANK: 20 OF 29

CORRIDOR FUNCTIONAL TYPES:
- Commercial Corridor
- Tourist Route
- Commuting Corridor

MILEAGE ALONG CORRIDOR: 4.7 Miles

NUMBER OF HOTSPOTS: 2
1. Carolina Beach Road/Piner Road
2. Lowes/Myrtle Grove Library

PEAK HOURS: 7:00-9:00AM / 4:45-6:45PM

ALTERNATE ROUTE:
- River Road

SEGMENT OVERALL SCORE: 27

Data		
Average Travel Time AM/PM	7:33 / 7:05	
Average Delay AM/PM	1:45 / 1:20	
Rear End Collisions	268	
Bicycle Crashes	1	3
Pedestrian Crashes	2	
Average Vehicle Volume	36,959	
Truck Percentage	N/A	
Bicycle Counts AM/PM	N/A	
Pedestrian Counts AM/PM	N/A	
Transit Boarding	29,247	

Performance Measure Points	
Travel Time	6
Safety	9
Volume	10
Transit Performance	2

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:
- Land Use - Manage Growth: Encourage growth in appropriate areas
- TDM - Encourage Carpools & Vanpools
- Land Use - Construct supportive collector street network with new development

SHIFT MODE OF TRIP STRATEGIES:
- Transit - Increase frequency
- Land Use - TOD: Utilize mixed-use areas designed to maximize access to public transit
- Improve multimodal access at intersections
- Establish Park & Ride lots

IMPROVE OPERATIONS STRATEGIES:
- Access Management: Limit access to land uses through limiting turning movements and conflict points
- Improve Signage: Better inform traffic of route options and better channelize traffic to improve patterns

INCREASE CAPACITY STRATEGIES:
- Add general purpose lanes
- Convert intersection to interchange

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-5790 - Carolina Beach Rd: Widen existing roadway and construct flyover at College Rd

Segment 21 US 17/US 421/NC 133

USS North Carolina Road to 3rd Street

CONGESTION RANK: 21 OF 29

CORRIDOR FUNCTIONAL TYPES:
Commuting Corridor Freight Corridor
Tourist Route

MILEAGE ALONG CORRIDOR: 1.6 Miles

NUMBER OF HOTSPOTS: 2
1. Thomas Rhodes Bridge
2. Isabel Holmes Bridge

PEAK HOURS: 7:00-9:00AM / 4:45-6:45PM

ALTERNATE ROUTE:
I-140 Wilmington Bypass (Future)

SEGMENT OVERALL SCORE: 26

Data		
Average Travel Time AM/PM	3:01/2:41	
Average Delay AM/PM	1:08/0:48	
Rear End Collisions	22	
Bicycle Crashes	0	2
Pedestrian Crashes	2	
Average Vehicle Volume	55,044	
Truck Percentage	8.86%	
Bicycle Counts AM/PM	N/A	
Pedestrian Counts AM/PM	N/A	
Transit Boarding	N/A	

Performance Measure Points	
Travel Time	4
Safety	3
Volume	19
Transit Performance	N/A

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:
- Alternative Roadways: Improve usage of non-CMP roadways to remove demand on CMP network
- TDM - Encourage alternate work schedules
- TDM - Encourage carpools & vanpools
- TDM - Encourage employer shuttles: A shuttle to provide transportation connections for employees

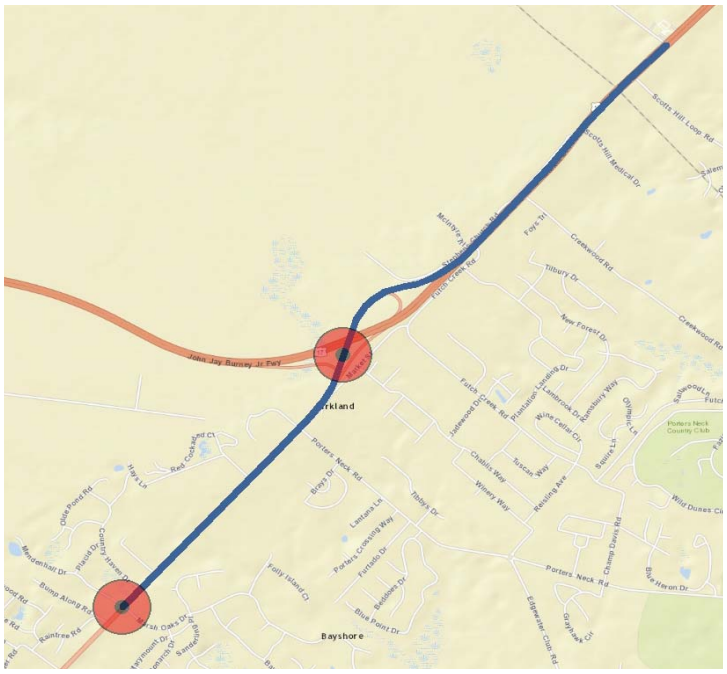
INCREASE CAPACITY STRATEGIES:
- Convert intersection to interchange: Improves capacity with at-grade or grade separated alternative

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- R-2633 - I-140: Four lane divided freeway on new location
- U-5731 - US 17/US 421: A fly-over and free flow ramp at interchange

Segment 22 US 17/Market Street

Marsh Oaks Drive/Mendenhall Drive to Sidbury Road



CONGESTION RANK: 22 OF 29

CORRIDOR FUNCTIONAL TYPES:
Commercial Corridor Commuting Corridor

MILEAGE ALONG CORRIDOR: 3.0 Miles

NUMBER OF HOTSPOTS: 2
1. US 17 Interchange
2. Porters Neck Road

PEAK HOURS: 7:00-9:00AM / 4:45-6:45PM

ALTERNATE ROUTE:
Military Cutoff Road Extension (future)

SEGMENT OVERALL SCORE: 24

Data		
Average Travel Time AM/PM	8:23 / 10:35	
Average Delay AM/PM	3:28 / 5:46	
Rear End Collisions	17	
Bicycle Crashes	0	0
Pedestrian Crashes	0	
Average Vehicle Volume	37,094	
Truck Percentage	N/A	
Bicycle Counts AM/PM	0 / 2	
Pedestrian Counts AM/PM	6 / 2	
Transit Boarding	N/A	

Performance Measure Points	
Travel Time	10
Safety	1
Volume	13
Transit Performance	N/A

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:
- Alternative Roadways: Improve usage of non-CMP roadways to remove demand on CMP network

SHIFT MODE OF TRIP STRATEGIES:
- Transit - Increase frequency: Increase existing public transit fixed routes
- Expand pedestrian and bicycle network
- Improve multimodal access at intersections

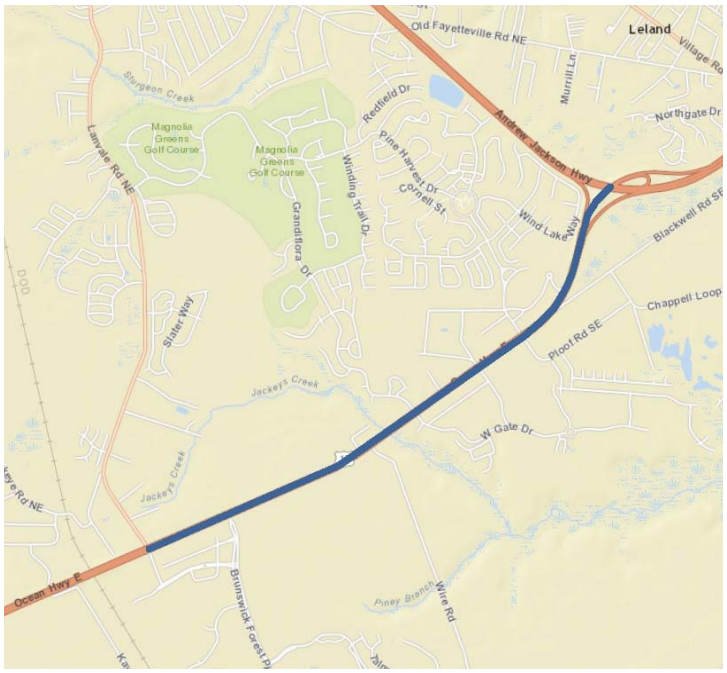
IMPROVE OPERATIONS STRATEGIES:
- Geometric Intersection Improvements: Change intersection use by changing the physical layout

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-4751 - Military Cutoff Rd Ext: Multi-lanes on new location
- U-4902 - US 17 Business: Access management improvements
- H092015-A/B - US 17 Hampstead Bypass: Construct freeway on new location

Segment 23 Ocean Highway

Lanvalle Road to US 74/76 Andrew Jackson Highway



CONGESTION RANK: 23 OF 29

CORRIDOR FUNCTIONAL TYPES:
Commercial Corridor Commuting Corridor
Tourist Route

MILEAGE ALONG CORRIDOR: 3.0 Miles

NUMBER OF HOTSPOTS: N/A

PEAK HOURS: 6:30-8:30AM / 5:00-7:00PM

ALTERNATE ROUTE:
I-140 Wilmington Bypass (Future)

SEGMENT OVERALL SCORE: 24

Data		
Average Travel Time AM/PM	4:26/4:45	
Average Delay AM/PM	0:21/0:37	
Rear End Collisions	87	
Bicycle Crashes	0	0
Pedestrian Crashes	0	
Average Vehicle Volume	41,034	
Truck Percentage	N/A	
Bicycle Counts AM/PM	0 / 1	
Pedestrian Counts AM/PM	3 / 3	
Transit Boarding	28,718	

Performance Measure Points	
Travel Time	2
Safety	5
Volume	15
Transit Performance	2

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:
- Alternative Roadways: Improve usage of non-CMP roadways to remove demand on CMP network

REDUCE DEMAND STRATEGIES:
- Land Use - Construct supportive collector street network with new development

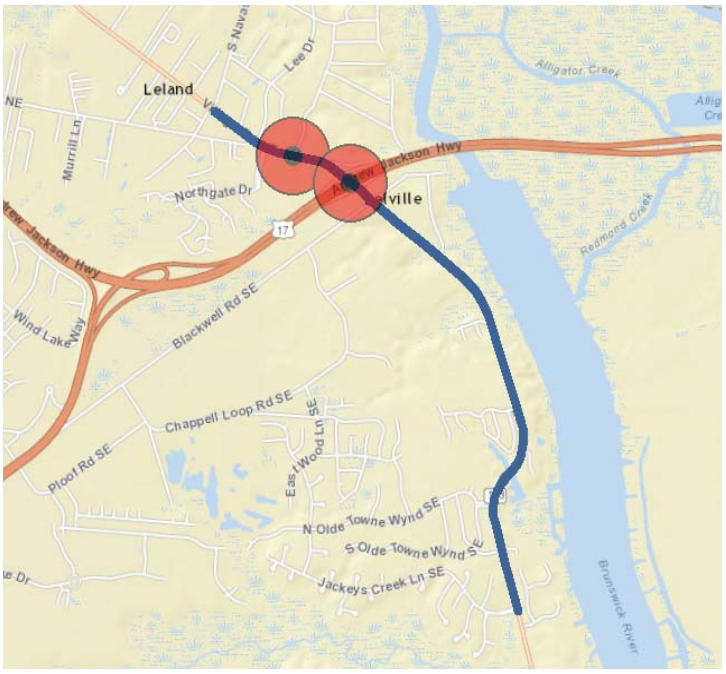
SHIFT MODE OF TRIP STRATEGIES:
- Transit - Increase frequency: Increase existing public transit fixed routes
- Improve multimodal access at intersections
- Establish park and ride

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- R-2633 - I-140 Wilmington Bypass: Four way divided freeway on new location
- Connecting Northern Brunswick County Collector Street Plan: Determines collector street spacing based on anticipated land uses and the environmental constraints inherent to the region

Segment 24 Village Road/NC 133

Navassa Road to Jackey's Creek Lane



CONGESTION RANK: 24 OF 29

CORRIDOR FUNCTIONAL TYPES:

Commercial Corridor — Commuting Corridor
Freight Corridor — Tourist Route

MILEAGE ALONG CORRIDOR: 2.7 Miles

NUMBER OF HOTSPOTS: 2

1. Andrew Jackson Highway
2. Fairview Road

PEAK HOURS: 7:00-9:00AM / 4:45-6:45PM

ALTERNATE ROUTE:
Ocean Highway

SEGMENT OVERALL SCORE: 23

Data		
Average Travel Time AM/PM	5:07 / 4:43	
Average Delay AM/PM	1:00 / 0:36	
Rear End Collisions	40	
Bicycle Crashes	0	0
Pedestrian Crashes	0	
Average Vehicle Volume	22,353	
Truck Percentage	4.16%	
Bicycle Counts AM/PM	15 / 20	
Pedestrian Counts AM/PM	29 / 27	
Transit Boarding	N/A	

Performance Measure Points	
Travel Time	3
Safety	2
Volume	18
Transit Performance	N/A

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:

- Alternative Roadways: Improve usage of non-CMP roadways to remove demand on CMP network

SHIFT MODE OF TRIP STRATEGIES:

- Expand pedestrian and bicycle network

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- H090713 - NC 133 Widening: Add additional lanes from south of Rabon Way to the interhchange at US 17/74/76
- STP-DA - Westgate Drive Multi-use Path: Construction of a multi-use path along West Gate Dr that runs south and ties into Ricegate Way

Segment 25 US 74/76

Maco Road to NC 133

CONGESTION RANK: 25 OF 29

CORRIDOR FUNCTIONAL TYPES:
Freight Corridor Tourist Route

MILEAGE ALONG CORRIDOR: 9.7 Miles

NUMBER OF HOTSPOTS: 2
1. Maco Road
2. US 17 Junction

PEAK HOURS: 6:30-8:30AM / 5:00-7:00PM

ALTERNATE ROUTE:
I-140 Wilmington Bypass (Future)

SEGMENT OVERALL SCORE: 23

Data		
Average Travel Time AM/PM	10:08/9:35	
Average Delay AM/PM	0:09/0:25	
Rear End Collisions	71	
Bicycle Crashes	0	0
Pedestrian Crashes	0	
Average Vehicle Volume	46,636	
Truck Percentage	9.73%	
Bicycle Counts AM/PM	N/A	
Pedestrian Counts AM/PM	N/A	
Transit Boarding	N/A	

Performance Measure Points	
Travel Time	1
Safety	4
Volume	18
Transit Performance	N/A

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:
- Alternative Roadways: Improve usage of non-CMP roadways to remove demand on CMP network

IMPROVE OPERATIONS STRATEGIES:
- Access Management: Limit access to land uses through limiting turning movements and conflict points

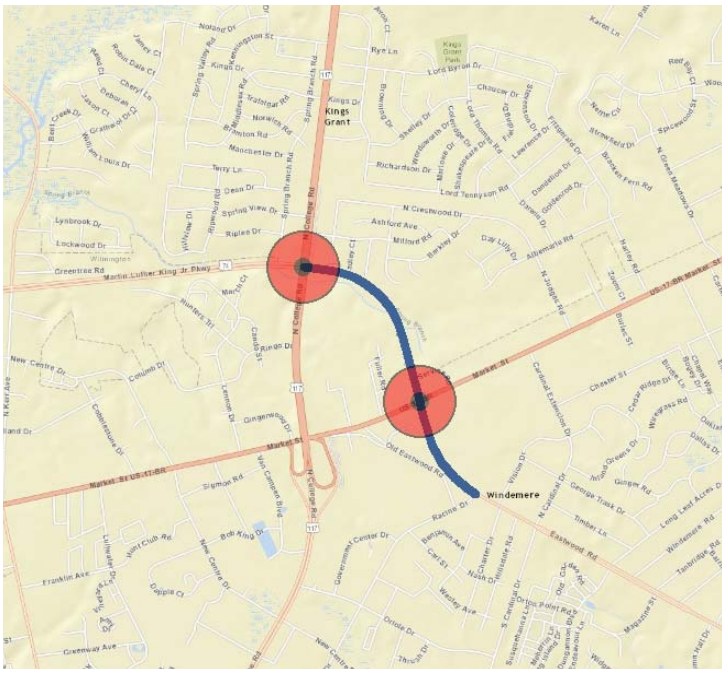
INCREASE CAPACITY STRATEGIES:
- Convert intersection to interchange: Improves capacity with at-grade or grade separated alternative

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- R-2633 - I-140 Wilmington Bypass: Four way divided freeway on new location
- CTP Projects - R-64 Village Rd Widening: Old Fayetteville Rd and Lanvale Rd Interchange

Segment 26 MLK Jr. Parkway/Eastwood Road

College Road to Racine Drive



CONGESTION RANK: 26 OF 29

CORRIDOR FUNCTIONAL TYPES:
Commuting Corridor Tourist Routes

MILEAGE ALONG CORRIDOR: 1.1 Miles

NUMBER OF HOTSPOTS: 2
1. College Road
2. Market Street

PEAK HOURS: 7:00-9:00AM / 4:45-6:45PM

ALTERNATE ROUTE:
Market Street

SEGMENT OVERALL SCORE: 22

Data		
Average Travel Time AM/PM	4:08 / 4:35	
Average Delay AM/PM	2:33 / 3:00	
Rear End Collisions	39	
Bicycle Crashes	0	1
Pedestrian Crashes	1	
Average Vehicle Volume	25,021	
Truck Percentage	N/A	
Bicycle Counts AM/PM	N/A	
Pedestrian Counts AM/PM	N/A	
Transit Boarding	N/A	

Performance Measure Points	
Travel Time	11
Safety	3
Volume	8
Transit Performance	N/A

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:
- Alternative Roadways: Improve usage of non-CMP roadways to remove demand on CMP network

SHIFT MODE OF TRIP STRATEGIES:
- Transit - Express Routes: Encourage new transit express routes along corridor
- Transit - Increase frequency: Increase existing public transit fixed routes
- Improve multimodal access at intersections

IMPROVE OPERATIONS STRATEGIES:
- Geometric Intersection Improvements: Change intersection use by changing the physical layout

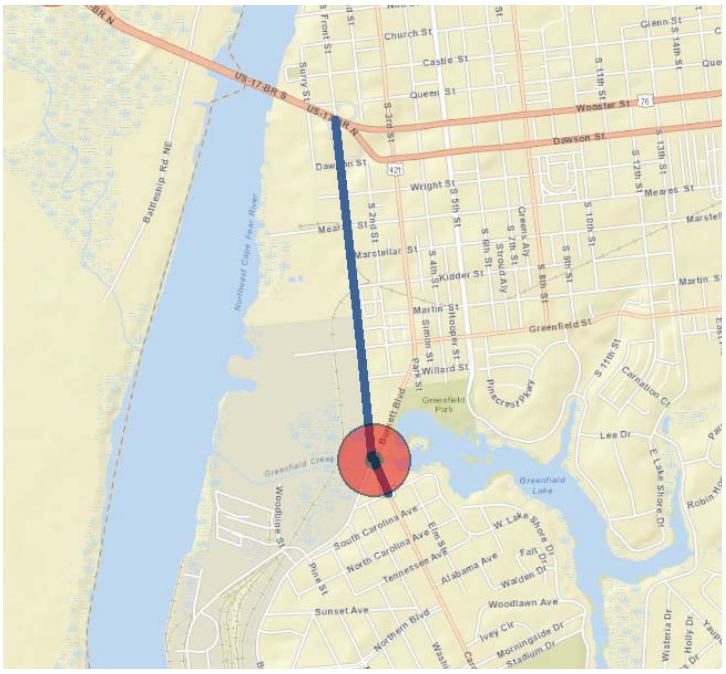
INCREASE CAPACITY STRATEGIES:
- Convert intersection to interchange: Improves capacity with at-grade or grade separated alternative

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-4902C - MLK Jr. Pkwy to Station Rd: Improve access management
- U-5792 - MLK Jr. Pkwy and College Rd: Convert at-grade intersection to interchange
- U-5880 - MLK Jr. Pkwy: Upgrade interchange

Segment 27 Front Street

Lake Shore Drive to Cape Fear Memorial Bridge



CONGESTION RANK: 27 OF 29

CORRIDOR FUNCTIONAL TYPE:
Freight Corridor

MILEAGE ALONG CORRIDOR: 1.1 Miles

NUMBER OF HOTSPOTS: 1
1. 3rd Street/Burnett Boulevard

PEAK HOURS: 7:00-9:00AM / 4:30-6:30PM

ALTERNATE ROUTE:
3rd Street

SEGMENT OVERALL SCORE: 21

Data		
Average Travel Time AM/PM	2:22 / 2:48	
Average Delay AM/PM	0:26 / 0:51	
Rear End Collisions	15	
Bicycle Crashes	1	1
Pedestrian Crashes	0	
Average Vehicle Volume	26,048	
Truck Percentage	6.35%	
Bicycle Counts AM/PM	N/A	
Pedestrian Counts AM/PM	N/A	
Transit Boarding	51,514	

Performance Measure Points	
Travel Time	2
Safety	2
Volume	12
Transit Performance	5

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES::
- Alternative Roadways: Improve usage of non-CMP roadways to remove demand on CMP network

IMPROVE OPERATIONS STRATEGIES:
- Improve signage: Better inform traffic of route options and better channelize traffic to improve patterns

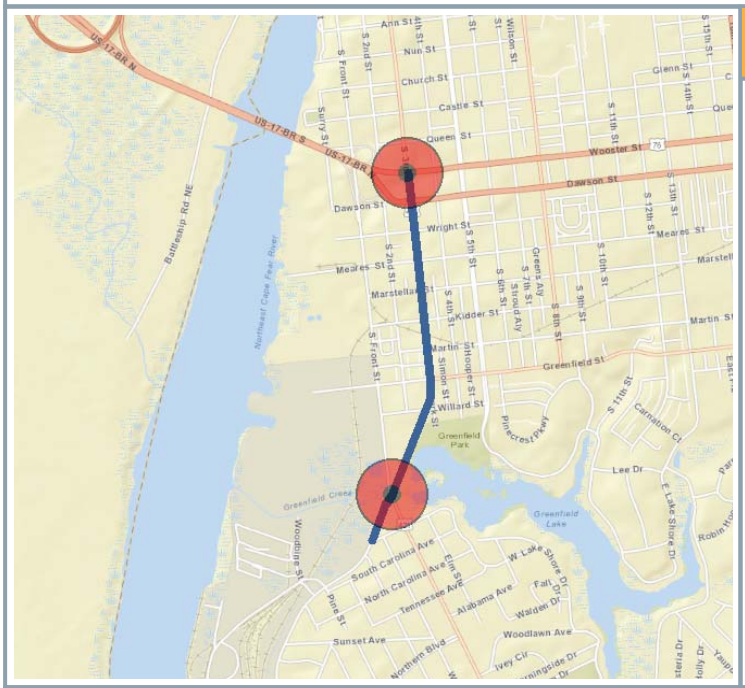
INCREASE CAPACITY STRATEGIES:
- Add general purpose lanes

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-5734 - Front St - Cape Fear Memorial Bridge to Burnett Blvd: Widen to multi-lanes

Segment 28 3rd Street

Kentucky Avenue to Wooster Street



CONGESTION RANK: 28 OF 29

CORRIDOR FUNCTIONAL TYPES:
Tourist Route

MILEAGE ALONG CORRIDOR: 1.1 Miles

NUMBER OF HOTSPOTS: 2
1. Dawson St./Wooster St.
2. Front St./Carolina Beach Rd.

PEAK HOURS: 7:00-9:00AM / 4:45-6:45PM

ALTERNATE ROUTE:
Front Street

SEGMENT OVERALL SCORE: 13

Data		
Average Travel Time AM/PM	3:32 / 3:34	
Average Delay AM/PM	1:32 / 1:34	
Rear End Collisions	33	
Bicycle Crashes	0	1
Pedestrian Crashes	1	
Average Vehicle Volume	12,869	
Truck Percentage	N/A	
Bicycle Counts AM/PM	N/A	
Pedestrian Counts AM/PM	N/A	
Transit Boarding	N/A	

Performance Measure Points	
Travel Time	6
Safety	3
Volume	4
Transit Performance	N/A

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:
- Alternative Roadways: Improve usage of non-CMP roadways to remove demand on CMP network

SHIFT MODE OF TRIP STRATEGIES:
- Transit - Increase frequency: Increase existing public transit fixed routes

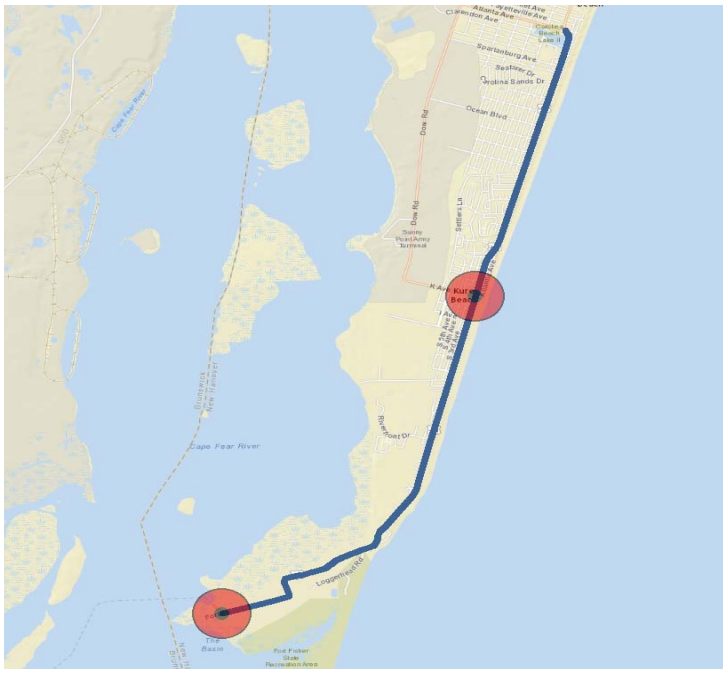
IMPROVE OPERATIONS STRATEGIES:
- Improve signage: Better inform traffic of route options and better channelize traffic to improve patterns

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-5734 - Front St - Cape Fear Memorial Bridge to Burnett Blvd: Widen to multi-lanes

Segment 29 US 421 / Lake Park Blvd

Atlanta Avenue to Buzzards Bay



CONGESTION RANK: 29 OF 29

CORRIDOR FUNCTIONAL TYPES:
Tourist Route

MILEAGE ALONG CORRIDOR: 5.9 Miles

NUMBER OF HOTSPOTS: 2
1. K Ave (Kure Pier)
2. Fort Fisher Boulevard

PEAK HOURS: 6:30-8:30AM / 5:00-7:00PM

ALTERNATE ROUTE: None

SEGMENT OVERALL SCORE: 11

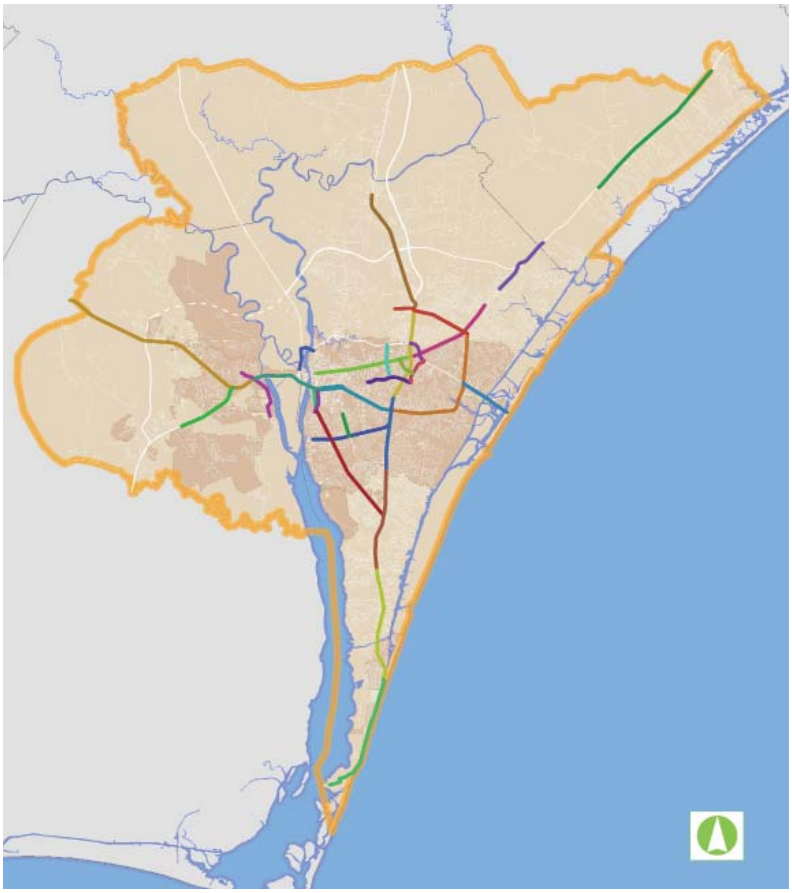
Data		
Average Travel Time AM/PM	11:21 / 12:03	
Average Delay AM/PM	1:04 / 1:46	
Rear End Collisions	8	
Bicycle Crashes	2	2
Pedestrian Crashes	0	
Average Vehicle Volume	8,867	
Truck Percentage	N/A	
Bicycle Counts AM/PM	N/A	
Pedestrian Counts AM/PM	N/A	
Transit Boarding	N/A	

Performance Measure Points	
Travel Time	5
Safety	2
Volume	4
Transit Performance	N/A

WMPO CONGESTION MITIGATION TECHNIQUES

SHIFT MODE OF TRIP STRATEGIES:
- Transit - Increase frequency: Increase existing public transit fixed routes
- Establish Park & Ride
- Improve multimodal access at intersection

System Monitoring



In addition to analyzing specific segments of the CMP system, this report also evaluates how our region is performing as a whole. The system monitoring performance measures are set in place to identify, assess, and quickly communicate information about the overall network.

The preliminary system-wide performance measures are the following:

- Safe
- Efficient
- Appropriate
- Responsible
- Integrated
- Multi-Modal

Following the criteria listed in the CMP, the data below represents the existing conditions of our current system as a whole. Over the next two years these performance measures will again be collected to compare how the system has improved after the strategies have been identified in the segment snapshots.

PERFORMANCE MEASURE ANALYSIS

Safe

Number of bicycle and pedestrian crashes in the WMPO area within 2-year timeframe	329
Number of rear-end collisions in the WMPO area within a 2-year timeframe	3,845

Efficient

Bicycle and pedestrian corridor counts per capita in the WMPO area	2,648
Number of CMP corridor intersection legs with pedestrian indication at intersections	93
Average travel time of the WMPO CMP network	7:05
Average duration of delay at intersections within the WMPO CMP network	2:06
Number of participants in the WMPO's TDM program	402

Appropriate

Percentage of CMP corridor facility improvements that have low difficulty	40%
Percentage of CMP corridor facility improvements that have medium difficulty	12%
Percentage of CMP corridor facility improvements that have high difficulty	48%
Percentage of miles of CMP improvements that incorporated consideration of 2040 projected volumes	59%

Responsible

Percentage of miles of CMP routes that have parallel facilities that alleviate congestion on CMP routes	43%

Integrated

Percentage of WMPO adopted plans is the CMP referenced in over a two year period	50%
Percentage of the WMPO 13 member jurisdictions land use plans referencing the CMP	0%

Multi-Modal

Bicycle and pedestrian CMP corridor counts per capita	2,648

NEXT STEPS

One of the critical parts of the Congestion Management Process Biennial Report is determining which strategies can be used to improve congestion experienced along the identified roadway segments. The segment snapshots have identified which corridors are in the most need of attention. It is up to the WMPO staff and partnering agencies to facilitate the implementation of strategies to improve the CMP network.

This report will also be an essential tool when selecting projects for the WMPO's Metropolitan Transportation Plan (MTP). Congestion is one of an array of factors considered when selecting projects for the WMPO's MTP and subsequently programing projects in the Metropolitan/State Transportation Improvement Program (MTIP/STIP). The biennial report's congestion scores will be a critical tool when identifying and prioritizing projects for the future MTP. The ranking process in this report quantifies a congestion value associated with each CMP corridor. This will allow any project identified in the WMPO's MTP to easily incorporate a CMP score as one of the evaluating components in the MTP's final project score.

Since the CMP is an ongoing data collection and analysis process, following the biennial report there will be a review for the CMP's effectiveness. WMPO staff will assess whether there is a need for the CMP Steering Committee to reconvene to evaluate the existing performance measures and mitigation techniques. We will also evaluate the existing criteria used to score and rank congestion within the region. If an improved process has potential to be more effective than the existing process this will be taken into account for the next biennial report which will be completed in 2018.