Montgomery Congestion Management Process (CMP) 2023-2027

Montgomery Metropolitan Planning Organization

DRAFT

Montgomery Metropolitan Planning Organization

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Executive Summary

The purpose of a Congestion Management Process (CMP) is to support the Metropolitan Planning Organization's (MPO) transportation planning process by identifying strategies that promote more efficient transportation system management and operations versus traditional highway capacity improvement projects. The CMP supports the Long-Range Transportation Plan (LRTP) by identifying the traffic "hot spots" in the Montgomery region and developing projects and strategies that can be implemented in the Transportation Improvement Plan (TIP) and LRTP. CMP projects constructed across the U.S. have illustrated that traffic flow can be improved at a fraction of the cost of major highway capacity improvements projects while minimizing right-of-way and community impacts.

This Congestion Management System Process report is an update to previous CMPs developed by the Montgomery MPO starting with the CMP adopted in 2003, the Congestion Management System Plan 2009-2013, adopted in 2009, and the Congestion Management System Process 2014-2018, adopted in 2014.

Neel-Schaffer performed a congestion management study in cooperation with the Montgomery MPO during May of 2014. This study determined that the following corridors were experiencing significant delays and were in need of improvement:

1. Taylor Road (SR-271) – Segment from I-85 EB On Ramp to Eastchase Parkway
2. East Boulevard (US-231) – Segment from Carmichael Road to Monticello Drive
3. East Boulevard – Intersection with Carmichael Road
4. East Boulevard – Intersection with I-85 Westbound Off Ramp
5. Wetumpka Highway (US-231) – Segment from Anderson Road to Jasmine Hill Road
6. Cobbs Ford Road (US-82 in Prattville) – Segment from US-82 to I-65
7. Wetumpka Highway (US-231) – Intersection with Redland Road
8. East Main Street (CR-2 in Prattville) – Segment from US-82 to Greystone Way
9. Taylor Road - Interchange with I-85 Ramps
10. Troy Highway (US-231) – Intersection with Christine Elizabeth Curve/Virginia Loop Road
11. South Boulevard (US-80) – Segment from Narrow Lane Road to Troy Highway (US-231)
12. Atlanta Highway (CR-108) – Segment from South Burbank Drive to East West Service Road
13. Chantilly Parkway (CR-110) – Interchange with I-85
14. Chantilly Parkway – Segment from Atlanta Highway to Eastchase Parkway
15. South Boulevard – Intersection with Woodley Road
16. Fairview Avenue (SR-14 in Prattville) – Interchange with I-65
17. Fairview Avenue – Intersection with Grandview Road (CR-8/CR-10)
18. Fairview Avenue – Segment from I-65 to Grandview Road
19. Taylor Road – Segment from Halcyon Boulevard to Vaughn Road
20. Perry Hill Road – Segment from Atlanta Highway to I-85
21. Vaughn Road (SR-626) – Segment from Taylor Road to Halcyon Park Drive
22. Pike Road (CR-85) – Intersection with Vaughn Road
23. State Route 14 (Prattville) – Intersection with McQueen Smith Road
24. Ray Thorington Road (CR-75) – Segment from Pike Road to Vaughn Road
25. Carter Hill Road – Segment from McGehee Road to Vaughn Road

The following goals were created for the CMP based on the MPO's objectives for the LTRP and the UPWP:

1. Provide effective management of existing and future transportation facilities through travel demand reduction and operational management.
2. Optimize the safety of the transportation network.
3. Optimize the effectiveness and reliability of the transportation network.
4. Increase multimodal transportation access.

Several methods of analysis were utilized to identify specific areas of Montgomery where congestion occurs more often and to determine how traffic flows throughout the city and surrounding areas. Utilizing the Montgomery MPO travel demand model, Sain Associates analyzed reductions in speed due to congestion for the years 2015 and 2045. The same methodology was utilized to determine V/C ratios based on daily volumes for the years 2015 and 2045. Iteris ClearGuide was also utilized to gain a better understanding of the congestion in Montgomery. This platform uses 3rd party speed data derived from GPS-enabled devices to give the viewer a clear visualization of the network from a regional perspective to a single roadway.

Based on the analysis of speed reduction and V/C ratios, several corridors around the City of Montgomery were selected for field study. Sain Associates conducted travel time runs for the AM, Midday, and PM peak periods for the following corridors:

- I-65 (From CR-59 to I-85)
- I-85 (From I-65 to CR-126)
- North Boulevard (SR-152) (From I-65 to US-231)
- East Boulevard (From Wetumpka Highway to Troy Highway)
- South Boulevard (From Troy Highway to I-65)
- Vaughn Road (from Perry Hill Road to Taylor Road)
- Perry Hill Road (from Atlanta Highway to Vaughn Road)
- Wetumpka Highway (US-231) (from Redland Road to East Boulevard)
- Woodley Road (from Fairview Avenue to McGehee Road)

Based on the information contained in the analysis presented, most of the congestion observed in the Montgomery area occurs where US-231 merges with the loop around the city. According to travel time runs, additional congestion occurs at the I-85/East Boulevard interchange during the PM peak period.

In addition, congestion and speed analysis indicate several arterial corridors experience heavy congestion under existing conditions (2015) with severe congestion projected in the future conditions (2045). These corridors include US-231 (Wetumpka Highway), Perry Hill Road, Vaughn Road, and Woodley Road. Travel time runs confirmed these roadways to be potential "hot spots" in the future.

For each of the congested corridors, mitigation strategies were developed to include in the discussion of the next TIP and implement where necessary.

The following projects were listed in Montgomery's current TIP for the fiscal years of 2020-2023. These projects were compared with respect to the corridors analyzed in our study.

- Project #100062338 – Feasibility Study for Sidewalks/Multi-Use Path on Vaughn Road from Taylor Road to Chantilly Parkway – Fiscal Year 2020
- Project #10064162 – Widen and Resurface Perry Hill Road from Cardinal Lane to Camelia Drive and Widen Atlanta Highway from Perry Hill Road to Bellhurst Drive – Fiscal Year 2020
- Project #100044272 – Widen and Resurface Perry Hill Road from Harrison Road to Cardinal Lane – Fiscal Year 2020
- Project #100055809 – Bridge Replacement on Woodley Road at Whites Slough and Tributary – Fiscal Year 2020
- Project #100063233 – Widening on Redland Road from US-231 to Rifle Range Road and Bridge Replacement at Harwell Mill Creek – Fiscal Year 2020

According to the analysis performed by Neel-Schaffer during 2014, the following strategies were recommended for the previous CMP:

1. Taylor Road – Segment from I-85 EB On Ramp to Eastchase Parkway
    a. Geometric Design Improvements
        i. Unconventional Intersection Design
        ii. Additional through lanes and turn lanes
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
2. East Boulevard – Segment from Carmichael Road to Monticello Drive
    a. Geometric Design Improvements
        i. Slip lanes for access to frontage roads or consider eliminating frontage roads near intersection
        ii. Additional lanes in both directions
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
3. East Boulevard – Intersection with Carmichael Road
    a. Geometric Design Improvements
        i. Unconventional Intersection Design
        ii. Tight Diamond Interchange
    b. Traffic Signal Optimization and Interconnection
        i. Consider separating left/through lane into two different lanes
4. East Boulevard – Intersection with I-85 Westbound Off Ramp
    a. Geometric Design Improvements
        i. Reconfigure ramp terminal
        ii. Consider dual right turns
        iii. Unconventional Intersection Design
5. Wetumpka Highway (US-231) – Segment from Anderson Road to Jasmine Hill Road
    a. Geometric Design Improvements
        i. Additional lanes
        ii. Intersection improvements – Jasmine Hill Road at Redland Road
        iii. Intersection improvements – Anderson Road
    b. Traffic Signal Optimization and Interconnection (Jasmine Hill Road at Redland Road
    c. Access Management
        i. Raised median with turn lanes

6. Cobbs Ford Road (Prattville) – Segment from US-82 to I-65
    a. Geometric Design Improvements
        i. Connect Highland Ridge Drive to Rocky Mt Road
    b. Traffic Signal Optimization and Interconnection
        i. Improve US-82 signal optimization
        ii. Optimize through movements during peak periods
    c. Access Management
        i. Remove median openings
        ii. Create more RI/RO driveways and utilize backage roads
    d. Growth Management Program
    e. Transit and Ridesharing Programs
7. Wetumpka Highway (US-231) – Intersection with Redland Road
    a. Geometric Design Improvements
        i. Additional lanes
        ii. Intersection improvements
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
8. East Main Street (Prattville) – Segment from US-82 to Greystone Way
    a. Geometric Design Improvements
        i. Intersection improvements
        ii. Additional right turn lanes at existing driveways
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
        i. Median replacement of two-way left turn lanes
        ii. Consolidate driveways
        iii. Convert entrances to RI/RO
    d. Growth Management Program
    e. Transit and Ridesharing Programs
9. Taylor Road - Interchange with I-85 Ramps
    a. Geometric Design Improvements
        i. Ramp configurations
        ii. Unconventional Intersection Design
        iii. Additional lanes
    b. Traffic Signal Optimization and Interconnection
10. Troy Highway (US-231) – Intersection with Christine Elizabeth Curve/Virginia Loop Road
    a. Geometric Design Improvements
        i. Realignment
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
        i. Driveway consolidation
        ii. Service road improvements or removal
11. South Boulevard – Segment from Narrow Lane Road to Troy Highway (US-231)
    a. Geometric Design Improvements
        i. Additional lanes
        ii. Median U-turns or Superstreet
        iii. Frontage road extensions
        iv. Intersection study at Morrow Drive
    b. Traffic Signal Optimization and Interconnection (Upgrades)

    c. Access Management
12. Atlanta Highway – Segment from South Burbank Drive to East West Service Road
    a. Geometric Design Improvements
        i. Improvements to East and West service roads
        ii. Additional lanes in both directions
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
        i. Driveway consolidation
        ii. Median closures
    d. Transit and Ridesharing Programs
    e. Bus Service and Operations Improvements
13. Chantilly Parkway – Interchange with I-85
    a. Geometric Design Improvements
        i. Unconventional Interchange Design
        ii. Additional lanes
    b. Traffic Signal Optimization and Interconnection
14. Chantilly Parkway (US-80) – Segment from Atlanta Highway to Eastchase Parkway
    a. Geometric Design Improvements
        i. Consider interchange ramp terminal intersection designs, such as roundabouts, diverging diamond interchange, etc.
        ii. Additional lanes south of the interchange and at Eastchase intersection
        iii. Consider adding right turn lanes onto Cooper Parkway
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
15. South Boulevard – Intersection with Woodley Road
    a. Geometric Design Improvements
        i. Unconventional Intersection Design
        ii. Study ultimate grade separation, urban interchange design
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
        i. Interchange area development guidelines
16. State Route 14 (Prattville) – Interchange with I-65
    a. Geometric Design Improvements
        i. Unconventional Intersection Design
        ii. Additional Lanes
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
        i. Interchange area development guidelines
17. State Route 14 (Prattville) – Intersection with Grandview Road (CR-8/CR-10)
    a. Geometric Design Improvements
        i. More conventional right turn lane on Grandview Road and separation of through and left lanes on Grandview Road
        ii. Additional Lanes Westbound to I-65
    b. Traffic Signal Optimization and Interconnection
18. State Route 14 (Prattville) – Segment from I-65 to Grandview Road
    a. Geometric Design Improvements
        i. Additional Eastbound Through Lane

        ii. Intersection Improvements and Signalization of Camp Grandview and Grandview Road

19. Taylor Road – Segment from Halcyon Boulevard to Vaughn Road
    a. Geometric Design Improvements
        i. Additional left and right lanes
        ii. Unconventional Intersection Design
        iii. Median U-Turns, Superstreet, Etc.
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
20. Perry Hill Road – Segment from Atlanta Highway to I-85
    a. Geometric Design Improvements
        i. Additional lanes, especially north of Harrison Road
        ii. More right turn lanes into driveways
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
    d. Transit and Ridesharing Programs
    e. Bus Service and Operations Improvements
21. Vaughn Road – Segment from Taylor Road to Halcyon Park Drive
    a. Geometric Design Improvements
        i. Additional eastbound lane
        ii. Improved entrances to Festival Plaza
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
        i. Install raised median with turn lanes
        ii. Eliminate bi-directional turning movements
22. Pike Road – Intersection with Vaughn Road
    a. Geometric Design Improvements
        i. Additional turn lanes and/or through lanes at the intersection
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
        i. Intersection area development guidelines
23. State Route 14 (Prattville) – Intersection with McQueen Smith Road
    a. Geometric Design Improvements
        i. Unconventional intersection design
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
        i. Convert entrances to RI/RO near the intersection
24. Ray Thorington Road – Segment from Pike Road to Vaughn Road
    a. Geometric Design Improvements
        i. Additional lanes from Foxhall Road to Vaughn Road
    b. Traffic Signal Optimization and Interconnection
        i. Study the need for signalizing Deer Creek Crossing, Deercreek Lane, and Hallwood Drive
    c. Access Management
25. Carter Hill Road – Segment from McGehee Road to Vaughn Road
    a. Geometric Design Improvements
        i. Additional lanes for the entire segment in both directions with center turn lane

   b. Access Management
   c. Bus Service and Operations Improvements
   d. Transit and Ridesharing Programs
   e. Non-motorized Improvements
      i. Sidewalks to schools
   f. Other
      i. Evaluate efficiency of school drop-off/pick-ups

Based on the analysis performed in this study, Sain Associates recommends the following implementation strategies for the CMP.

1. East Boulevard (From US-231 (Wetumpka Highway) to US-231 (Troy Highway))
   a. Traffic Signal Optimization and Interconnection
   b. Traffic Signal Spacing and Retiming
      i. Study the need for updated signal timings and coordination
      ii. Study if existing traffic signals meet warrant requirements
   c. Geometric Design Improvements along East Boulevard
   d. Alternative Interchange Design at I-85
   e. Access Management
      i. Create more RI/RO driveways
      ii. Removal of median openings where applicable
      iii. Addition of right turn lanes at driveways where applicable
   f. Any improvements recommended in a recent planning study, if applicable.
2. South Boulevard (From US-231 (Troy Highway) to I-65)
   a. Traffic Signal Optimization and Interconnection
   b. Traffic Signal Spacing and Retiming
      i. Study the need for updated signal timings and coordination
      ii. Study if existing traffic signals meet warrant requirements
   c. Geometric Design Improvements Along South Boulevard
   d. Alternative Interchange Design at I-85
   e. Access Management
      i. Create more RI/RO driveways
      ii. Removal of median openings where applicable
      iii. Addition of right turn lanes at driveways where applicable
   f. Any improvements recommended in a recent planning study, if applicable.
3. US-231 (Wetumpka Highway) – From North Boulevard to Redland Road
   a. Geometric Design Improvements
      i. Intersection Improvements at Redland Road and North Boulevard
   b. Access Management
   c. Any improvements recommended in a recent planning study, if applicable.
4. Vaughn Road (From Perry Hill Road to Taylor Road)
   a. Traffic Signal Optimization and Interconnection
   b. Traffic Signal Spacing and Retiming
      i. Study the need for updated signal timings and coordination
      ii. Study if existing traffic signals meet warrant requirements
   c. Geometric Design Improvements along Vaughn Road
   d. Access Management
      i. Create more RI/RO driveways
      ii. Change from TWLTL to median where applicable

        iii. Addition of right turn lanes at driveways where applicable
    e. Any improvements recommended in a recent planning study, if applicable.
5. Perry Hill Road (From Vaughn Road to Atlanta Highway)
    a. Traffic Signal Optimization and Interconnection
    b. Traffic Signal Spacing and Retiming
        i. Study the need for updated signal timings and coordination
        ii. Study if existing traffic signals meet warrant requirements
    c. Geometric Design Improvements along Perry Hill Road
    d. Access Management
        i. Change from TWLTL to median where applicable
        ii. Addition of right turn lanes at driveways where applicable
    e. Any improvements recommended in a recent planning study, if applicable.
6. Woodley Road (From Fairview Avenue to McGehee Road)
    a. Geometric Design Improvements
        i. Intersection Improvements Near Fairview Avenue and Narrow Lane Road
    b. Access Management
        i. Addition of right turn lanes at driveways where applicable
    c. Any improvements recommended in a recent planning study, if applicable.
7. Intersection of Lagoon Park Drive and East Boulevard
    a. Geometric Design Improvements
        i. Study the need for possible signalized phase for the frontage road
    b. Access Management
        i. Study the need for RI/RO driveway connections
    c. Any improvements recommended in a recent planning study, if applicable.
8. Clay Street/Herron Street/Madison Avenue
    a. Geometric Design Improvements
        i. Unconventional Interchange Design
        ii. Additional Lanes
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
        i. Best Practices
    d. Any improvements recommended in a recent planning study, if applicable.
9. Marler Road
    a. Geometric Design Improvements
        i. Turn Lanes
        ii. Additional Lanes
    b. Any improvements recommended in a recent planning study, if applicable.

The V/C analysis conducted for the CMP illustrated that the V/C ratio thresholds used in the CMP analysis align better with field data than the current V/C ratio thresholds used in the LRTP planning process. The V/C ratio thresholds used in the CMP analysis factor in the temporal distribution of traffic throughout the day, where there are many hours where traffic volumes do not approach the hourly capacity of the roadway.

Based on the results shown in this CMP study, which illustrate that the CMP thresholds are more consistent with existing travel time and speed reduction data, it is recommended that the Montgomery MPO utilize the following V/C ratio thresholds in the LRTP analysis:

- Low or no congestion – V/C ratio less than 0.5

- Moderate congestion – V/C ratio from 0.5 to 0.74
- Heavy congestion – V/C ratio from 0.75 to 1.0
- Severe congestion – V/C ratio greater than 1

The utilization of these thresholds will improve the LRTP process by better illustrating areas where future congestion will occur in the Montgomery region. This in turn will better inform ALDOT and the local jurisdictions who participate in the MPO project prioritization process in the future.

Introduction

The purpose of a Congestion Management Process (CMP) is to support the Metropolitan Planning (MPO) transportation planning process by identifying strategies that promote more efficient transportation system management and operations versus traditional highway capacity improvement projects. The CMP informs the LRTP by identifying the "hot spots" in the Montgomery region related to traffic and developing projects and strategies that can be implemented in the TIP and LRTP. CMP projects constructed across the U.S. have illustrated that traffic flow can be improved at a fraction of the cost of major highway capacity improvements projects while minimizing right-of-way and community impacts.

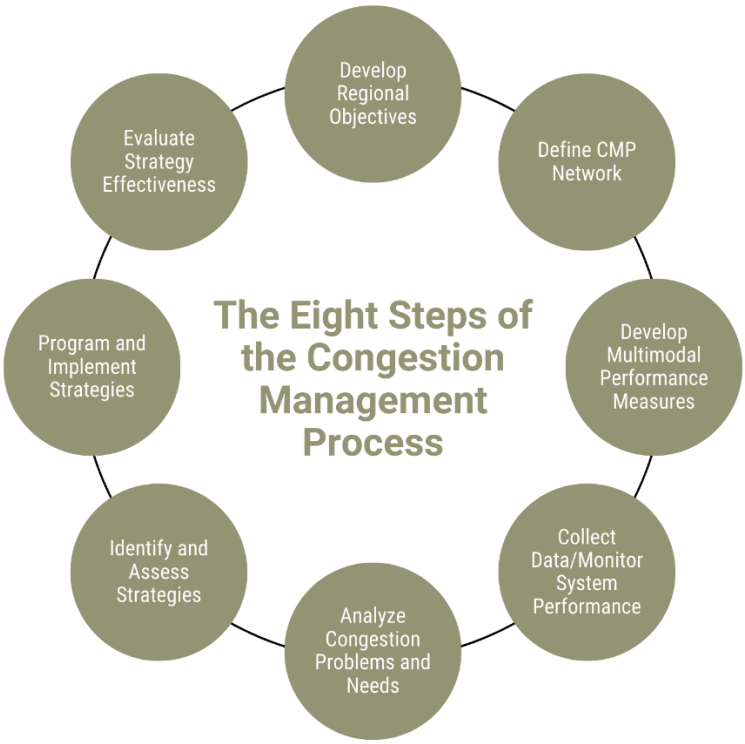
Photo 1: I-20/59 Bridge Construction in Birmingham (Source AL.com)

The Safe Accountable Flexible Efficient Transportation Equity Act – (SAFETEA-LU) stipulated the requirement for the use of the CMP in Transportation Management Areas (TMA) such as the Montgomery MPO planning region. The CMP builds upon more than a decade of experience with planning for congestion management, including the Congestion Management Systems first introduced in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), as well as the accumulated knowledge of how greater availability of data, enhanced tools for data management and modeling, expanded use of intelligent transportation systems, and opportunities for regional cooperation and collaboration can improve the active management of the regional transportation system.

The change in name from Congestion Management Systems reflects a substantive shift in perspective and practice to address congestion management through a process that provides for effective management and operations and enhanced linkage to the planning process, and

to the environmental review process, based on cooperatively developed travel demand reduction and operational management strategies as well as capacity increases.

The CMP uses analytic tools to define and identify congestion within a region, corridor, and activity center or project area, and to develop and select appropriate strategies to reduce congestion or mitigate the impacts of congestion. It is important that strategies and projects developed during the CMP process are consistent with the area type to maximize their effectiveness.



The primary distinction between the implementation of a CMP rather than system is that it should measure the progress of implemented strategies in reducing congestion. The 2003 Congestion Management System Plan (CMSP) for Montgomery did not address this process. The current CMP summarizes the status of projects recommended in previous CMP efforts and their projected (or real based on data availability) impacts.

Sain Associates was tasked with identifying specific areas in the Montgomery region where congestion occurs and developing potential solutions to alleviate future congestion. Elements of this report include a demographic summary of Montgomery (including population and employment), a speed reduction analysis (peak versus off-peak speeds), a summary of congestion based on volume/capacity (V/C) ratios, a field analysis including travel time runs, and a Big Data analysis using Iteris ClearGuide. A summary was developed to identify the primary areas of congestion, and potential solutions were recommended through a congestion management matrix and examples of improvements to traffic operations.

Previous Congestion Management Studies

This Congestion Management System Process (CMSP) report is an update to previous CMPs developed by the Montgomery MPO starting with the CMP adopted in 2003, the CMSP 2009-2013, adopted in 2009, and the CMSP 2014-2018, adopted in 2014.

The purpose of the CMSP (2003) was to identify current and future congestion areas and to devise appropriate strategies to prevent congestion from occurring over time if possible, or to mitigate congestion if a more desirable solution cannot be implemented. This plan targeted identifying congestion problems, determining the causes of the congestion, as well as recommending alternative strategies to mitigate congestion.

The CMSP 2009-2013 conducted by Dr. Michael Anderson "was intended to provide a snapshot of congestion levels in the urbanized area, a look at possible future congestion levels and identification of measures to alleviate congestion in the future". The plan included travel times runs for roughly 320 miles of roadway identified in the Montgomery area. The travel times runs included morning peak, evening peak, and off-peak travel time data. A total of four runs were conducted for each of the morning and evening peak periods and two runs were conducted for the off-peak periods.

Neel-Schaffer performed a congestion management study in cooperation with the Montgomery MPO dated May 2014. The purpose of the study was to identify current and future areas of congestion around the City of Montgomery and propose alternatives to mitigate future congestion. The study included a congestion analysis using V/C ratio data provided by the Montgomery MPO, as well as travel time runs along various corridors throughout the city. The study area network was determined by roadway classification. This included interstates, freeways/expressways, principal arterials, and minor arterials. This study determined that the following corridors were experiencing significant delays and are in need of improvement:

1. Taylor Road (SR-271) – Segment from I-85 EB On Ramp to Eastchase Parkway
2. East Boulevard (US-231) – Segment from Carmichael Road to Monticello Drive
3. East Boulevard – Intersection with Carmichael Road
4. East Boulevard – Intersection with I-85 Westbound Off Ramp
5. Wetumpka Highway (US-231) – Segment from Anderson Road to Jasmine Hill Road
6. Cobbs Ford Road (US-82 in Prattville) – Segment from US-82 to I-65
7. Wetumpka Highway (US-231) – Intersection with Redland Road
8. East Main Street (CR-2 in Prattville) – Segment from US-82 to Greystone Way
9. Taylor Road - Interchange with I-85 Ramps
10. Troy Highway (US-231) – Intersection with Christine Elizabeth Curve/Virginia Loop Road
11. South Boulevard (US-80) – Segment from Narrow Lane Road to Troy Highway (US-231)
12. Atlanta Highway (CR-108) – Segment from South Burbank Drive to East West Service Road
13. Chantilly Parkway (CR-110) – Interchange with I-85
14. Chantilly Parkway – Segment from Atlanta Highway to Eastchase Parkway
15. South Boulevard – Intersection with Woodley Road
16. Fairview Avenue (SR-14 in Prattville) – Interchange with I-65
17. Fairview Avenue – Intersection with Grandview Road (CR-8/CR-10)
18. Fairview Avenue – Segment from I-65 to Grandview Road
19. Taylor Road – Segment from Halcyon Boulevard to Vaughn Road

20. Perry Hill Road – Segment from Atlanta Highway to I-85
21. Vaughn Road (SR-626) – Segment from Taylor Road to Halcyon Park Drive
22. Pike Road (CR-85) – Intersection with Vaughn Road
23. State Route 14 (Prattville) – Intersection with McQueen Smith Road
24. Ray Thorington Road (CR-75) – Segment from Pike Road to Vaughn Road
25. Carter Hill Road – Segment from McGehee Road to Vaughn Road

Utilizing information from the Montgomery MPO TIP and ALDOT Project Letting Information list, an analysis was conducted to determine if recommendations from the previous CMP document have been constructed throughout the study area.

The following is a list of roadway segments derived from the previous CMP that include recommended improvements from the 2014 CMP and relevant projects from the TIP and ALDOT Project Letting List that pertain to the corresponding roadway segments.

1. East Boulevard at I-85 Interchange

- ✓ 2014 CMP Recommendations
  - Traffic Signal Optimization
  - Geometric Design Improvements
  - Access Management
- ✓ 2016-2019 Montgomery TIP
  - Intersection Improvements on US-231 (East Blvd) at I-85 Interchange
    - Project Number – 100058167 NH 0008 (568)
    - Sponsor – ALDOT
    - Estimated Total Cost - $3,000,000
    - Fiscal Year – 2019
- ✓ ALDOT Project Letting List
  - Pavement Rehabilitation and the installation of Intelligent Transportation Systems Devices on I-85 from Ann Street to East Boulevard
    - Project Number - HSIP-I085(348) & IMF-I085(349), Montgomery County
    - Bracket Estimate - $9,000,000 to $11,000,000
    - Letting Date – January 2016
  - Pavement Rehabilitation and the installation of Intelligent Transportation Systems Devices on I-85 from East Boulevard to Taylor Road (Including intersection improvements at the I-85 and East Boulevard Interchange)
    - Project Number - IMF-I085(339) & NH-0008(568), Montgomery County
    - Bracket Estimate - $15,000,000 to $18,500,000
    - Letting Date – February 2018

2. Wetumpka Highway (US-231) (Intersection with Redland Road (CR-8))

- ✓ 2014 CMP Recommendations
  - Geometric Design Improvements
  - Intersection Improvements
  - Traffic Signal Optimization and Interconnection
  - Access Management

- ✓ 2016-2019 Montgomery TIP
  - Widen Redland Road from US-231 to Rifle Range Rd
    - Project Number – 100063230 STPMN 2615 (250)
    - Sponsor – City of Montgomery
    - Estimated Total Cost - $500,000
    - Fiscal Year – 2017
  - Widen Redland Road from US-231 to Rifle Range Road, Bridge Replacement, and Intersection Improvements at Redland Rd and Rifle Range Rd
    - Project Number – 100063233 STPMN 2615 ()
    - Sponsor – City of Montgomery
    - Estimated Total Cost - $3,000,000
    - Fiscal Year – 2018
- ✓ 2020-2023 Montgomery TIP
  - Widen/Resurface/Bridge Replacement on Redland Road from US-231 to Rifle Range Rd and Harwell Mill Creek
    - Project Number – 100063233 STPMN 2615 ()
    - Sponsor – Elmore County Commission
    - Estimated Total Cost - $2,300,000
    - Fiscal Year – 2020
- ✓ ALDOT Project Letting List
  - Not Listed

3. Cobbs Ford Road (Segment from US-82 to I-65)

- ✓ 2014 CMP Recommendations
  - Access Management
  - Traffic Signal Optimization and Interconnection
  - Geometric Design Improvements (Connect Highland Ridge Drive to Rocky Mountain Road)
  - Transit and Ridesharing Programs
- ✓ 2016-2019 Montgomery TIP
  - Adaptive Signal Control for Cobbs Ford Road (East Main Street) from I-65 to Shady Oaks Lane (11 Intersections)
    - Project Number – 100061024 ACAA61024 ATRP (009)
    - Sponsor – City of Prattville
    - Estimated Total Cost - $500,000
    - Fiscal Year – 2016
- ✓ ALDOT Project Letting List
  - Traffic Signal System Upgrades on Cobbs Ford Road from the intersection of Silver Hills Drive to the I-65 Interchange (Northbound Lane Ramps)
    - Project Number – ACAA61024-ATRP (009), Autauga and Elmore Counties
    - Bracket Estimate - $400,000 to $500,000
    - Letting Date – September 2017

4. East Main Street (Segment from US-82 to Greystone Way)

- ✓ 2014 CMP Recommendations

- Traffic Signal Optimization and Interconnection
- Access Management
- Geometric Design Improvements
- Growth Management Plan
- Transit and Ridesharing Programs

✓ 2016-2019 Montgomery TIP
- Adaptive Signal Control for Cobbs Ford Road (East Main Street) from I-65 to Shady Oaks Lane (11 Intersections)
  - Project Number – 100061024 ACAA61024 ATRP (009)
  - Sponsor – City of Prattville
  - Estimated Total Cost - $500,000
  - Fiscal Year – 2016

✓ ALDOT Project Letting List
- Traffic Signal System Upgrades on Cobbs Ford Road from the intersection of Silver Hills Drive to the I-65 Interchange (Northbound Lane Ramps)
  - Project Number – ACAA61024-ATRP (009), Autauga and Elmore Counties
  - Bracket Estimate - $400,000 to $500,000
  - Letting Date – September 2017

5. South Boulevard (Segment from Narrow Lane Road to Troy Highway US-231 & the Intersection with Woodley Road)

✓ 2014 CMP Recommendations
- Geometric Design Improvements (Including Additional Lanes and Unconventional Intersection Design Options)
- Access Management
- Traffic Signal Optimization and Interconnection

✓ 2016-2019 Montgomery TIP
- Not Listed

✓ ALDOT Project Letting List
- Constructing the Pedestrian and Access Management Improvements (Grading, Drainage, Pavement, Lighting, and Traffic Stripe) on South Boulevard SR-6 (US-80) from the I-65 Overpass to the intersection of Davenport Drive.
  - Project Number - HSIPF-STPAAF-0006(571), Montgomery County
  - Bracket Estimate - $3,000,000 to $4,200,000
  - Letting Date – July 2018

6. Chantilly Parkway (Segment from Atlanta Highway to Eastchase Parkway)

✓ 2014 CMP Recommendations
- Traffic Signal Optimization and Interconnection
- Access Management
- Geometric Design Improvements (Lanes could be added south of the interchange)

✓ 2016-2019 Montgomery TIP
- Not Listed

✓ ALDOT Project Letting List

- Access Management and Intersection Improvements on Chantilly Parkway from west of the junction of Technacenter Drive to the east of Eastchase Parkway
  - Project Number - ST-051-110-008, Montgomery County
  - Bracket Estimate - $2,000,000 to $3,000,000
  - Letting Date – March 2016
- Constructing Additional Turn Lanes, Grading, Drainage, Pavement, Traffic Signs, Signals, and Resurfacing on Chantilly Parkway from Eastchase Parkway to Vaughn Road
  - Project Number - 99-306-513-110-802, Montgomery County
  - Bracket Estimate - $1,000,000 to $2,000,000
  - Letting Date – July 2018

7. State Route 14 (Intersection with McQueen Smith Road)

- ✓ 2014 CMP Recommendations
  - Access Management
  - Traffic Signal Optimization and Interconnection
  - Geometric Design Improvements
- ✓ 2016-2019 Montgomery TIP
  - Widen & Resurface CR-75 (McQueen Smith Rd) from US-31 to Cobbs Ford Road
    - Project Number – 100055242 DE-STPAA A203 (939)
    - Sponsor – ALDOT
    - Estimated Total Cost - $1,000,000
    - Fiscal Year – 2016
- ✓ ALDOT Project Letting List
  - Not Listed

8. Perry Hill Road (Atlanta Highway to I-85)

- ✓ 2014 CMP Recommendations
  - Access Management
  - Traffic Signal Optimization and Interconnection
  - Geometric Design Improvements
  - Transit and Ridesharing Programs
  - Bus Service and Operations Improvements
- ✓ 2016-2019 Montgomery TIP
  - Corridor Study on Perry Hill Road from Harrison Road to Atlanta Highway
    - Project Number – 100064608 STPMN 5115()
    - Sponsor – City of Montgomery
    - Estimated Total Cost - $100,000
    - Fiscal Year – 2016
  - Intersection Improvements at Perry Hill Road and Atlanta Highway
    - Project Number – 100064179 STPMN 5115()
    - Sponsor – City of Montgomery
    - Estimated Total Cost - $690,000
    - Fiscal Year – 2017
  - Intersection Improvements at Perry Hill Road and Atlanta Highway

        - Project Number – 100064161 STPMN 5115()
        - Sponsor – City of Montgomery
        - Estimated Total Cost - $1,000,000
        - Fiscal Year – 2018
- ✓ 2020-2023 Montgomery TIP
    - Intersection Improvements: Widen/Resurface Perry Hill Rd from Cardinal Lane to Camelia Dr & Widen ATL Hwy from Perry Hill Rd to Bellhurst Rd
        - Project Number – 100064162 STPMN 5115 ()
        - Sponsor – City of Montgomery
        - Estimated Total Cost - $7,000,000
        - Fiscal Year – 2020
    - Intersection Improvements: Widen/Resurface Perry Hill Rd from Cardinal Lane to Harrison Road
        - Project Number – 100044272 STPMN 7724 ()
        - Sponsor – City of Montgomery
        - Estimated Total Cost - $1,000,000
        - Fiscal Year – 2020
- ✓ ALDOT Project Letting List
    - Not Listed

9. Carter Hill Road (McGehee Road to Vaughn Road)

- ✓ 2014 CMP Recommendations
    - Geometric Design Improvements
    - Access Management
    - Bus Service and Operations Improvements
    - Transit and Ridesharing Programs
    - Non-Motorized Improvements (Sidewalks to Schools)
    - Other (Evaluate Efficiency of School Drop-off/Pickups)
- ✓ 2016-2019 Montgomery TIP
    - Corridor Study for Additional Capacity on Carter Hill Rd from Zelda Rd to McGehee Road
        - Project Number – 100059732 STPMN 5100 ()
        - Sponsor – City of Montgomery
        - Estimated Total Cost - $300,000
        - Fiscal Year – 2018
- ✓ ALDOT Project Letting List
    - Not Listed

Demographic Summary

The data collected for the Montgomery MPO study area (Elmore, Autauga, and Montgomery counties) was used to identify the type of transportation infrastructure and services that are needed in the area based on population and employment projections. The demographic characteristics in the area are diverse in population and widespread in employment trends.

According to 2020 Census data, the state of Alabama held a population of 4.89 million people, and Montgomery County contained a population of 227,434. The 2020 population of the city of Montgomery was 198,665 with a median age of 36. The 2020 employed population was 86,651. The five largest ethnic groups in Montgomery are African American (60.8%), White (Non-Hispanic) (31.5%), Hispanic (3.8%), Asian (3.2%), and Two or More Races (2.9%), as shown in **Figure 1**. Of the city's population, 23.8% were age 18 and under, while 14.6% were age 65 or over.

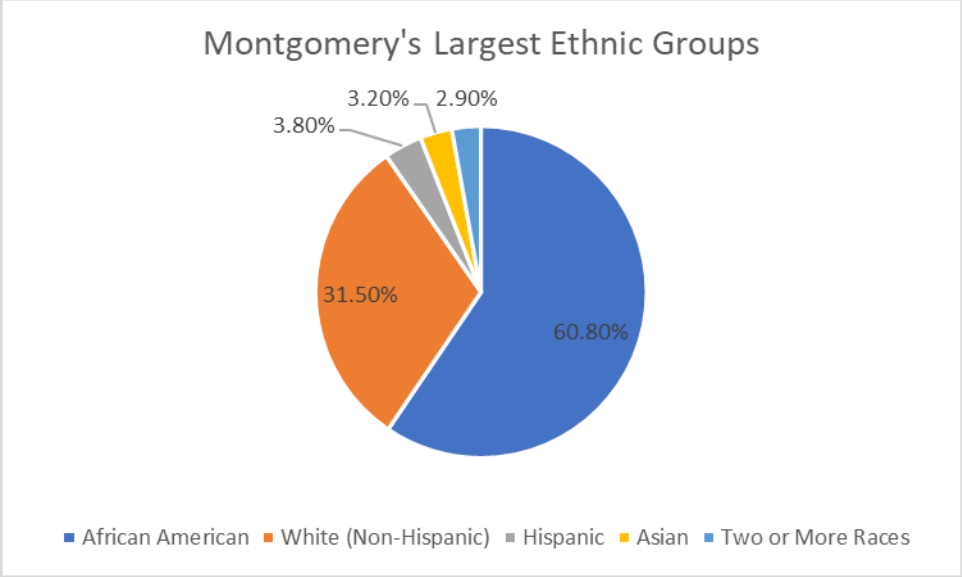


Figure 1: Montgomery's Largest Ethnic Groups

The city of Montgomery included 79,331 households. 89.6% of the households had a computer, and 82.9% of households had broadband internet access. For education, 87% of the population were high school graduates or higher. 33.4% of the population was in the bachelor's degree or higher category.

According to 2020 Census data, the most common industries in Montgomery include health care and social assistance (13.4%), manufacturing (11.3%), retail trade (11.1%), public administration (10.5%), educational services (9.7%), and accommodation and food services (8.14%), as illustrated in **Figure 2**. The mean travel time to work for workers age 16+ was 20 minutes.

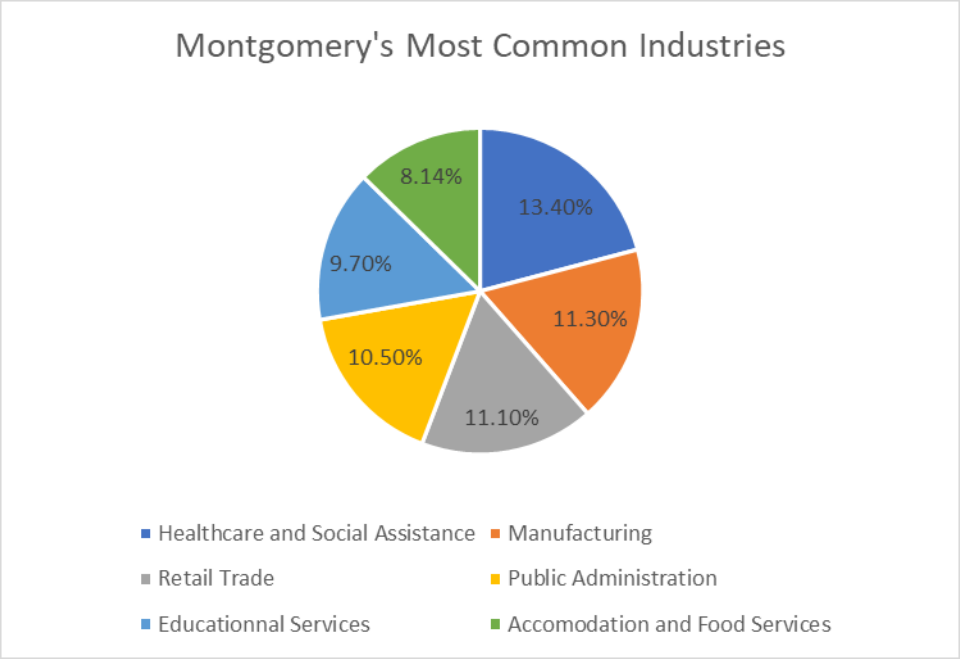


Figure 2: Montgomery's Most Common Industries

According to Census 2010, Alabama held a total population of 4,779,736 with 1,737,080 households. Of that population, 30.5% were non-white individuals, 17.1% were individuals below poverty, 7.9% were individuals age 65+, and 6.5% were households without vehicles. Within the study area, Autauga County was the least populated with a population of 54,571 and a total of 20,221 households. Elmore County, the second most populated, had a population of 79,303 and a total of 28,301 households. Montgomery County was the most populated county with a population of 229,363 and a total of 89,981 households.

The Montgomery urbanized area percentage of non-white individuals surpasses the statewide average. Within the Montgomery MPO study area, the highest percentages of non-white individuals reside in the City of Montgomery (62.7%), Montgomery County (60.5%; this includes the City of Montgomery), the Town of Coosada (42.3%), the Town of Elmore (35.7%), the City of Wetumpka (32.1 percent), and the Town of Pike Road (31.5 percent). The percentages of non-white individuals that were less than the statewide average include Elmore County (23.8%), the City of Millbrook (25.8%), Autauga County (21.5%), the City of Prattville (21.5%) and the Town of Deatsville (22.4%).

The highest percentages of residents living in poverty conditions in the Montgomery region are in the Town of Elmore (20.3%), the City of Wetumpka (20.1%), the City of Montgomery (19.7%), and Montgomery County (18.9%). The Town of Deatsville had the lowest percentage with 0.2% followed by the Town of Pike Road (7.1%), the City of Millbrook (8.0%), the City of Prattville (8.7%), Autauga County (10.6%), Elmore County (12.4%), and the Town of Coosada (15.5%). **Figure 3** illustrates the percentages of residents living in poverty in the Montgomery region. The distribution of households without vehicles similarly corresponds with the distribution of individuals living in poverty.

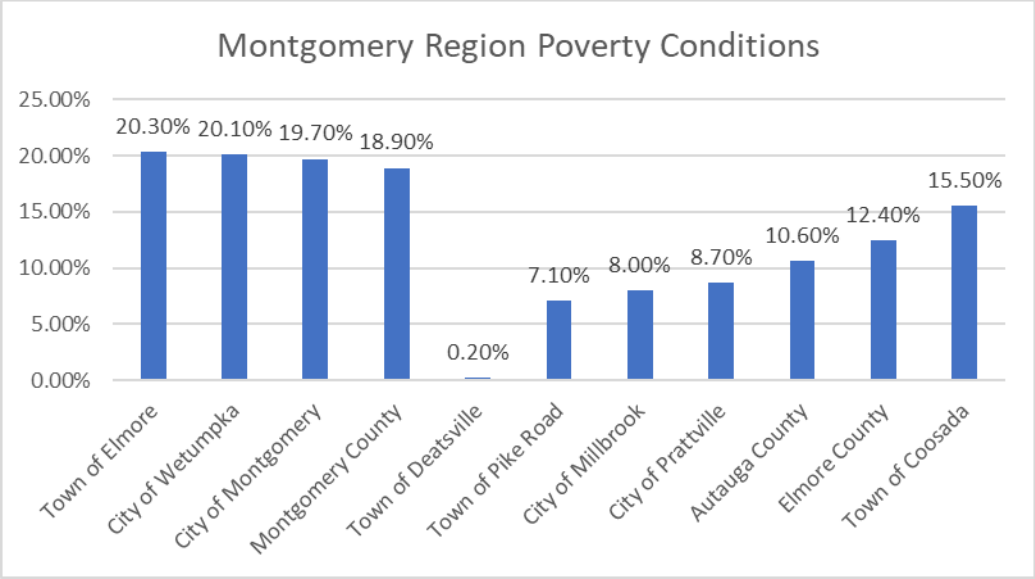


Figure 3: Montgomery Region Poverty Conditions

The highest percentages of individuals that are age 65 and older reside in the City of Millbrook (9.4%), the Town of Elmore (7.8%), Montgomery County (7.1%), and the Town of Deatsville (6.6%). The lowest percentages of individuals that are 65 or older reside in the City of Wetumpka (4.6%), the City of Montgomery (4.7%), the City of Prattville (4.9%), the Town of Pike Road (5.1%), and Autauga County (5.2%), as shown below in **Figure 4**.

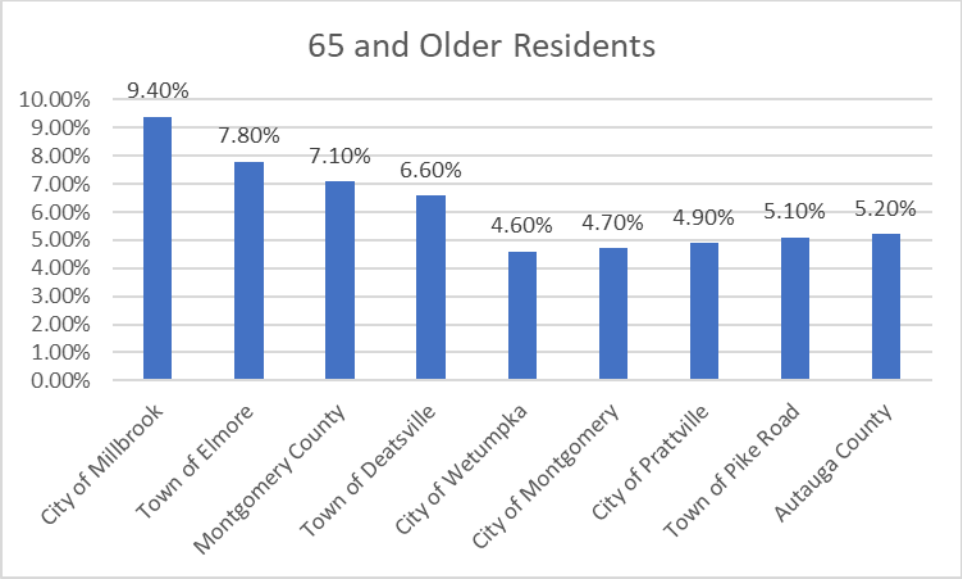


Figure 4: 65 and Older Residents

The 2045 households for the Montgomery MPO study area are projected to be 165,181 - Autauga County (28,231), Elmore County (38,234), and Montgomery County (98,626).

Employment data can assist with identifying commuting patterns and work trips to determine the transportation needs related to commuting behavior. The 2010 and 2014 employment data

for total labor force and employment type of each county in the Montgomery MPO study area establishes employment trends. In 2010, the Montgomery MSA's total labor force was 175,499 with 158,232 employed and 17,267 unemployed. In 2014, the Montgomery MSA's total labor force was 170,554 with 159,208 employed and 11,346 unemployed. 2014's labor force was about 5,000 less than the 2010's total labor force. For employment type in 2015, the total in retail employment was 44,908 while the total in non-retail was 148,751. The labor force and employment type data collected for each individual county is summarized in **Table 1**. The labor force data distribution from 2010 to 2014 in each county decreased minimally.

Table 1: 2010 and 2014 Labor Force and Employment Data - Montgomery MPO

County	2010/2014		2015	
	Employed	Unemployed	Retail	Non-retail
Autauga County	23,431/23,933	2,282/1,496	3,441	9,361
Elmore County	33,362/34,281	3,321/2,100	5,580	10,552
Montgomery County	97,892/97,592	10,861/7,246	35,887	128,838

A 2045 forecast can be determined using the data. In 2045, the total retail employment is expected to grow 5.8% resulting in a total of 47,529. The total non-retail employment is expected to grow to 178,194 which is 19.8% more than the total for 2015.

Regional Planning Objectives

The MPO developed regional planning goals as part of their 2045 Long Range Transportation Plan (LRTP). These goals provide the direction needed to support the CMP. Each of the goals and their associated performance measures are shown in the table below (**Table 2**).

Table 2: 2045 Long Range Transportation Plan Goals & Related Emphasis Areas

2045 LRTP GOALS	RELATED EMPHASIS AREAS
Optimize the efficiency, effectivness, connectivity, safety, and security of the transportation system	• Safety • Congestion Reduction • System Reliability
Promote a state of good repair and prioritize maintenance needs	• Infrastructure Condition
Develop a financially feasible multimodal transportation system to support expansion of the regional economy	• Freight Movement and Economic Vitality • Reduce Project Delivery Delays
Provide viable travel choices to improve accessibility and mobility, sustain environmental quality, and preserve community values	• Environmental Sustainability (Natural) • Environmental Justice
Coordinate the transportation system with existing and future land use and planned development	• Project Coordination • Public Involvement
Increase jurisdictional coordination and citizen participation in the transportation planning process to enhance all regional travel opportunities.	• Project Coordination • Public Involvement
Develop, maintain, and preseve a balanced, multimodal transportation system that provides for safe, integrated, and convenient movement of people and goods	• Multimodal Transportation • Environmental Justice

**Source: J.R. Wilburn and Associates, Inc. and MPO Staff*

The purpose of a CMP is to measure and identify congestion on the transportation network through the use of data collection, modeling, and analysis so informed decisions can be made for prioritizing projects for the area. A key element of a sustainable CMP is to use performance measures that can be evaluated using readily available data. The measures used in the CMP analysis utilize data and modeling outputs that are readily available to or within the MPO. More information about these measures is included in the next section.

Unified Planning Work Program Objectives

Along with the LRTP, another document prepared by the MPO that provides insight into the goals for the region is the Unified Planning Work Program (UPWP). Objectives within the UPWP are discussed in relation to the subtask categories. Therefore, objectives from the UPWP that address congestion management are listed below by subtask category. Primary subtask categories of note are Congestion Management and Safety Planning and Monitoring.

UPWP SUBTASK 5.6: CONGESTION MANAGEMENT

Objective: *To manage overall traffic congestion in the region and assist in the implementation of the CMS Plan. To provide effective management of new and existing transportation facilities through use of travel demand reduction and operational management strategies. Encourage bicycle and pedestrian and transit modes as appropriate. Pursue continued development of the Intelligent Transportation System (ITS) and strategies to reduce Single Occupancy Vehicle*

(SOV) travel. Come up with ways to effectively advocate and manage congestion overall, through adding capacity to highways, transit, and freight; travel demand management program encouragement, bicycle and pedestrian facilities, and managing congestion for better air quality.

Proposed Work: *Implement and monitor the CMSP addressing the specific needs of the MPO study area with transportation project solutions that manage congestion. The MPO planning staff will continue to work with local, federal, and state officials to further implement ITS projects as needed. Low-cost congestion-relief projects will continue to be a focus, along with better access management, by coordinating land use and transportation planning, and coming up with ways to effectively advocate and manage congestion overall, by adding capacity to highways, mass transit (bus and rail), freight (water, rail, and truck), and bicycle and pedestrian facilities. Also, transportation demand management strategies will be explored. MPO staff will further market the CommuteSmart Montgomery program to maximize the number of people registered to the program. MPO staff will attend training, workshops, and conferences as needed. The Montgomery MPO will follow and abide by forthcoming performance measures/management approach requirements.*

Products:

- *Mitigation or management of congestion on the existing facilities and prevention of congestion on existing and future facilities.*
- *Development of an ITS that conforms to the national ITS architecture.*
- *Strategies that reduce congestion as well as a well-trained and well-versed staff.*
- *Updated CMSP and implementation of CMSP*

Schedule/Timeline: *To be completed by end of FY 2023*

Source of Funds:

- *PL (FHWA/FTA) - $30,000*
- *Local Match - $7,500*
- *Total Cost - $37,500*

FHWA PL and FTA 5303 funds have been combined into a single category

UPWP SUBTASK 5.7: SPECIAL PROJECTS, CORRIDOR DEVELOPMENT, AND DEVELOPMENTS OF REGIONAL IMPACT (DRI)

Objectives: *Analysis to assess the impacts of projects of regional significance, such as toll bridges, new major travel routes special projects, and developments of regional impact as needed.*

Proposed Work: *Studies of major developments, as well as proposed new roads and other special projects, will be conducted to determine if the proposed improvements are justified. GIS-based studies of the effects of projects on critical populations will be routinely conducted as new transportation projects are identified or proposed. MPO staff will attend training, workshops, and conferences as needed. The Technical Advisory Committee and MPO Staff will continue to monitor and update the access management policy manual effectiveness and recommend edits as needed.*

Schedule/Timeline: *To be completed by end of FY 2023*

Source of Funds:
- *PL (FHWA/FTA) - $4,000*
- *Local Match - $1,000*
- *Total Cost - $5,000*

FHWA PL and FTA 5303 funds have been combined into a single category

UPWP SUBTASK 5.8: BICYCLE AND PEDESTRIAN PLANNING

Objective: *To encourage bicycle and pedestrian modes through the improvement and implementation of the Montgomery MPO Bicycle and Pedestrian Plan, with integration into the Long-Range Transportation Plan and the TIP.*

Proposed Work: *The MPO Staff will continue to assess areas where bike/ped facilities will be needed, as well as funding to build these facilities. The MPO bike-ped plan will continue to be implemented as stand-alone projects or as part of transportation infrastructure projects. The bike-ped plan will be amended as needed. Continue City of Prattville work with a consultant to develop a new City of Prattville bike-ped plan. $32,000 in federal funds will be included in the FY-2023 UPWP to complete Prattville bike-ped plan.*

Schedule/Timeline: *To be completed by end of FY 2023*

Source of Funds:
- *PL (FHWA/FTA) - $50,000*
- *Local Match - $12,500*
- *Total Cost - $62,500*

FHWA PL and FTA 5303 funds have been combined into a single category

UPWP SUBTASK 6.0: SAFETY PLANNING AND MONITORING

Objective: *To continue to conduct transportation safety planning as part of the MPO planning process, to include all documents produced. This may include intersections and areas with non-standard road alignment, lane widths, pedestrian crossing areas, bicycle issues, transit-related safety problems, and truck issues along with acts of terrorism, natural disasters or emergencies.*

Proposed Work: *The MPO staff will work and coordinate with the Alabama Department of Transportation (ALDOT) on setting goals, objectives, performance measures, and targets required by the FAST Act, IIJJA or Bipartisan Infrastructure Law, concerning safety in the metropolitan planning area. The MPO staff will also evaluate traffic movements, freight movements, and bicycle and pedestrian movements to enhance safety in the MPO planning area.*

Additional goals for consideration come from the subtask categories of General Public Involvement, Environmental Justice Planning and Evaluation and the TIP.

Schedule/Timeline: *To be completed by end of FY 2023*

Source of Funds:
- *PL (FHWA/FTA) - $4,000*

- *Local Match - $1,000*
- *Total Cost - $5,000*

FHWA PL and FTA 5303 funds have been combined into a single category

UPWP SUBTASK 4.1: GENERAL PUBLIC INVOLVEMENT

Objective: *To involve all interested citizens in the Montgomery MPO study area in the transportation planning process. To give all citizens an opportunity to voice their concerns, preferences, and questions concerning transportation projects and plans. To provide transportation-relevant data to individuals, corporations, and agencies that have contact with groups or people that may be adversely impacted. To inform the public of the availability of transportation data; resources; MPO, TAC, and CAC meetings; and public involvement meetings, as needed and required.*

Proposed Work: *Notify the general public about the transportation process, meetings, plans and programs and other related elements, through local general circulation newspapers, email, personal contact, and postal mail.*

- *Public involvement for all meetings and documents, as required.*
- *Prepare public involvement summaries for all transportation planning documents.*
- *Public involvement materials will be distributed to MPO, TAC, and CAC members for review.*
- *All required documents will be sent to designated document review sites as described in the 2013 PPP.*
- *MPO staff will attend training, workshops, and conferences as needed.*
- *The MPO staff will describe Performance Measures, Livability Principles and Livability Indicators in the Public Participation Plan (PPP) and ensure that agencies and the public have full access to documents and data as requested. The most current and available data (as shown) used in operational plan (Long Range, TIP, Congestions Management and Conformity Report) will be provided in the Plan.*
- *The MPO will establish virtual public involvement and social media pages to increase participation and awareness.*

UPWP SUBTASK 4.2: ENVIRONMENTAL JUSTICE PLANNING AND EVALUATION

Objective: *To ensure that no plans, programs, or specific projects disproportionately and adversely impact low income or minority populations, and to ensure that the process of planning transportation improvements is structured to include the groups and/or agencies that normally represent their interests and concerns. Furthermore, outreach will be undertaken to involve members of low income and minority populations in the transportation planning process to the extent possible.*

Proposed Work: *The MPO planning staff will continue to collect socioeconomic data related to low income and minority populations. MPO staff will continue to notify 24 minority and low-income populations via general circulation newspapers and other available media about MPO and related meetings and correspondence. MPO staff will screen all transportation projects for the TIP to identify locations where low income and minority populations reside or own businesses and to ensure that the affected population does not receive a disproportionate amount of the burden from transportation projects but does receive equal benefits or burdens from transportation projects. MPO staff will attend training, workshops, and conferences as needed.*

MPO staff will prepare an environmental justice/equity analysis for proposed FY 2024-2027 TIP projects.

UPWP SUBTASK 5.2: TRANSPORTATION IMPROVEMENT PROGRAM (TIP)

Objective: *To identify transportation improvement projects recommended for advancement during the program period based on the cooperative, continuous, and comprehensive (3-C) transportation planning process; and to include realistic estimates of revenues and costs for each project, as well as be financially constrained. Development of the TIP is based on projects taken from the Long-Range Transportation Plan with other maintenance needs for all jurisdictions within the MPO study area into a single, phased, implementation schedule. All of the FAST Act factors and IIJA or Bipartisan Infrastructure Law will be used in the development of the TIP.*

Proposed Work: *Prepare a 2024-2027 TIP. The MPO planning staff will work with MPO committees, ALDOT, local jurisdictions, and the general public to prepare a TIP every four years. Progress on the TIP will be monitored, and the TIP will be amended as needed. A TIP database will be maintained, and a list of projects that were authorized in the previous fiscal year will be published. All TIP amendments will be put on the MPO website. MPO staff will attend training, workshops, and conferences as needed. The Montgomery MPO will follow and abide by forthcoming performance measures/management approach requirements. The FY 2020-2023 TIP will be maintained and updated as needed and required. The MPO staff will work and coordinate with the Alabama Department of Transportation (ALDOT) on setting goals, objectives, performance measures, and targets required by the FAST Act, concerning TIP projects in the metropolitan planning area.*

CMP Goals and Objectives

The following goals were created for the CMP based on the MPO's objectives for the LTRP and the UPWP:

1. Provide effective management of existing and future transportation facilities through travel demand reduction and operational management.
2. Optimize the safety of the transportation network.
3. Optimize the effectiveness and reliability of the transportation network.
4. Increase multimodal transportation access.

Speed Reduction Summary

Utilizing the Montgomery MPO travel demand model, Sain Associates analyzed reductions in speed due to congestion in Montgomery and the surrounding areas for the years 2015 and 2045. The results are illustrated below.

Posted Speeds

According to the posted speed limit map, the slowest posted speeds are located primarily in the immediate downtown area of Montgomery, with posted speeds of 20 to 25 MPH. The surrounding collectors and arterials, including the loop around Montgomery, have posted speeds of 30, 35, 40, and 45 MPH. Similar patterns exist in Prattville. I-65 and I-85, along with sections of US-231 and US-331 indicate posted speeds between 55 and 65 MPH.

2015 Rate of Reduction in Speed Due to Congestion

According to the 2015 map (**Figure 5**), the downtown areas of both Montgomery and Prattville indicate no reduction in speed due to congestion.

The surrounding arterials and collectors indicate a reduction of up to 20%. This includes the following roadways:

- Montgomery
  - West Boulevard (between Foshee Road and I-65)
  - South Boulevard (between I-65 and Narrow Lane Road)
  - North Boulevard (between I-65 and US-231 (Wetumpka Highway))
- Prattville
  - US-82 (South of Prattville)
  - US-31 (North and South of Prattville)

In Montgomery, a 20% to 40% reduction in speed occurs on I-65, to the northwest of the city. The speed limit approaching Montgomery is 65 MPH. Other speed reductions between 20% and 40% occur on the east side of Montgomery. One segment on I-85 goes from Perry Hill Road to Taylor Road. The other segment is East Boulevard, between I-85 and US-231 (Troy Highway). South Boulevard, between Narrow Lane Road and US-231 (Troy Highway) shows a reduction in speed from 40% to 60%.

2045 Rate of Reduction in Speed Due to Congestion

The 2045 map (**Figure 6**) illustrates a reduction in speed due to congestion over time. Specifically, the southeast section of Montgomery shows increasing reductions in speed along I-85 (up to 40%) and along US-231 (Troy Highway) (up to 60%).

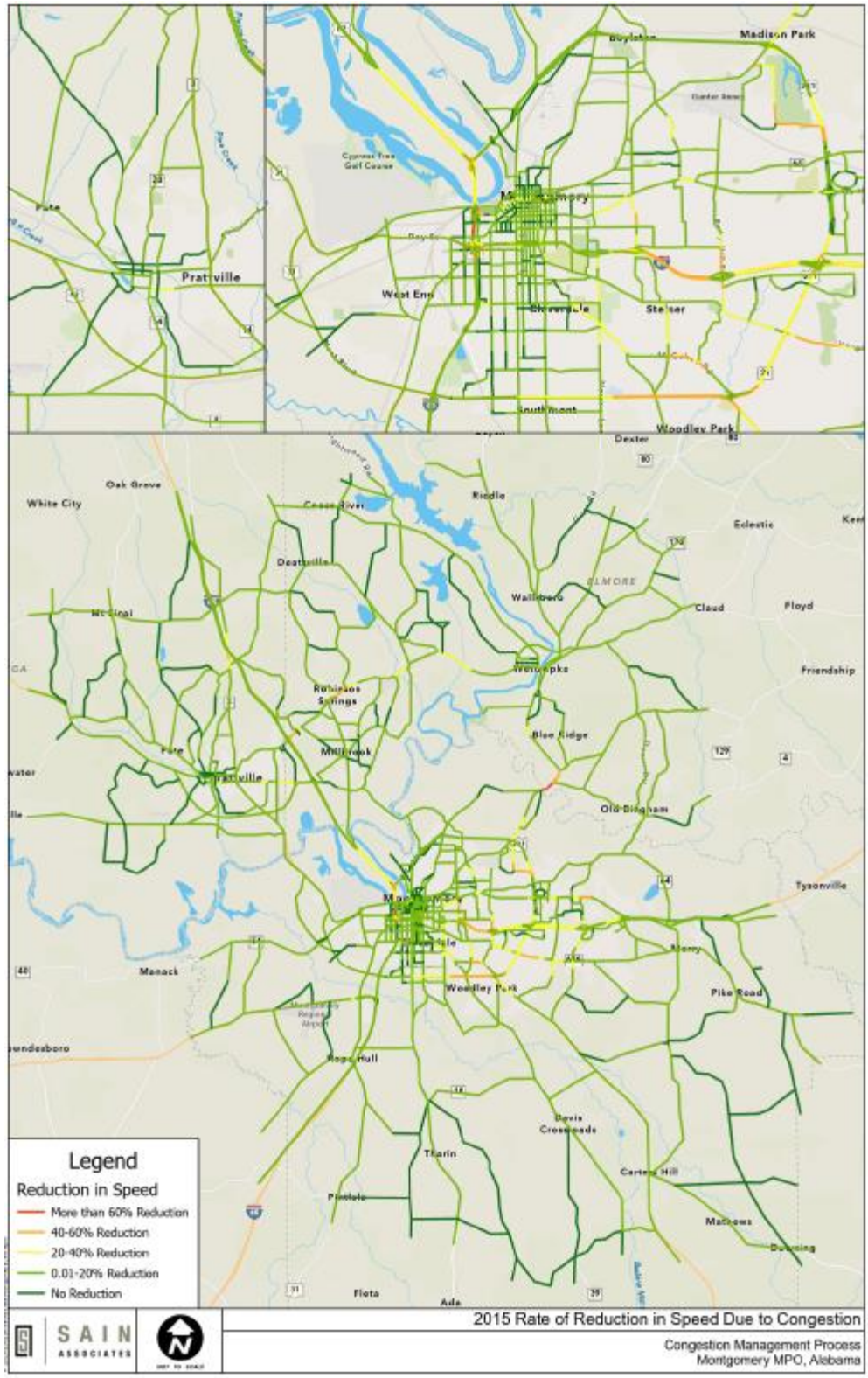


Figure 5: 2015 Rate of Reduction in Speed

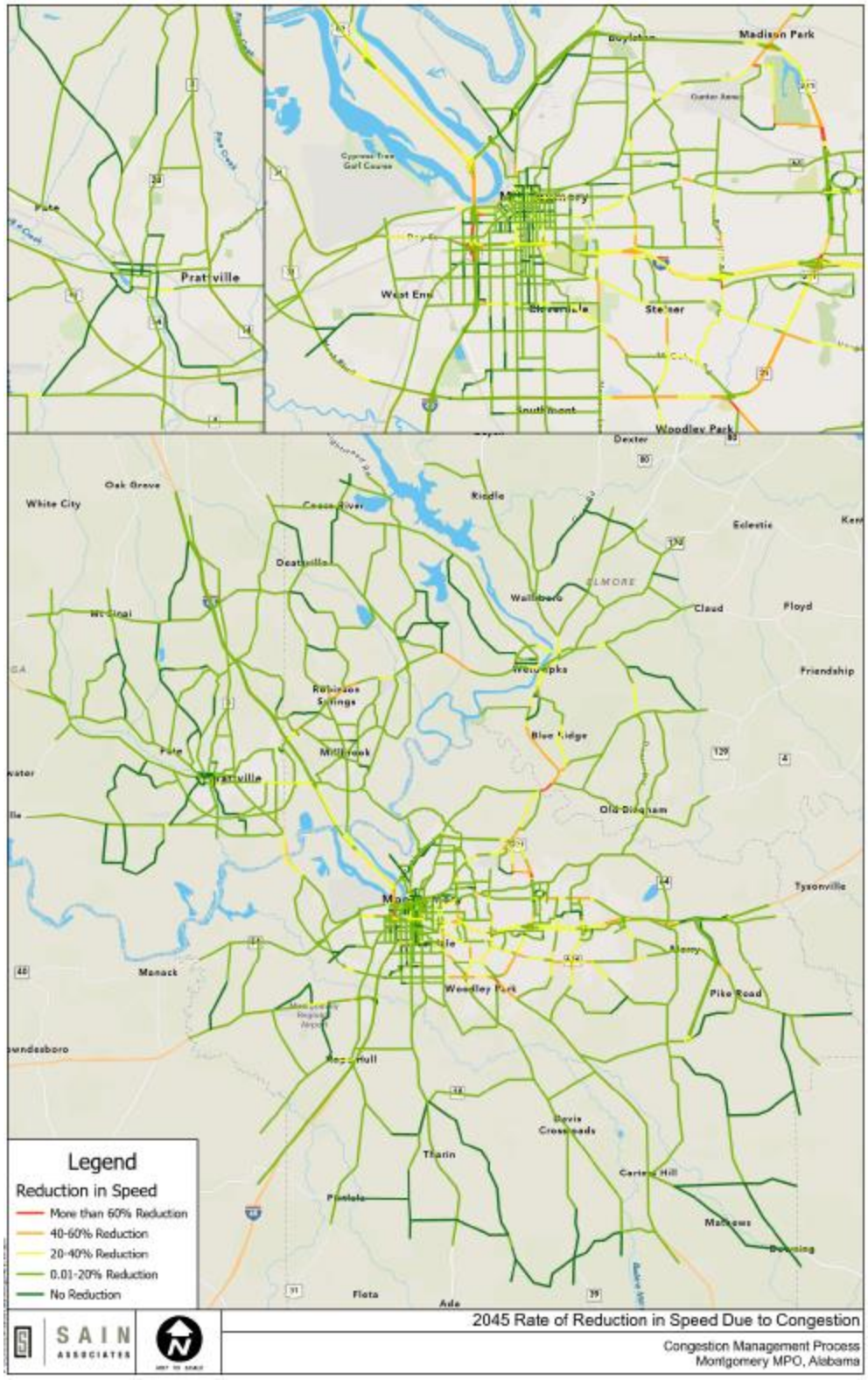


Figure 6: 2045 Rate of Reduction in Speed

Volume/Capacity Ratio Congestion Summary

Using the methods described in the *Highway Capacity Manual*, published by the Transportation Research Board, Sain Associates analyzed congestion in Montgomery and the surrounding areas for the years 2015 and 2045 based on daily volume to capacity ratios (V/C) on the roadway networks throughout the city. V/C ratios compare roadway demand (volume) to the capacity of the roadway. The results of the analysis are illustrated on **Figure 7** and **Figure 8**. Thresholds were developed to indicate different levels of congestion on the map.

2015 V/C Ratio Congestion

According to the 2015 map, the downtown and adjacent areas of Montgomery indicate little to no congestion.

The surrounding arterials and collectors indicate moderate congestion. This includes the following roadways:

- North Boulevard (between I-65 and US-231 (Wetumpka Highway))
- Federal Drive (north of I-85)
- I-65 (between I-85 and South Boulevard)
- Carter Hill Road/Vaughn Road (between Narrow Lane Road and Perry Hill Road)

Heavy congestion is indicated at the following locations:

- I-65 on the northwest side of Montgomery
- East Boulevard (between US-231 (Wetumpka Highway) and I-85)
- I-85 (between Ann Street and East Boulevard)
- East Boulevard, between I-85 and US-231 (Troy Highway).
- South Boulevard (between I-65 and Narrow Lane Road)

Severe congestion is indicated on South Boulevard between Narrow Lane Road and US-231 (Troy Highway). Two large traffic generators are located next to Narrow Lane Road, including the Baptist Medical Center and the Alabama Farmer's Federation, along with several traffic signals along the corridor.

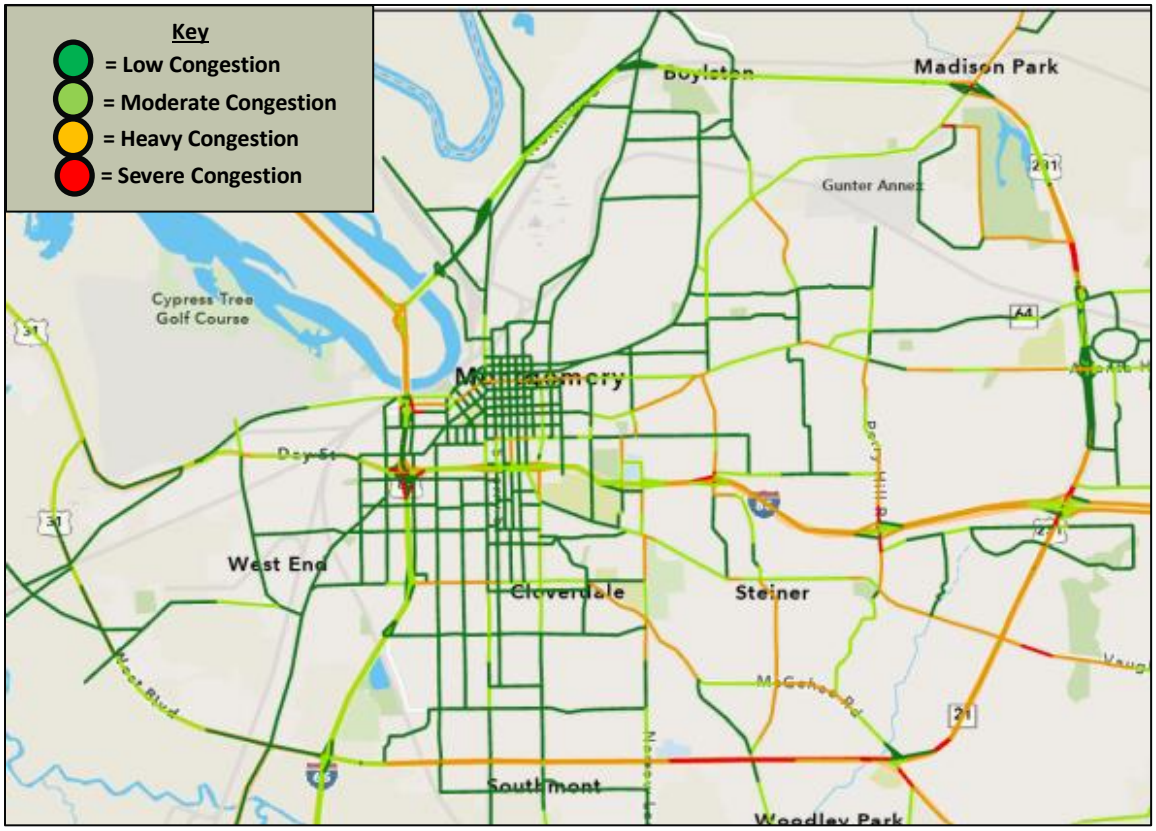


Figure 7: 2015 Congestion in Montgomery

2045 V/C Ratio Congestion

According to the 2045 map, higher V/C ratios and increased congestion will occur over time based on future population and employment growth in the region. Much like the results of the speed reduction summary, the southeast section of Montgomery shows increasing congestion along I-85 and East Boulevard. Additional congestion occurs on the northwest end, with severe congestion at the I-65 and I-85 interchange. Traffic is expected to increase along US-231 and within the City of Montgomery, causing an overall increase in congestion and V/C ratios in the future.

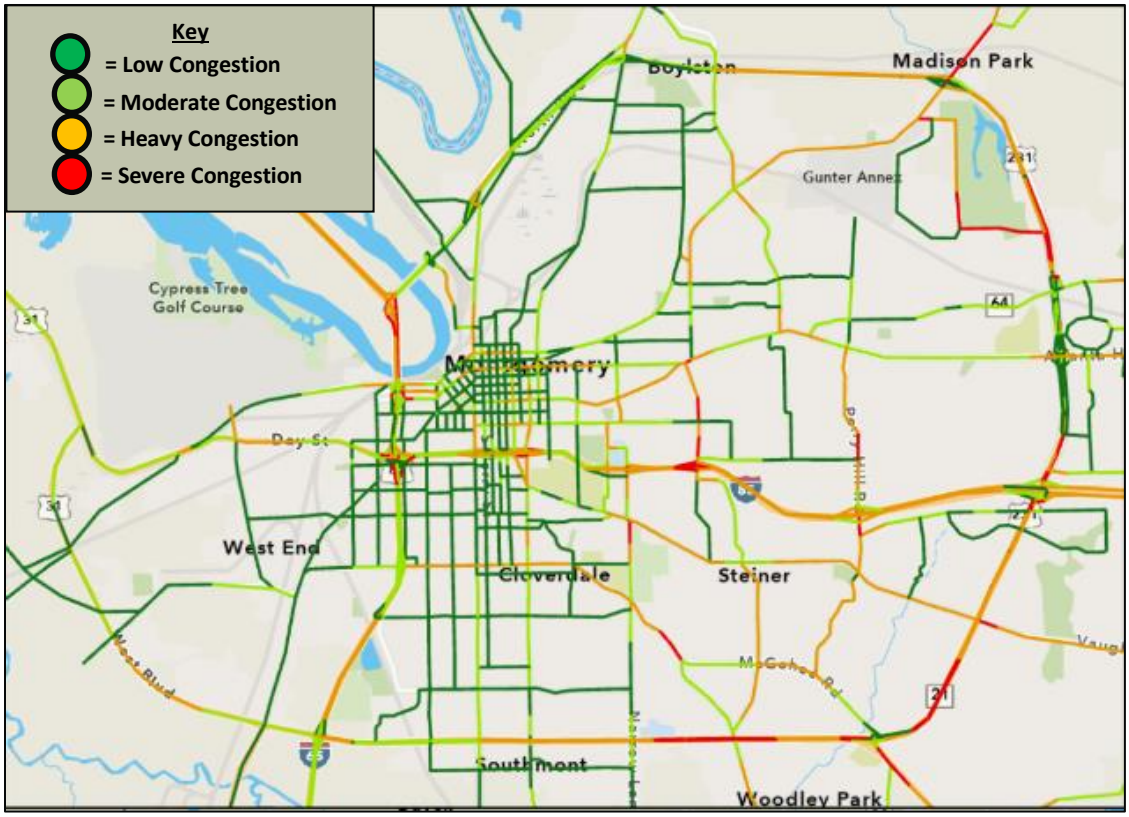


Figure 8: 2045 Congestion in Montgomery

Traffic Signal and Driveway Density

East Boulevard is a congested corridor as illustrated by the travel demand model results. The traffic signal/access density directly impacts traffic flow and mobility along the corridor. There are 14 traffic signals located between I-85 and US-231 (Troy Highway), covering 2.85 miles, along with several access connections to various retail and residential land uses on East Boulevard. **Figure 9** and **Figure 10** show the location of traffic signals along East Boulevard, between I-85 and US-231. **Figure 11** and **Figure 12** illustrate the number of access connections on East Boulevard.

Two large traffic generators are located on South Boulevard, near Narrow Lane Road, including the Baptist Medical Center and the Alfa Insurance Service Center. There are nine traffic signals located between Narrow Lane Road and US-231, covering 2.39 miles, along with numerous access connections to various retail and residential land uses on South Boulevard. **Figure 11** shows the traffic signal locations and **Figure 14** illustrates the access connections along South Boulevard.

US-231 is often used as the main route for beach traffic with travelers heading towards Panama City and the surrounding beaches in Florida. Traffic is expected to increase along US-231 and within the City of Montgomery, causing an overall reduction in speed and an increase in congestion over time.

Figure 9: East Boulevard Traffic Signals

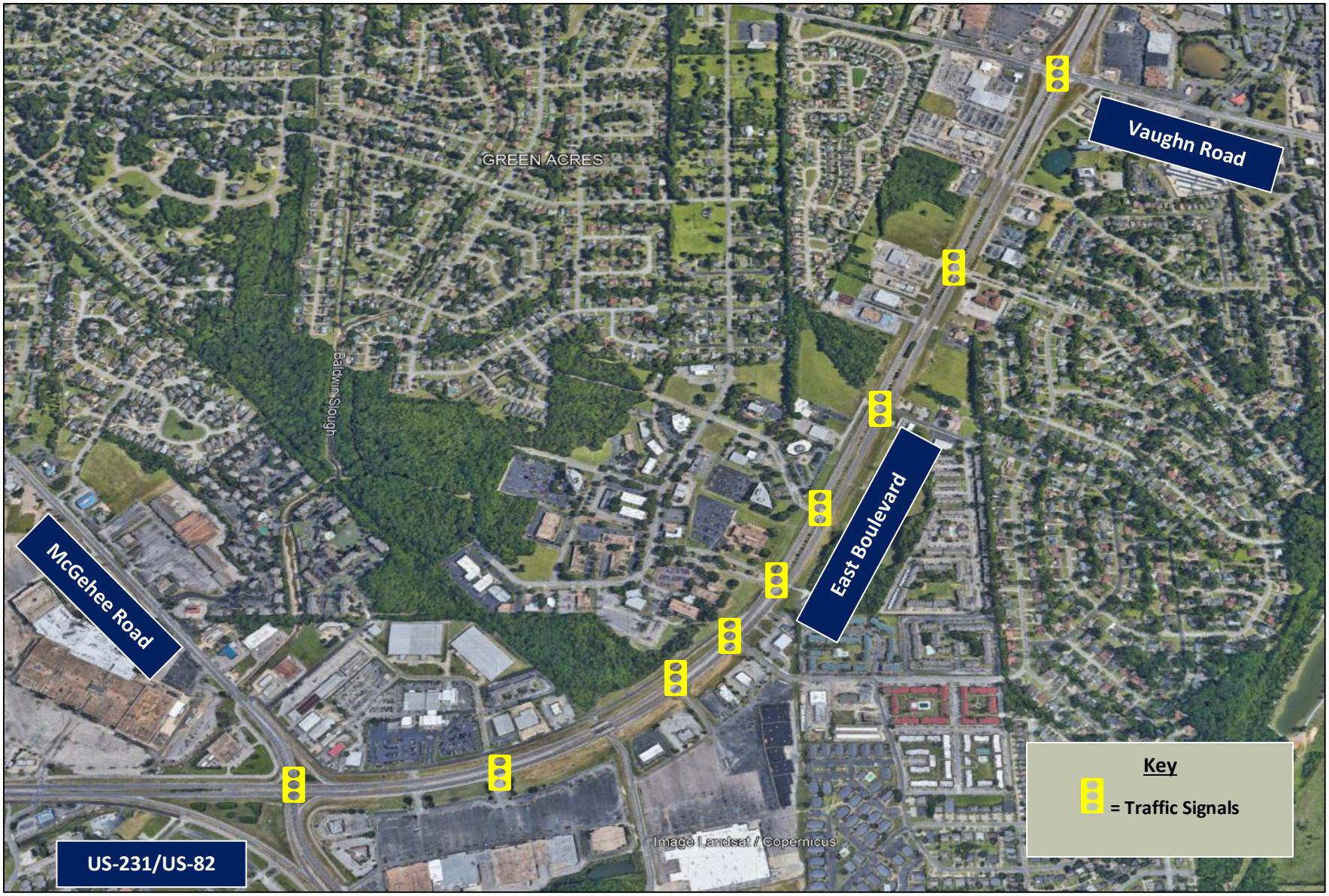


Figure 10: East Boulevard Traffic Signals (Continued)

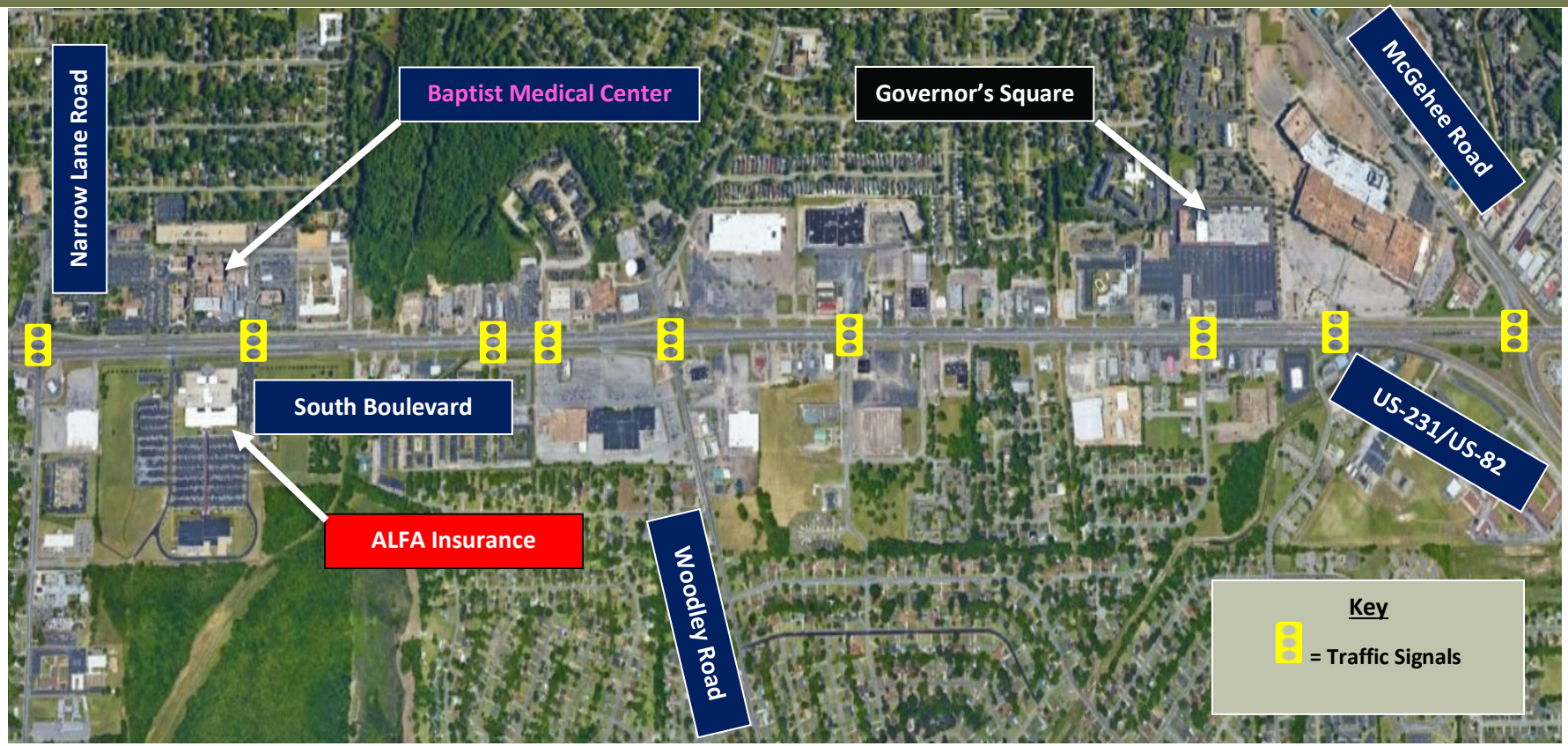


Figure 11: South Boulevard Traffic Signals

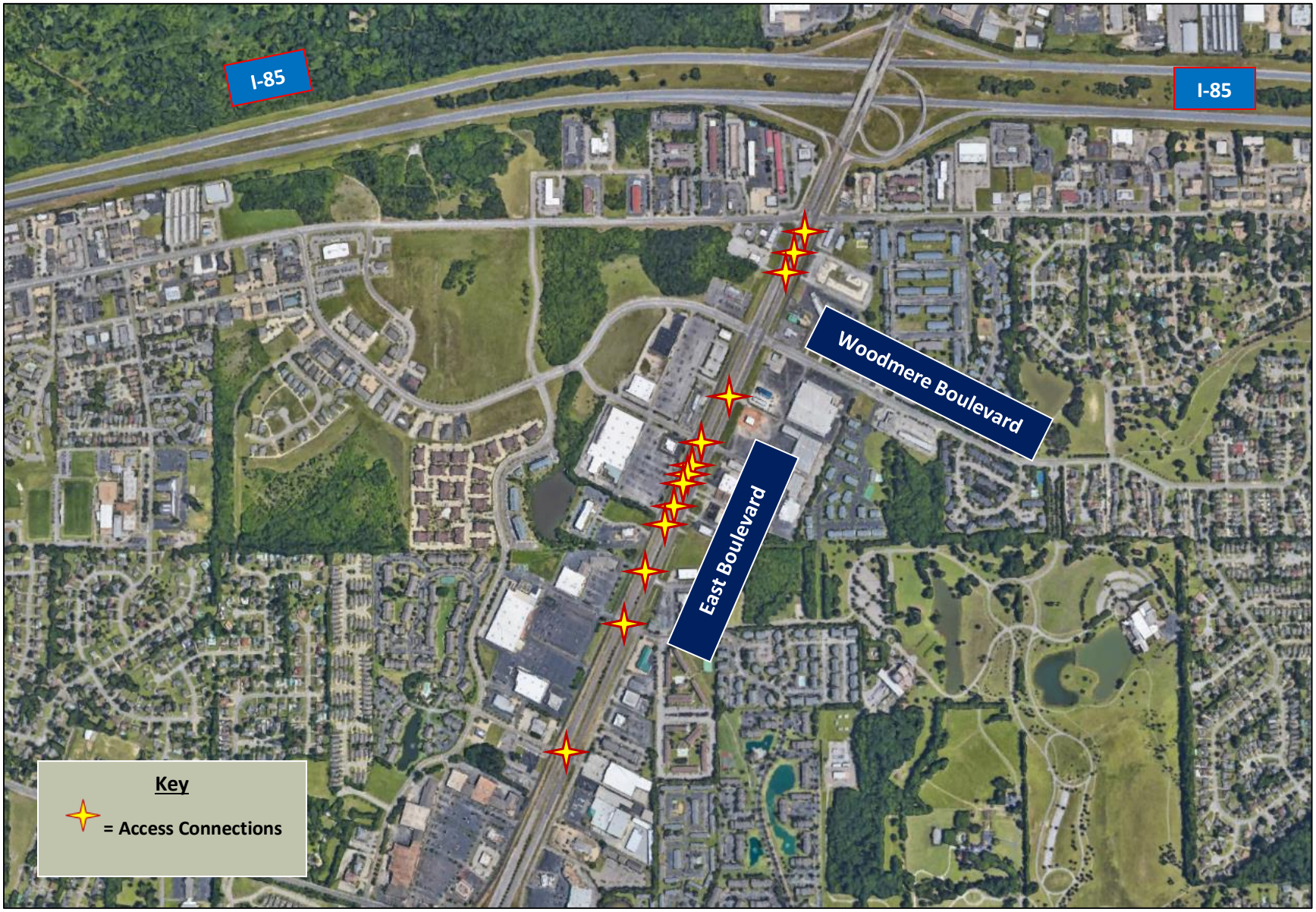


Figure 12: East Boulevard Access Connections

Figure 13: East Boulevard Access Connections (Continued)

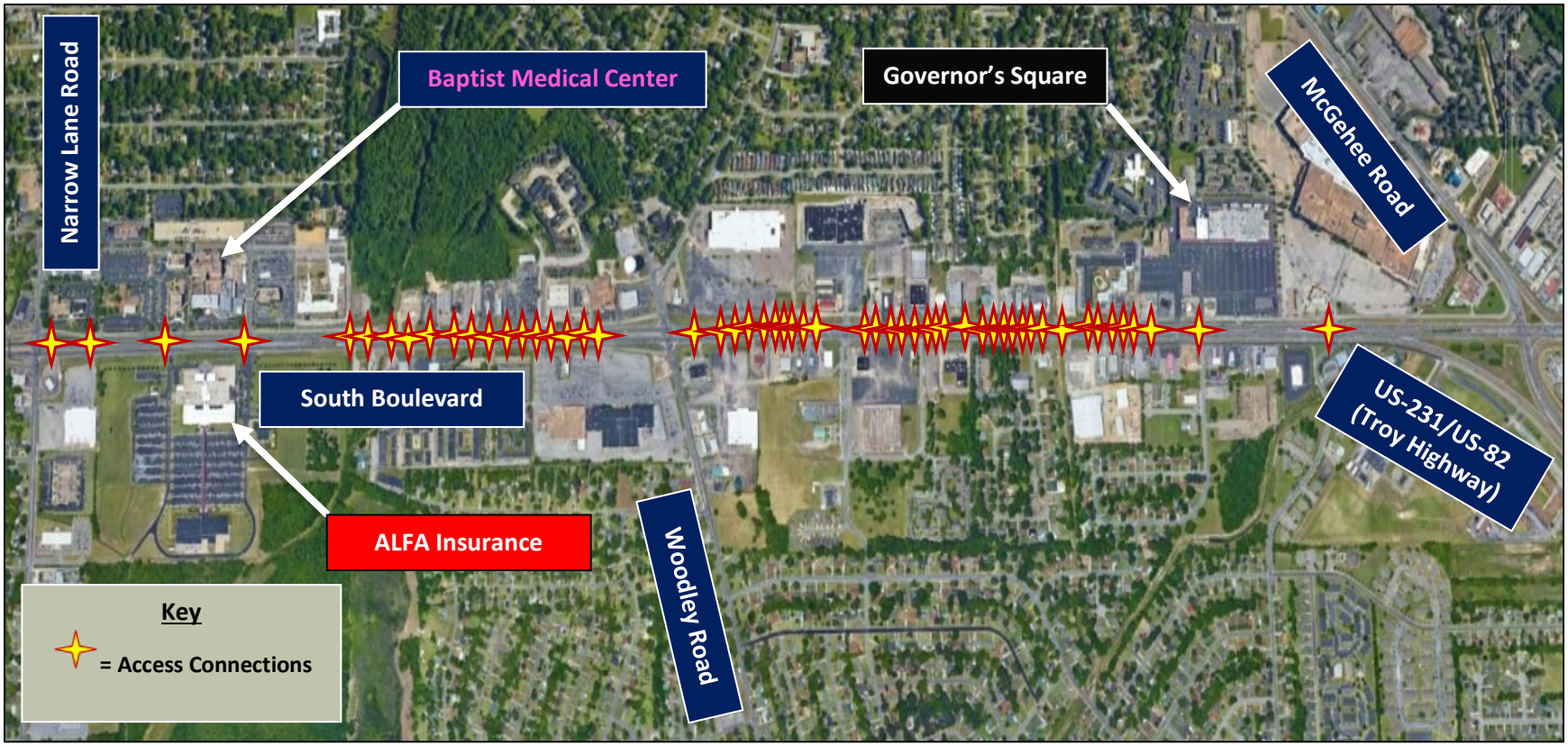


Figure 14: South Boulevard Access Connections

Iteris ClearGuide Traffic Data

Iteris ClearGuide is a platform that analyzes large amounts of transportation data to produce real-time and historical visualizations to identify problems and aid government agencies in the decision-making process to improve the mobility, reliability, and safety of the transportation system. This platform uses 3rd party speed data derived from GPS-enabled devices to give the viewer a clear visualization of the network from a regional perspective to a single roadway. ClearGuide uses maps, reports, and charts to accurately illustrate where congestion is occurring. It also provides information regarding traffic incidents and weather on the roadway network to help the user make more effective decisions and determine appropriate mitigations.

Sain Associates utilized ClearGuide data to gain a better understanding of the speeds and congestion in the Montgomery area. The average morning peak hour was from 7:00 AM to 8:00 AM. The average mid-day peak hour was from 12:00 PM to 1:00 PM. The average evening peak hour was from 5:00 PM to 6:00 PM. Most of the slower speeds occurred along East Boulevard, between I-85 and US-231 (Troy Highway). These results were consistent through each peak hour. US-231 connects Wetumpka, Alabama to Montgomery and Troy, Alabama. The roadway merges with traffic in and around the City of Montgomery, where it becomes East Boulevard to the north and south of I-85. US-231 is also the main route for people travelling from out of state, heading towards Panama City and the surrounding beach destinations in Florida. Therefore, the heaviest traffic on the outer loop of Montgomery is located on the east side of Montgomery.

The Iteris ClearGuide maps of Montgomery are illustrated in the following figures, showing the peak 15-minute intervals for the highest levels of congestion for the AM (**Figure 15**), Midday (**Figure 16**), and PM (**Figure 17**) peak hours.

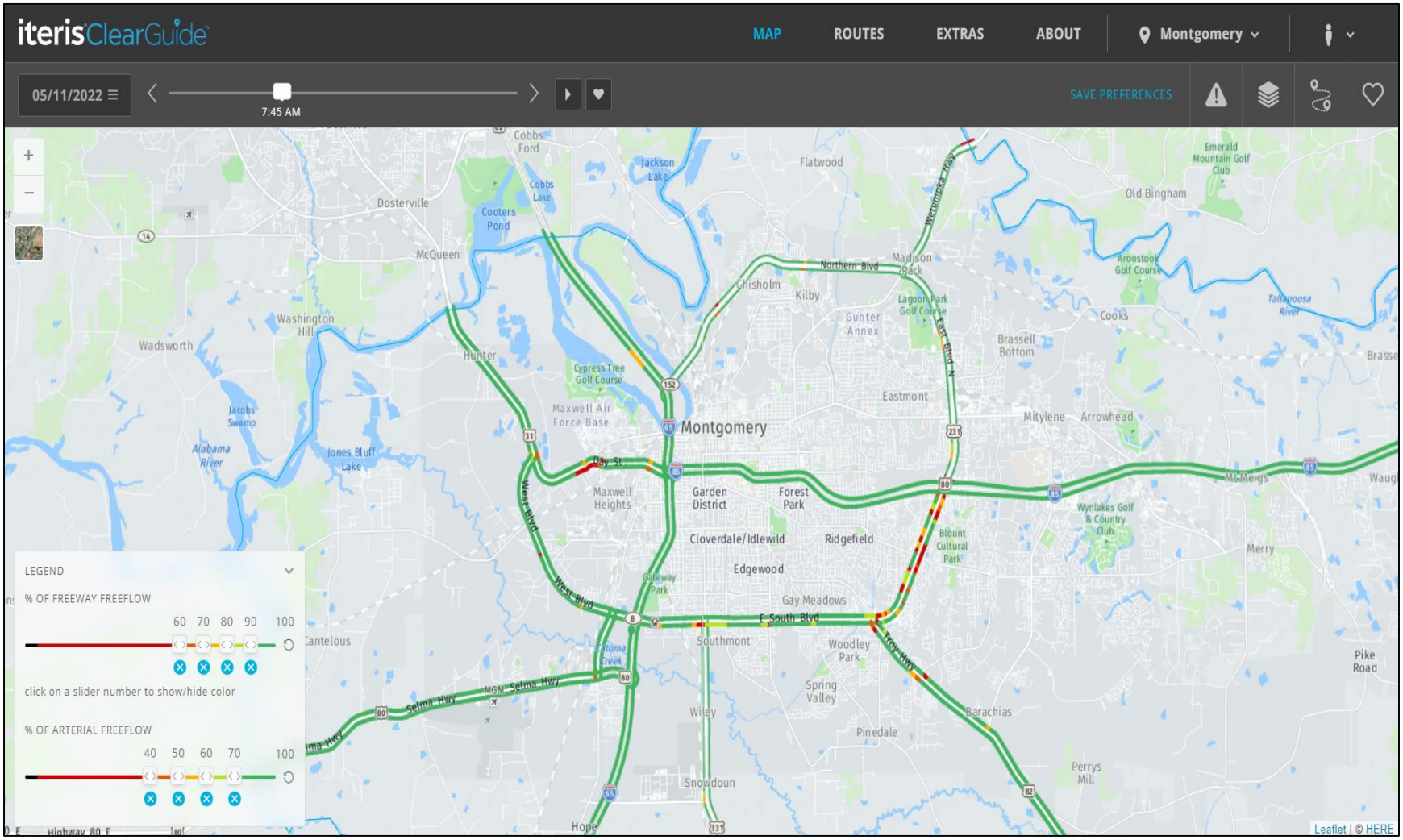


Figure 15: AM Peak Period (7:45 AM)

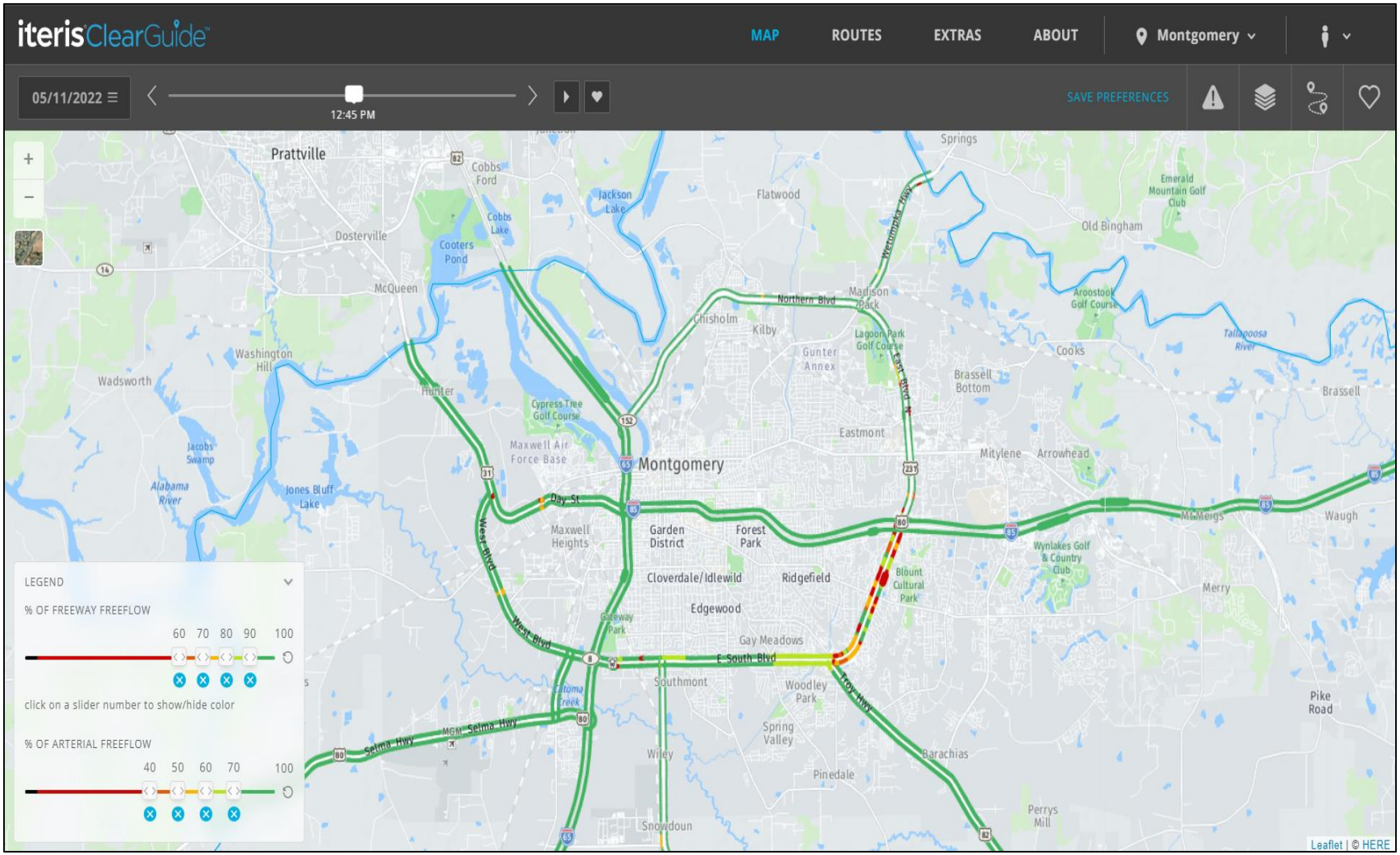


Figure 16: Midday Peak Period (12:45 PM)

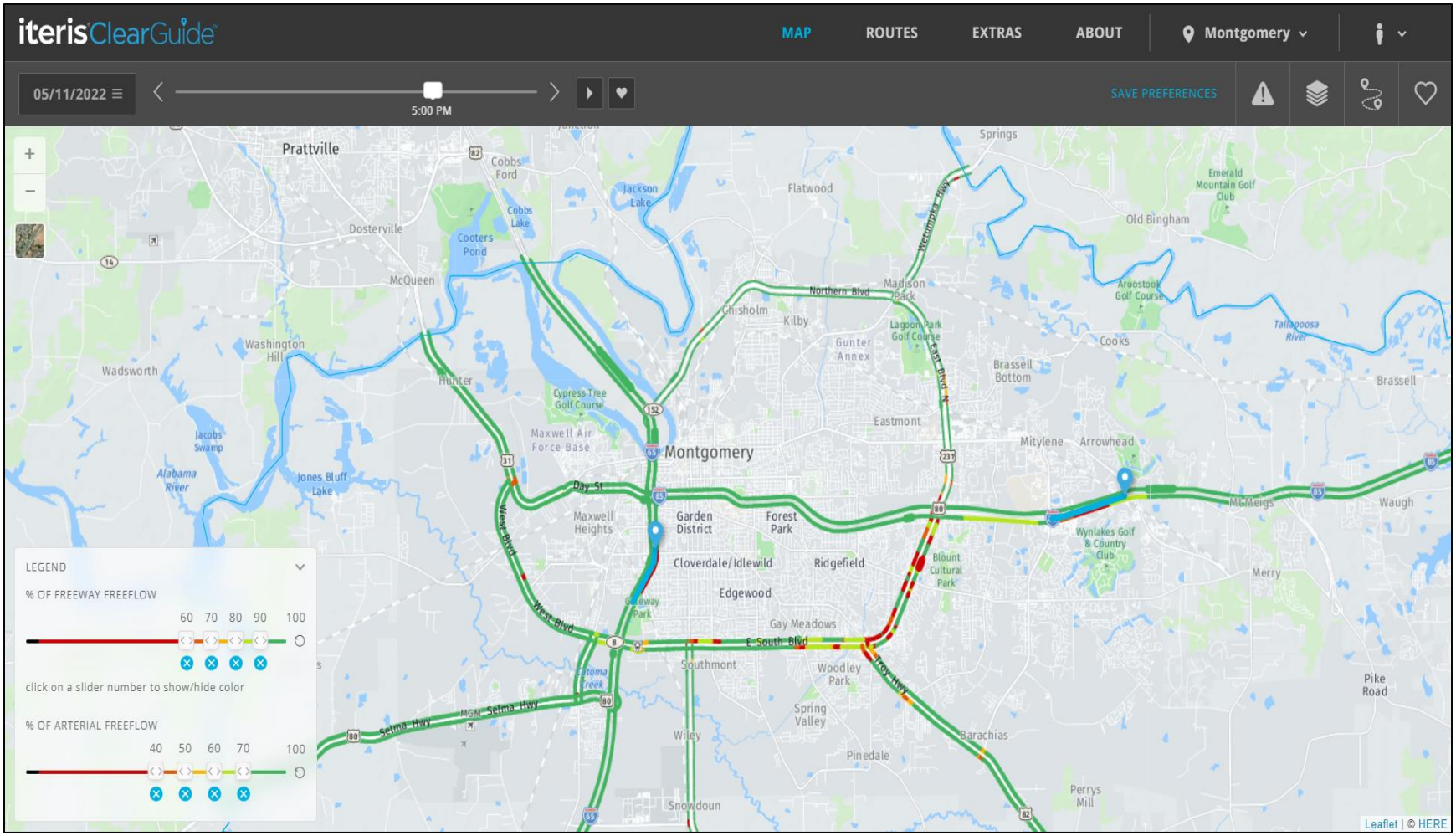


Figure 17: PM Peak Period (5:00 PM)

Travel Time Runs

Sain Associates conducted travel time runs on various routes in the Montgomery region. This task was conducted to gain a better understanding of the free flow speed vs. the congested speed and to identify congestion points along the roadways. Sain utilized the floating car methodology for travel time runs, where the engineer uses a middle lane traveling at the average speed of the surrounding vehicles to minimize any delays due to right-turning or merging traffic. The Map My Tracks app was used to record the average speed and the time required to travel the various routes. Travel time run locations are illustrated in **Figure 18**.

The results of the travel time runs are listed as follows:

- Most of the delays occurred during the PM peak period on both routes.
- On I-85, congestion occurred at the intersection with US-231 (East Boulevard), primarily on the I-85 Eastbound Ramp, during the PM peak hour.
- On East Boulevard, congestion occurred on the southbound approach near the intersection with I-85 during the PM peak period.
- On South Boulevard, most of the congestion occurred during the PM peak period near the intersection with US-231 (Troy Highway).
- Other congested areas on South Boulevard occur around the intersections of Narrow Lane Road and Woodley Road.
- Congested areas on East Boulevard occur around Vaughn Road and Woodmere Road.

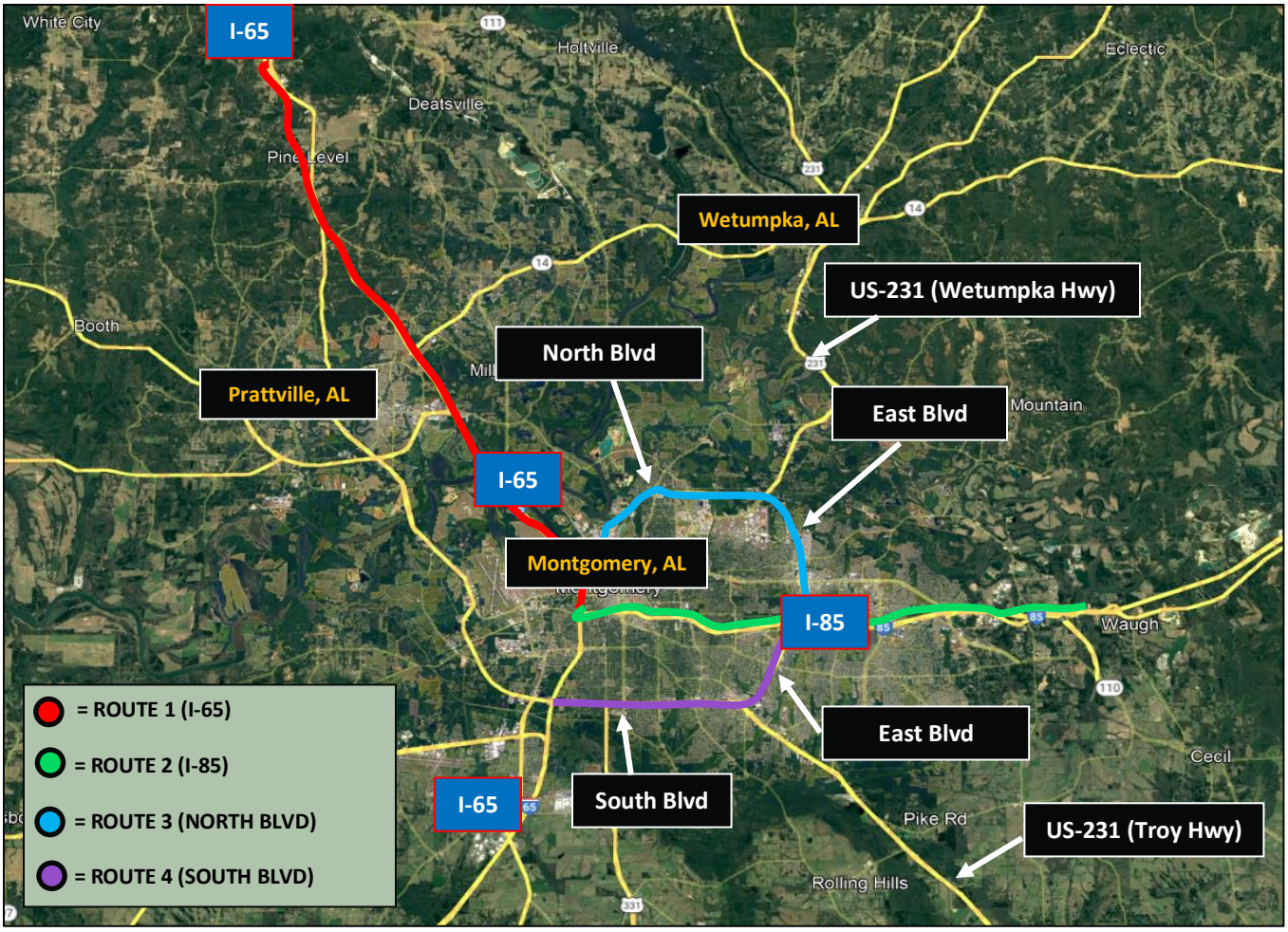


Figure 18: Interstate and Outer Loop Travel Time Runs

Table 3: Route 1 - I-65 (CR-59 to I-85) - 21 miles (3/29/2022)

		Run 1		Run 2		Run 3	
		NB	SB	NB	SB	NB	SB
AM Peak	Duration (min)	18:20	18:14	17:53	18:05	18:09	17:40
	Average Speed (MPH)	71	69	70	70	69	71
MID Peak	Duration (min)	17:43	19:59	18:08	16:52	17:51	17:50
	Average Speed (MPH)	71	70	70	70	70	70
PM Peak	Duration (min)	17:54	17:53	18:04	17:55	18:03	17:52
	Average Speed (MPH)	70	70	70	70	70	70

*NB = From I-85 to CR-59
*SB = From CR-59 to I-85

Table 4: Route 2 - I-85 (I-65 to SR-126) - 16 miles (4/12/2022)

		Run 1		Run 2		Run 3	
		EB	WB	EB	WB	EB	WB
AM Peak	Duration (min)	13:37	16:10	15:18	14:32	13:33	13:28
	Average Speed (MPH)	70	60	63	66	71	70
MID Peak	Duration (min)	14:25	14:01	14:19	13:43	14:17	13:56
	Average Speed (MPH)	68	68	67	69	68	68
PM Peak	Duration (min)	14:10	14:20	14:54	15:10	16:30	14:08
	Average Speed (MPH)	67	66	65	62	57	67

*EB = From I-65 to SR-126
*WB = From SR-126 to I-65

Table 5: North Blvd (I-65 to I-85) - 9.6 miles (4/13/2022)

		Run 1		Run 2		Run 3	
		EB	WB	EB	WB	EB	WB
AM Peak	Duration (min)	13:57	12:40	15:13	13:16	13:25	13:03
	Average Speed (MPH)	49	53	45	52	49	52
MID Peak	Duration (min)	12:52	13:36	12:27	14:35	14:09	13:27
	Average Speed (MPH)	51	49	53	46	47	50
PM Peak	Duration (min)	17:15	14:19	15:15	14:23	13:11	13:19
	Average Speed (MPH)	39	47	45	47	49	49

*EB = From I-65 to I-85
*WB = From I-85 to I-65

Table 6: South Blvd (I-65 to I-85) - 8.6 miles - (6/9/2022)

		Run 1		Run 2		Run 3	
		EB	WB	EB	WB	EB	WB
AM Peak	Duration (min)	14:38	16:13	18:16	14:32	15:31	14:25
	Average Speed (MPH)	36	38	33	34	34	35
MID Peak	Duration (min)	15:12	17:00	16:06	16:52	19:04	16:11
	Average Speed (MPH)	36	35	35	33	33	35
PM Peak	Duration (min)	19:17	19:49	19:43	15:00	17:27	16:40
	Average Speed (MPH)	35	32	32	35	37	36

*EB = From I-65 to I-85
*WB = From I-85 to I-65

After reviewing key points on the 2015 and 2045 congestion maps, additional travel time runs were conducted along arterial routes throughout Montgomery, which are expected to see increased congestion in the future. The arterial routes include the following segments, and the segments are illustrated below in **Figure 19**:

- Vaughn Road (from Perry Hill Road to Taylor Road)
- Perry Hill Road (from Atlanta Highway to Vaughn Road)
- Wetumpka Highway (US-231) (from Redland Road to East Boulevard)
- Woodley Road (from Fairview Avenue to McGehee Road)

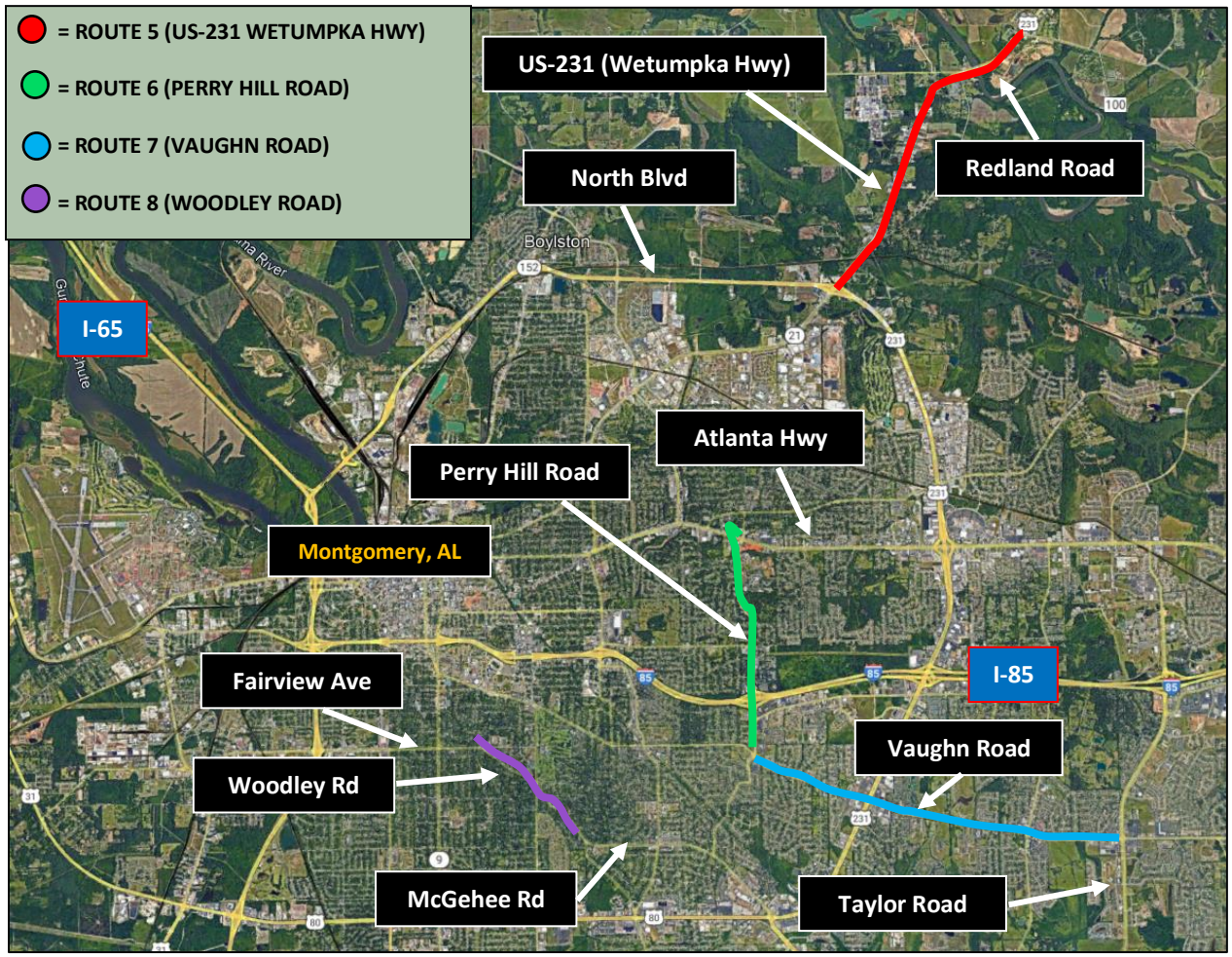


Figure 19: Arterial Travel Time Runs

Table 7: Route 5 - US-231 (East Blvd to Redland Rd) - 3.8 miles (8/18/2022)

		Run 1		Run 2		Run 3	
		NB	SB	NB	SB	NB	SB
AM Peak	Duration (min)	05:02	05:15	04:04	04:09	04:39	04:53
	Average Speed (MPH)	44	42	50	47	48	47
MID Peak	Duration (min)	05:23	04:03	04:21	04:51	05:46	03:53
	Average Speed (MPH)	43	51	50	43	40	50
PM Peak	Duration (min)	05:25	05:13	05:30	05:06	05:41	04:14
	Average Speed (MPH)	40	43	42	47	43	50

*NB = From East Blvd to Redland Road
*SB = From Redland Road to East Blvd

Table 8: Route 6 - Perry Hill Road (Vaughn Rd to Atlanta Hwy) - 2.5 miles (8/17/2022)

		Run 1		Run 2		Run 3	
		NB	SB	NB	SB	NB	SB
AM Peak	Duration (min)	14:18	06:35	06:01	06:14	04:45	04:24
	Average Speed (MPH)	17	22	24	25	31	31
MID Peak	Duration (min)	04:42	04:05	05:05	07:14	06:16	05:56
	Average Speed (MPH)	30	33	27	22	25	25
PM Peak	Duration (min)	06:14	06:02	07:28	05:14	07:32	04:55
	Average Speed (MPH)	22	27	24	28	26	29

*NB = From Vaughn Road to Atlanta Highway
*SB = From Atlanta Highway to Vaughn Road

Table 9: Route 7 - Vaughn Road (Perry Hill Rd to Taylor Rd) - 4.3 miles (8/17/2022)

		Run 1		Run 2		Run 3	
		EB	WB	EB	WB	EB	WB
AM Peak	Duration (min)	10:31	15:36	10:43	08:44	10:01	08:28
	Average Speed (MPH)	27	22	28	33	31	33
MID Peak	Duration (min)	12:20	10:02	10:35	10:54	10:33	10:19
	Average Speed (MPH)	27	27	26	28	27	29
PM Peak	Duration (min)	15:09	09:19	11:01	13:55	12:27	12:01
	Average Speed (MPH)	26	27	25	27	25	27

*EB = From Perry Hill Road to Taylor Road
*WB = From Taylor Road to Perry Hill Road

Table 10: Route 8 - Woodley Road (Fairview Ave - McGehee Road) - 1.6 miles - (8/18/22)

		Run 1		Run 2		Run 3	
		SB	NB	SB	NB	SB	NB
AM Peak	Duration (min)	04:12	05:10	02:32	04:59	05:13	06:02
	Average Speed (MPH)	28	25	34	26	28	22
MID Peak	Duration (min)	03:05	05:25	05:24	05:17	03:46	05:26
	Average Speed (MPH)	31	25	27	25	27	25
PM Peak	Duration (min)	04:54	04:52	05:17	05:45	03:29	03:13
	Average Speed (MPH)	29	25	25	21	25	30

*SB = From Fairview Ave to McGehee Road
*NB = From McGehee Road to Fairview Ave

Summary of Congested Areas and Existing "Hot Spots" in Montgomery

Based on the analysis, most of the congestion observed in Montgomery occurs where US-231 merges with the loop around the city. According to travel time runs, additional congestion occurs at the I-85/East Boulevard interchange during the PM peak period. Frequently spaced driveways and traffic signals along East Boulevard contribute to the traffic congestion observed and forecast for this corridor.

In addition, congestion and speed analysis indicate several arterial corridors with heavy congestion under existing conditions (2015) and severe congestion forecast in the future (2045). These corridors include US-231 (Wetumpka Highway), Perry Hill Road, Vaughn Road, and Woodley Road. Travel time runs confirmed these roadways to be potential "hot spots" in the future.

Another area which experiences severe congestion under existing conditions is the intersection of Lagoon Park Drive at East Boulevard. Lagoon Park connects traffic on East Boulevard to a recreational park, baseball fields and golf course, along with a major industrial complex for several different technical companies. The intersection of Lagoon Park and East Boulevard is signalized with two northbound left turn lanes and one southbound right turn lane on East Boulevard turning into Lagoon Park. Frontage roads are present on the east and west sides of East Boulevard, which creates additional conflict points at the intersection.

Current and Future Projects

The following represents the anticipated projects in and around the City of Montgomery, relevant to the current CMP. Part of the LRTP includes a financially constrained list of projects, representing the most critical projects able to be funded over the 25-year horizon. Projects that are considered necessary, but cannot be funded through available sources, are considered Visionary or Needs projects. Projects that are currently under construction or have a project phase funded in the current TIP category are considered Existing plus Committed (E+C) projects. These projects are expected to continue through their completion date, and these are not listed in the LRTP needs assessment. Projects relevant to the CMP are shown below in **Table 11**.

Table 11: Existing plus Committed Projects

PROJECT #	ROADWAY	FROM	TO	DESCRIPTION	COUNTY
EC1	SR 108 Outer Loop	SR-110	I-85	New Freeway Segment	Montgomery
EC2	I-85	Ann Street	Taylor Road	Add Auxiliary Lanes	Montgomery
EC3	SR-6/US-82	SR-14	SR-3/US-31	Widen to 4-Lane Divided	Autauga
EC4	SR-110 Vaughn Rd	Chantilly Pkwy	Outer Loop	Widen to 4-Lane Divided	Montgomery
EC5	SR-14	US-31	Jasmine Trail	Additional Lanes	Autauga
EC6	Vaughn Road	Wynnlakes Blvd	Glynnwood Trail	Widen to 4-Lane Divided	Montgomery
EC7	SR-14	Ingram Road	Coosada Pkwy	Additional Lane	Elmore
EC8	Redland Road	Rifle Range Road	US-231	Additional Lanes	Elmore
EC9	East Fairview Ave	Court Street	Cloverdale Road	Convert from 4 Lanes to 3 Lanes	Montgomery

Out of the E+C projects listed above, the widening and additional lanes on I-85 and Redland Road are of particular importance to our analysis. When conducting travel time runs, there were significant westbound queues observed during the AM peak period on Redland Road from US-231 to Rifle Range Road. Additional lanes, along with intersection improvements at US-231 could help alleviate some of the congestion experienced on Redland Road during the AM peak hour. Much of this traffic was using Redland Road to access US-231 to head south towards Montgomery.

Field observations also indicated heavy traffic on I-85 during the AM and PM peak periods between Ann Street and Taylor Road. The addition of auxiliary lanes on I-85 could alleviate some of the congestion experienced during the AM and PM peak periods, allowing through traffic on I-85 to continue moving without having to slow down as often for merging traffic between Ann Street and Taylor Road.

Congestion Management Matrix

The following tables illustrate multiple high-level strategies for congestion management to improve roadways surrounding Montgomery.

Cost Metrics			
Cost Level	**Improvement Types**	**Improvement Examples**	**Typical Cost Range**
Low Costs	Operational Improvements	Signal Timing Adjustments Turn Lane Construction	$1 million per mile to less than $10 million for area wide applications
Medium Costs	Moderate Improvements to Infrastructure	Additional Lanes Medium-sized ITS Applications	$1 million to $10 million per mile or tens of millions for area-wide applications
High Costs	Major Construction Projects	Large, Area-Wide ITS Applications	Tens of millions per mile or hundreds of millions for area-wide applications

Timeframe Metrics	
Short Term	Less than 5 years
Mid Term	Approximately 5 to 20 years
Long Term	Over 20 years

Additional Capacity & Physical Improvements

New Roads and Roadway Widening

Description:
Construction of new freeways or arterials; adding lanes or shoulders to existing roadways.

Performance Metrics:
Traditional method for capacity improvements. May lead to increased demand.

Costs:
High

Timeframe:
Mid-term to Long-term

New Toll Roads

Description:
Construction of new toll roads.

Performance Metrics:
There is potential for greater long-term congestion if tolls can be increased due to growing demand. Traffic can be diverted to roadways with less capacity.

Costs:
High (However, this cost is passed on to the users.)

Timeframe:
Mid-term to Long-term

HOV Lanes - New

Description:
New construction of high-occupancy vehicle (HOV) lanes.

Performance Metrics:
Can increase throughput. Can reduce total vehicle miles traveled. Can increase total capacity.

Costs:
High

Timeframe:
Mid-term to Long-term

HOV Lanes - Modified

Description:
Modify existing lane geometry into HOV Lanes.

Performance Metrics:
Can increase throughput. Can reduce total vehicle miles traveled.

Costs:
Low to Medium

Timeframe:
Short-term

Geometric Design Improvements/ Intersection Improvements

Description:
Examples include widening to provide shoulders, additional turn lanes at intersections, improved sight lines, roundabouts, and bus pull-outs.

Performance Metrics:
Reduce delay. Increase capacity.

Costs:
Low to Medium

Timeframe:
Mid-term to Long-term

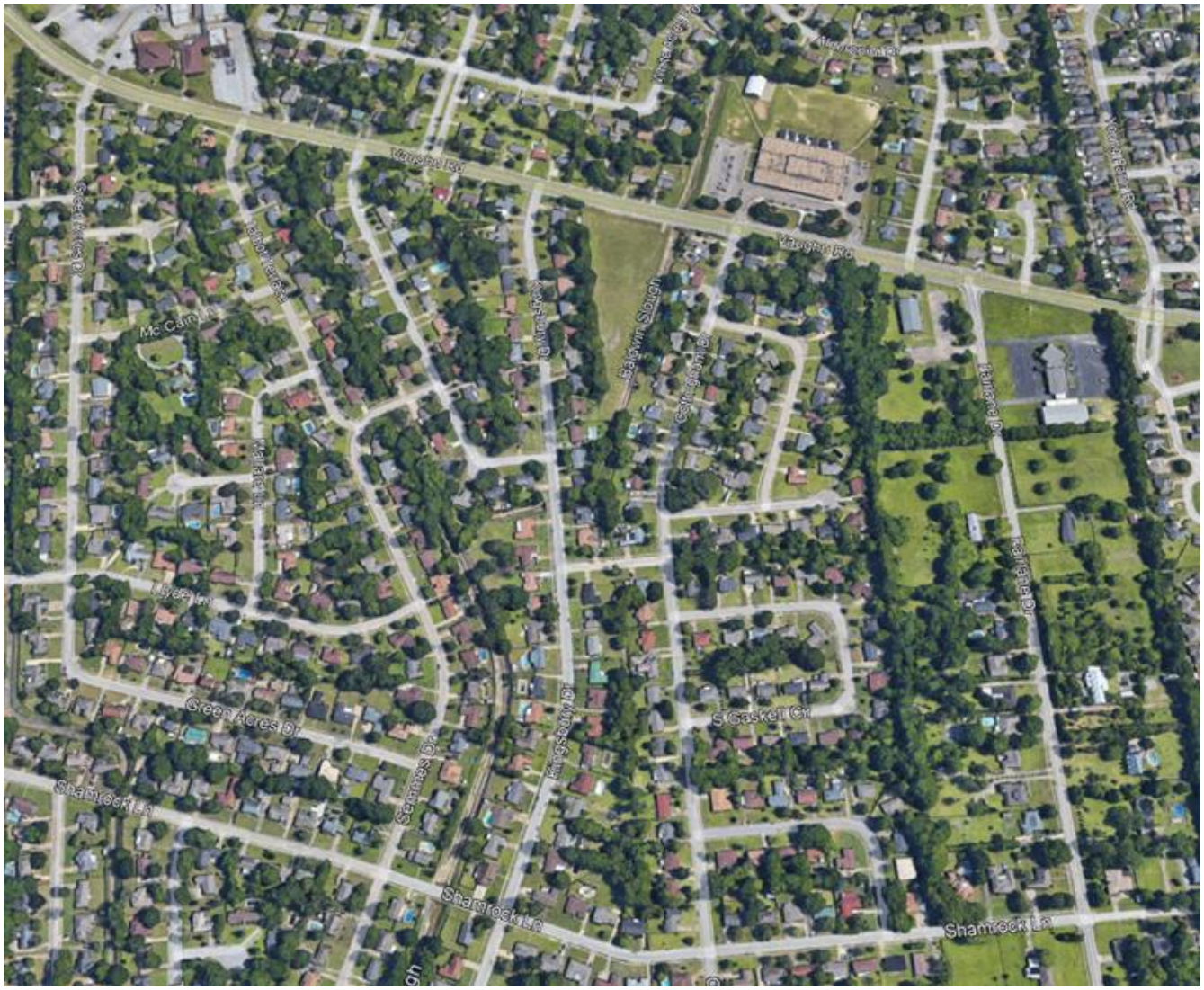
Access Management

Description:
Reconstructing roadways and establishing local street and driveway design standards to limit access for midblock turning movements and meet minimum intersection spacing guidelines.

Performance Metrics:
Improved travel speeds. Minimize the number of driveways and intersecting roads accessing a main road.

Costs:
Low to Medium

Timeframe:
Mid-term to Long-term



Street Connectivity

Description:
A connected local street network to remove traffic loads from arterials as an alternative to disconnected local street systems.

Performance Metrics:
Reduce vehicle trip lengths. Reduce arterial traffic loads. Supports bike and ped travel. Can increase congestion if access management is not used with street connectivity.

Costs:
Low to Medium

Timeframe:
Long-term

Operating Improvements to Existing Capacity

Traffic Signal Optimization

Description:
Retiming Signals to reduce intersection delay; coordinating control of traffic signals along a corridor or network.

Performance Metrics:
Increase in travel speeds. Reductions in delay. Reductions in vehicle stops.

Costs:
Low

Timeframe:
Short-term

Centralized, Actuated Control Systems

Description:
Retiming signals to reduce intersection delay: control of traffic signals along a corridor or network.

Performance Metrics:
Increase in travel speeds. Reductions in delay. Reductions in vehicle stops.

Costs:
Medium

Timeframe:
Mid-term

Changeable Lane Assignments/ Reversible Streets

Description:
Reversible freeway or arterial lanes, time restricted-use lanes, peak period use of shoulder.

Performance Metrics:
Limited research. Results can be significant in areas where traffic flow is highly unbalanced.

Costs:
Low to Medium

Timeframe:
Short-term

Congestion Pricing – Increase Tolls

Description:
Reversible freeway or arterial lanes, time restricted-use lanes, peak period use of shoulder.

Performance Metrics:
Proactively managing demand and available highway capacity by dynamically adjusting the toll paid by users or varying tolls by time of day.

Costs:
Low

Timeframe:
Mid-term

Loading Zone Management

Description:
Establishment and management of on-street and/or off-street loading areas to reduce impacts of loading vehicles on traffic flow.

Performance Metrics:
Can reduce traffic impacts of loading and unloading.

Costs:
Low

Timeframe:
Mid-term

Incident Management

Description:
Identifying incidents quickly, with faster response times.

Performance Metrics:
Can reduce unexpected or non-recurring congestion.

Costs:
Low to Medium

Timeframe:
Short-term

Work Zone Management

Description:
Reducing the amount of time work zones need to be used and efficiently moving traffic through work zones.

Performance Metrics:
Can reduce delay. Can increase throughput and/or travel speeds.

Costs:
Low

Timeframe:
Short-term

Dynamic Messaging/Traveler Information

Description:
Provide travelers with real time information on roadway conditions, where incidents have occurred, and congestion has formed to optimize trip and route decisions.

Performance Metrics:
Can reduce delay by redirecting traffic. Results are strategy and context specific. Largely dependent on the availability of alternative routes.

Costs:
Low to Medium

Timeframe:
Short-term

Reduced Demand for Vehicle Travel

Land Use

Description:
Land use patterns to improve travel efficiency and reduce vehicle travel. This can include transit-oriented development, pedestrian design, and parking management.

Performance Metrics:
Can reduce vehicle miles traveled. Can support mode-shifting to mass transit, walk and bicycle. Can improve overall accessibility.

Costs:
Low

Timeframe:
Long-term

Trucking

Description:
Truck tolls, lane restrictions, delivery restrictions, intermodal facility, and access improvements to reduce total or peak period truck traffic and/or shift freight traffic to other modes.

Performance Metrics:
Encourages reduced trips by increasing productivity per trip. More effective when implemented as part of a larger initiative.

Costs:
Low

Timeframe:
Short-term

Non-Motorized Improvements

Description:
Bike and pedestrian improvements (bike lanes, shared-use paths, sidewalks, traffic calming, pedestrian crossings, and pedestrian amenities).

Performance Metrics:
Reduces vehicle miles traveled. Can influence individual behaviors. Improvements can be at odds with congestion management, in some cases.

Costs:
Low to Medium

Timeframe:
Long-term

Bus Service and Operations Improvements

Description:
Transit capacity or service enhancements to attract new riders including new fixed-guideway service, express/premium bus, new routes, higher frequencies, transit priority operations (bus-only lanes, signal priority, queue jumping) reduced fares, flex service, expanded park-and-ride, and traveler information.

Performance Metrics:
Project and context specific. Depends on nature of service improvements and number of new riders attracted. Reductions in vehicle miles traveled. Can reduce travel times.

Costs:
High

Timeframe:
Long-term

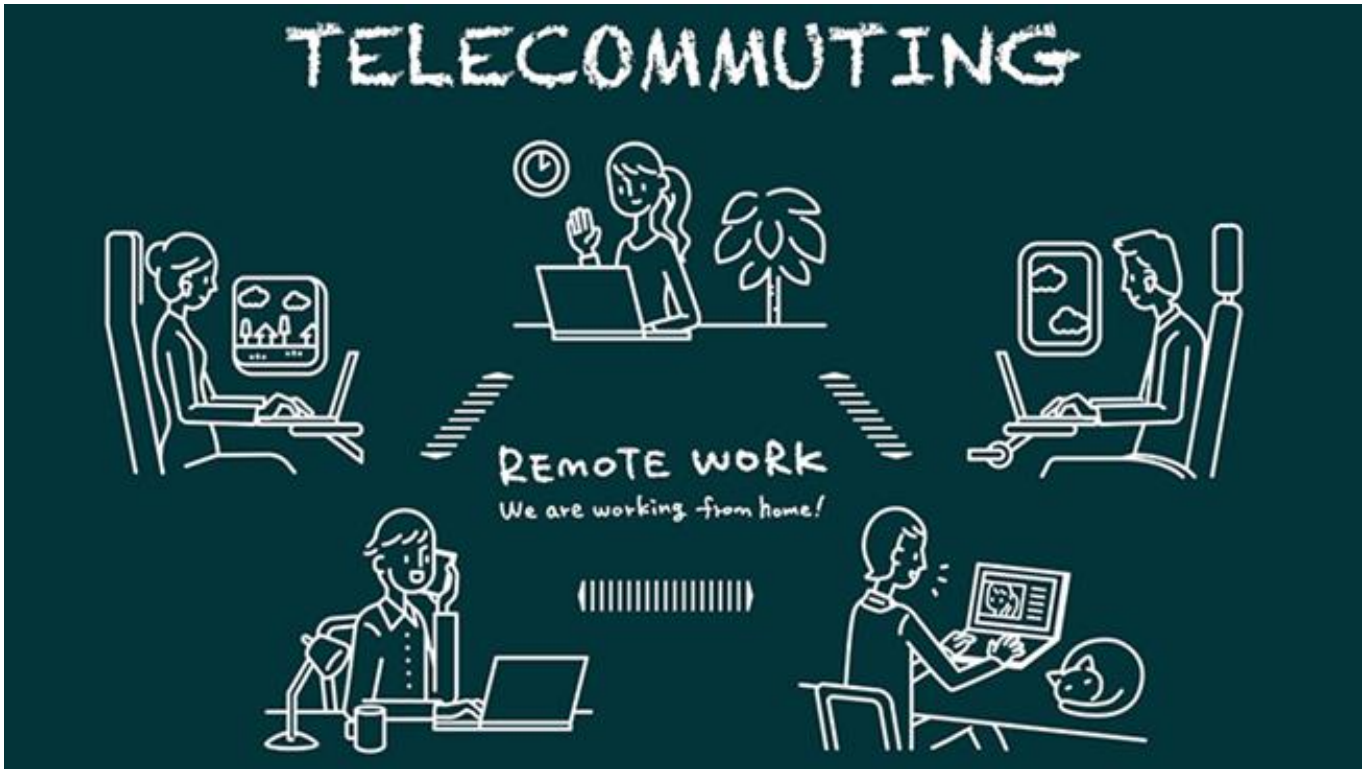
Transit and Ridesharing Programs

Description:
Programs intended to reduce commuting vehicle travel, including transportation management associations (TMAs), alternative mode information, transit subsidies, ridesharing/ ride matching programs and incentives, vanpools, parking pricing or cash-out, guaranteed ride home, worksite bike facilities.

Performance Metrics:
Decrease single occupancy vehicle trips. Decrease vehicle miles traveled. This is more effective when financial incentives are offered to use the program.

Costs:
Low to Medium

Timeframe:
Short-term



Telecommuting/ Alternative Work Hours

Description:
Programs intended to reduce commuting vehicle travel, including transportation management associations (TMAs), telecommuting and alternative work schedules.

Performance Metrics:
Reduces vehicle miles traveled.

Costs:
Low to Medium

Timeframe:
Short-term

Congestion Management Examples

The following are potential solutions to congestion in the Montgomery area:

Access Management

The concept of access management involves a balance of providing mobility to through traffic while maintaining accessibility to properties and businesses. The provision of mobility allows the mainline roadway to maintain capacity. Accessibility refers to motorists' ability to enter and exit a property safely and efficiently. A roadway can have effective mobility with few driveways, which allows through traffic to flow freely, but the access to businesses is hindered. Conversely, a mainline roadway with multiple driveways provides easier access to businesses, but this also creates congestion along the roadway, often slowing down through traffic due to drivers turning into and out of the access points.

Some examples of access management techniques are:

- Alternative Intersection Designs
    - Roundabout
    - Continuous Green T-intersection
    - Median U-Turns
    - Restricted Crossing U-Turns
- Directional Access Connections
    - Right-in/Right-out
    - Left-in/Right-in/Right-out
- Non-traversable Medians
- Driveway Spacing
- Signal Spacing
- Roundabout Spacing
- Corner Clearance

One example of access management already in place in Montgomery is the segment on South Boulevard between I-65 and Davenport Drive (listed in the section **Previous Congestion Management Studies**). While conducting travel time runs for the current CMP study, less congestion was observed at this segment of South Boulevard than the area near the intersection with Troy Highway, where fewer access management strategies have been implemented. As shown in **Figure 20**, prior to the implementation of access management, South Boulevard had a six-lane cross section with a two-way left turn lane in the center.

Various improvements to this segment included the following:

- The installation of traffic signals at the TA Travel Center driveway
- The installation of a crosswalk traffic signal at the Greyhound bus facility
- A non-traversable median throughout the segment of the roadway
- Sidewalks and pedestrian push buttons throughout the segment

The figures on the next page (**Figure 21** and **Figure 22**) illustrate the improvements made along the corridor.

These access management strategies can improve safety by eliminating the left turn movements out of unsignalized driveways and provide pedestrians a safer method to cross a

90-foot roadway with a median and actuated pedestrian buttons at signalized intersections with crosswalks.

These strategies can also improve other segments along South Boulevard and East Boulevard, where traffic congestion is highest, based on travel time runs and other analysis conducted in this study.

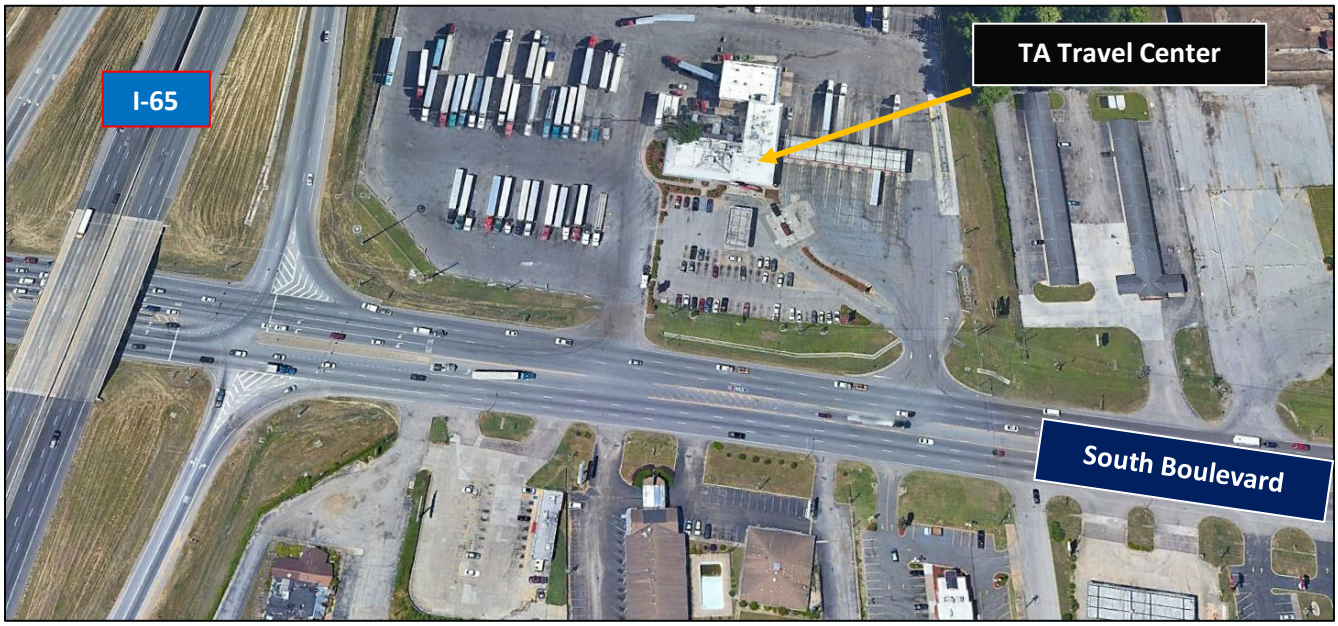


Figure 20: South Boulevard Corridor before Access Management

Figure 21: Access Management Improvements - South Boulevard

Figure 22: Access Management Improvements - South Boulevard (Continued)

Traffic Signal Spacing and Retiming

Another potential aid in congestion management is traffic signal spacing and retiming. Having the appropriate spacing between traffic signals is an important element of efficient traffic operations. Evenly spaced traffic signals improve fuel efficiency and lower crash rates by reducing unnecessary stop-and-go traffic. According to the 2022 ALDOT Access Management Manual, Traffic signal spacing is based on the posted speed limit (as shown in **Table 12**), and the space should be measured from the edge of traveled way to edge of traveled way.

Table 12: Minimum Signal Spacing Criteria

Access Category	Posted Speed (MPH)	Minimum Spacing Between Signalized Intersections (ft)*
Commercial/Industrial Driveway	< 45	1,000
	45-50	1,320
	>= 55	2,460

*These spacing requirements may not be feasible for some locations. If this spacing cannot be provided, then further analysis may be needed to demonstrate that there will still be acceptable traffic operations after the access is constructed. (Source: 2022 ALDOT Access Management Manual)

Traffic signal retiming can be another effective tool to reduce congestion along a corridor. Traffic signals along mainline corridors are typically coordinated, and retiming can reduce delay, vehicle stops, and overall travel time. This process involves collecting traffic counts at each of the study intersections. Then a traffic signal inventory is conducted, where an engineer records the signal timings at each intersection and makes note of any issues observed, such as incorrect date/time settings or malfunctioning detectors. Time-of-day plans are collected and modified when necessary to implement the optimal timings for specific peak periods.

Traffic signal timings can be modeled and simulated via traffic software, such as Synchro, and then implemented in the field to improve operations along the corridor. The results of a retiming project may include updating traffic controllers or installing communication between signals to maintain the correct settings. For example, while fiber optic interconnect is the most reliable form, it can be expensive and subject to breaks over time due to weather or construction. Wireless communication, such as cell modems can be a cost-effective option.

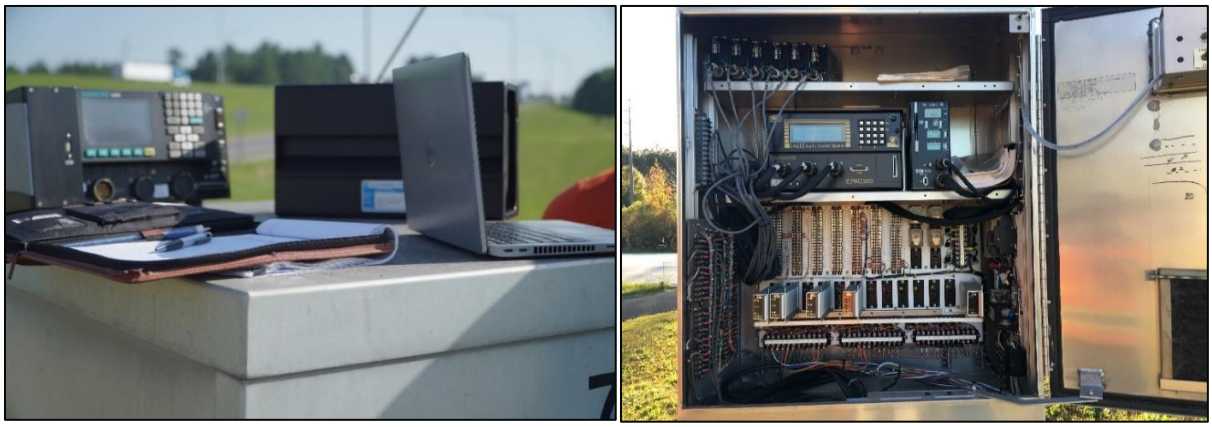


Figure 23: Traffic Signal Controllers

Alternative Interchange

The interchange at I-85 and East Boulevard experiences heavy congestion based on travel time runs and Iteris ClearGuide analysis. The existing interchange configuration is illustrated on **Figure 24**.

Figure 24: I-85 at East Boulevard Interchange

An alternative interchange geometry, such as a diverging diamond interchange (DDI) could reduce some of the congestion experienced at this location. A DDI is designed to potentially crisscross the flow of traffic across an overpass. This change in flow reduces the number of phases at a traffic signal and relocates left turn volumes so that they are not part of the signal's phase sequence. When entering or exiting the interstate, left turns are free flowing, which reduces delay and reduces the number of stops at the intersection. Traffic signs and non-traversable medians direct motorist through the intersection and prevent them from turning into the wrong lane. In addition, provisions can be designed to accommodate bicyclists and pedestrians in the DDI design. An example of the DDI is shown in **Figure 25**.

Figure 25: I-85 at Pleasant Hill Road – Duluth, GA

Mitigation Strategies and Recommendations

For each of the congested corridors, mitigation strategies were developed to include in the discussion of the next TIP and implement where necessary.

The following projects were listed in Montgomery's current TIP for the fiscal years of 2020-2023. These projects were compared with respect to the corridors analyzed in our study.

- Project #100062338 – Feasibility Study for Sidewalks/Multi-Use Path on Vaughn Road from Taylor Road to Chantilly Parkway – Fiscal Year 2020
- Project #10064162 – Widen and Resurface Perry Hill Road from Cardinal Lane to Camelia Drive and Widen Atlanta Highway from Perry Hill Road to Bellhurst Drive – Fiscal Year 2020
- Project #100044272 – Widen and Resurface Perry Hill Road from Harrison Road to Cardinal Lane – Fiscal Year 2020
- Project #100055809 – Bridge Replacement on Woodley Road at Whites Slough and Tributary – Fiscal Year 2020
- Project #100063233 – Widening on Redland Road from US-231 to Rifle Range Road and Bridge Replacement at Harwell Mill Creek – Fiscal Year 2020

According to the analysis performed by Neel-Schaffer during 2014, the following strategies were recommended for the previous CMP:

1. Taylor Road – Segment from I-85 EB On Ramp to Eastchase Parkway
    a. Geometric Design Improvements
        i. Unconventional Intersection Design
        ii. Additional through lanes and turn lanes
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
2. East Boulevard – Segment from Carmichael Road to Monticello Drive
    a. Geometric Design Improvements
        i. Slip lanes for access to frontage roads or consider eliminating frontage roads near intersection

        ii. Additional lanes in both directions
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
3. East Boulevard – Intersection with Carmichael Road
    a. Geometric Design Improvements
        i. Unconventional Intersection Design
        ii. Tight Diamond Interchange
    b. Traffic Signal Optimization and Interconnection
        i. Consider separating left/through lane into two different lanes
4. East Boulevard – Intersection with I-85 Westbound Off Ramp
    a. Geometric Design Improvements
        i. Reconfigure ramp terminal
        ii. Consider dual right turns
        iii. Unconventional Intersection Design
5. Wetumpka Highway (US-231) – Segment from Anderson Road to Jasmine Hill Road
    a. Geometric Design Improvements
        i. Additional lanes
        ii. Intersection improvements – Jasmine Hill Road at Redland Road
        iii. Intersection improvements – Anderson Road
    b. Traffic Signal Optimization and Interconnection (Jasmine Hill Road at Redland Road
    c. Access Management
        i. Raised median with turn lanes
6. Cobbs Ford Road (Prattville) – Segment from US-82 to I-65
    a. Geometric Design Improvements
        i. Connect Highland Ridge Drive to Rocky Mt Road
    b. Traffic Signal Optimization and Interconnection
        i. Improve US-82 signal optimization
        ii. Optimize through movements during peak periods
    c. Access Management
        i. Remove median openings
        ii. Create more RI/RO driveways and utilize backage roads
    d. Growth Management Program
    e. Transit and Ridesharing Programs
7. Wetumpka Highway (US-231) – Intersection with Redland Road
    a. Geometric Design Improvements
        i. Additional lanes
        ii. Intersection improvements
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
8. East Main Street (Prattville) – Segment from US-82 to Greystone Way
    a. Geometric Design Improvements
        i. Intersection improvements
        ii. Additional right turn lanes at existing driveways
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
        i. Median replacement of two-way left turn lanes
        ii. Consolidate driveways

        iii. Convert entrances to RI/RO
    d. Growth Management Program
    e. Transit and Ridesharing Programs
9. Taylor Road - Interchange with I-85 Ramps
    a. Geometric Design Improvements
        i. Ramp configurations
        ii. Unconventional Intersection Design
        iii. Additional lanes
    b. Traffic Signal Optimization and Interconnection
10. Troy Highway (US-231) – Intersection with Christine Elizabeth Curve/Virginia Loop Road
    a. Geometric Design Improvements
        i. Realignment
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
        i. Driveway consolidation
        ii. Service road improvements or removal
11. South Boulevard – Segment from Narrow Lane Road to Troy Highway (US-231)
    a. Geometric Design Improvements
        i. Additional lanes
        ii. Median U-turns or Superstreet
        iii. Frontage road extensions
        iv. Intersection study at Morrow Drive
    b. Traffic Signal Optimization and Interconnection (Upgrades)
    c. Access Management
12. Atlanta Highway – Segment from South Burbank Drive to East West Service Road
    a. Geometric Design Improvements
        i. Improvements to East and West service roads
        ii. Additional lanes in both directions
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
        i. Driveway consolidation
        ii. Median closures
    d. Transit and Ridesharing Programs
    e. Bus Service and Operations Improvements
13. Chantilly Parkway – Interchange with I-85
    a. Geometric Design Improvements
        i. Unconventional Interchange Design
        ii. Additional lanes
    b. Traffic Signal Optimization and Interconnection
14. Chantilly Parkway (US-80) – Segment from Atlanta Highway to Eastchase Parkway
    a. Geometric Design Improvements
        i. Consider interchange ramp terminal intersection designs, such as roundabouts, diverging diamond interchange, etc.
        ii. Additional lanes south of the interchange and at Eastchase intersection
        iii. Consider adding right turn lanes onto Cooper Parkway
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
15. South Boulevard – Intersection with Woodley Road

    a. Geometric Design Improvements
        i. Unconventional Intersection Design
        ii. Study ultimate grade separation, urban interchange design
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
        i. Interchange area development guidelines
16. State Route 14 (Prattville) – Interchange with I-65
    a. Geometric Design Improvements
        i. Unconventional Intersection Design
        ii. Additional Lanes
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
        i. Interchange area development guidelines
17. State Route 14 (Prattville) – Intersection with Grandview Road (CR-8/CR-10)
    a. Geometric Design Improvements
        i. More conventional right turn lane on Grandview Road and separation of through and left lanes on Grandview Road
        ii. Additional Lanes Westbound to I-65
    b. Traffic Signal Optimization and Interconnection
18. State Route 14 (Prattville) – Segment from I-65 to Grandview Road
    a. Geometric Design Improvements
        i. Additional Eastbound Through Lane
        ii. Intersection Improvements and Signalization of Camp Grandview and Grandview Road
19. Taylor Road – Segment from Halcyon Boulevard to Vaughn Road
    a. Geometric Design Improvements
        i. Additional left and right lanes
        ii. Unconventional Intersection Design
        iii. Median U-Turns, Superstreet, Etc.
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
20. Perry Hill Road – Segment from Atlanta Highway to I-85
    a. Geometric Design Improvements
        i. Additional lanes, especially north of Harrison Road
        ii. More right turn lanes into driveways
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
    d. Transit and Ridesharing Programs
    e. Bus Service and Operations Improvements
21. Vaughn Road – Segment from Taylor Road to Halcyon Park Drive
    a. Geometric Design Improvements
        i. Additional eastbound lane
        ii. Improved entrances to Festival Plaza
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
        i. Install raised median with turn lanes
        ii. Eliminate bi-directional turning movements
22. Pike Road – Intersection with Vaughn Road

    a. Geometric Design Improvements
        i. Additional turn lanes and/or through lanes at the intersection
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
        i. Intersection area development guidelines
23. State Route 14 (Prattville) – Intersection with McQueen Smith Road
    a. Geometric Design Improvements
        i. Unconventional intersection design
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
        i. Convert entrances to RI/RO near the intersection
24. Ray Thorington Road – Segment from Pike Road to Vaughn Road
    a. Geometric Design Improvements
        i. Additional lanes from Foxhall Road to Vaughn Road
    b. Traffic Signal Optimization and Interconnection
        i. Study the need for signalizing Deer Creek Crossing, Deercreek Lane, and Hallwood Drive
    c. Access Management
25. Carter Hill Road – Segment from McGehee Road to Vaughn Road
    a. Geometric Design Improvements
        i. Additional lanes for the entire segment in both directions with center turn lane
    b. Access Management
    c. Bus Service and Operations Improvements
    d. Transit and Ridesharing Programs
    e. Non-motorized Improvements
        i. Sidewalks to schools
    f. Other
        i. Evaluate efficiency of school drop-off/pick-ups

Based on the analysis performed in this study, Sain Associates recommends the following implementation strategies for the CMP. These are listed in further detail in Appendix A.

1. East Boulevard (From US-231 (Wetumpka Highway) to US-231 (Troy Highway))
    g. Traffic Signal Optimization and Interconnection
    h. Traffic Signal Spacing and Retiming
        i. Study the need for updated signal timings and coordination
        ii. Study if existing traffic signals meet warrant requirements
    i. Geometric Design Improvements along East Boulevard
    j. Alternative Interchange Design at I-85
    k. Access Management
        i. Create more RI/RO driveways
        ii. Removal of median openings where applicable
        iii. Addition of right turn lanes at driveways where applicable
    l. Any improvements recommended in a recent planning study, if applicable.
2. South Boulevard (From US-231 (Troy Highway) to I-65)
    a. Traffic Signal Optimization and Interconnection
    b. Traffic Signal Spacing and Retiming
        i. Study the need for updated signal timings and coordination

        ii. Study if existing traffic signals meet warrant requirements
    c. Geometric Design Improvements Along South Boulevard
    d. Alternative Interchange Design at I-85
    e. Access Management
        i. Create more RI/RO driveways
        ii. Removal of median openings where applicable
        iii. Addition of right turn lanes at driveways where applicable
    f. Any improvements recommended in a recent planning study, if applicable.
3. US-231 (Wetumpka Highway) – From North Boulevard to Redland Road
    a. Geometric Design Improvements
        i. Intersection Improvements at Redland Road and North Boulevard
    b. Access Management
    c. Any improvements recommended in a recent planning study, if applicable.
4. Vaughn Road (From Perry Hill Road to Taylor Road)
    a. Traffic Signal Optimization and Interconnection
    b. Traffic Signal Spacing and Retiming
        i. Study the need for updated signal timings and coordination
        ii. Study if existing traffic signals meet warrant requirements
    c. Geometric Design Improvements along Vaughn Road
    d. Access Management
        i. Create more RI/RO driveways
        ii. Change from TWLTL to median where applicable
        iii. Addition of right turn lanes at driveways where applicable
    e. Any improvements recommended in a recent planning study, if applicable.
5. Perry Hill Road (From Vaughn Road to Atlanta Highway)
    a. Traffic Signal Optimization and Interconnection
    b. Traffic Signal Spacing and Retiming
        i. Study the need for updated signal timings and coordination
        ii. Study if existing traffic signals meet warrant requirements
    c. Geometric Design Improvements along Perry Hill Road
    d. Access Management
        i. Change from TWLTL to median where applicable
        ii. Addition of right turn lanes at driveways where applicable
    e. Any improvements recommended in a recent planning study, if applicable.
6. Woodley Road (From Fairview Avenue to McGehee Road)
    a. Geometric Design Improvements
        i. Intersection Improvements Near Fairview Avenue and Narrow Lane Road
    b. Access Management
        i. Addition of right turn lanes at driveways where applicable
    c. Any improvements recommended in a recent planning study, if applicable.
7. Intersection of Lagoon Park Drive and East Boulevard
    a. Geometric Design Improvements
        i. Study the need for possible signalized phase for the frontage road
    b. Access Management
        i. Study the need for RI/RO driveway connections
    c. Any improvements recommended in a recent planning study, if applicable.
8. Clay Street/Herron Street/Madison Avenue
    a. Geometric Design Improvements

        i. Unconventional Interchange Design
        ii. Additional Lanes
    b. Traffic Signal Optimization and Interconnection
    c. Access Management
        i. Best Practices
    d. Any improvements recommended in a recent planning study, if applicable.
9. Marler Road
    a. Geometric Design Improvements
        i. Turn Lanes
        ii. Additional Lanes
    b. Any improvements recommended in a recent planning study, if applicable.

After researching the list of let projects from ALDOT's website from 2014 to 2022, Sain Associates determined that the following projects have been implemented as congestion management mitigation strategies in the City of Montgomery and surrounding areas:

- January 2016 – Pavement Rehabilitation and the installation of Intelligent Transportation Systems Devices on I-85 from Ann Street to East Boulevard
- March 2016 – Access Management and Intersection Improvements on Chantilly Parkway from west of the junction of Technacenter Drive to the east of Eastchase Parkway
- September 2017 – Traffic Signal System Upgrades on Cobbs Ford Road from the intersection of Silver Hills Drive to the I-65 Interchange (Northbound Lane Ramps)
- February 2018 – Pavement Rehabilitation and the installation of Intelligent Transportation Systems Devices on I-85 from East Boulevard to Taylor Road (Including intersection improvements at the I-85 and East Boulevard Interchange)
- July 2018 – Constructing the Pedestrian and Access Management Improvements (Grading, Drainage, Pavement, Lighting, and Traffic Stripe) on South Boulevard SR-6 (US-80) from the I-65 Overpass to the intersection of Davenport Drive.
- July 2018 – Constructing Additional Turn Lanes, Grading, Drainage, Pavement, Traffic Signs, Signals, and Resurfacing on Chantilly Parkway from Eastchase Parkway to Vaughn Road

GIS maps were developed to illustrate the locations of corridors from the current CMP study (Sain Associates), where improvements have been recommended, along with the study corridors from the previous CMP (Neel-Schaffer). Both the previous and current study corridors were illustrated with the locations of ALDOT let projects, which have been constructed within the timespan from the previous CMP to the current study. These projects are illustrated in **Figure 26**. The previous CMP corridors are shown in purple, and the current CMP corridors are shown in blue. The ALDOT let projects are illustrated in red.

This map was designed to illustrate the status of congestion management implementation projects as of the date of this report.

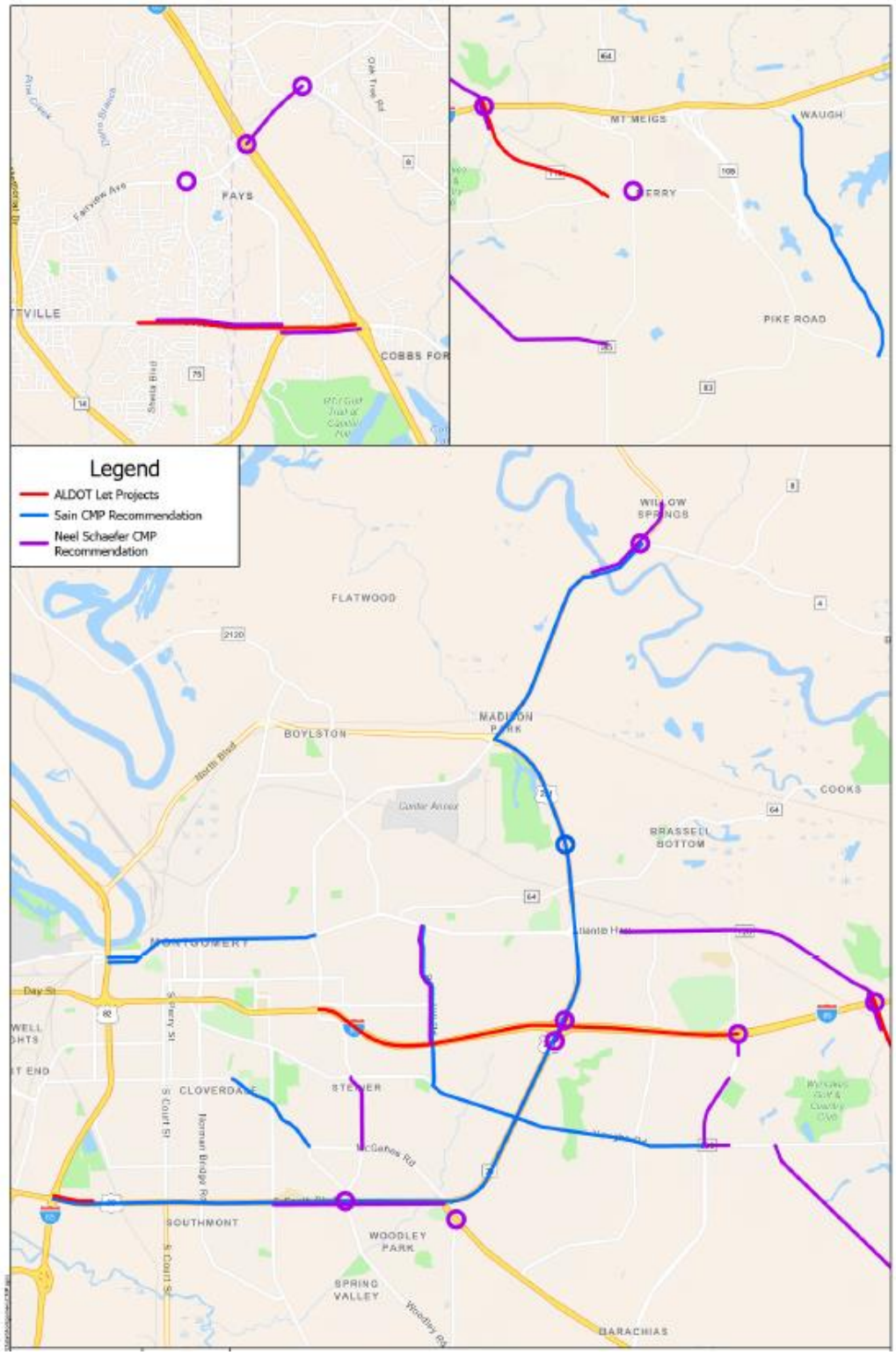


Figure 26: Summary of Recommended and Implemented Projects

Monitoring Program

An important part of the CMP is to evaluate its effectiveness periodically to ensure that the strategies in place continue to mitigate congestion. A monitoring program should be included to provide updates to the performance measures used for the CMP.

Federal regulation 23CFR 450.32 (c) 6 requires a CMP to include the following:

"*Implementation of a process for periodic assessment of the effectiveness of implemented strategies, in terms of the area's established performance measures. The results of this evaluation shall be provided to decision makers and the public to provide guidance on selection of effective strategies for future implementation.*"

Aspects of a monitoring program can include updating count data, travel time data, speed data, crash data, and capacity analysis and comparing results to previous years.

Another tool that can be used for a monitoring program is Big Data, such as Iteris ClearGuide (discussed previously in this report) or Streetlight. Streetlight uses location-based services from smart phones and navigation devices in connected vehicles to provide origin-destination information, travel times, and estimate peak hour turning movement counts. It provides the user with the ability to look over several years of traffic volume and speed data which can screen out abnormal days due to incidents or roadway closures.

The analysis performed in this study which included comparing the ALDOT let projects to the previous CMP recommendations is another important monitoring tool to evaluate the implementation and effectiveness of CMP recommendations.

It is recommended that the MPO coordinate with local project sponsors for the analysis of specific projects once the congestion management practices are implemented. A list of responsibilities is shown in the table below (**Table 13**). Federal guidelines also recommend the MPO to conduct performance evaluations to monitor the transportation system. Corridor travel time delay is to be monitored at a minimum of 5 years. Volume to capacity ratios and the number of crashes are to be monitored annually.

Table 13: Monitoring Performance Measures & Responsibilities

Performance Measures	Responsible Agency
Corridor Travel Time/Delay	Local Sponsor
Hours of Travel with V/C > 1.0	Local Sponsor/MPO
Transit Usage on Corridor	Local Sponsor/Transit Agency
Miles of Sidewalks and Bike Lanes	Local Sponsor
Vehicle Occupancy Rates	Local Sponsor
Transit Crowding	Local Sponsor/Transit Agency/MPO
Volume to Capacity Ratios	Local Sponsor/MPO
Number of Entrances	Local Sponsor
Number of Crashes	Local Sponsor/MPO
Intersection Capacity	Local Sponsor
Response and Clearance Times	Local Sponsor/Local Responder

Conclusion

The CMP provides the Montgomery MPO with strategies to address current and future congestion issues. Congested areas in Montgomery and the surrounding areas have been identified and a matrix of potential solutions and examples was developed to provide improvement alternatives to mitigate congestion at critical "hot spots" in Montgomery. US-231 is a key corridor with regards to congestion for the City of Montgomery due to this roadway being a major travel route for beach traffic during the summer months. Local traffic within the city merges with non-resident traffic along East Boulevard, creating additional volume along a roadway with a high density of driveways and traffic signals. Improvements to access management, traffic signal spacing and alternative interchange designs are examples of potential improvements that could alleviate future congestion. The Montgomery MPO Access Management Manual developed by Sain Associates provides examples of access management strategies that could be applied to this corridor.

The V/C analysis conducted for the CMP illustrated that the V/C ratio thresholds used in the CMP analysis align better with field data than the current V/C ratio thresholds used in the LRTP planning process. The V/C ratio thresholds used in the CMP analysis factor in the temporal distribution of traffic throughout the day, where there are many hours where traffic volumes do not approach the hourly capacity of the roadway. The following figures show a comparison of congestion around the city of Montgomery using different methodologies.

Figure 27: 2015 V/C Ratio Congestion in Montgomery (Based on Daily Volumes)

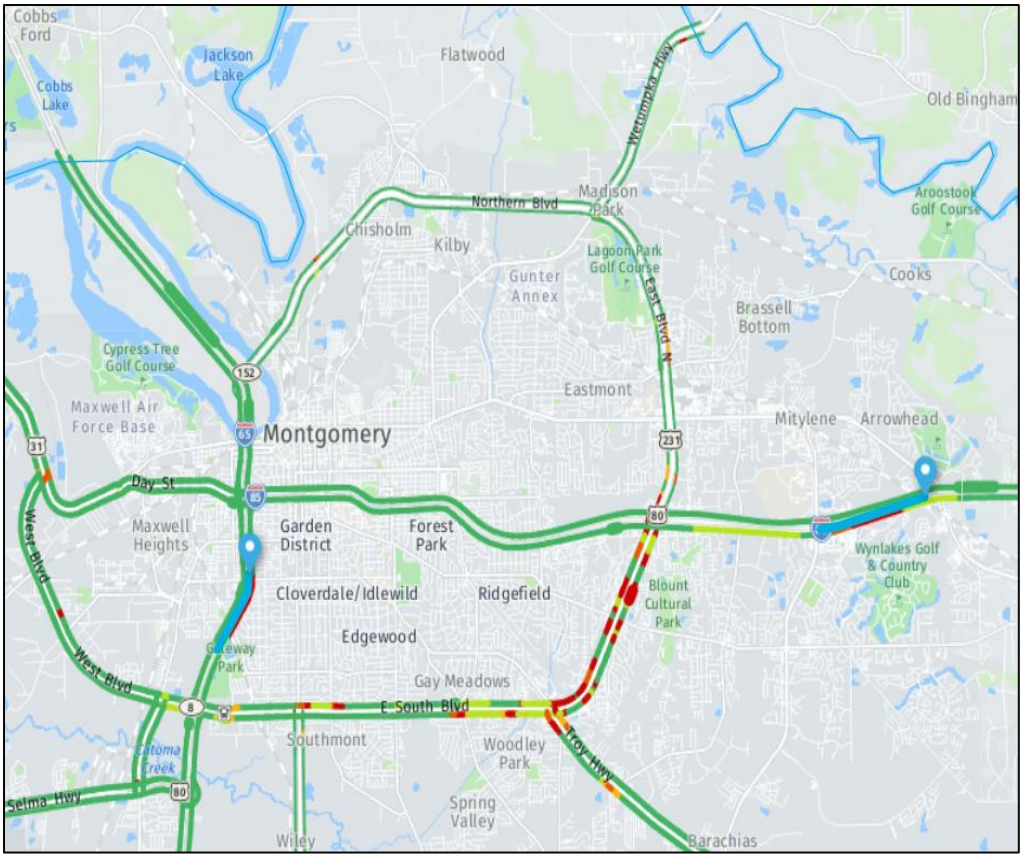


Figure 28: PM Peak Period Congestion – Iteris ClearGuide (5:00 PM)

Figure 29: 2015 Rate of Reduction in Speed

Based on the results shown in the previous figures which illustrate that the CMP thresholds are more consistent with existing travel time and speed reduction data, it is recommended that the Montgomery MPO utilize the following V/C ratio thresholds in the LRTP analysis:

- Low or no congestion – V/C ratio less than 0.5
- Moderate congestion – V/C ratio from 0.5 to 0.74
- Heavy congestion – V/C ratio from 0.75 to 1.0
- Severe congestion – V/C ratio greater than 1

The utilization of these thresholds will improve the LRTP process by better illustrating areas where future congestion will occur in the Montgomery region. This in turn will better inform ALDOT and the local jurisdictions who participate in the MPO project prioritization process in the future.

APPENDIX A
Implementation Projects

East Boulevard

Segment from US-231 (Wetumpka Highway) to US-231 (Troy Highway)
This segment of East Boulevard shows a speed reduction between 20% and 40% in both the 2015 and 2045 scenarios. This segment also indicates heavy congestion based on the 2015 V/C ratios and is projected to increase based on the 2045 V/C ratios. This was also confirmed by travel time runs and Iteris ClearGuide.

Proposed Implementation Strategies
Improvements to this segment may include:

- Traffic Signal Optimization and Interconnection
- Traffic Signal Spacing and Retiming
    - Study the need for updated signal timings and coordination
    - Study if existing traffic signals meet warrant requirements
- Geometric Design Improvements along East Boulevard
    - Alternative Interchange Design at I-85
- Access Management
    - Create more RI/RO driveways
    - Removal of median openings where applicable
    - Addition of right turn lanes at driveways where applicable
- Any improvements recommended in a recent planning study, if applicable.

South Boulevard

Segment from US-231 (Troy Highway) to I-65

This segment of South Boulevard shows a speed reduction between 40% and 60% in both the 2015 and 2045 scenarios. This segment also indicates heavy congestion with severe congestion between Troy Highway and Narrow Lane Road, based on the 2015 V/C ratios. This is projected to increase based on the 2045 V/C ratios. This was also confirmed by travel time runs and Iteris ClearGuide.

Proposed Implementation Strategies

Improvements to this segment may include:

- Traffic Signal Optimization and Interconnection
- Traffic Signal Spacing and Retiming
    - Study the need for updated signal timings and coordination
    - Study if existing traffic signals meet warrant requirements
- Geometric Design Improvements along East Boulevard
- Access Management
    - Create more RI/RO driveways
    - Removal of median openings where applicable
    - Addition of right turn lanes at driveways where applicable
- Any improvements recommended in a recent planning study, if applicable.

US-231 (Wetumpka Highway)

Segment from North Boulevard to Redland Road

Near the intersection of North Boulevard, Wetumpka Highway shows a speed reduction between 20% and 40% in 2015 and between 40% and 60% in 2045. Near the intersection of Redland Road, Wetumpka Highway shows a speed reduction between 40% and over 60% in both the 2015 and 2045 scenarios. Heavy congestion is shown on the ends of this segment in 2015, increasing to severe congestion in 2045.

Proposed Implementation Strategies

Improvements to this segment may include:

- Geometric Design Improvements
  - Intersection improvements at Redland Road and North Boulevard intersections
- Access Management
  - Best Practices
- Any improvements recommended in a recent planning study, if applicable.

Vaughn Road

Segment from Perry Hill Road to Taylor Road
This segment indicated both reductions in speed and heavy congestion in both the 2015 and 2045 scenarios. This was also confirmed by travel time runs.

Proposed Implementation Strategies
Improvements to this segment may include:

- Traffic Signal Optimization and Interconnection
- Traffic Signal Spacing and Retiming
    - Study the need for updated signal timings and coordination
    - Study if existing traffic signals meet warrant requirements
- Geometric Design Improvements along East Boulevard
- Access Management
    - Create more RI/RO driveways
    - Change from TWLTL to median where applicable
    - Addition of right turn lanes at driveways where applicable
- Any improvements recommended in a recent planning study, if applicable.

Perry Hill Road

Segment from Vaughn Road to Atlanta Highway

This segment shows a speed reduction between 40% and 60% in both the 2015 and 2045 scenarios. This segment also indicates heavy congestion based on the 2015 V/C ratios which is projected to increase based on the 2045 V/C ratios. This was also confirmed by travel time runs and Iteris ClearGuide.

Proposed Implementation Strategies

Improvements to this segment may include:

- Traffic Signal Optimization and Interconnection
- Traffic Signal Spacing and Retiming
    - Study the need for updated signal timings and coordination
    - Study if existing traffic signals meet warrant requirements
- Geometric Design Improvements
- Access Management
    - Change from TWLTL to median where applicable
    - Addition of right turn lanes at driveways where applicable
- Any improvements recommended in a recent planning study, if applicable.

Woodley Road

Segment from Fairview Avenue to McGehee Road

This segment shows a speed reduction between 20% and 40% in 2015 and between 40% and 60% in 2045. This segment also indicates heavy congestion based on the 2015 V/C ratios and is projected to increase based on the 2045 V/C ratios. This was also confirmed by travel time runs and Iteris ClearGuide.

Proposed Implementation Strategies

Improvements to this segment may include:

- Geometric Design Improvements
  - Intersection improvements near Fairview Avenue and Narrow Lane Road
- Access Management
  - Best Practices
- Any improvements recommended in a recent planning study, if applicable.

Lagoon Park Drive

Intersection at Lagoon Park Drive and East Boulevard

Another area that indicated heavy congestion based on the 2015 and 2045 V/C ratios was Lagoon Park Drive, specifically the intersection with East Boulevard. Lagoon Park connects traffic on East Boulevard to a recreational park, baseball fields and golf course, along with a major industrial complex for several different technical companies. The intersection of Lagoon Park and East Boulevard is signalized with two northbound left turn lanes and one southbound right turn lane on East Boulevard turning into Lagoon Park. Frontage roads are present on the east and west sides of East Boulevard, which creates additional conflict points at the intersection. Field observations indicated that the frontage roads create additional conflict points for left turning vehicles. For example, a vehicle making a NB left turn from the frontage road to Lagoon Park Drive must be aware of NB left-turning traffic from East Boulevard, along with traffic from all other directions, before making the NB left turn maneuver. This causes additional delay and creates the potential for crashes to occur.

Proposed Implementation Strategies

Improvements to this segment may include:

- Geometric Design Improvements
  - Study the need for possible signalized phase for the frontage road
- Access Management
  - Study the need for RI/RO driveway connections
- Any improvements recommended in a recent planning study, if applicable.

Clay Street/Herron Street/Madison Avenue

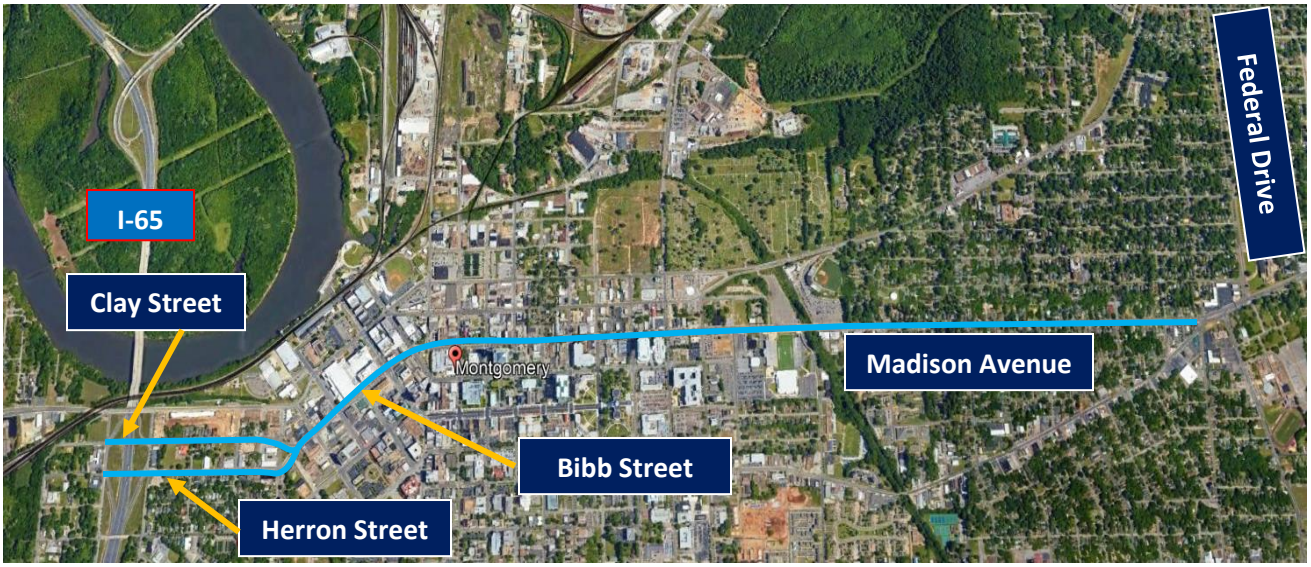
Segment from I-65 to Federal Drive

After Sain's meeting in January 2023, this roadway was recommended by the Montgomery MPO to be included in the list of implementation strategies. Clay Street and Herron Street connect the downtown area of Montgomery to I-65. As drivers travel east, the two streets merge to form Bibb Street, which becomes Madison Avenue in downtown Montgomery.

Proposed Implementation Strategies

Improvements to this segment may include:

- Geometric Design Improvements
  - Unconventional Interchange Design
  - Additional Lanes
- Traffic Signal Optimization and Interconnection
- Access Management
  - Best Practices
- Any improvements recommended in a recent planning study, if applicable.



Marler Road

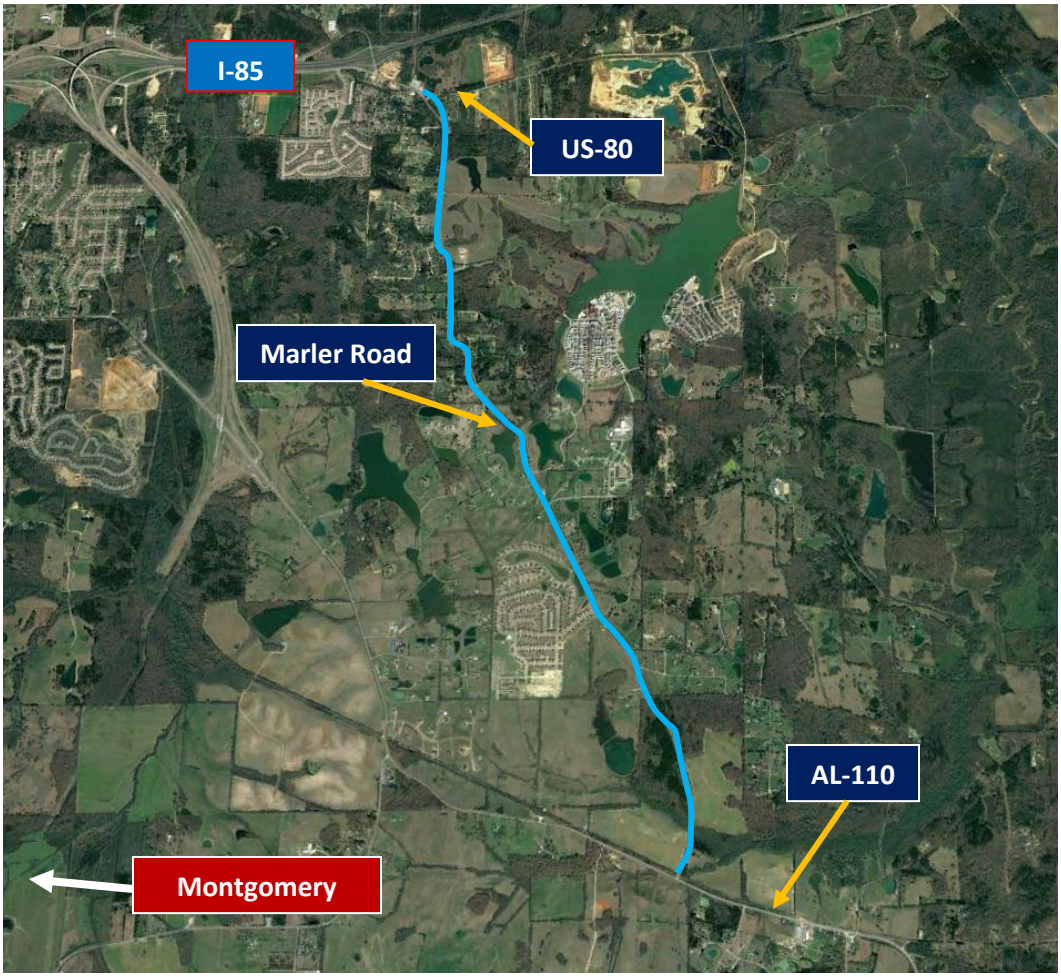
Segment from US-80 to AL-110

After Sain's meeting in January 2023, this roadway was recommended by the Montgomery MPO to be included in the list of implementation strategies. Marler Road is a corridor in the Pike Road community, east of Montgomery, where the main land uses are single-family houses and subdivisions. This roadway is currently a two-lane local road. The potential for additional development in the area suggests a need for additional roadway improvements in the future.

Proposed Implementation Strategies

Improvements to this segment may include:

- Geometric Design Improvements
  - Turn Lanes
  - Additional Lanes
- Any improvements recommended in a recent planning study, if applicable.



Previous CMP Recommendations (2014)

Implementation Strategies

The following pages represent the recommended implementation strategies from the previous CMP, prepared by Neel-Schaffer that have not been implemented to date based on our analysis and reviews or updated as a part of the current CMP.

Taylor Road

Segment from I-85 Eastbound on Ramp to Eastchase Parkway

This segment of Taylor Road as high volume to capacity ratios (0.92-2.19 southbound on Taylor Road and 1.83-2.67 northbound on Taylor Road). This indicates severe congestion and the potential need for additional capacity.

Proposed Implementation Strategies

Improvements to this segment of Taylor Road may include:

- Geometric Design Improvements (Study Need for Additional Left/Right lanes and Through Lanes)
- Traffic Signal Optimization and Interconnection (Upgrade)
- Geometric Design Improvements (Consider Unconventional Intersection Geometric Designs – Median U-Turns, Superstreet, Etc.)
- Geometric Design Improvements (Study Reconfiguring I-85 Ramp Terminal, Consider Dual On-Ramp Lanes)
- Access Management (Utilize Best Practices)
- Other (Increase Visibility of Berryhill as Access Point to Shopping at East Case

Source: http://isv.kcsgis.com/al.montgomery_revenue/

*All previous and ongoing engineering and planning studies should be evaluated/ consulted prior to funding and implementation of a congestion mitigation strategy.

East Main Street

Segment from US-82 to Greystone Way

This segment of Greystone Way has high travel times during peak AM and PM periods as well as during off peak hours. Volume to capacity ratios are high (1.14/1.20 from Greystone Way to McQueen Smith Road 0.81 - 1.11 from McQueen Smith Road to Old Farm Lane, 0.97 - 2.13 from Old Farm Lane to I-65). This indicates severe congestion and the potential need for additional capacity. In addition, the corridor experiences non-recurring congestion.

Proposed Implementation Strategies

Improvements to this segment of Greystone Way may include:

- Traffic Signal Optimization and Interconnection
- Access Management (Median Replacement of Two-Way Left Turn Lanes, Consolidate Driveways, Convert Entrances to Right-In/Right-Out Only)
- Geometric Design Improvements (Intersection Improvements, Additional Right Turn Lanes at Driveways)
- Growth Management Plan
- Transit and Ridesharing Programs

Source: Google Maps

*All previous and ongoing engineering and planning studies should be evaluated/ consulted prior to funding and implementation of a congestion mitigation strategy.

Taylor Road

Interchange with I-85 Ramps

This interchange with Taylor Road has high volume to capacity rations (1.38 eastbound on-ramp from north, 2.11 eastbound on-ramp from south, and 1.11 westbound off-ramp). This indicates severe congestion and the potential need for additional capacity. It also has a high incidence of non-recurring congestion.

Proposed Implementation Strategies

Improvements to the interchange at Taylor Road may include:

- Geometric Design Improvements (Study Ramp Configurations, Possible Geometric Improvements)
- Traffic Signal optimization and Interconnection (with Adjacent Intersections on Taylor Road)
- Geometric Design Improvements (Study unconventional Interchange Design modifications such as Diverging Diamond, Single Point Urban, Etc.)
- Geometric Design Improvements (Study Adding Additional Lanes Through the Interchange)

Source: http://isv.kcsgis.com/al.montgomery_revenue/

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Troy Highway (US-231)

Intersection with Christine Elizabeth Curve/Virginia Loop Road

This intersection on Troy Highway has high volume to capacity rations (1.47 north of intersection, 2.02/2.04 south of intersection) indicating severe congestion and the need for additional capacity. It also has a high incidence of non-recurring congestion.

Proposed Implementation Strategies

Improvements to the intersection at Troy Highway may include:

- Geometric Design Improvements (Study Intersection Improvements/Realignment)
- Traffic Signal Optimization and Interconnection
- Access management (Driveway Consolidation, Improvements to or Removal of Service Road)

Source: http://isv.kcsgis.com/al.montgomery_revenue/

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Atlanta Highway

Segment from South Burbank Drive to East Blvd West Service Road

This segment of Atlanta Highway has high travel times during the peak AM and PM periods as well as during off peak hours. Volume to capacity ratios are 1.26 - 1.61 indicating severe congestion and potentially the need for additional capacity.

Proposed Implementation Strategies

Improvements to this segment of Atlanta Highway may include:

- Traffic Signal Optimization and Interconnection
- Access Management (Driveway Consolidation, Median Closures)
- Geometric Design Improvements (Improvements to Turning Movements at East and West Service Roads)
- Geometric Design Improvements (Additional Lanes in Both Directions)
- Bus Service and Operations Improvements
- Transit and Ridesharing Programs

Source: http://isv.kcsgis.com/al.montgomery_revenue/

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Chantilly Parkway

Interchange with I-85

This interchange on Chantilly parkway has a high incidence of non-recurring congestion and high volume to capacity ratios (1.54 north of interchange, 1.87 at interchange, and 1.70 south of interchange). This indicates severe congestion and the potential need for additional capacity.

Proposed Implementation Strategies

Improvements to the interchange on Chantilly Parkway may include:

- Traffic Signal Optimization and Interconnection
- Geometric Design Improvements (Consider Unconventional Interchange Design Alternatives)
- Geometric Design Improvements (Additional Lanes, Improved Geometrics)

Source: http://isv.kcsgis.com/al.montgomery_revenue/

*All previous and ongoing engineering and planning studies should be evaluated/ consulted prior to funding and implementation of a congestion mitigation strategy.

State Route 14

Interchange with I-65

This interchange on State Route 14 has high volume to capacity ratios (1.68 – 1.70 east of intersection, 1.62 – 1.63 west of intersection, and 1.37 – 1.80 at the intersection). This indicates severe congestion and the potential need for additional capacity. It also has a high incidence of non-recurring congestion.

Proposed Implementation Strategies

Improvements to this interchange on State Route 14 may include:

- Geometric Design Improvements (Study Unconventional Intersection Design Options)
- Geometric Design Improvements (Study Need for Additional Lanes)
- Traffic Signal Optimization and Interconnection
- Access Management (Interchange Area Development Guidelines)

Source: Google Maps

*All previous and ongoing engineering and planning studies should be evaluated/ consulted prior to funding and implementation of a congestion mitigation strategy.

State Route 14

Intersection with Grandview Road (CR8/CR10)

This intersection of State Route 14 has a high volume to capacity ratios (1.15 – 1.16 east of intersection, 1.68 – 1.70 west of intersection, 1.03 – 1.08 north of intersection, 1.05 – 1.06 south of intersection). It also has a high incidence of non-recurring congestion. This intersection experiences severe congestion and additional capacity may be needed.

Proposed Implementation Strategies

Improvements to the intersection at State Route 14 may include:

- Geometric Design Improvements (Study Intersection Improvement Options Including More Conventional Right Turn Lane on Grandview Road and Separation of Through and Left Lanes on Grandview Road)
- Geometric Design Improvements (Additional Lanes Westbound to I-65)
- Traffic Signal Optimization and Interconnection (Study Need for Signalization)

Source: Google Maps

*All previous and ongoing engineering and planning studies should be evaluated/ consulted prior to funding and implementation of a congestion mitigation strategy.

State Route 14

Segment from I-65 to Grandview Road

This segment of State Route 14 has high travel times during peak AM and PM periods and high volume to capacity ratios (1.68 – 1.70). This indicates severe congestion and the potential need for additional capacity.

Proposed Implementation Strategies

Improvements to this segment of State Route 14 may include:

- Geometric Design Improvements (Study Need for Additional Eastbound Through Lane)
- Geometric Design Improvements (Intersection Improvements and Signalization of Camp Grandview and Grandview Road Intersections)

Source: Google Maps

*All previous and ongoing engineering and planning studies should be evaluated/ consulted prior to funding and implementation of a congestion mitigation strategy.

Taylor Road

Segment from Halcyon Boulevard to Vaughn Road

This segment of Taylor Road has high travel times during peak PM period and the off peak and high volume to capacity ratios (1.50 – 1.64), indicating severe congestion and the possible need for additional capacity.

Proposed Implementation Strategies

Improvements to this segment of Taylor Road may include:

- Geometric Design Improvements (Study Need for Additional Left/Right Lanes)
- Access Management (Study Closing Some Median Openings, Convert Existing Driveways to Right-In/Right-Out Only)
- Geometric Design Improvements (Unconventional Intersection Geometric Designs – Median U-Turns, Superstreet, Etc.)
- Access Management (Utilize Best Practices)

Source: http://isv.kcsgis.com/al.montgomery_revenue/

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Pike Road

Intersection with Vaughn Road

This intersection on Pike Road has high travel times in the AM and PM peaks and off peak. It also experiences high volume to capacity ratios (1.56 – 1.58 on Vaughn Road west/east of intersection and 102 – 1.23 on Pike Road south/north of intersection).

Proposed Implementation Strategies

Improvements to this intersection may include:

- Geometric Design Improvements (Study Need for Additional Turn Lanes and/or Through Lanes at Intersection)
- Signal Timing and Optimization
- Access Management (Intersection Area Development Guidelines)

Source: http://isv.kcsgis.com/al.montgomery_revenue/

*All previous and ongoing engineering and planning studies should be evaluated/ consulted prior to funding and implementation of a congestion mitigation strategy.

State Route 14

Intersection with McQueen Smith Road

This intersection on State Route 14 has high travel times during peak AM and PM periods as well as during off peak hours and high volume to capacity ratios (1.52 – 1.54 east of intersection and 1.13 – 1.15 west of intersection).

Proposed Implementation Strategies

Improvements to the intersection at State Route 14 may include:

- Geometric Design Improvements (Study Unconventional Intersection Design Options)
- Traffic Signal Optimization and Interconnection
- Access Management (Convert Entrances to Right-In/Right-Out Only near Intersection)

Source: Google Maps

*All previous and ongoing engineering and planning studies should be evaluated/ consulted prior to funding and implementation of a congestion mitigation strategy.

Ray Thorington Road

Segment from Pike Road to Vaughn Road

This segment if Ray Thorington Road has high travel times during peak AM and PM periods as well as during off peak hours and a high volume to capacity ratio (.53 north of Park Crossing).

Proposed Implementation Strategies

Improvements to this segment of Ray Thorington Road may include:

- Geometric Design Improvements (Intersection Improvements and Signal Optimization at Vaughn Road and Park Crossing)
- Traffic Signal Optimization and Interconnection (Study Need for Signalizing Deer Creek Crossing, Deer Creek Lane and Hallwood Drive)
- Geometric Design Improvements (Consider Additional Lanes from Foxhall Road to Vaughn Road)
- Access management (Use Best Practices Where Possible)

*All previous and ongoing engineering and planning studies should be evaluated/ consulted prior to funding and implementation of a congestion mitigation strategy.

Carter Hill Road

Segment from McGehee Road to Vaughn Road

This segment of Carter Hill Road has high travel times during peak AM and PM periods as well as during off peak hours. Volume to capacity ratios are 1.12 – 1.45 indicating severe congestion and potentially the need for additional capacity.

Proposed Implementation Strategies

Improvements to this segment of Carter Hill Road may include:

- Geometric Design Improvements (Additional Lanes for Entire Segment in Both Directions with Center Turn Lane)
- Access Management (Where Possible)
- Bus Service and Operations Improvements
- Transit and Ridesharing Programs
- Non-motorized Improvements (Sidewalks to Schools)
- Other (Evaluate Efficiency of School Drop-off/Pick-ups)

*All previous and ongoing engineering and planning studies should be evaluated/ consulted prior to funding and implementation of a congestion mitigation strategy.