

---

---

# WINSTON-SALEM URBAN AREA

## CONGESTION MANAGEMENT PROCESSES (CMP) Biennial Report

Prepared by:  
The Winston-Salem  
Department of Transportation

---

---

2014 UPDATE

## INTRODUCTION

In 1998, the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) continued the requirement that was first established in the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) that each Transportation Management Area (TMA) with an urbanized population over 200,000 develop and implement a Congestion Management System (CMS). Additionally, a CMS must be developed and implemented as part of the regular Metropolitan Planning Organization (MPO) planning process.

On August 10, 2005, the President signed into law the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). SAFETEA-LU builds on the foundation of ISTEA and TEA-21 with an emphasis on the use of road pricing and the promotion of real-time traffic management in all States to help improve transportation security and provide better information to travelers and emergency responders to manage congestion. With the signing of the SAFETEA-LU came the name change from Congestion Management Systems (CMS) to Congestion Management Processes (CMP). The recent signing of the Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21) continues the CMP requirement from previous legislation.

## ANALYSIS

The Congestion Management Processes Biennial Report represents *Element #7 Implementation of Strategies* and *Element #8. Monitoring of Strategy Effectiveness* of the CMP plan (Sections 3.5.3.G & H of the 2035 LRTP). This report plans to achieve the following:

- Identify deficient locations using the performance measures identified in section 3.5.3.C. The locations to be analyzed should be:
  - Other Principal Arterials and higher classified by the Federal Functionally Classified road network
  - Minor Arterials and Collectors classified by the Federal Functionally Classified road network
  - Thoroughfare Plan/Comprehensive Transportation Plan network
  - Selected major intersections
  - Major traffic generators (MACs, shopping centers, etc.)
- Identify existing and/or proposed projects that may mitigate congestion in the deficient locations. Include effectiveness measures, data collection needs, and time frame for analysis or project completion date.
- If there are no existing or proposed projects planned that may mitigate congestion, identify potential strategies from the Congestion Management Processes Monitoring Toolkit for each deficient location. Coordinate the potential strategies with the project identification processes such as the Needs process, call for Enhancement, STP-DA, CMAQ, and the TIP process for project prioritization and funding. It should be noted that there may be some deficient locations that are not treatable for congestion management.
- The report will include the following:
  - List of deficient locations with mileage, V/C ratio, and FFC
  - Map of the deficient locations
  - Strategy Monitoring table listing the deficient location and strategies for each location
  - Measures of Effectiveness table with before and after Capacity, Mobility, and or Energy/Environment comparisons and a benefit identification

- Accomplishments that identify improvements implemented since the previous reporting period that may not be attributed to a specific deficient location
- Findings and recommendations

## **OPERATIONS POLICIES AND RECOMMENDATIONS**

A variety of effective strategies, related to mitigating congestion are listed in *Element #6. Identification and Evaluation of Strategies* of the CMP (Section 3.5.3.F of the 2035 Long Range Transportation Plan (LRTP)). The following is a summary of accomplishments since the previous biennial report toward the objectives and goals of the CMP.

In 2013, construction on Phase A of the Signal System Upgrade Project (C-5224) began with an estimated completion date of March 2016. Phase B began construction in August 2013 and is estimated to be complete in September 2016. Currently, Phase A is approximately 42% complete and Phase B is 35% complete. As part of the Signal System Upgrades project, new fiber optic cable has been ran City-wide and new traffic controllers, control cabinets and traffic surveillance cameras have been installed at 169 City intersections. New computer equipment and monitors have also been installed at the Transit Center and Bryce A. Municipal Building. At the completion of the project, approximately 400 traffic signals will be connected to the new system over 150 miles of fiber optic cable.

Winston-Salem Department of Transportation (WSDOT) partnered with Winston-Salem Transit Authority (WSTA) to complete the Comprehensive Operations Analysis (COA) to identify any transit needs and help to redesign WSTA's entire transit network. In the past, route modifications have been instituted incrementally without a long range planning strategy. WSDOT recognized the need for a system wide study and reinvention of the transit network to achieve the following objectives: 1) to provide current transit riders better service and 2) to encourage and promote the use of public transit for all citizens. In order to make public transit more accessible and attractive to current and potential riders, the first vital step was to understand the current demand and patterns of mobility in the city. In 2013 WSDOT has conducted the Origin-Destination (O-D) study from current riders to identify the current trip patterns and needs along with demographic information. The COA also examined data of automatic rider count data from WSTA buses, major employer of fifty (50) or more employees, subsidized housing and apartment complex locations, and major trip generators such as shopping centers, hospital, and college. The final draft study recommends twenty five (25) new routes within the City of Winston-Salem. Among twenty five routes, three are circulators. Also there are several transfer points to the Transit Center for riders to reach to their desired final destination. Currently the final draft of new routes are under review for City Councilmembers.

WSDOT is currently planning to evaluate the new bus route corridor and design bus stops and shelters along some routes as well as to determine optimal location of bus stops and shelters. WSDOT and WSTA envision that locations of bus stops and shelters will increase the efficiency of WSTA operations and the accessibility of bus riders.

A Regional Pass Program has been implemented which has made it easier for passengers to make regional trips using more than one public transportation system. This program has encouraged people to use public transportation for these types of trips and has resulted in some increases in ridership. Also, an unlimited ride pass provides economic value for passengers who frequently use public transportation. From a system standpoint, encouraging passengers to travel between systems allows each system to benefit from increased boarding which positively affects federal and state funding allocations. All systems have worked out an agreement for a regional fare reimbursement to the local systems

The urban systems (GTA, WSTA, PART, Hi-Tran and Burlington) are presently engaged in a Regional Technology Project which is an effort to coordinate software and technology. Currently, all systems share a Trapeze scheduling database emanating from a server in Winston-Salem. Winston-Salem is currently installing a real-time passenger information system which can form the foundation for a regional real-time information system. Eventually, this system will be integrated into a statewide “511” system. The system also provides AVL data for internal consumption.

PART has expanded service into Davie County and increased its routes into Surry County. Funding challenges have limited expansion to other areas though PART continues to study possibilities for expanded services.

PART has increased connectivity for rural and urban providers by providing services throughout a 9-county territory and incorporating stops at major hospitals, downtowns, and colleges/universities. PART implemented the regional value pass program and the Triad Commute challenge to encourage regional ridership. PART expanded the RideShare Vanpool Program throughout the region, the Air Awareness Program, and the park and ride lot program throughout the region. To date, PART has constructed additional park and ride facilities and has a total of 27 locations available for public use.

Since the 2012 Biennial Update, over 13 miles of on-street bicycle facilities, including bicycle lanes and shared lane markings, have been installed in the City of Winston-Salem. An additional 25 miles are planned within the next 4 years and a total of 60 additional miles are planned by 2022.

## **REPORTINGS**

This 2014 biennial report is the continuation of the WSUA CMP. What will be presented are the deficient locations both in a table and map format, the Strategy Monitoring table, and a list of accomplishments since the 2009 Biennial Update. Due to the timeframes for the projects identified in the Strategy Monitoring Table, there is no report at this time on the Measures of Effectiveness for the deficient locations nor is there a report on the findings and recommendations. Refer to section 3.5.4 *Future Initiatives* of the CMP to see the planned tasks for the next Biennial Report.

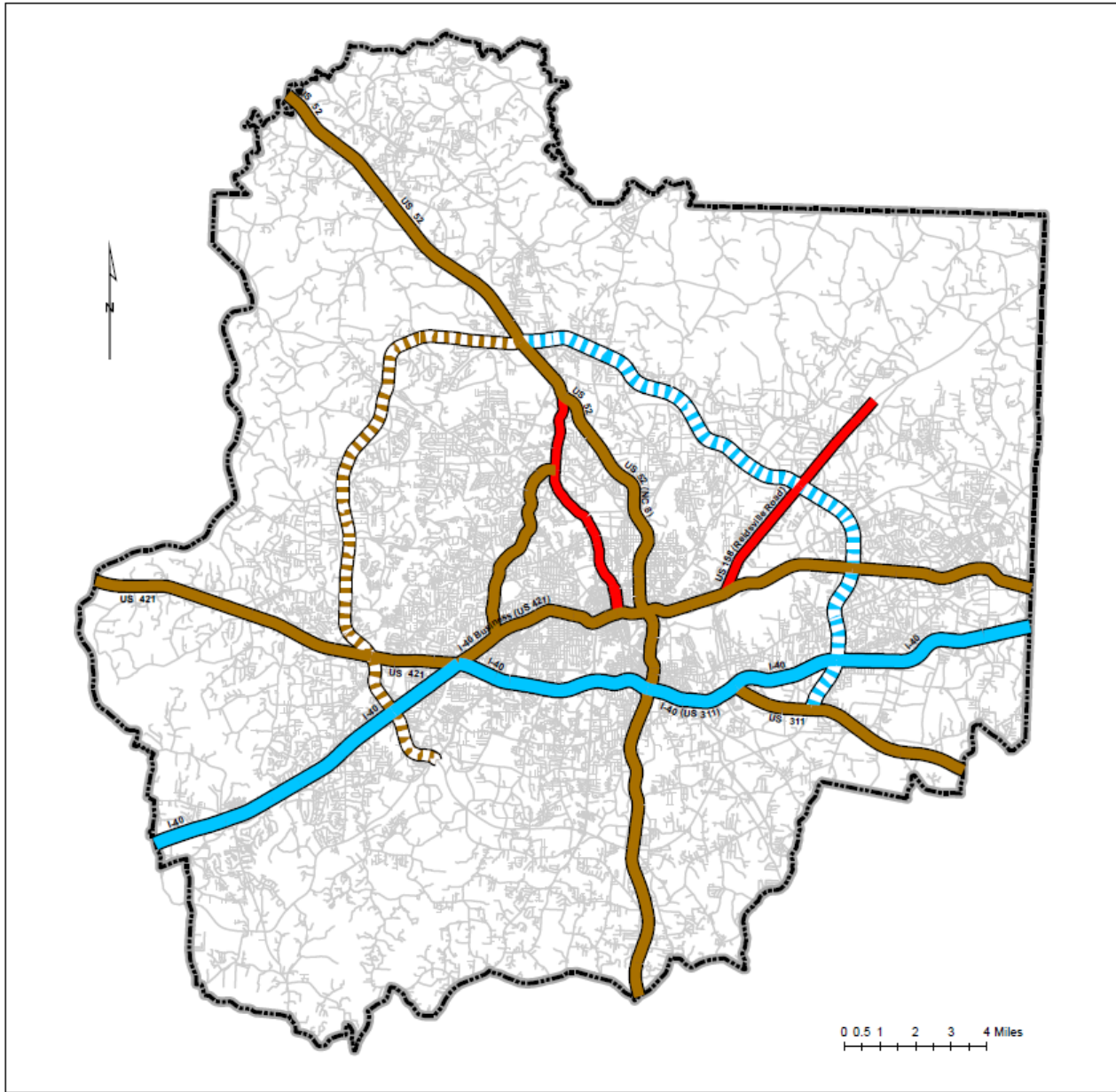
## PRIMARY DEFICIENT LOCATIONS

FACILITY	SECTION	2009 v/c	2011 v/c	2013 v/c	Fed. Funct. Class.
BUSINESS 40	SILAS CREEK PKWY (NC 67) - KNOLLWOOD ST	0.96	0.93	0.95	FREEWAY/EXPRESSWAY
BUSINESS 40	KNOLLWOOD ST - S STRATFORD RD (US 158)	0.96	0.93	0.95	FREEWAY/EXPRESSWAY
BUSINESS 40	S STRATFORD RD (US 158) - CLOVERDALE AVE	1.04	1.01	1.04	FREEWAY/EXPRESSWAY
BUSINESS 40	CLOVERDALE AVE - W FIRST ST RAMP	0.98	0.96	1.00	FREEWAY/EXPRESSWAY
BUSINESS 40	W FIRST ST RAMP - PETERS CREEK PKWY (NC 150)	1.12	1.11	1.12	FREEWAY/EXPRESSWAY
BUSINESS 40	PETERS CREEK PKWY (NC 150) - S BROAD ST	1.22	1.19	1.25	FREEWAY/EXPRESSWAY
BUSINESS 40	S BROAD ST - S MARSHALL ST	1.24	1.19	1.25	FREEWAY/EXPRESSWAY
BUSINESS 40	S MARSHALL ST - S MAIN ST	1.17	1.16	1.19	FREEWAY/EXPRESSWAY
BUSINESS 40	S MAIN ST - US 52	1.11	1.09	1.17	FREEWAY/EXPRESSWAY
BUSINESS 40	US 52 - N MARTIN LUTHER KING JR DR	1.19	1.14	1.22	FREEWAY/EXPRESSWAY
BUSINESS 40	N MARTIN LUTHER KING JR DR - E FIFTH ST	1.11	1.14	1.17	FREEWAY/EXPRESSWAY
BUSINESS 40	E FIFTH ST - LOWERY ST RAMP	1.11	1.12	1.16	FREEWAY/EXPRESSWAY
BUSINESS 40	LOWERY ST RAMP - REIDSVILLE RD (US 158)	1.11	1.12	1.16	FREEWAY/EXPRESSWAY
I-40	HANES MALL BLVD - PETERS CREEK PKWY (NC 150)	0.99	1.02	1.02	INTERSTATE
I-40	PETERS CREEK PKWY (NC 150) - SILAS CREEK PKWY EB RAMP	0.89	0.91	0.94	INTERSTATE
I-40	SILAS CREEK PKWY EB RAMP - US 52	1.02	1.05	1.09	INTERSTATE
I-40	US 52 - THOMASVILLE RD (NC 109)	1.00	1.02	1.08	INTERSTATE
I-40	THOMASVILLE RD (NC 109) - I-74	0.86	0.87	0.94	INTERSTATE
I-40	I-74 - NORTHERN BELTWAY (EAST)	0.87	0.91	0.95	INTERSTATE
I-40	NORTHERN BELTWAY (EAST) - UNION CROSS RD	0.87	0.91	0.95	INTERSTATE
I-40	UNION CROSS RD - NC 66	0.93	0.98	1.00	INTERSTATE
I-40	NC 66 - GUILFORD COUNTY LINE	0.95	0.96	0.98	INTERSTATE
SILAS CREEK PKWY (NC 67)	BUSINESS 40 - COUNTRY CLUB RD	1.06	1.16	1.10	FREEWAY/EXPRESSWAY
SILAS CREEK PKWY (NC 67)	COUNTRY CLUB RD - ROBINHOOD RD	1.02	1.14	1.10	FREEWAY/EXPRESSWAY
US 52	I-40 - E SPRAGUE ST	0.95	0.98	0.95	FREEWAY/EXPRESSWAY
US 52	E SPRAGUE ST - WAUGHTOWN ST	0.96	0.98	0.98	FREEWAY/EXPRESSWAY
US 52	WAUGHTOWN ST - SALEM CREEK CONNECTOR	0.96	0.98	0.98	FREEWAY/EXPRESSWAY
US 52	SALEM CREEK CONNECTOR - RAMS DR	0.98	1.00	0.98	FREEWAY/EXPRESSWAY
US 52	RAMS DR - BUSINESS 40	1.04	1.08	1.03	FREEWAY/EXPRESSWAY
US 52	BUSINESS 40 - E THIRD ST	1.43	1.46	1.44	FREEWAY/EXPRESSWAY
US 52	E THIRD ST - E FIFTH ST	1.43	1.46	1.44	FREEWAY/EXPRESSWAY
US 52	E FIFTH ST - N MARTIN LUTHER KING JR DR (US 311)	1.40	1.38	0.00	FREEWAY/EXPRESSWAY
US 52	N MARTIN LUTHER KING JR DR (US 311) - N LIBERTY ST [S]	1.28	1.22	1.22	FREEWAY/EXPRESSWAY
US 52	N LIBERTY ST [S] - E NORTHWEST BLVD	1.27	1.22	1.24	FREEWAY/EXPRESSWAY

## PRIMARY DEFICIENT LOCATIONS

FACILITY	SECTION	2009 v/c	2011 v/c	2013 v/c	Fed. Funct. Class.
US 52	E NORTHWEST BLVD - N LIBERTY ST [C]	1.30	1.24	1.25	FREEWAY/EXPRESSWAY
US 52	N LIBERTY ST [C] - E TWENTY-FIFTH ST	1.20	1.14	1.19	FREEWAY/EXPRESSWAY
US 52	E TWENTY-FIFTH ST - N LIBERTY ST [N]	1.20	1.14	1.19	FREEWAY/EXPRESSWAY
US 52	N LIBERTY ST [N] - AKRON DR	1.12	1.09	1.14	FREEWAY/EXPRESSWAY
US 52	AKRON DR - N PATTERSON AVE	0.90	0.88	0.93	FREEWAY/EXPRESSWAY

**Note:** Where the v/c is 0.00, a traffic count was not available.

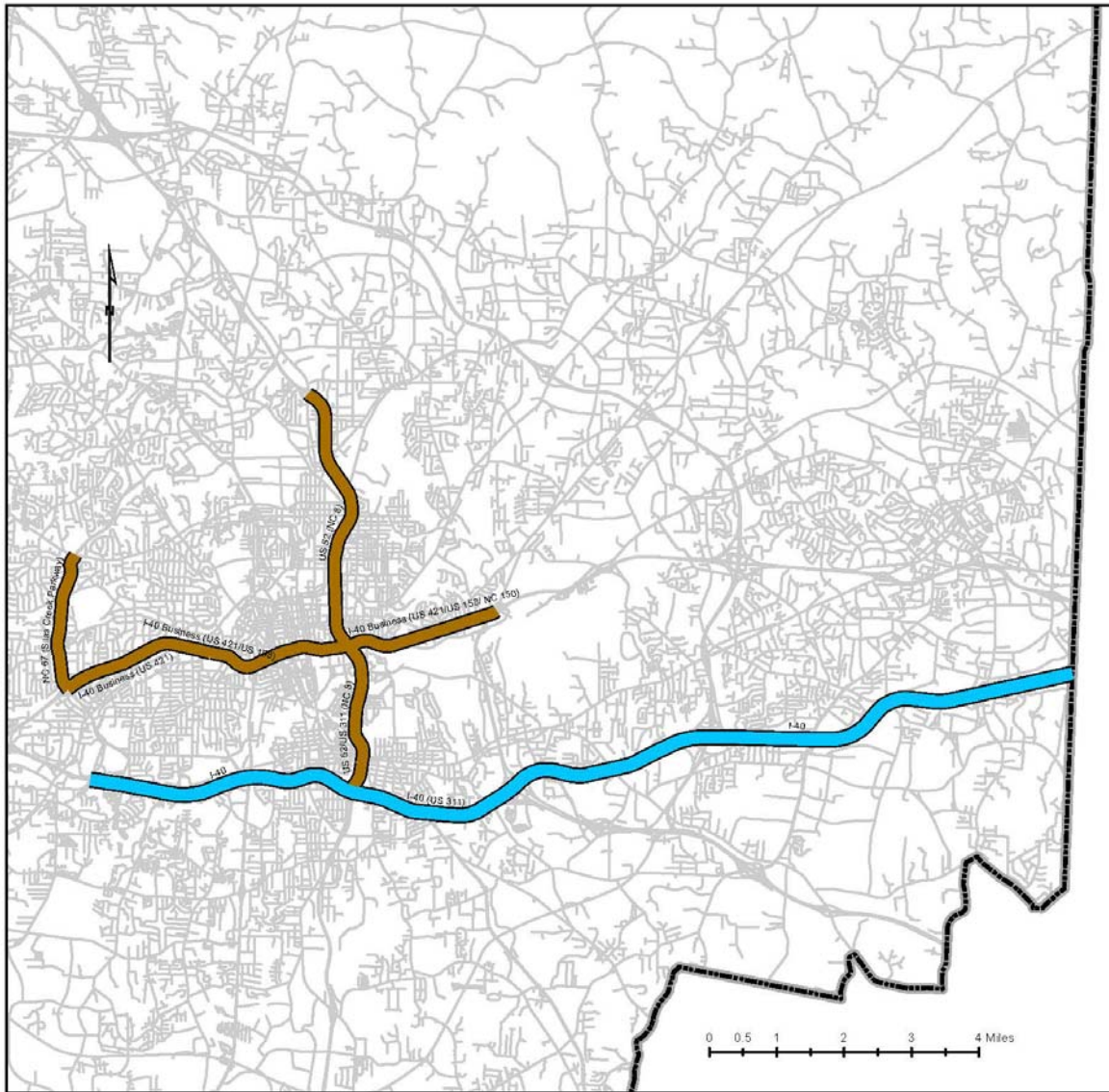


### Winston-Salem Urban Area Federal Functional Classifications Principal Arterials

**Legend**

**Federal Functional Class Classification**

- Interstate
- Future Interstate
- Freeway/Expressway
- Future Freeway/Expressway
- Other Principal Arterial
- Other Streets
- Metropolitan Area Boundary



**Winston-Salem  
Urban Area  
Principal Arterials  
with a V/C Ratio  
of 0.93 or Greater**

**Legend**

**Congested Principal Arterials  
Classification**

- █ Interstate
- █ Freeway/Expressway
- █ Other Principal Arterial
- █ Other Streets

Winston-Salem Urban Area  
Congestion Management Processes



## STRATEGY MONITORING TABLE

Deficient Location	Potential Strategy Tool(s)**	Planned or Proposed Project [Tip # (LRTP Map #)]	Construction Timeframe	Measures of Effectiveness
<b>BUSINESS 40 (US 421)</b> - Silas Creek Parkway (NC 67) to Peters Creek Parkway (NC 150)	HI3, HI4, TI3, TI5, FM2, IT2, IT3, IT4	R-2247 (09,10)	2026-2035	Mobility, Capacity, Energy/Environment
<b>BUSINESS 40 (US 158, US 421, NC150)</b> - Peters Creek Parkway to US 52	HI3, HI4, TI3, TI5, FM2, IT2, IT3, IT4	U-2827B (01) MLK Extension (16) R-2247 (09,10)	2016-2021 2016-2025 2026-2035	Mobility, Capacity, Energy/Environment
<b>BUSINESS 40 (US 158, US 421, NC150)</b> - US 52 to Reidsville Road (US 158)	HI3, HI4, TI3, TI5, FM2, IT2, IT3, IT4	U-2579 (02,08) US 311 Connector (13)	2016-2025 2026-2035	Mobility, Capacity, Energy/Environment
<b>INTERSTATE 40</b> - Hanes Mall Blvd to Peters Creek Parkway	HI4, FM1, FM2, TO1, IT2, IT3, IT4	Ebert/Stratford Connector (13)	2016-2025	Mobility, Capacity, Energy/Environment
<b>INTERSTATE 40</b> - Peters Creek Parkway to Silas Creek Parkway	HI4, FM1, FM2, TO1, IT2, IT3, IT4	Ebert/Stratford Connector (13)	2016-2025	Mobility, Capacity, Energy/Environment
<b>INTERSTATE 40</b> - Silas Creek Parkway Ramps to Thomasville Road (NC 109)	HI4, FM1, FM2, TO1, IT2, IT3, IT4	Ebert/Stratford Connector (13)	2016-2025	Mobility, Capacity, Energy/Environment
<b>INTERSTATE 40</b> - Thomasville Road (NC 109) to Union Cross Road	HI4, FM1, FM2, TO1, IT2, IT3, IT4	I-40 Widening (08, 11)	2022-2025	Mobility, Capacity, Energy/Environment
<b>INTERSTATE 40</b> - Union Cross Road to Guilford County Line	HI4, FM1, FM2, TO1, IT2, IT3, IT4	I-40 Widening (11)	2022-2025	Mobility, Capacity, Energy/Environment
<b>SILAS CREEK PARKWAY (NC 67)</b> - Business 40 to Robinhood Road	HI2, HI4, TO1, TO3, AM1, AM2, AM4	R-2247 (09)	2026-2035	Mobility, Capacity, Safety
<b>US 52 (US 311, NC 8)</b> - Interstate 40 to Salem Creek Connector (Research Parkway)	HI4, TI2, TI3, TI5, FM2, TO1, TO5, IT2, IT3, IT4,	N/A		Mobility, Capacity, Safety, Energy/Environment

\*\*See Strategy Monitoring Toolkit, Table 5, Section 3.5 of the LRTP

**STRATEGY MONITORING TABLE**

<b>Deficient Location</b>	<b>Potential Strategy Tool(s)**</b>	<b>Planned or Proposed Project</b> [Tip # (LRTP Map #)]	<b>Construction Timeframe</b>	<b>Measures of Effectiveness</b>
<b>US 52 (US 311, NC 8)</b> - Salem Creek Connector (Research Parkway) to Business 40 (US 158, US 421, NC 150)	HI4, TI2, TI3, TI5, FM2, TO1, TO5, IT2, IT3, IT4,	U-2925 (06)	2012-2015	Mobility, Capacity, Safety, Energy/Environment
<b>US 52 (NC 8)</b> - Business 40 (US 158, US 421, NC 150) to Martin Luther King Jr. Drive	HI4, TI2, TI3, TI5, FM2, TO1, TO5, IT2, IT3, IT4,	U-2579 (02,08) U-4918A (01) U-2826 (04)	2016-2025 2012-2015 2012-2015	Mobility, Capacity, Safety, Energy/Environment
<b>US 52 (NC 8)</b> - Martin Luther King Jr. Drive to Patterson Avenue	HI4, TI2, TI3, TI5, FM2, TO1, TO5, IT2, IT3, IT4,	U-2579 (02,08) U-2826 (06)	2026-2035 2012-2035	Mobility, Capacity, Safety, Energy/Environment

**\*\*See Strategy Monitoring Toolkit, Table 5, Section 3.5 of the LRTP**

## ACCOMPLISHMENTS

- **Plans and Documents**
  - **2012** – *Winston-Salem Urban Area Greenway Plan* update
- **Feasibility/Corridor Studies**
  - Cloverdale Avenue Pedestrian & Bicycle Study
  - Big Mill Farm Road Feasibility Study
  - South Main Street Corridor Study (Kernersville)
  - Peters Creek Parkway Bicycle & Pedestrian Facilities Study
  - Wake Forest University Area Bike/Pedestrian/Transit study
- **Funded Improvements**
  - ***STP-DA Bicycle and Pedestrian Projects:*** \$5.4 million has been allocated for bicycle, sidewalk, and greenway projects for FY 2011 and \$6.8 million in FY2012. An additional allocation of \$6.6 million is expected later this year.
  - ***STP-DA Intersection Improvement Projects:*** A TIP program number U-4742 has been established to fund a minimum of \$300,000 per year through to FY 2015 for intersection improvements projects throughout the MPO
  - ***Division 9 Safe Routes to School (SRTS) Project:*** \$500,000 in federal SRTS funds has been programmed for sidewalk improvements around schools for FY 2015.
  - ***STP-DA Bicycle and Pedestrian Projects:*** \$7.9 million in STPD-DA funds was added to TIP program number U-4741 for bicycle and pedestrian projects for FY 2013.
  - ***Transportation Alternatives Program (TAP):*** \$400,000 per year in TAP funds was added to TIP program number U-4741 for bicycle and pedestrian projects through to FY 2016.
  - ***CMAQ Projects:*** The C-5142B project to upgrade the CCTV equipment for the City and to retiming signals on 6 corridors was completed in the fall of 2012. The C-4981 project to install an additional 6 CCTV cameras and a closed loop system on Hanes Mill Road was completed in the summer of 2013.
- **Signal Corridor Re-timings & Travel Time Studies**

There have been no major signal corridor re-timings performed since the start of the Signal System Upgrade project (C-5224) with reason being that communication to these intersections will be constantly interrupted as the controllers and cabinets are replaced with new offset reference points. The following corridors were previously retimed.

- Peters Creek Parkway, Academy Street to Southpark Boulevard
- Martin Luther King, Jr. Drive, New Walkertown Road (US 311) to Reynolds Park Drive
- University Parkway, Hanes Mill Road North to North Point Boulevard
- Hanes Mall Boulevard, Jonestown Road to Silas Creek Parkway
- Jonestown Road, Country Club Road to Kester Mill Road
- Stratford Road, Oakwood Drive to I-40 WB Ramp
- Silas Creek Parkway, Hanes Mall Boulevard to Hawthorne Road
- Silas Creek Parkway, Ebert Street to Buchanan Street
- Reynolda Road, Old Town Drive to Stratford Road
- Robinhood Road, Norman Road to Silas Creek Parkway SB Ramp
- University Parkway, Cherry Street to Northwest Boulevard

- **Completed Projects**

- Silas Creek/Bethabara/North Point Intersection Improvements
- Ebert Street & Oak Grove Road Signal
- Polo Road & Peace Haven/Petree Intersection Improvements
- Highland & MLK Eastbound Left Turn Lane
- Ferrell/New Walkertown Road Signal and Pedestrian Crossing Improvements
- Sprague/Waughtown/Reynold's Park Road Right Turn Lane/Pedestrian Improvements
- Clemmonsville Road Widening
- Motor Road Extension
- On-Street Bike Facilities
  - Main Street from Salem Avenue to Clemmonsville Road
  - Acadia Avenue from Salisbury Ridge Road to Sunnyside Avenue
  - Salisbury Ridge Road from Acadia Avenue to Buchanan Street
  - Buchanan Street from Silas Creek Parkway to Brewer Road
  - London Lane from Ebert Street to Bolton Street
  - Polo Road from Long Drive to Robinhood Road
  - Lowery Street from Interstate 40 (Business) ramp to Lowery Court
  - Academy Street from Peters Creek Parkway to Brent Street
  - Broad Street from Salem Avenue to Cotton Street
- Greenways & Multiuse Paths
  - Little Creek Greenway from Creekshire Way to Atwood Road
- Sidewalks
  - Addison Avenue, New Walkertown Road to 12<sup>th</sup> Street
  - Aureole Street, Old Lexington Road to Belview Park
  - Bretton Street, Pleasant Street to Peachtree Street
  - Buchanan Street, Sprague Street to Salisbury Ridge Road
  - Foxcroft Drive, Little Creek Recreation Center to Flintfield Drive
  - Hawthorne Road, Silas Creek Parkway to Bethesda Road
  - Junia Avenue, Martin Luther King, Jr. Drive to Peachtree Street
  - Link Road, Peter's Creek Parkway to Waybridge Lane
  - New Walkertown Road, Waterworks Road to Spaulding Drive
  - Old Vineyard Road, Country Club Road to Johnsborough Court
  - Peter's Creek Parkway, Brewer Road to Bus Stop South of I-40
  - Pitts Street, Alder Street to Free Street
  - Pleasant Street, Peachtree Street to West Sedgefield Street
  - Reynolda Road, Loch Drive to Andrews Drive
  - Wellington Road, Robinhood Road to Pine Valley Road
  - York Road, Clovelly Road to Existing Sidewalk
  - WSSU Pedestrian Improvements, Reynolds Park Road to Cromartie Street

## **FINDINGS AND RECOMMENDATIONS**

The data collected since the 2012 biennial report shows that the deficient segments within the Winston-Salem Urban Area have remained the same along the Business 40, Interstate 40, US 52, and Reidsville Road (US 158) corridors. This was expected since projects to address congestion in these locations are still under construction or planned for the future. As projects are completed over the next several years, the Congestion Analysis portion of the CMP will be critical in determining if these projects have been effective at addressing the main areas of concern within the urban area.