

2018

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, established performance measures for evaluating and monitoring system performance using data collected from the WMPO and partner agencies.

The WMPO publishes the Biennial Data Report on a two-year basis to demonstrate how the WMPO's regional network is performing according to the performance measures established in the CMP. Each report provides snapshots for each of the roadway segments within the system and analyzes the datasets and congestion mitigation techniques. The analysis demonstrates the effectiveness of the current strategies in place and where there are opportunities for improvement in the future. By comparing the system monitoring results of the 2018 Biennial Report to the results of the 2016 Biennial Report, trends and successes of previously proposed and implemented mitigation techniques can begin to be determined. The comparison also allows for the reassessment of the current Congestion Management Process and may present opportunities for process amendment.

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 2016 and 2018 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. This data was incorporated by the NCDOT Traffic Safety Unit into a GIS shape file, and an analysis was performed to isolate the number of bicycle crashes per CMP corridor. 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 2014 and 2015.

- **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. This data was incorporated by the NCDOT Traffic Safety Unit into a GIS shape file, and an analysis was performed to isolate the number of pedestrian crashes per CMP corridor. 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 2014 and 2015.

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.
- **Pedestrian Counts AM/PM:** This data was collected along CMP commercial and destination corridors by the WMPO through manual counts.

4.) Transit Performance Measure

- **Transit Boarding:** Cape Fear Public Transportation Authority provided fixed route passenger totals for FY 2017. 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:

Segment Ranking		
Segment Rank	Segment	Segment Score
1	Segment 1 Market St: 3rd St - College Rd	73
2	Segment 9 College Rd: Gordon Rd - Wilshire Blvd	68
3	Segment 8 Carolina Beach Rd: Alabama Ave - College Rd	64
4	Segment 10 College Rd: Wilshire Blvd - Pinecliff Dr	63
5	Segment 3 Oleander Dr: 5th Ave - Treadwell St	61
6	Segment 4 Oleander Dr/Military Cutoff Rd: Treadwell St - Gordon Rd	57
7	Segment 5 Shipyard Blvd: River Rd - College Rd	50
8	Segment 15 Randall Pkwy: Covil Ave/Independence Blvd - Racine Dr	49
9	Segment 2 Market St: College Rd - Torchwood Dr/Bayshore Dr	49
10	Segment 24 Gordon Rd: Kerr Ave - Military Cutoff Rd	44
11	Segment 27 Eastwood Rd/US 76/Causeway Dr: Military Cutoff Rd - Lumina Ave	44
12	Segment 12 17th St: Savannah Ct - Shipyard Blvd	43
13	Segment 17 New Center Dr: Market St - Racine Dr	41
14	Segment 13 Kerr Ave: MLK Pkwy - Randall Pkwy	41
15	Segment 28 US 421/Carolina Beach Rd: Halyburton Pkwy - Atlanta Ave	40
16	Segment 21 US 17/74/76: NC 133 Split - 5th Ave	33
17	Segment 11 College Rd/Carolina Beach Rd: Rinecliff Dr - Halyburton Pkwy	33
18	Segment 26 US 17/NC 210: Washington Acres Rd - Sloop Point Rd	30
19	Segment 23 US117/College Rd: Holly Shelter Rd - Gordon Rd	29
20	Segment 19 US 17: Lanvalle Rd - US 74/76	28
21	Segment 16 Racine Dr: Randall Pkwy - Eastwood Rd	26
22	Segment 6 Front St: Lake Shore Dr - Cape Fear Memorial Bridge	26
23	Segment 20 Village Rd/NC 133: Navassa Rd - Jackey's Creek Ln	25
24	Segment 25 US 17/Market St: Marsh Oaks Dr/Mendenhall Dr - Sidbury Rd	24
25	Segment 14 MLK Pkwy/Eastwood Rd: College Rd - Racine Dr	23
26	Segment 30 Pine Grove Dr: College Rd - Masonboro Sound Rd	23
27	Segment 22 US 17/US 421/NC 133: US 17 N/S Split - 3rd St	22
28	Segment 18 US 74/76: Maco Rd - NC 133	22
29	Segment 29 US421/Lake Park Blvd: Atlanta Ave - Buzzards Bay	13
30	Segment 7 3rd St.: Kentucky Ave - Cape Fear Memorial Bridge	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.

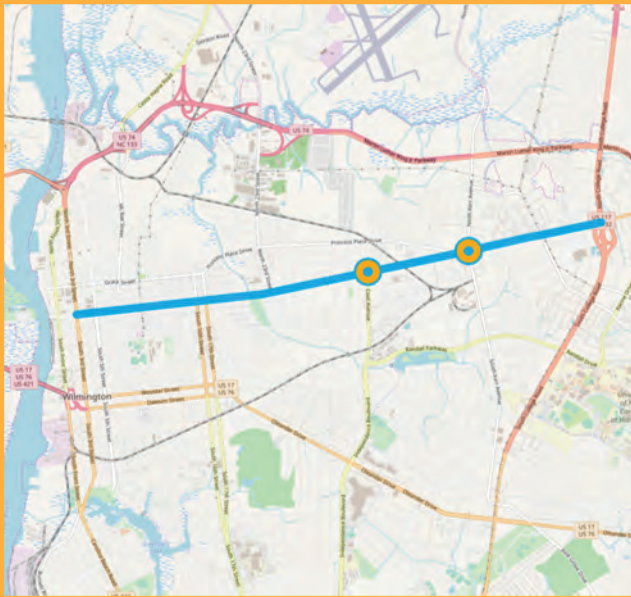
The top of the snapshots include the name of the segment analyzed and identify the intersecting road that begins and ends the segment. The section that follows includes the segment's rank and additional information about the segment including; its functional type, the mileage along the corridor, the hotspot intersections, the peak hours of the segment, and alternate routes that could potentially relieve demand and congestion along that corridor. Also included to the left side of the section is a map which shows the entire length of the segment and identified hotspots.

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 middle section includes collected data about the segment such as average travel times and delay, crash data, bicycle and pedestrian usage, a transit boarding. The performance measure points, determined based off of the collected data are listed in a table with the overall segment score presented.

The final section includes the WMPO Congestion Mitigation Techniques which 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 MARKET STREET

3rd Street to College Road



CONGESTION RANK: 1 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Destination Corridor

MILEAGE ALONG CORRIDOR: 4.4 Miles

NUMBER OF HOTSPOTS: 2

1. Kerr Avenue (PM)
2. Covil Ave (PM Eastbound)

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

ALTERNATE ROUTE: Martin Luther King Jr. Parkway

DATA

Average Travel Time AM/PM	8:30 / 10:27	
Average Delay AM/PM	1:34 / 3:31	
Rear End Collisions	341	
Bicycle Crashes	13	28
Pedestrian Crashes	15	
Average Vehicle Volume	39,995	
Truck Percentage	N/A	
Bicycle Counts AM/PM	127 / 93	
Pedestrian Counts AM/PM	140 / 166	
Transit Boarding	72,797	

PERFORMANCE MEASURE POINTS

Travel Time	10
Safety	23
Volume	33
Transit Performance	7

SEGMENT OVERALL SCORE:

73

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
- Transit – Increase frequency: increase existing public transit fixed routes

SHIFT MODE OF TRIP STRATEGIES:

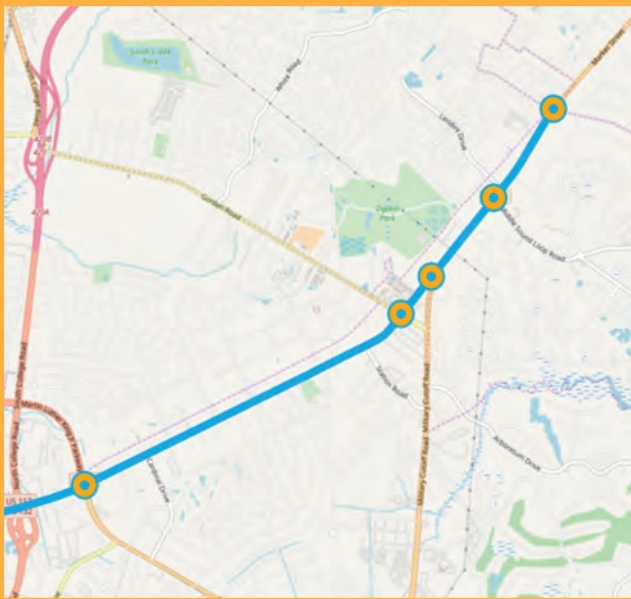
- Access Management - Limits access to land uses through limiting turning movements and conflict Points
- Geometric Intersection Improvements: Change intersection use by changing the physical layout

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-4434 Independence Blvd Extension (New road on new location)
- U-4902B Market Street Access Management Improvements: Colonial Dr – MLK Jr Pkwy
- U-5792 MLK Jr Pkwy and College Rd: Convert at grade intersection to interchange
- U-3338B Kerr Avenue Widening: Widen to multi-lanes from Randall Pkwy to MLK Jr Pkwy
- U-3338C Kerr Ave at MLK Jr Pkwy: Convert at grade intersection to interchange
- TD-5298 Route 101 Amenities

SEGMENT 2 MARKET STREET

College Rd – Torchwood Dr/Bayshore Dr



CONGESTION RANK: 9 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Commercial Corridor

MILEAGE ALONG CORRIDOR: 5.7 Miles

NUMBER OF HOTSPOTS: 5

1. Eastwood Rd (AM Westbound, PM)
2. Gordon Rd (PM Northbound)
3. Military Cutoff Rd (PM Northbound)
4. Middlesound Loop Rd (AM, PM Northbound)
5. Bayshore Dr/Torchwood Blvd (AM)

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

ALTERNATE ROUTE: Military Cutoff Road Extension (Future)

DATA

Average Travel Time AM/PM	8:51 / 11:17	
Average Delay AM/PM	2:51 / 5:18	
Rear End Collisions	105	
Bicycle Crashes	3	8
Pedestrian Crashes	5	
Average Vehicle Volume	48,242	
Truck Percentage	N/A	
Bicycle Counts AM/PM	14 / 15	
Pedestrian Counts AM/PM	18 / 10	
Transit Boarding	N/A	

PERFORMANCE MEASURE POINTS

Travel Time	16
Safety	11
Volume	22
Transit Performance	N/A

SEGMENT OVERALL SCORE:

49

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:

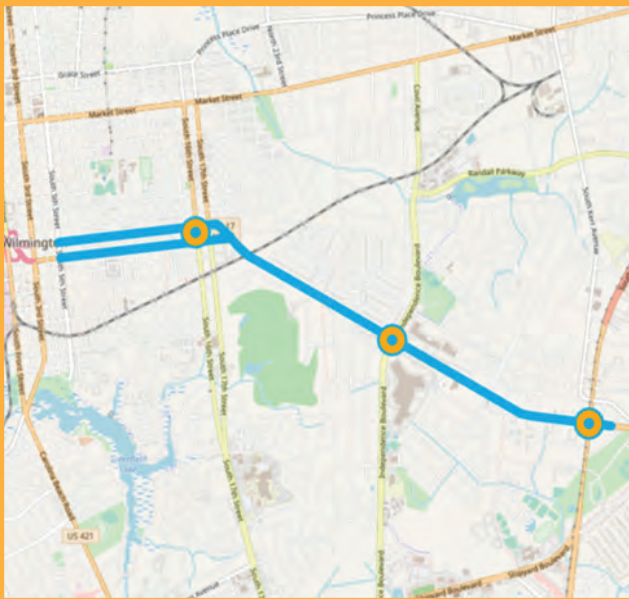
- Access Management - Limits access to land uses through limiting turning movements and conflict points
- Geometric Intersection Improvements - Change intersection use by changing the physical layout

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-4902C, U-4902D Market Street Access Management Improvements: MLK Jr Pkwy – Marsh Oaks Dr, convert at grade intersection to interchange (Market & US 74)
- U-4751 Military Cutoff Extension; Multi-lanes on new location

SEGMENT 3 OLEANDER DRIVE

5th Ave – Treadwell Street



CONGESTION RANK: 5 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Commercial Corridor

MILEAGE ALONG CORRIDOR: 4.7 Miles

NUMBER OF HOTSPOTS: 3

1. 16th Street (AM Eastbound)
2. Independence Blvd (PM)
3. College Rd

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

ALTERNATE ROUTE: Wrightsville Avenue

DATA

Average Travel Time AM/PM	8:00 / 9:25	
Average Delay AM/PM	2:20 / 3:45	
Rear End Collisions	245	
Bicycle Crashes	8	20
Pedestrian Crashes	12	
Average Vehicle Volume	26,770	
Truck Percentage	N/A	
Bicycle Counts AM/PM	36 / 28	
Pedestrian Counts AM/PM	45 / 32	
Transit Boarding	71,256	

PERFORMANCE MEASURE POINTS

Travel Time	12
Safety	17
Volume	25
Transit Performance	7

SEGMENT OVERALL SCORE:

61

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:

- TDM – Encourage carpools & vanpools
- TDM – Encourage employer shuttles - A shuttle to provide transportation connections for employees
- Land Use – Accommodate all modes in new development/redevelopment

SHIFT MODE OF TRIP STRATEGIES:

- Transit Express Routes – Encourage new transit express routes along corridor
- 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
- Geometric Intersection Improvements - Improves operations with at-grade alternatives

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-5704 College Rd (NC 132) and Oleander Dr (US 76): Construct interchange
- COW Transportation Bond 2014 – Dawson/Wooster/17th St Area Improvements: Streetscapes along Dawson & Wooster Streets with sidewalks and crosswalks at various intersections
- TD-5292 Bus Stop Shelter Amenities

SEGMENT 4 OLEANDER DR/MILITARY CUTOFF RD

Treadwell St – Gordon Road

CONGESTION RANK: 6 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Commercial Corridor
- Commuting Corridor

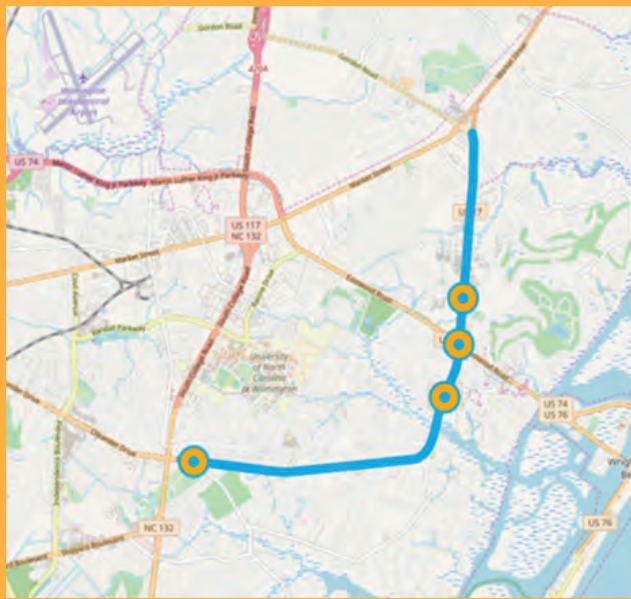
MILEAGE ALONG CORRIDOR: 6.3 Miles

NUMBER OF HOTSPOTS: 3

1. Wrightsville Ave/Airlie Rd (Eastbound-Northbound)
2. Eastwood Rd
3. Parker Farm Dr (PM Westbound)

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

ALTERNATE ROUTE: None



DATA

Average Travel Time AM/PM	10:37 / 12:44
Average Delay AM/PM	1:58/ 4:05
Rear End Collisions	161
Bicycle Crashes	4
Pedestrian Crashes	1
Average Vehicle Volume	42,024
Truck Percentage	N/A
Bicycle Counts AM/PM	46 / 36
Pedestrian Counts AM/PM	40 / 35
Transit Boarding	66,788

PERFORMANCE MEASURE POINTS

Travel Time	12
Safety	9
Volume	30
Transit Performance	6

SEGMENT OVERALL SCORE:

57

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:

- Land Use – Construct supportive collector street network with new development
- Land Use – Managed growth

SHIFT MODE OF TRIP STRATEGIES:

- Transit Express Routes – Encourage new transit express routes along corridor
- Improve multimodal access at intersections
- Expand bicycle and pedestrian network

IMPROVE OPERATIONS STRATEGIES:

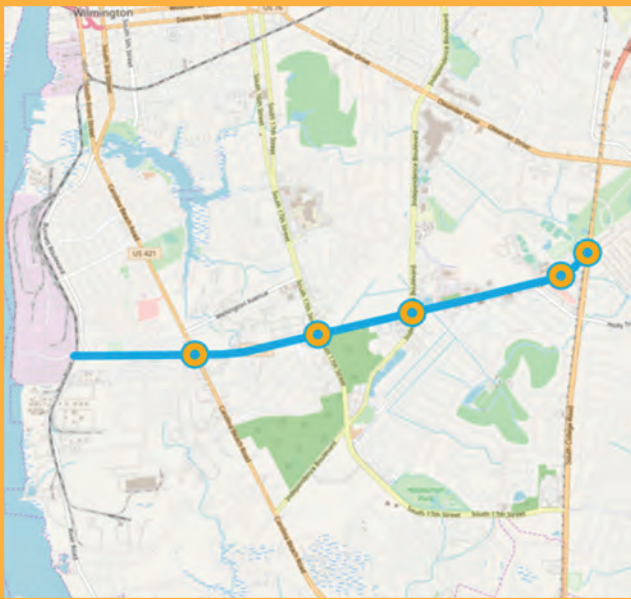
- Geometric Intersection Improvements - Change intersection use by changing the physical layout

INCREASE CAPACITY STRATEGIES:

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

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-4751 Military Cutoff Extension; Multi-lanes on new location
- U-5704 College Rd (NC 132) and Oleander Dr (US 76): Construct interchange
- U-5710 Eastwood Rd (US 74) and Military Cutoff Rd: Convert at-grade intersection to an interchange
- 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



CONGESTION RANK: 7 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Commercial Corridor

MILEAGE ALONG CORRIDOR: 3.6 Miles

NUMBER OF HOTSPOTS: 5

1. Carolina Beach Road
2. 17th St (PM)
3. Independence Blvd (PM)
4. Hoggard High School / Longleaf Mall (AM Westbound)
5. College Road

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

ALTERNATE ROUTE: None

DATA

Average Travel Time AM/PM	7:46 / 8:24	
Average Delay AM/PM	3:12 / 3:50	
Rear End Collisions	81	
Bicycle Crashes	4	7
Pedestrian Crashes	3	
Average Vehicle Volume	23,782	
Truck Percentage	5.2%	
Bicycle Counts AM/PM	13 / 28	
Pedestrian Counts AM/PM	5 / 31	
Transit Boarding	67,151	

PERFORMANCE MEASURE POINTS

Travel Time	14
Safety	9
Volume	21
Transit Performance	6

SEGMENT OVERALL SCORE:

50

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:

- Land Use – Construct supportive collector street network with new development
- Land Use – Accommodate all modes in new development

SHIFT MODE OF TRIP STRATEGIES:

- Transit Express Routes – Encourage new transit express routes along corridor
- Land Use – TOD - Utilize mixed-use areas designed to maximize access to public transit
- Expand bicycle and pedestrian network

IMPROVE OPERATIONS STRATEGIES:

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

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-5729 Carolina Beach Rd (US 421): Upgrade roadway from Burnett Ave to Shipyard Blvd
- 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 Street

SEGMENT 6 FRONT STREET

Lake Shore Dr – Cape Fear Memorial Bridge

CONGESTION RANK: 22 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Freight Corridor

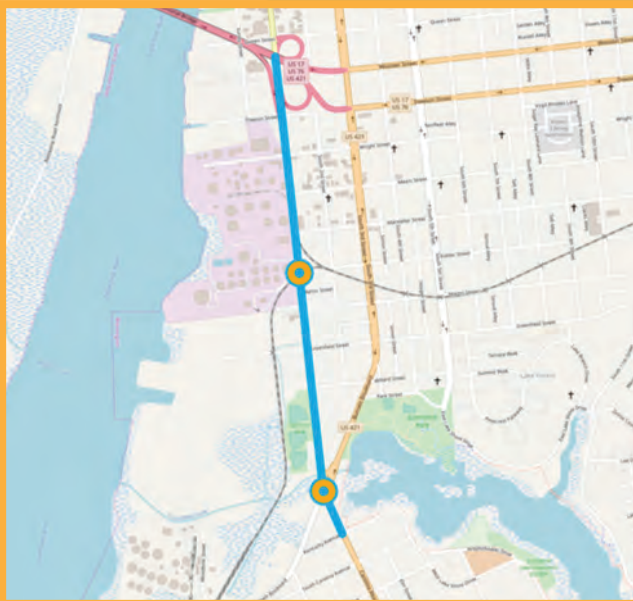
MILEAGE ALONG CORRIDOR: 1.1 Miles

NUMBER OF HOTSPOTS: 2

1. RxR tracks (AM)
2. Burnett Blvd

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

ALTERNATE ROUTE: 3rd Street



DATA

Average Travel Time AM/PM	3:41 / 3:14	
Average Delay AM/PM	1:44 / 1:18	
Rear End Collisions	42	
Bicycle Crashes	2	2
Pedestrian Crashes	0	
Average Vehicle Volume	29,985	
Truck Percentage	8%	
Bicycle Counts AM/PM	N/A	
Pedestrian Counts AM/PM	N/A	
Transit Boarding	45,905	

PERFORMANCE MEASURE POINTS

Travel Time	6
Safety	4
Volume	12
Transit Performance	4

SEGMENT OVERALL SCORE:

26

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 Street – Cape Fear Memorial Bridge to Burnett Blvd: Widen to multi-lanes

SEGMENT 7 3RD STREET

Kentucky Ave – Wooster Street

CONGESTION RANK: 30 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Tourist Route

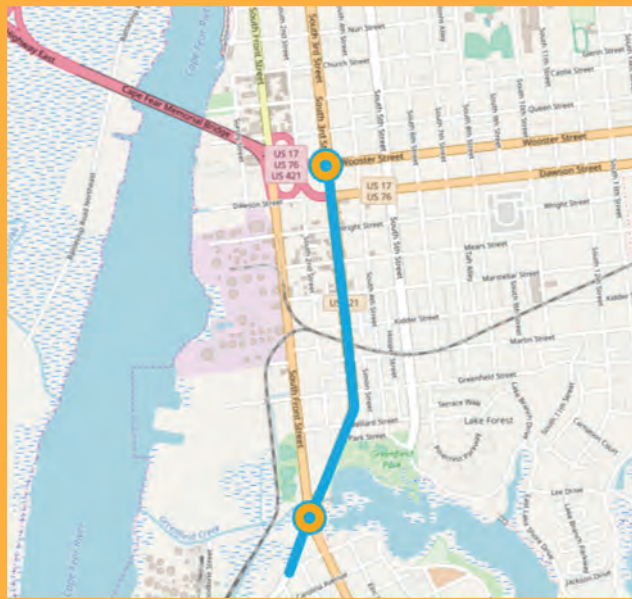
MILEAGE ALONG CORRIDOR: 1.1 Miles

NUMBER OF HOTSPOTS: 2

1. Wooster Street (PM)
2. Front St/Carolina Beach Road (Southbound)

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

ALTERNATE ROUTE: Front Street



DATA

Average Travel Time AM/PM	3:04 / 3:21	
Average Delay AM/PM	1:04/ 1:21	
Rear End Collisions	37	
Bicycle Crashes	0	0
Pedestrian Crashes	0	
Average Vehicle Volume	14,658	
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	4
Safety	2
Volume	5
Transit Performance	N/A

SEGMENT OVERALL SCORE:

11

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 existing public transit fixed routes

IMPROVE OPERATIONS STRATEGIES:

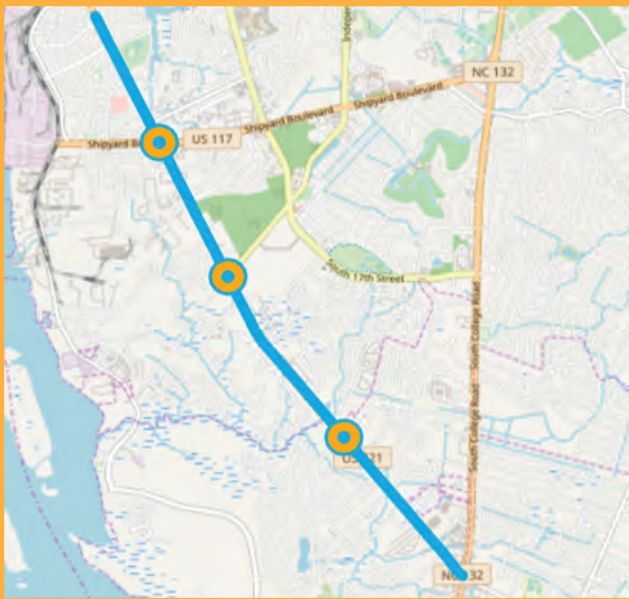
- Improve Signage – Better inform traffic of route options and better channelize traffic to improve patterns

CURRENT IMPLEMENTATION PROJECTS AND PLANS

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

SEGMENT 8 CAROLINA BEACH ROAD

Alabama Ave – College Road



CONGESTION RANK: 3 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Freight Corridor
- Commercial Corridor
- Tourist Route

MILEAGE ALONG CORRIDOR: 5.7 Miles

NUMBER OF HOTSPOTS: 3

1. Shipyard (PM Northbound)
2. From Coddington Elementary School to Independence Blvd (AM Northbound)
3. Silva Terra Dr (PM Northbound)

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

ALTERNATE ROUTE: None

DATA

Average Travel Time AM/PM	9:26 / 8:41	
Average Delay AM/PM	1:53/ 1:16	
Rear End Collisions	242	
Bicycle Crashes	9	16
Pedestrian Crashes	7	
Average Vehicle Volume	33,498	
Truck Percentage	4.6%	
Bicycle Counts AM/PM	38 / 52	
Pedestrian Counts AM/PM	76 / 81	
Transit Boarding	111,070	

PERFORMANCE MEASURE POINTS

Travel Time	6
Safety	16
Volume	32
Transit Performance	10

SEGMENT OVERALL SCORE:

64

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:

- Land Use – Construct supportive collector street network with new development
- Land Use – Accommodate all modes in new development
- Alternative Roadways

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 - Limits 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-5729 Carolina Beach Rd (US 421): Upgrade roadway from Burnett Ave to Shipyard Blvd
- U-5790 Carolina Beach Rd (US 421) from South College Rd (NC 132) to Sanders Rd: Widen existing roadway and construct flyovers at US 421 and NC 132

CONGESTION RANK: 2 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Tourist Route
- Commercial Corridor
- Commuting Corridor
- Destination Corridor

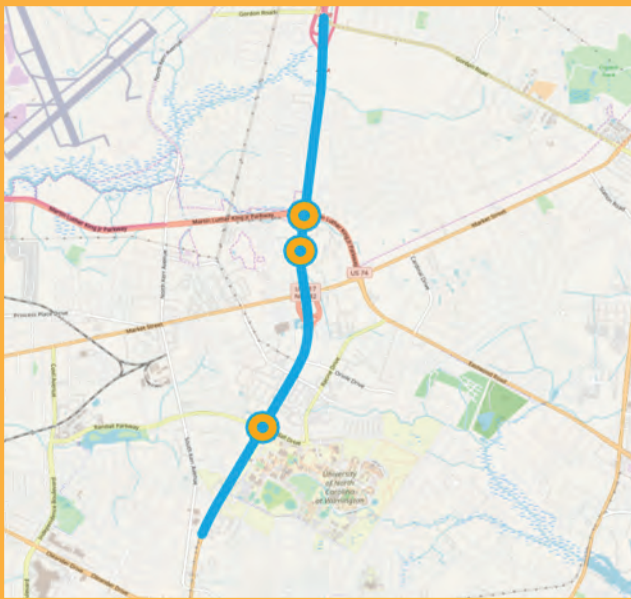
MILEAGE ALONG CORRIDOR: 4.3 Miles

NUMBER OF HOTSPOTS: 3

1. MLK Parkway (PM)
2. Ringo Dr (PM)
3. Randall Parkway

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

ALTERNATE ROUTE: Kerr Ave and Independence Blvd



DATA

Average Travel Time AM/PM	6:33 / 8:50	
Average Delay AM/PM	1:41/ 4:02	
Rear End Collisions	446	
Bicycle Crashes	5	12
Pedestrian Crashes	7	
Average Vehicle Volume	56,648	
Truck Percentage	N/A	
Bicycle Counts AM/PM	80 / 19	
Pedestrian Counts AM/PM	86 / 51	
Transit Boarding	77,851	

PERFORMANCE MEASURE POINTS

Travel Time	11
Safety	16
Volume	34
Transit Performance	7

SEGMENT OVERALL SCORE:

68

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:

- Implement Bicycle Sharing Program
- 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 Extension (New road on new location)
- U-5792 MLK Jr Pkwy and College Rd: Convert at grade intersection to interchange
- U-3338B Kerr Avenue Widening: Widen to multi-lanes from Randall Pkwy to MLK Jr Pkwy
- U-3338C Kerr Ave at MLK Jr Pkwy: Convert at grade intersection to interchange
- U-5702 College Road: Access management and travel time improvements

SEGMENT 10 COLLEGE ROAD

Wilshire Blvd – Pinecliff Drive

CONGESTION RANK: 4 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Tourist Route
- Commercial Corridor

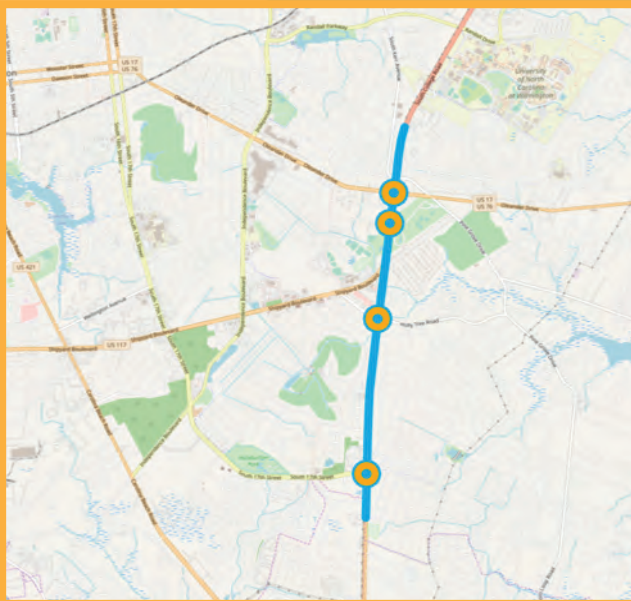
MILEAGE ALONG CORRIDOR: 3.4 Miles

NUMBER OF HOTSPOTS: 4

1. Wrightsville – Oleander Dr (AM Northbound, PM)
2. Lake Ave (PM Northbound)
3. Holly Tree Dr (AM Northbound, PM)
4. 17th Street

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

ALTERNATE ROUTE: Independence Blvd



DATA

Average Travel Time AM/PM	7:32 / 10:03	
Average Delay AM/PM	2:58 / 5:34	
Rear End Collisions	315	
Bicycle Crashes	4	6
Pedestrian Crashes	2	
Average Vehicle Volume	43,248	
Truck Percentage	N/A	
Bicycle Counts AM/PM	87 / 42	
Pedestrian Counts AM/PM	53 / 51	
Transit Boarding	26,195	

PERFORMANCE MEASURE POINTS

Travel Time	17
Safety	11
Volume	33
Transit Performance	2

SEGMENT OVERALL SCORE:

63

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 - Limits access to land uses through limiting turning movements and conflict points

INCREASE CAPACITY STRATEGIES:

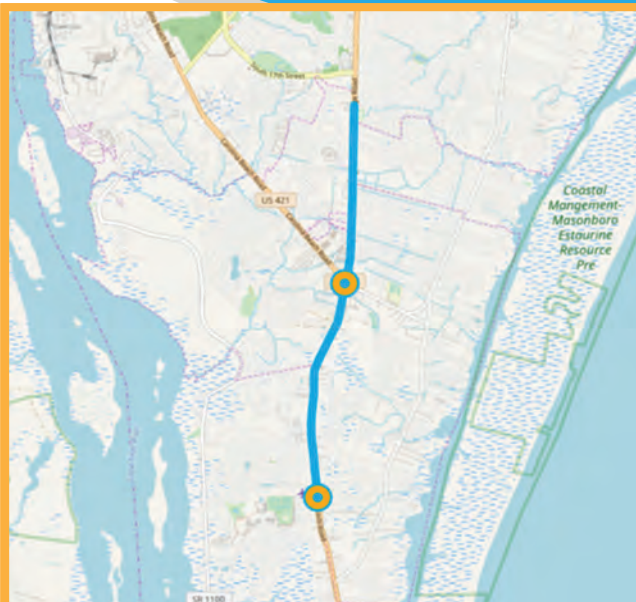
- Convert intersection to interchange - Improves capacity with at-grade or grade separated alternative

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-5702 College Rd: Access management and travel time improvements
- U-5704 College Rd (NC 132) and Oleander Dr (US 76): Construct interchange
- COW Transportation Bond 2014 – South College Rd Trail: 1.3 mile multi-use path along S. College Rd
- U-4434 Independence Blvd Extension (New road on new location)

SEGMENT 11 COLLEGE ROAD/CAROLINA BEACH ROAD

Pinecliff Drive – Halyburton Pkwy



CONGESTION RANK: 27 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Tourist Route
- Commercial Corridor
- Commuting Corridor

MILEAGE ALONG CORRIDOR: 4.7 Miles

NUMBER OF HOTSPOTS: 2

1. US 421
2. Cathay Road – Halyburton Pkwy (AM)

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

ALTERNATE ROUTE: River Road

DATA

Average Travel Time AM/PM	7:40 / 7:16	
Average Delay AM/PM	1:51 / 1:30	
Rear End Collisions	324	
Bicycle Crashes	2	4
Pedestrian Crashes	2	
Average Vehicle Volume	35,015	
Truck Percentage	N/A	
Bicycle Counts AM/PM	2 / 1	
Pedestrian Counts AM/PM	5 / 10	
Transit Boarding	26,195	

PERFORMANCE MEASURE POINTS

Travel Time	6
Safety	10
Volume	15
Transit Performance	2

SEGMENT OVERALL SCORE:

33

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:

- Convert intersections to interchange – Improves capacity with at-grade or grade separated alternative
- Add general purpose lanes

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-5702 College Rd: Access management and travel time improvements from New Center Dr to US 421
- U-5790 Carolina Beach Rd (US 421) from South College Rd (NC 132) to Sanders Rd: Widen existing roadway and construct flyovers at US 421 and NC 132

SEGMENT 12 17TH STREET

Savannah Ct – Shipyard Blvd

CONGESTION RANK: 12 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Destination Corridor

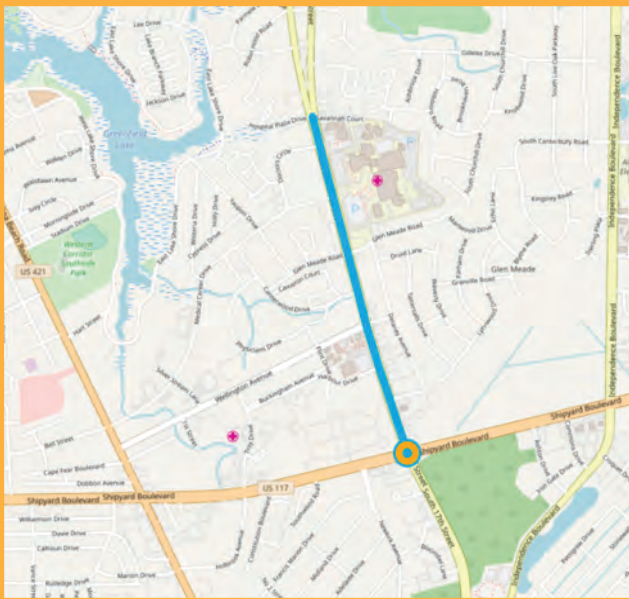
MILEAGE ALONG CORRIDOR: 1.1 Miles

NUMBER OF HOTSPOTS: 1

1. Shipyard Blvd

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

ALTERNATE ROUTE: Carolina Beach Rd and Independence Blvd



DATA

Average Travel Time AM/PM	3:38 / 3:59
Average Delay AM/PM	1:53/ 2:13
Rear End Collisions	75
Bicycle Crashes	1
Pedestrian Crashes	2
Average Vehicle Volume	32,040
Truck Percentage	N/A
Bicycle Counts AM/PM	1 / 2
Pedestrian Counts AM/PM	46 / 33
Transit Boarding	77,761

PERFORMANCE MEASURE POINTS

Travel Time	8
Safety	6
Volume	22
Transit Performance	7

SEGMENT OVERALL SCORE:

43

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:

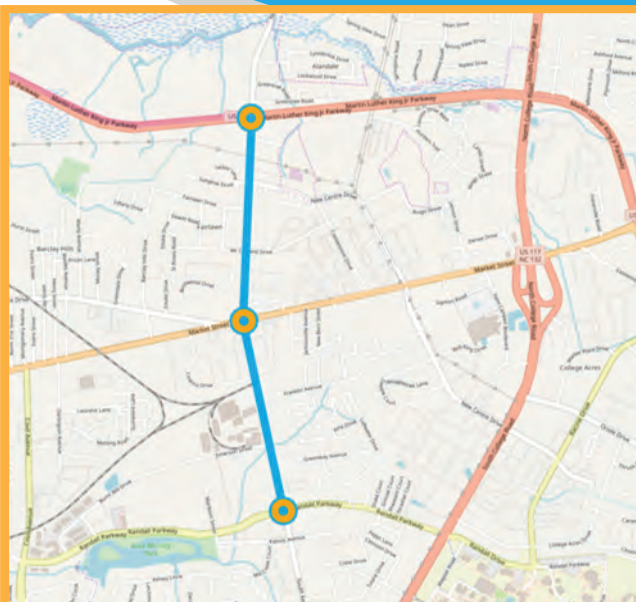
- Transit – Increase frequency - Increase existing public transit fixed routes
- Improve bicycle storage
- Expand pedestrian and bicycle network
- Improve multimodal access at intersections

CURRENT IMPLEMENTATION PROJECTS AND PLANS

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

SEGMENT 13 KERR AVENUE

MLK Jr. Parkway – Randall Parkway



CONGESTION RANK: 14 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Commercial Corridor

MILEAGE ALONG CORRIDOR: 1.5 Miles

NUMBER OF HOTSPOTS: 3

1. MLK Parkway (AM Southbound, PM Northbound)
2. Market Street
3. Randall Parkway

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

ALTERNATE ROUTE: College Rd

DATA

Average Travel Time AM/PM	4:28 / 6:44
Average Delay AM/PM	2:12 / 4:28
Rear End Collisions	108
Bicycle Crashes	3
Pedestrian Crashes	4
Average Vehicle Volume	20,460
Truck Percentage	N/A
Bicycle Counts AM/PM	4 / 3
Pedestrian Counts AM/PM	5 / 15
Transit Boarding	68,972

PERFORMANCE MEASURE POINTS

Travel Time	13
Safety	10
Volume	12
Transit Performance	6

SEGMENT OVERALL SCORE:

41

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
- Land Use – TOD - Utilize mixed-use areas designed to maximize access to public transit
- Expand bicycle and pedestrian network
- Improve multimodal access at intersections

IMPROVE OPERATIONS STRATEGIES:

- Geometric Intersection Improvements – Change intersection 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 from New Center Dr to US 421
- U-3338B Kerr Avenue Widening: Widen to multi-lanes from Randall Pkwy to MLK Jr Pkwy
- U-3338C Kerr Ave at MLK Jr Pkwy: Convert at grade intersection to interchange
- U-4434 Independence Blvd Extension (New road on new location)

SEGMENT 14 MLK JR. PARKWAY/EASTWOOD ROAD

College Rd – Racine Dr

CONGESTION RANK: 25 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Commercial Corridor
- Tourist Route

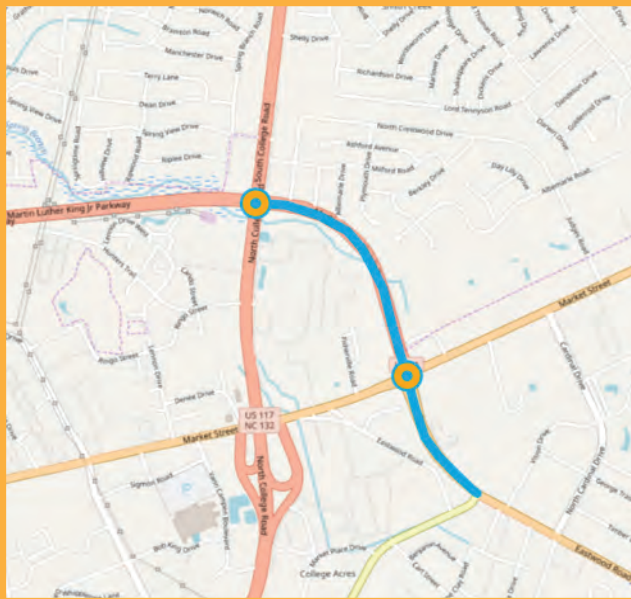
MILEAGE ALONG CORRIDOR: 1.1 Miles

NUMBER OF HOTSPOTS: 2

1. College Road
2. Market Street (AM Eastbound, PM)

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

ALTERNATE ROUTE: Market Street



DATA

Average Travel Time AM/PM	4:39 / 4:19
Average Delay AM/PM	3:04 / 2:44
Rear End Collisions	31
Bicycle Crashes	0
Pedestrian Crashes	1
Average Vehicle Volume	27,251
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	9
Transit Performance	N/A

SEGMENT OVERALL SCORE:

23

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
- Transit – Express Routes: Encourage new transit express routes along corridor
- Improve multimodal access at intersections

IMPROVE OPERATIONS STRATEGIES:

- Geometric Intersection Improvements – Change intersection 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-3338B Kerr Avenue Widening: Widen to multi-lanes from Randall Pkwy to MLK Jr Pkwy
- U-3338C Kerr Ave at MLK Jr Pkwy: Convert at grade intersection to interchange
- U-4902C Market Street Access Management Improvements: MLK Jr Pkwy – Station Rd, convert at grade intersection to interchange (Market & US 74)
- U-5881 College Rd from Gordon Rd to New Centre Dr: Upgrade Roadway
- U-5792 MLK Jr Pkwy and College Rd: Convert at grade intersection to interchange

SEGMENT 15 RANDALL PARKWAY

Covil Ave / Independence Blvd – Racine Dr

CONGESTION RANK: 8 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Commercial Corridor

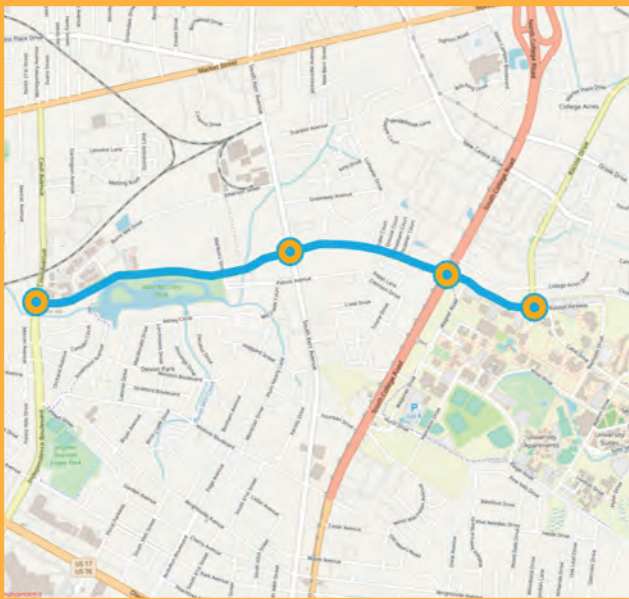
MILEAGE ALONG CORRIDOR: 2.0 Miles

NUMBER OF HOTSPOTS: 4

1. Independence Blvd (AM)
2. Kerr Ave
3. College Road
4. Racine Drive

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

ALTERNATE ROUTE: Wrightsville Avenue



DATA

Average Travel Time AM/PM	6:15 / 7:09	
Average Delay AM/PM	2:29 / 3:23	
Rear End Collisions	56	
Bicycle Crashes	10	13
Pedestrian Crashes	3	
Average Vehicle Volume	18,947	
Truck Percentage	N/A	
Bicycle Counts AM/PM	31 / 8	
Pedestrian Counts AM/PM	42 / 14	
Transit Boarding	92,102	

PERFORMANCE MEASURE POINTS

Travel Time	11
Safety	10
Volume	19
Transit Performance	9

SEGMENT OVERALL SCORE:

49

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 bicycle storage
- Improve multimodal access at intersections

IMPROVE OPERATIONS STRATEGIES:

- Geometric Intersection Improvements – Change intersection by changing the physical layout

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-5702 College Rd: Access management and travel time improvements from New Center Dr to US 421
- U-3338B Kerr Avenue Widening: Widen to multi-lanes from Randall Pkwy to MLK Jr Pkwy
- U-4434 Independence Blvd Extension (New road on new location)

SEGMENT 16 RACINE DRIVE

Randall Pkwy – Eastwood Road

CONGESTION RANK: 21 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Commercial Corridor
- Commuting Corridor

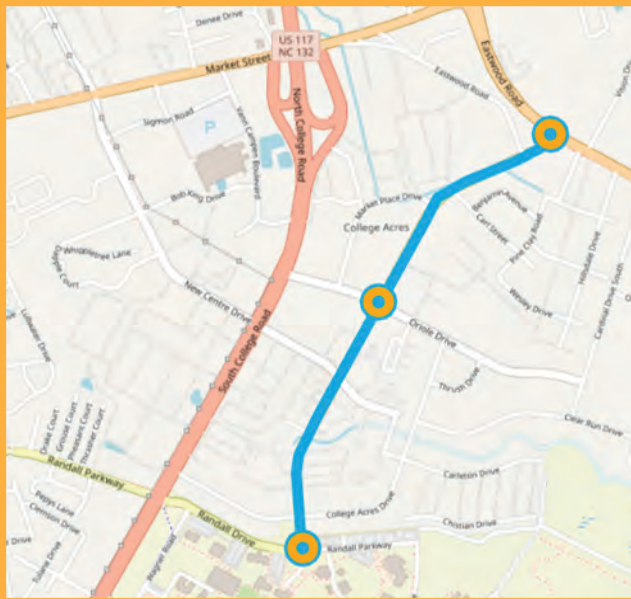
MILEAGE ALONG CORRIDOR: 2.3 Miles

NUMBER OF HOTSPOTS: 3

1. Randall Pkwy
2. Oriole Dr (PM Southbound)
3. Eastwood Rd

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

ALTERNATE ROUTE: College Road



DATA

Average Travel Time AM/PM	3:13 / 3:51	
Average Delay AM/PM	1:02 / 1:40	
Rear End Collisions	56	
Bicycle Crashes	4	6
Pedestrian Crashes	2	
Average Vehicle Volume	16,437	
Truck Percentage	N/A	
Bicycle Counts AM/PM	N/A	
Pedestrian Counts AM/PM	N/A	
Transit Boarding	86,583	

PERFORMANCE MEASURE POINTS

Travel Time	5
Safety	6
Volume	7
Transit Performance	8

SEGMENT OVERALL SCORE:

26

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:

- Alternative Roadways

SHIFT MODE OF TRIP STRATEGIES:

- Transit – Increase frequency: increase existing public transit fixed routes
- Transit – Express Routes: Encourage new transit express routes along corridor
- Improve multimodal access at intersections
- Improve bicycle storage

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-5702 College Rd: Access management and travel time improvements from New Center Dr to US 421

SEGMENT 17 NEW CENTER DRIVE

Market St – Racine Dr

CONGESTION RANK: 13 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Commercial Corridor

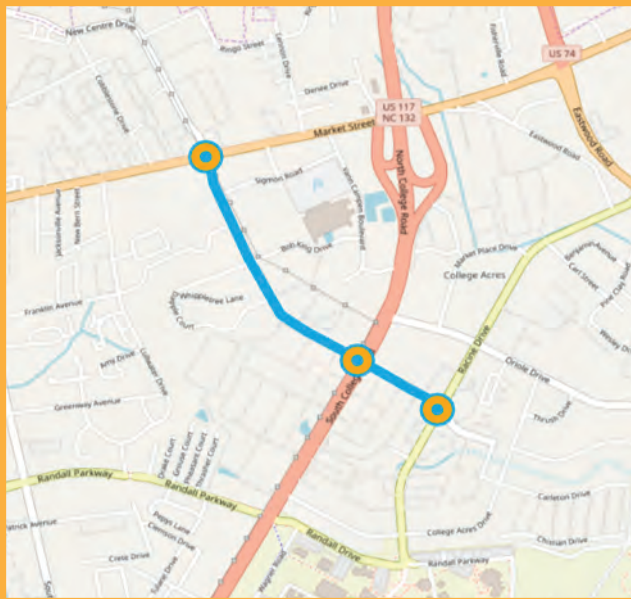
MILEAGE ALONG CORRIDOR: 0.9 Miles

NUMBER OF HOTSPOTS: 3

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

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

ALTERNATE ROUTE: None



DATA

Average Travel Time AM/PM	4:19 / 4:46
Average Delay AM/PM	2:34 / 3:02
Rear End Collisions	44
Bicycle Crashes	1
Pedestrian Crashes	0
Average Vehicle Volume	18,473
Truck Percentage	N/A
Bicycle Counts AM/PM	28 / 12
Pedestrian Counts AM/PM	23 / 26
Transit Boarding	84,358

PERFORMANCE MEASURE POINTS

Travel Time	11
Safety	4
Volume	18
Transit Performance	8

SEGMENT OVERALL SCORE:

41

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 by changing the physical layout

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-5702 College Rd: Access management and travel time improvements from New Center Dr to US 421

CONGESTION RANK: 28 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Tourist Route
- Freight Corridor

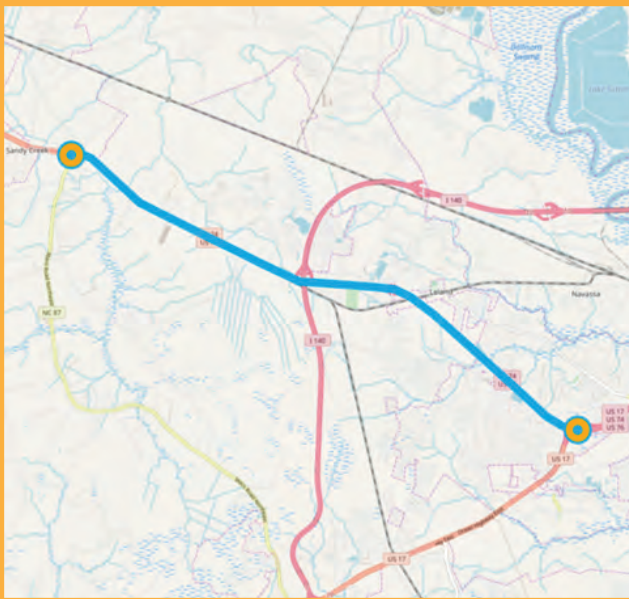
MILEAGE ALONG CORRIDOR: 1.1 Miles

NUMBER OF HOTSPOTS: 2

1. Maco Road
2. US 17 / US 74 Interchange (AM)

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

ALTERNATE ROUTE: I-140 (Wilmington Bypass)



DATA

Average Travel Time AM/PM	10:33 / 10:23	
Average Delay AM/PM	0:33 / 0:24	
Rear End Collisions	86	
Bicycle Crashes	0	2
Pedestrian Crashes	2	
Average Vehicle Volume	44,045	
Truck Percentage	4.8%	
Bicycle Counts AM/PM	N/A	
Pedestrian Counts AM/PM	N/A	
Transit Boarding	N/A	

PERFORMANCE MEASURE POINTS

Travel Time	1
Safety	6
Volume	15
Transit Performance	N/A

SEGMENT OVERALL SCORE:

22

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 - Limits access to land uses through limiting turning movements and conflict points

INCREASE CAPACITY STRATEGIES:

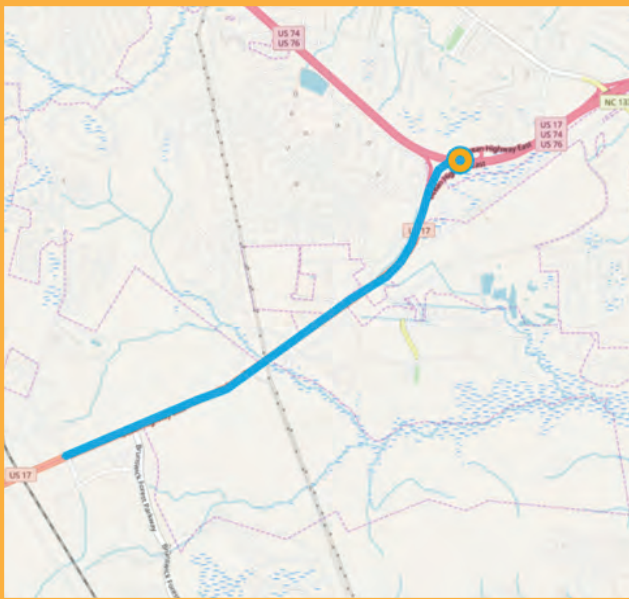
- Convert intersection to interchange - Improves capacity with at-grade or grade separated alternative

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- CTP Project – R-64 Village Rd Widening: Old Fayetteville Rd and Lanvale Rd Interchange
- U-4738 Cape Fear Crossing: Construct a new facility with structure over the Cape Fear River (Planning and Environmental Studies only)

SEGMENT 19 US 17/OCEAN HIGHWAY

Lanvalle Rd – US 74/76



CONGESTION RANK: 20 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Tourist Route
- Commercial Corridor
- Commuting Corridor

MILEAGE ALONG CORRIDOR: 3.0 Miles

NUMBER OF HOTSPOTS: 1

1. US 17 / US 74 Interchange

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

ALTERNATE ROUTE: I-140 (Wilmington Bypass)

DATA

Average Travel Time AM/PM	4:48 / 4:45
Average Delay AM/PM	0:42 / 0:39
Rear End Collisions	117
Bicycle Crashes	0
Pedestrian Crashes	0
Average Vehicle Volume	42,701
Truck Percentage	N/A
Bicycle Counts AM/PM	9 / 8
Pedestrian Counts AM/PM	6 / 9
Transit Boarding	11,068

PERFORMANCE MEASURE POINTS

Travel Time	2
Safety	6
Volume	19
Transit Performance	1

SEGMENT OVERALL SCORE:

28

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:

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

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- Connecting Northern Brunswick County Collector Street Plan
- U-4738 Cape Fear Crossing: Construct a new facility with structure over the Cape Fear River (Planning and Environmental Studies only)

SEGMENT 20 Village Raod/NC133

Navassa Rd – Jackey's Creek Ln

CONGESTION RANK: 23 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Tourist Route
- Commercial Corridor
- Commuting Corridor
- Freight Corridor

MILEAGE ALONG CORRIDOR: 2.7 Miles

NUMBER OF HOTSPOTS: 3

1. US 74 WB Ramp (AM)
2. US 74 EB Ramp (AM)
3. Blackwell Rd (AM)

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

ALTERNATE ROUTE: US 17 / Ocean Highway



DATA

Average Travel Time AM/PM	5:14 / 4:50	
Average Delay AM/PM	1:08 / 0:52	
Rear End Collisions	38	
Bicycle Crashes	0	1
Pedestrian Crashes	1	
Average Vehicle Volume	19,585	
Truck Percentage	3.2%	
Bicycle Counts AM/PM	12 / 21	
Pedestrian Counts AM/PM	21 / 15	
Transit Boarding	N/A	

PERFORMANCE MEASURE POINTS

Travel Time	4
Safety	3
Volume	18
Transit Performance	N/A

SEGMENT OVERALL SCORE:

25

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:

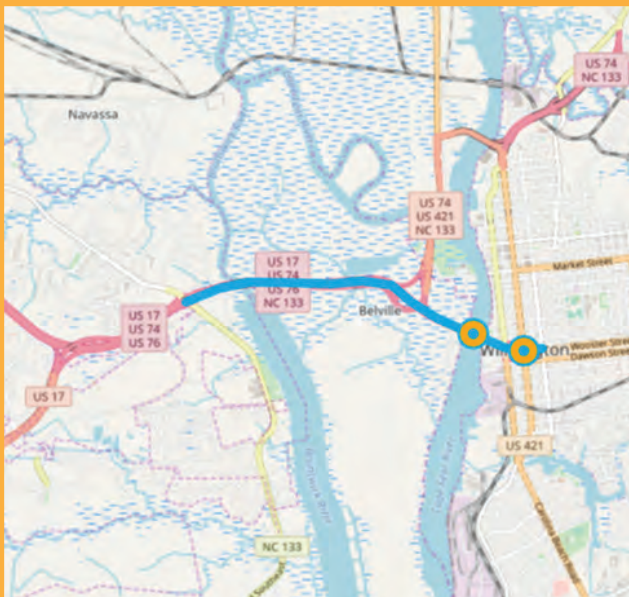
- Alternative Roadways: Improve usage of non-CMP roadways to remove demand on CMP network

SHIFT MODE OF TRIP STRATEGIES:

- Expand pedestrian and bicycle network

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- Cape Fear Transportation 2040 – River Rd (NC 133) Widening from US 17/74/76 to Rabon Way (Future)
- U-4738 Cape Fear Crossing: Construct a new facility with structure over the Cape Fear River (Planning and Environmental Studies only)
- U-5527E Belville Elementary MUP: Construct a multi-use path
- U-5534V Rice Hope MUP: Construct a multi-use path



CONGESTION RANK: 16 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Freight Corridor
- Commercial Corridor
- Tourist Route

MILEAGE ALONG CORRIDOR: 3.2 Miles

NUMBER OF HOTSPOTS: 2

1. Cape Fear Memorial Bridge (Openings)
2. 3rd Street

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

ALTERNATE ROUTE: I-140 (Wilmington Bypass)

DATA

Average Travel Time AM/PM	4:06 / 4:02
Average Delay AM/PM	0:33 / 0:28
Rear End Collisions	44
Bicycle Crashes	1
Pedestrian Crashes	1
Average Vehicle Volume	79,803
Truck Percentage	8.3%
Bicycle Counts AM/PM	N/A
Pedestrian Counts AM/PM	N/A
Transit Boarding	11,068

PERFORMANCE MEASURE POINTS

Travel Time	2
Safety	5
Volume	25
Transit Performance	1

SEGMENT OVERALL SCORE:

33

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

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-4738 Cape Fear Crossing: Construct a new facility with structure over the Cape Fear River (Planning and Environmental Studies only)

CONGESTION RANK: 27 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Tourist Route
- Freight Corridor
- Commuting Corridor

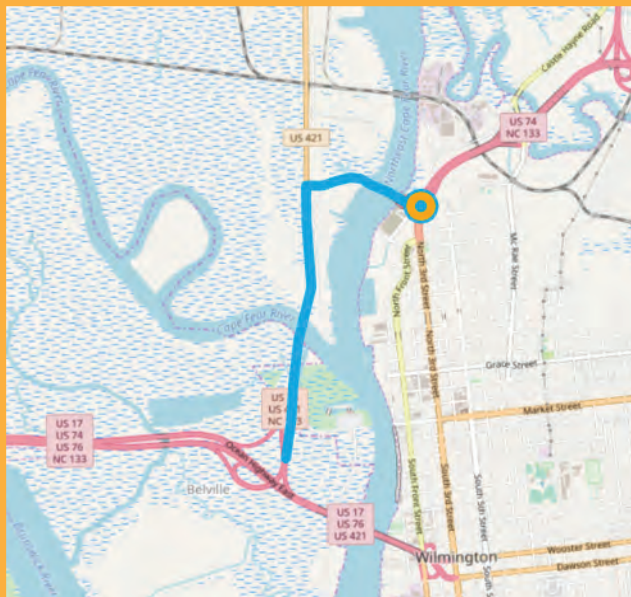
MILEAGE ALONG CORRIDOR: 1.6 Miles

NUMBER OF HOTSPOTS: 2

1. 3rd St – MLK (Merge on Isabella Holmes Bridge)
2. US 421

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

ALTERNATE ROUTE: I-140 (Wilmington Bypass)



DATA

Average Travel Time AM/PM	2:53 / 2:44
Average Delay AM/PM	1:00 / 0:51
Rear End Collisions	39
Bicycle Crashes	0
Pedestrian Crashes	0
Average Vehicle Volume	46,509
Truck Percentage	5.8%
Bicycle Counts AM/PM	N/A
Pedestrian Counts AM/PM	N/A
Transit Boarding	N/A

PERFORMANCE MEASURE POINTS

Travel Time	3
Safety	2
Volume	17
Transit Performance	N/A

SEGMENT OVERALL SCORE:

22

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

IMPROVE OPERATIONS STRATEGIES:

- Geometric Intersection Improvements – Change intersection 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-5731 (US 17/US 421: A fly-over and free flow ramp at interchange)

CONGESTION RANK: 19 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Commuting Corridor

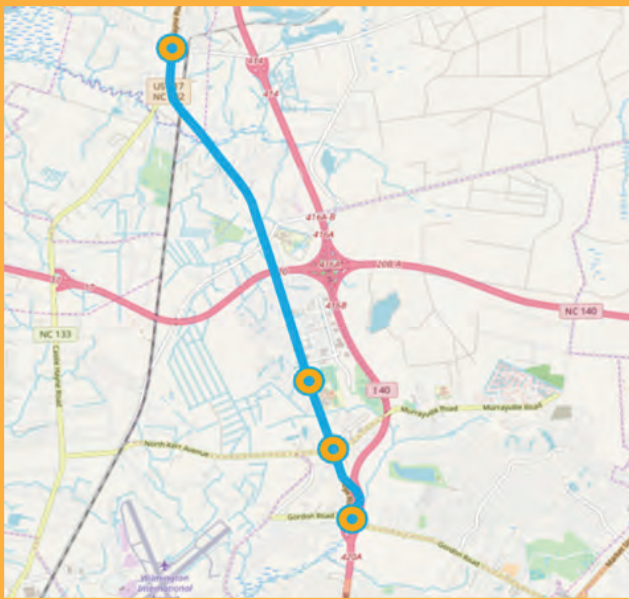
MILEAGE ALONG CORRIDOR: 5.8 Miles

NUMBER OF HOTSPOTS: 4

1. Holly Shelter Rd (PM Northbound)
2. Danny Pence Dr (AM Northbound)
3. Bavarian Ln / Murrayville Rd
4. Gordon Rd (PM Southbound)

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

ALTERNATE ROUTE: Castle Hayne Rd and I-40



DATA

Average Travel Time AM/PM	11:06 / 11:02	
Average Delay AM/PM	2:45 / 3:14	
Rear End Collisions	132	
Bicycle Crashes	1	3
Pedestrian Crashes	2	
Average Vehicle Volume	20,122	
Truck Percentage	N/A	
Bicycle Counts AM/PM	N/A	
Pedestrian Counts AM/PM	N/A	
Transit Boarding	35,209	

PERFORMANCE MEASURE POINTS

Travel Time	11
Safety	8
Volume	7
Transit Performance	3

SEGMENT OVERALL SCORE:

29

WMPO CONGESTION MITIGATION TECHNIQUES

REDUCE DEMAND STRATEGIES:

- Land Use – Accommodate all modes in new development

SHIFT MODE OF TRIP STRATEGIES:

- Transit – Increase frequency of existing public transit fixed routes
- 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

CURRENT IMPLEMENTATION PROJECTS AND PLANS

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

SEGMENT 24 GORDON ROAD

Kerr Ave – Military Cutoff Rd

CONGESTION RANK: 10 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Commuting Corridor

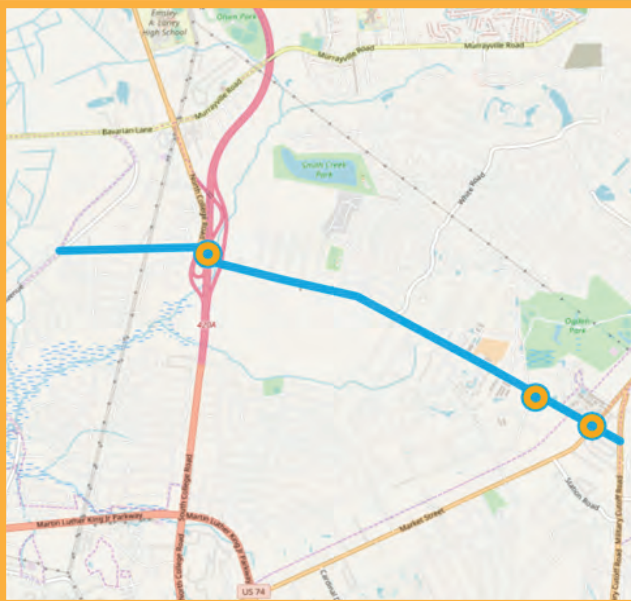
MILEAGE ALONG CORRIDOR: 3.5 Miles

NUMBER OF HOTSPOTS: 3

1. North College Road
2. Netherlands Dr (PM)
3. Market St

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

ALTERNATE ROUTE: None



DATA

Average Travel Time AM/PM	8:49 / 11:15	
Average Delay AM/PM	3:53 / 6:26	
Rear End Collisions	122	
Bicycle Crashes	1	3
Pedestrian Crashes	2	
Average Vehicle Volume	20,012	
Truck Percentage	N/A	
Bicycle Counts AM/PM	5 / 7	
Pedestrian Counts AM/PM	10 / 7	
Transit Boarding	58,056	

PERFORMANCE MEASURE POINTS

Travel Time	20
Safety	8
Volume	11
Transit Performance	5

SEGMENT OVERALL SCORE:

44

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 bicycle and pedestrian 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:

- Add general purpose lane

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-4902D Market Street Access Management Improvements: Station Rd – Marsh Oaks Dr
- U-4751 Military Cutoff Extension; Multi-lanes on new location
- U-5881 College Rd from Gordon Rd to New Centre Dr: Upgrade Roadway
- CTP – Gordon Rd: Widen to multi-lanes

SEGMENT 25 US 17/MARKET STREET

Marsh Oaks Dr/Mendenhall Dr – Sidbury Rd

CONGESTION RANK: 24 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Commercial Corridor
- Commuting Corridor

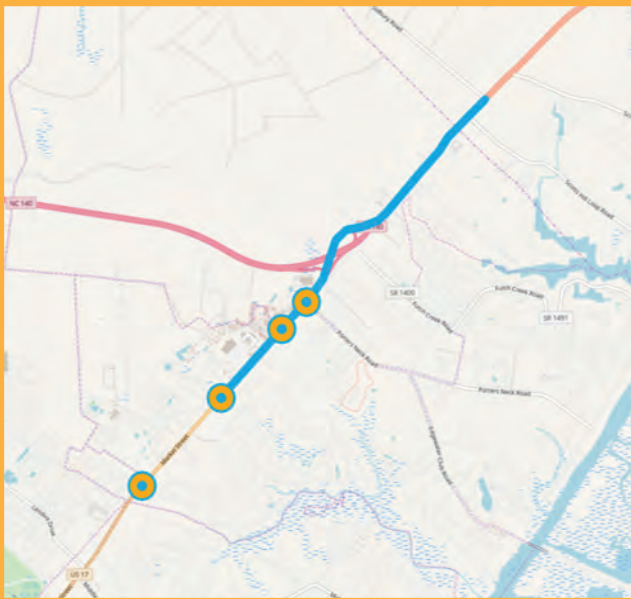
MILEAGE ALONG CORRIDOR: 3.0 Miles

NUMBER OF HOTSPOTS: 4

1. Oak Ridge Ln (AM Westbound)
2. Marsh Oaks Dr (PM Eastbound/Northbound)
3. Ogden Walmart (PM)
4. Porter's Neck Rd

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

ALTERNATE ROUTE: Military Cutoff Road Extension (Future)



DATA

Average Travel Time AM/PM	6:50 / 7:18	
Average Delay AM/PM	1:51 / 2:17	
Rear End Collisions	23	
Bicycle Crashes	0	1
Pedestrian Crashes	1	
Average Vehicle Volume	39,453	
Truck Percentage	N/A	
Bicycle Counts AM/PM	0 / 0	
Pedestrian Counts AM/PM	0 / 0	
Transit Boarding	N/A	

PERFORMANCE MEASURE POINTS

Travel Time	8
Safety	3
Volume	17
Transit Performance	N/A

SEGMENT OVERALL SCORE:

28

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 by changing the physical layout

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-4902D US 17 Access Management Improvements: Station Rd – Marsh Oaks Dr
- U-4751 Military Cutoff Rd Extension: Multi-lanes on new location
- R-3300 Hampstead Bypass: Multi-lanes on new location

CONGESTION RANK: 18 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Tourist Corridor
- Commercial Corridor
- Commuting Corridor
- Freight Corridor

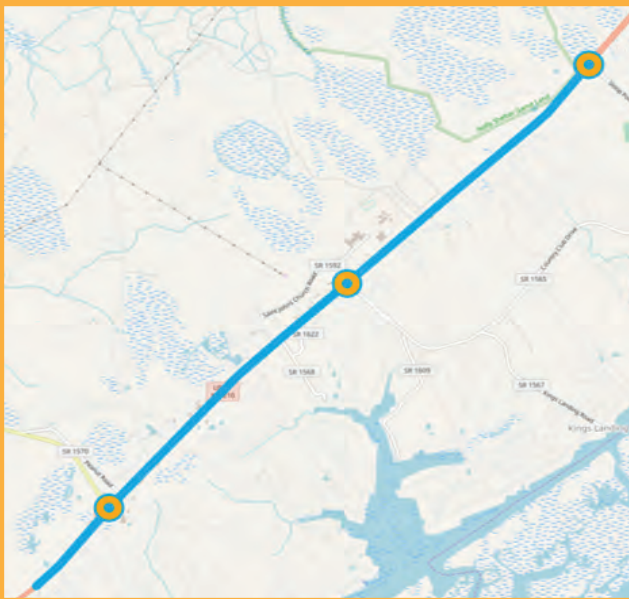
MILEAGE ALONG CORRIDOR: 7.4 Miles

NUMBER OF HOTSPOTS: 3

1. NC 210/Dan Owen Dr (PM Eastbound/Northbound)
2. Jenkins Rd / Country Club Rd (AM Westbound/Southbound)
3. Sloop Point Rd (AM)

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

ALTERNATE ROUTE: Hampstead Bypass (Future)



DATA

Average Travel Time AM/PM	11:00 / 9:26	
Average Delay AM/PM	2:30 / 0:40	
Rear End Collisions	199	
Bicycle Crashes	0	0
Pedestrian Crashes	0	
Average Vehicle Volume	43,825	
Truck Percentage	2.7%	
Bicycle Counts AM/PM	1 / 5	
Pedestrian Counts AM/PM	5 / 4	
Transit Boarding	N/A	

PERFORMANCE MEASURE POINTS

Travel Time	6
Safety	6
Volume	18
Transit Performance	N/A

SEGMENT OVERALL SCORE:

30

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

IMPROVE OPERATIONS STRATEGIES:

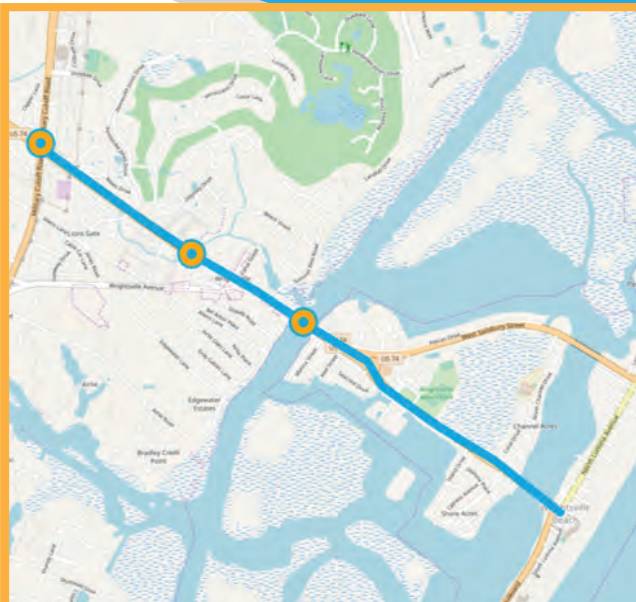
- Access Management - Limits access to land uses through limiting turning movements and conflict points

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- R-3300 Hampstead Bypass: Multi-lanes on new location
- U-5732 US 17 Superstreet: Convert to superstreet from Washington Acres Rd to Sloop Point Loop Rd

SEGMENT 27 EASTWOOD ROAD/US 76/CAUSEWAY DRIVE

Military Cutoff Rd – Lumina Ave



CONGESTION RANK: 11 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Tourist Corridor
- Commercial Corridor
- Destination Corridor

MILEAGE ALONG CORRIDOR: 2.4 Miles

NUMBER OF HOTSPOTS: 3

1. Military Cutoff Road
2. Landfall Entrance (PM)
3. Heide Trask Drawbridge

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

ALTERNATE ROUTE: None

DATA

Average Travel Time AM/PM	5:50 / 7:34	
Average Delay AM/PM	1:54 / 3:38	
Rear End Collisions	64	
Bicycle Crashes	1	2
Pedestrian Crashes	1	
Average Vehicle Volume	24,470	
Truck Percentage	N/A	
Bicycle Counts AM/PM	92 / 53	
Pedestrian Counts AM/PM	86 / 85	
Transit Boarding	N/A	

PERFORMANCE MEASURE POINTS

Travel Time	11
Safety	6
Volume	27
Transit Performance	N/A

SEGMENT OVERALL SCORE:

44

WMPO CONGESTION MITIGATION TECHNIQUES

SHIFT MODE OF TRIP STRATEGIES:

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

IMPROVE OPERATIONS STRATEGIES:

- Convert intersection to interchange – Improves capacity with at-grade or grade separated alternative

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-5710 Eastwood Rd (US 74) and Military Cutoff Rd: Convert at-grade intersection to an interchange
- FS-1703A Heide Trask Bridge Replacement Feasibility Study
- U-5534B Heide Trask Walkway

SEGMENT 28 US 421/CAROLINA BEACH ROAD

Halyburton Pkwy – Atlanta Ave

CONGESTION RANK: 15 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Tourist Corridor
- Commercial Corridor
- Destination Corridor

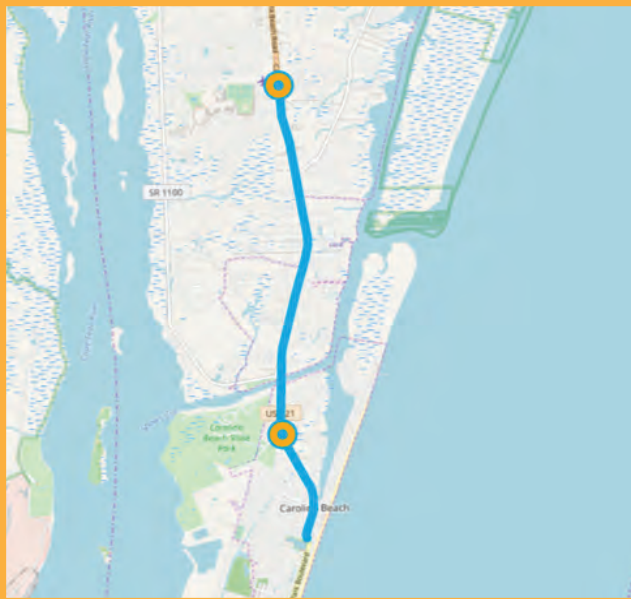
MILEAGE ALONG CORRIDOR: 5.2 Miles

NUMBER OF HOTSPOTS: 2

1. Halyburton Pkwy (Northbound)
2. Dow Rd (PM)

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

ALTERNATE ROUTE: River Road and Dow Road



DATA

Average Travel Time AM/PM	7:59 / 7:39	
Average Delay AM/PM	0:55 / 0:35	
Rear End Collisions	93	
Bicycle Crashes	2	3
Pedestrian Crashes	1	
Average Vehicle Volume	27,938	
Truck Percentage	N/A	
Bicycle Counts AM/PM	91 / 65	
Pedestrian Counts AM/PM	90 / 79	
Transit Boarding	10,783	

PERFORMANCE MEASURE POINTS

Travel Time	3
Safety	7
Volume	28
Transit Performance	1

SEGMENT OVERALL SCORE:

39

WMPO CONGESTION MITIGATION TECHNIQUES

SHIFT MODE OF TRIP STRATEGIES:

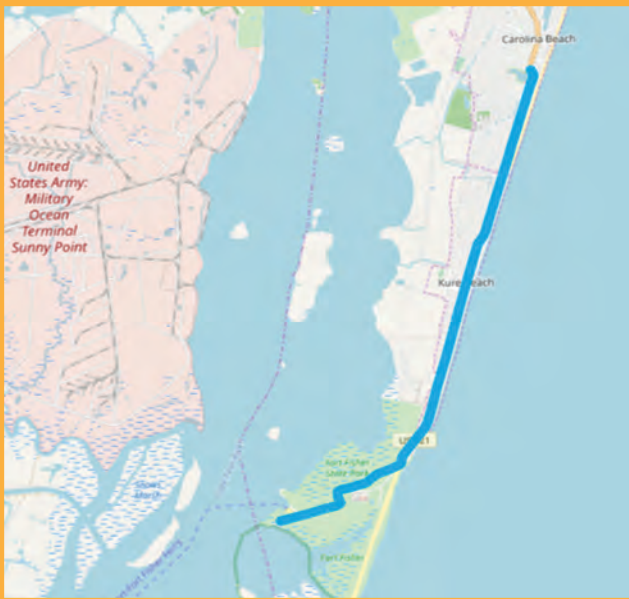
- Transit – Increase frequency: increase existing public transit fixed routes
- Expand pedestrian and bicycle network
- Establish park & ride lot

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- Cape Fear Transportation 2040 – River Rd Widening: Independence Blvd to Carolina Beach Rd
- U-5534E, U-5534L Island Greenway
- U-5534O Cape Fear Blvd MUP
- U-5527D Harper Avenue MUP

SEGMENT 29 US 421/LAKE PARK BLVD

Atlanta Ave – Buzzards Bay



CONGESTION RANK: 29 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Tourist Corridor
- Destination Corridor

MILEAGE ALONG CORRIDOR: 5.9 Miles

NUMBER OF HOTSPOTS: N/A

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

ALTERNATE ROUTE: None

DATA

Average Travel Time AM/PM	12:10 / 11:32	
Average Delay AM/PM	1:53 / 1:15	
Rear End Collisions	13	
Bicycle Crashes	1	1
Pedestrian Crashes	0	
Average Vehicle Volume	10,864	
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	2
Volume	4
Transit Performance	N/A

SEGMENT OVERALL SCORE:

12

WMPO CONGESTION MITIGATION TECHNIQUES

SHIFT MODE OF TRIP STRATEGIES:

- Transit – Increase frequency of existing public transit fixed routes
- Establish park and ride lot
- Improve multimodal access at intersections

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-5534E, U-5534L Island Greenway

SEGMENT 30 PINE GROVE DRIVE

College Rd – Masonboro Sound Rd

CONGESTION RANK: 26 OF 30

CORRIDOR FUNCTIONAL TYPES:

- Commuting Corridor

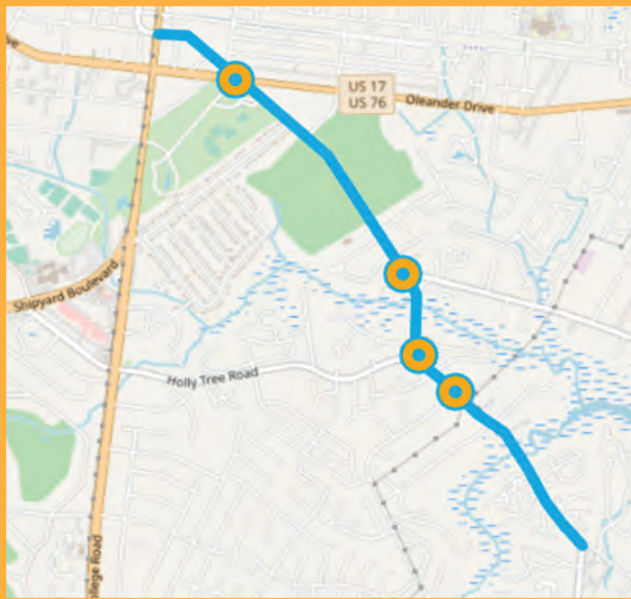
MILEAGE ALONG CORRIDOR: 2.5 Miles

NUMBER OF HOTSPOTS: 4

1. Oleander Dr
2. Greenville Loop Rd (PM)
3. Holly Tree Rd
4. Beasley Rd (AM Northbound)

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

ALTERNATE ROUTE: College Road



DATA

Average Travel Time AM/PM	6:32 / 8:18	
Average Delay AM/PM	2:31 / 4:19	
Rear End Collisions	46	
Bicycle Crashes	0	0
Pedestrian Crashes	0	
Average Vehicle Volume	16,095	
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	13
Safety	3
Volume	7
Transit Performance	N/A

SEGMENT OVERALL SCORE:

23

WMPO CONGESTION MITIGATION TECHNIQUES

SHIFT MODE OF TRIP STRATEGIES:

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

IMPROVE OPERATIONS STRATEGIES:

- Convert intersection to interchange – Improves capacity with at-grade or grade separated alternative

CURRENT IMPLEMENTATION PROJECTS AND PLANS

- U-5704 College Rd (NC 132) and Oleander Dr (US 76): Construct interchange
- COW Transportation Bond 2014 – Pine Grove Drive Improvements: Pine Grove and Greenville Loop Rd; Pine Grove and Holly Tree Rd; Pine Grove and Macmillan; Pine Grove and Oleander Dr

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

Performance Measure Analysis	2016	2018
Safe		
Number of bicycle and pedestrian crashes in the WMPO area within 2-year timeframe	329	157
Number of rear-end collisions in the WMPO area within a 2-year timeframe	3,845	3,725
Efficient		
Bicycle and pedestrian corridor counts per capita in the WMPO area	2,648	2,771
Number of CMP corridor intersection legs with pedestrian indication at intersections	93	94
Average travel time of the WMPO CMP network	7:05	7:11
Average duration of delay at intersections within the WMPO CMP network	2:06	2:17
Number of participants in the WMPO's TDM Program	402	600
Appropriate		
Percentage of CMP corridor facility improvements that have low difficulty	40%	37%
Percentage of CMP corridor facility improvements that have medium difficulty	12%	14%
Percentage of CMP corridor facility improvements that have high difficulty	48%	48%
Percentage of miles of CMP improvements that incorporated consideration of 2040 projected volumes	59%	48%
Responsible		
Percentage of miles of CMP routes that have parallel facilities that alleviate congestion on CMP routes	43%	67%
Integrated		
Percentage of WMPO adopted plans is the CMP referenced in over a two year period	50%	0%
Percentage of the WMPO 10 member jurisdictions land use plans referencing the CMP	0%	0%
Multi-Modal		
Bicycle and pedestrian CMP corridor counts per capita	2,648	2,771

PERFORMANCE MEASURE ANALYSIS

The following observations can be made by the comparison of the overall 2018 performance measure analysis to the 2016 performance measure analysis:

- There was an increase in bicycle and pedestrian counts per capita in the WMPO area, as well as a marked decrease in bicycle and pedestrian crashes. Although the reduction in crashes may be accounted for in a deficit of properly reported crashes, the increase in users may be due to the completion of additional bicycle and pedestrian facilities like the Cross City Trail.
- Average travel time of the network as well as the average duration of delay at intersections within the CMP network have remained relatively the same.
- There has been a considerable increase in participants in the WMPO's TDM Programming. Program promotions and educational opportunities by the WMPO have likely helped to increase participation throughout the region.
- The percentage of miles of CMP routes with parallel facilities has increased significantly thanks to the opening of the final section of the Wilmington Bypass (I-140) in late 2017. The completion of this noted mitigation project in 2016 has allowed for an additional route into New Hanover County from Brunswick County.

While there are some notable differences in the Performance Measure Analysis of the overall CMP Network between the 2016 and 2018 reports likely due to proposed and implemented mitigation techniques, further observation and application of additional techniques will be necessary to see a continued overall improvement of the network. Many of the technique implementation projects identified in the 2016 Biennial Report are still in process (either in design, ROW acquisition, or nearing construction) and for which their benefits have not been realized in the 2018 report.

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) which is currently in development. Congestion is one of an array of factors considered when selecting projects for the WMPO's MTP and subsequently programming 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. The WMPO will also evaluate the existing criteria used to score and rank congestion within the region. If an improved process has the 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 2020.