



MATS 2050 Freight Plan

Stakeholder Advisory
Committee Meeting

September 10, 2024

Agenda

- Project Refresher
- Freight Needs Assessment Key Findings
- Online Survey Results
- Community & Environmental Impact Assessment
- Next Steps

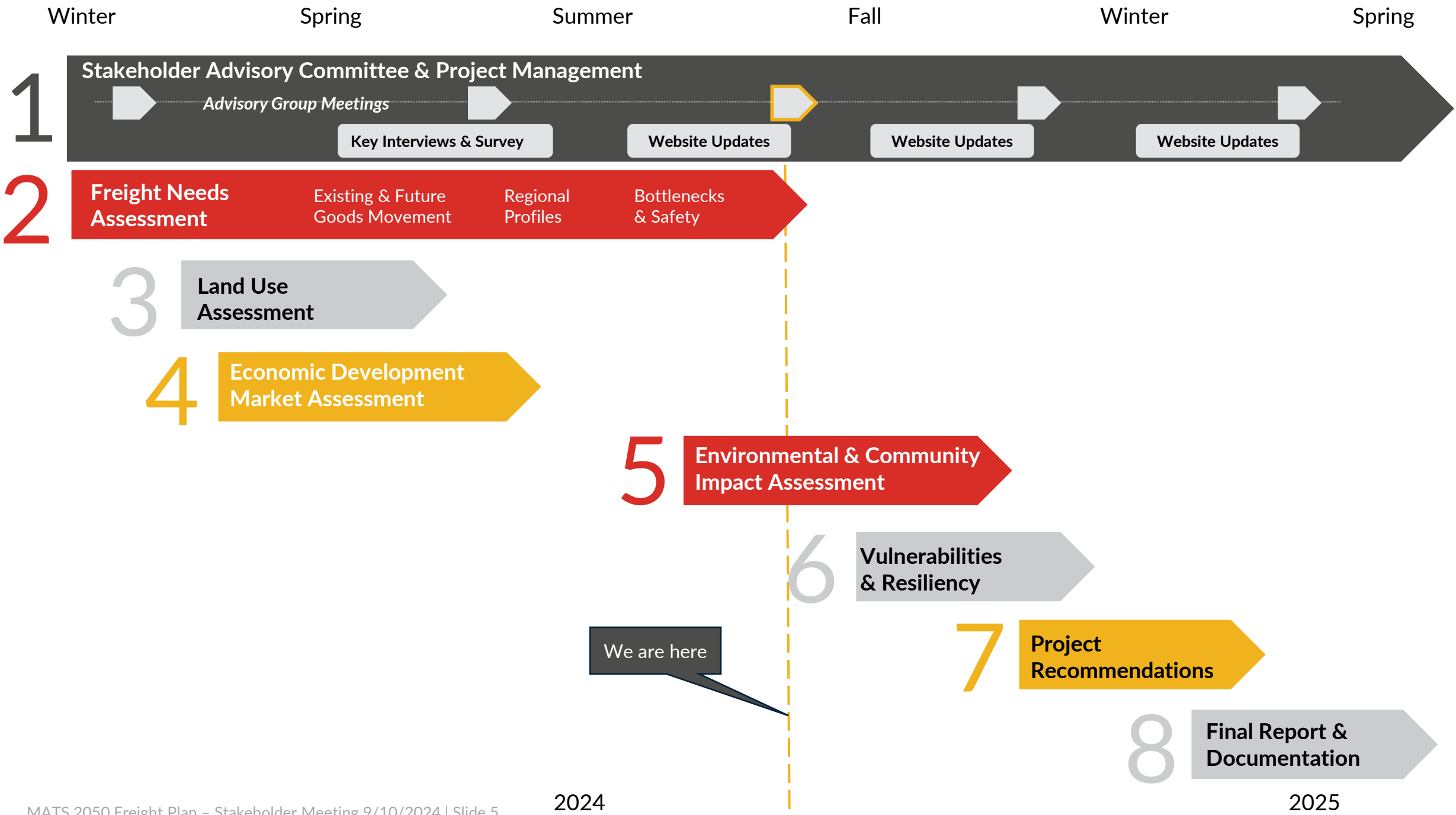


Project Refresher

Objectives

- Analyze freight handling capabilities within the region
- Forecast future freight activity and growth through 2050
- Assess freight network needs – including strengths, weaknesses, opportunities, threats, vulnerabilities, and community impacts
- Coordinate with ongoing freight related studies and projects
- Identify potential projects, improvements, and strategies to facilitate efficient movement of goods







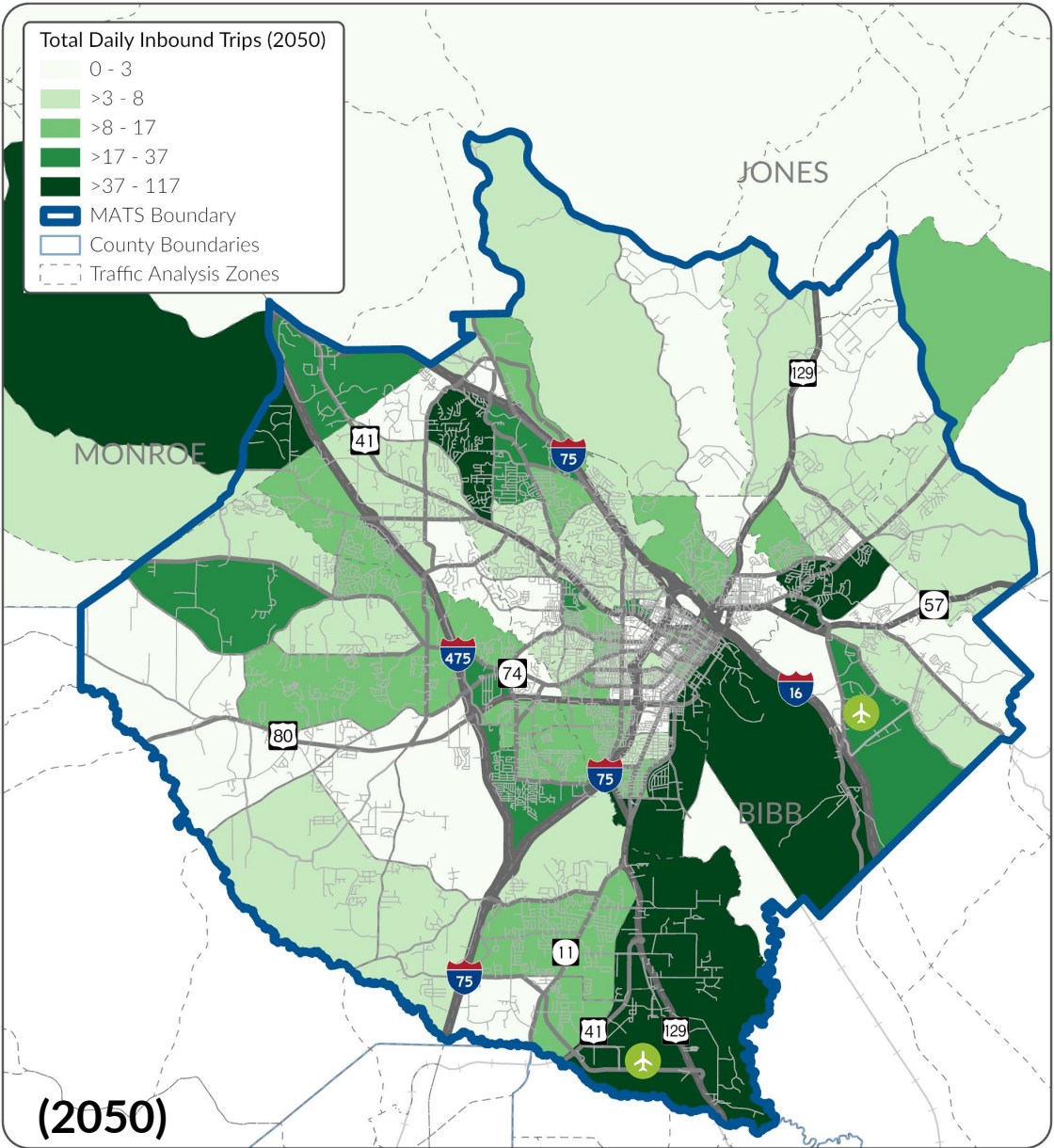
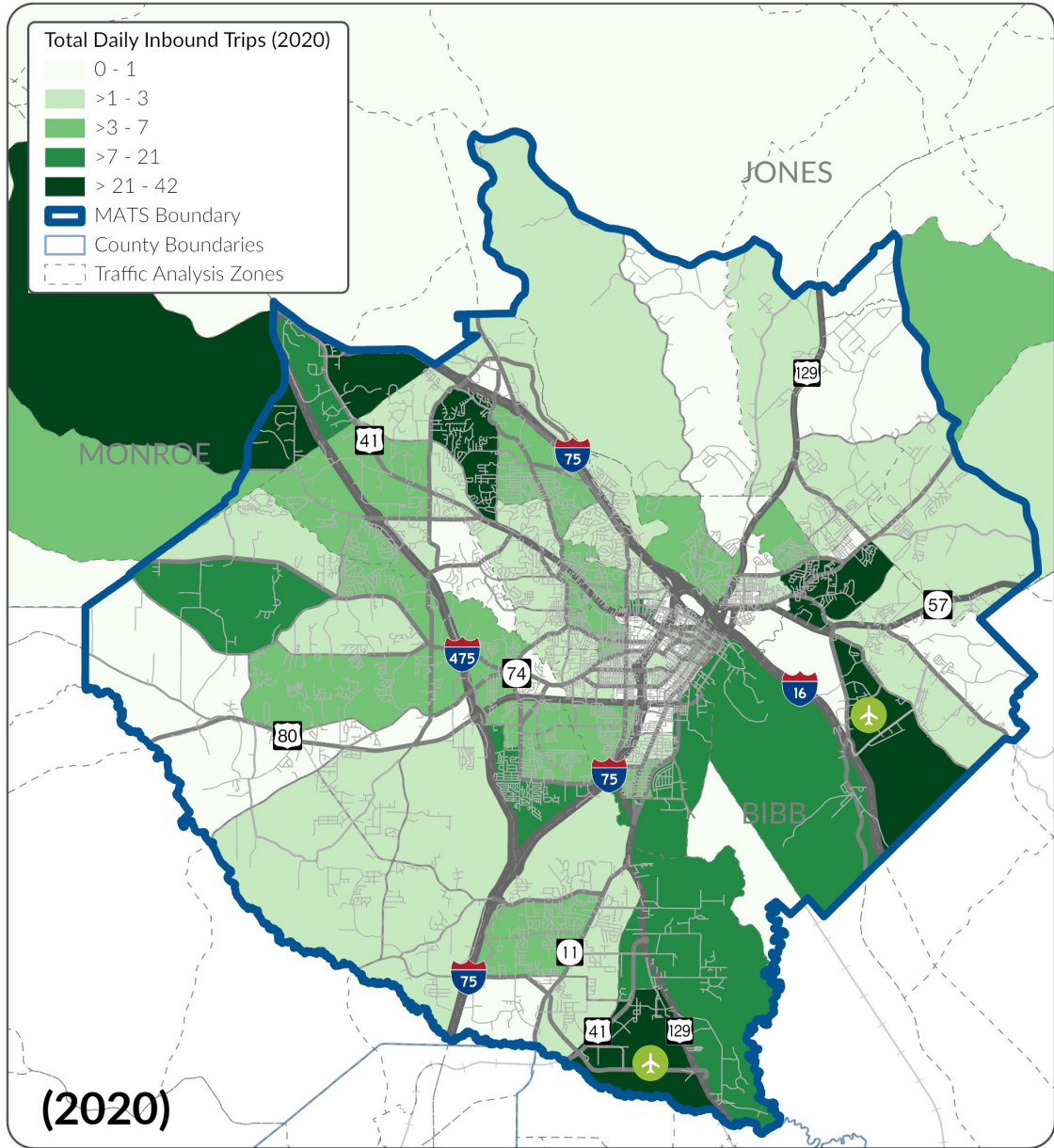
Freight Needs Assessment Key Findings

- Understanding type and volume of goods traveling into/out of the MATS region provides insight on:
 - a. How the freight network is used
 - b. Anticipated growth areas
 - c. Areas of focus for potential needs
- Commodity flow data (along with jobs, tax revenue and land use data) helps inform the prioritization of investments, planning for land use, development, network resiliency, and attraction/retention of business

*Data source: TRANSEARCH Data provided by GDOT
via outputs from the Statewide Travel Demand Model
showing daily trips*

Commodity Flow Assessment

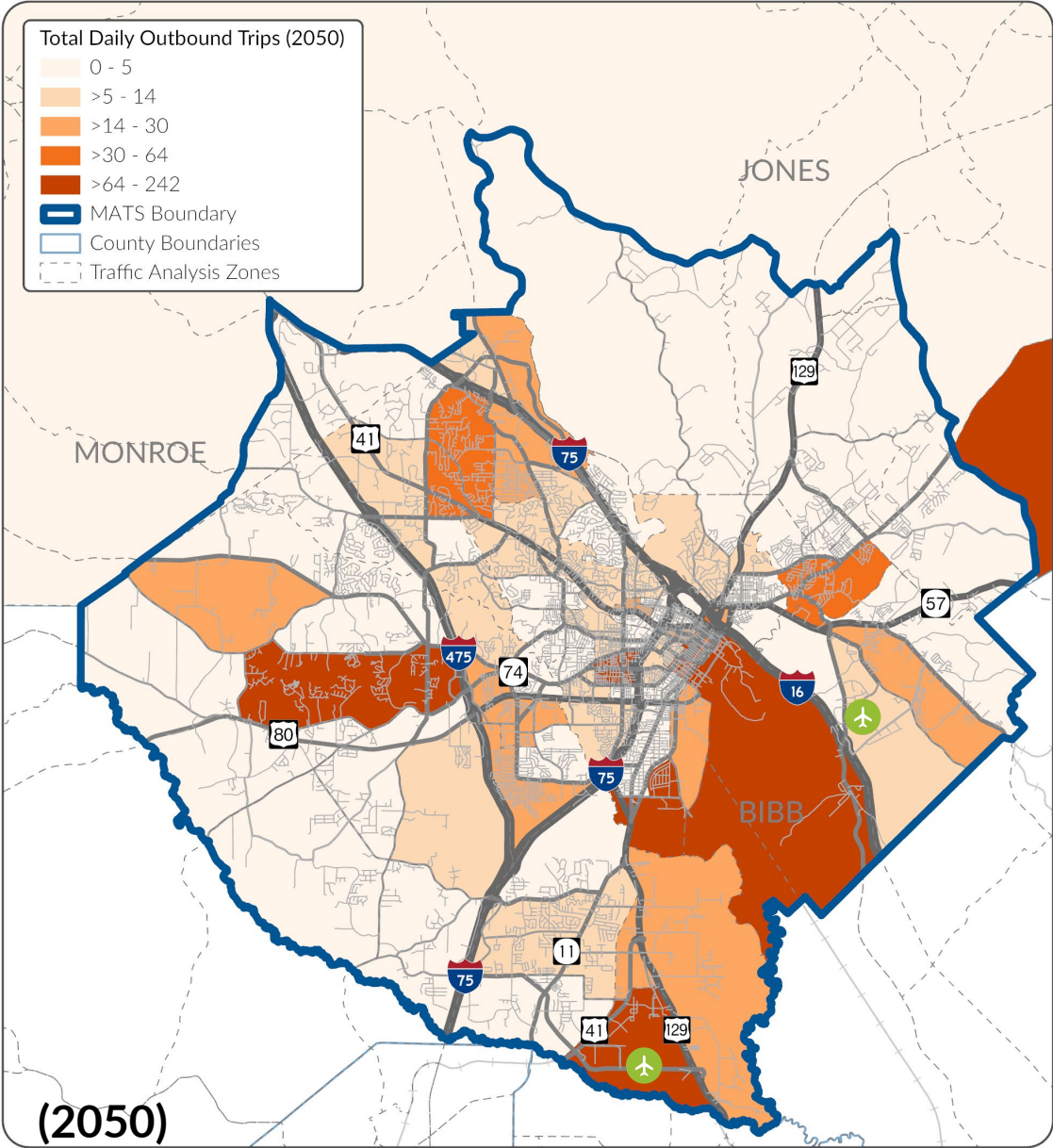
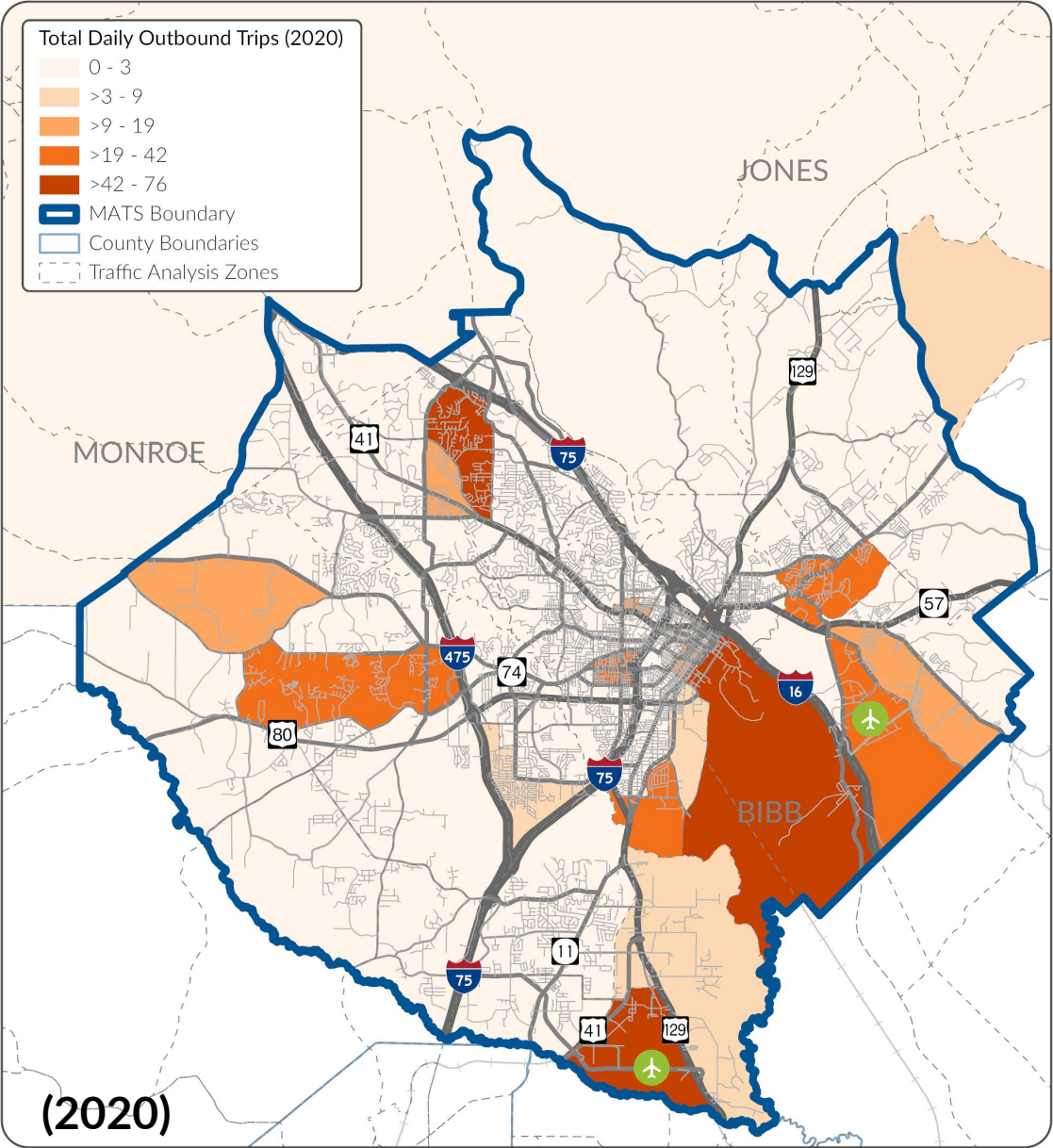
Inbound Daily Trips



Top Inbound Trading Partners

Top Trading Partners for Common Inbound Commodities					
Mining	Wood	Bulk/Secondary	Petroleum	Stone	Chemical
• Tennessee • South Carolina • Alabama • Florida	• Tennessee • Florida • South Carolina	• Fulton Co. • Gwinnett Co. • Cobb Co. • DeKalb Co. • Oglethorpe Co.	• Cobb Co. • Fulton Co. • Chatham Co. • Henry Co. • South Carolina	• Fulton Co. • Richmond Co. • Washington Co. • Chatham Co. • Wilkinson Co.	• Alabama • Richmond Co. • Chatham Co. • South Carolina

Outbound Daily Trips



Top Outbound Trading Partners

Top Trading Partners for Inbound Commodities (2050)				
Petroleum	Bulk/Secondary	Paper	Stone	Mining
- Fulton Co. - Cobb Co. - Chatham Co. - Gwinnett Co. - South Carolina	- Fulton Co. - Cobb Co. - Gwinnett Co. - DeKalb Co. - Murray Co.	- South Carolina - Tennessee - Alabama - Florida - Fulton Co.	- Fulton Co. - Gwinnett Co. - Cobb Co. - DeKalb Co. - Washington Co. - Richmond Co.	- Alabama - Tennessee - South Carolina - Florida - Fulton Co. - Gwinnett Co.

- Bottlenecks can impact travel time for freight as well as general purpose traffic. Understanding where bottlenecks are occurring can help identify needs and opportunities for future improvements.
- Ranking reflects a combination of free-flow travel time, observed travel time, AADT, and a day-of-the-week factor (which considers the drop in travel speed weighted by vehicle miles traveled).
- Data comes from mobile phones, GPS, navigation systems, and other portable devices.

*Data source: RITIS Probe Data Analytics
Suite for 2023*

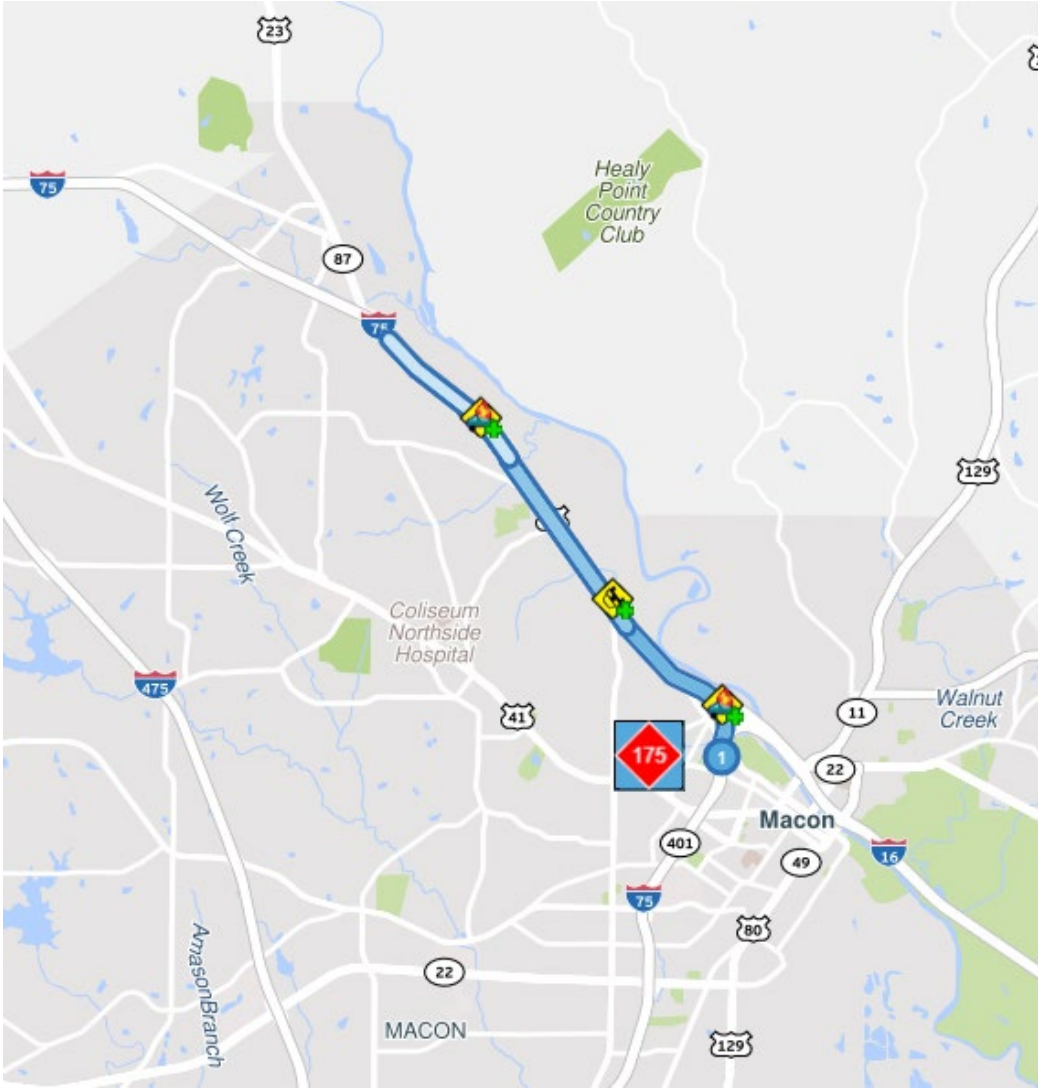
Bottleneck Rankings

Top 10 Bottlenecks (Jan 1 – Dec 31, 2023)

Rank*	Head Location	Avg Max Length (miles)	Avg Daily Duration
1	I-75 S at I-16 (Exit 165)	2.55	1h 36m
2	I-75 N at Sardis Church Rd (Exit 153)	6.3	14m
3	I-16 W at I-75	1.03	1h 5m
4	US-23 S at I-75	0.89	3h 58m
5	US-129 S at US-23/SR-19/Spring St	0.72	4h 24m
6	US-23 S at I-75	1.46	45m
7	US-129 S at I-16/US-23/SR-19/Emery Hwy	0.53	3h 24m
8	US-80 E at I-16/James Gillis Mem Hwy	0.29	8h 59m
9	US-41 S at Tucker Rd	1.46	3h 8m
10	US-23 N at US-129/SR-19/Spring St/Riverside Dr	0.74	3h 55m

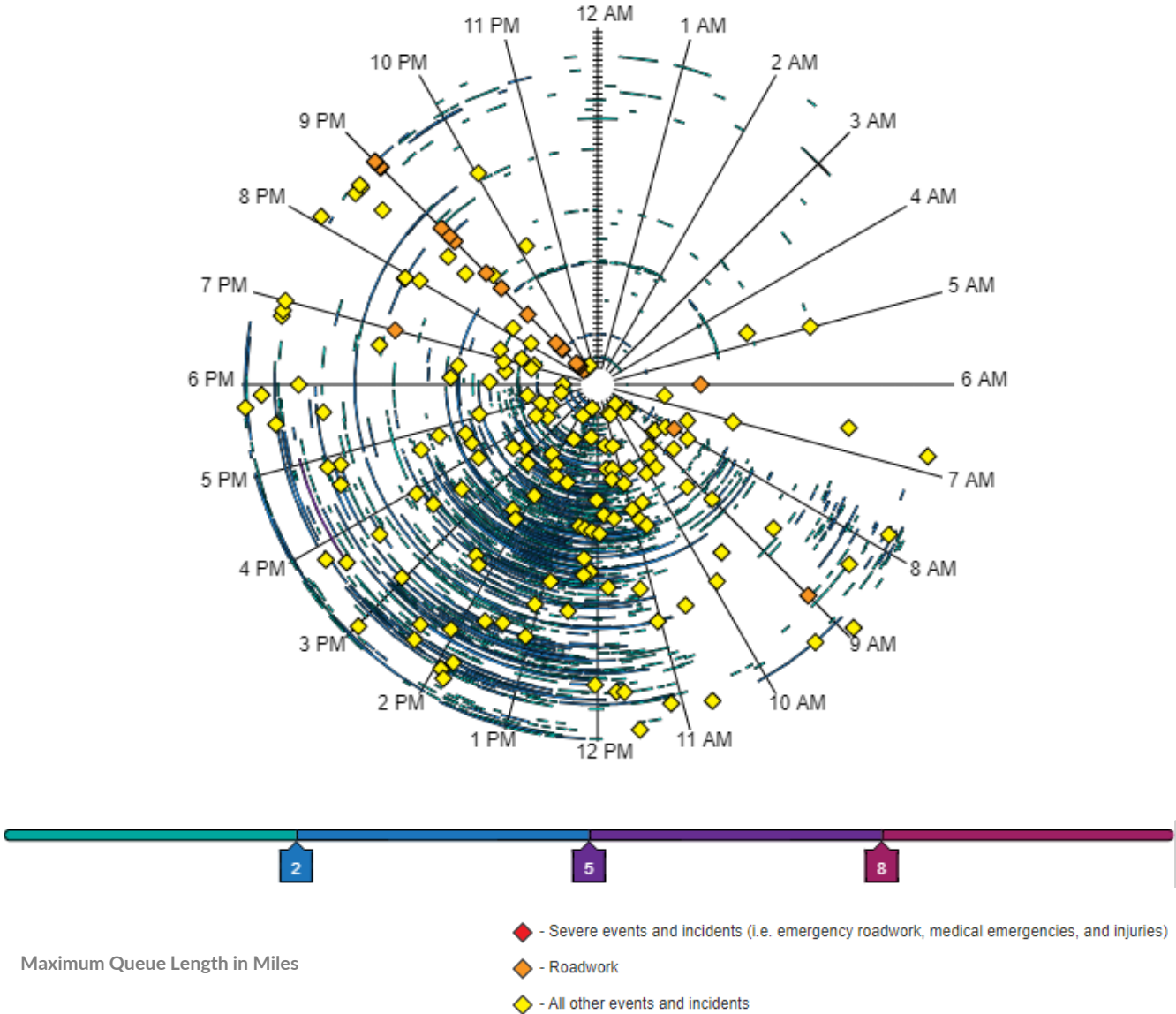
*Rank based on Total Delay (calculated by RITIS – raw speed drop weighted by VMT)

I-75 S at I-16 (Exit 165)



■ Selected Location ■ Location head ■ Queue (at max length) ■ Number of Incidents

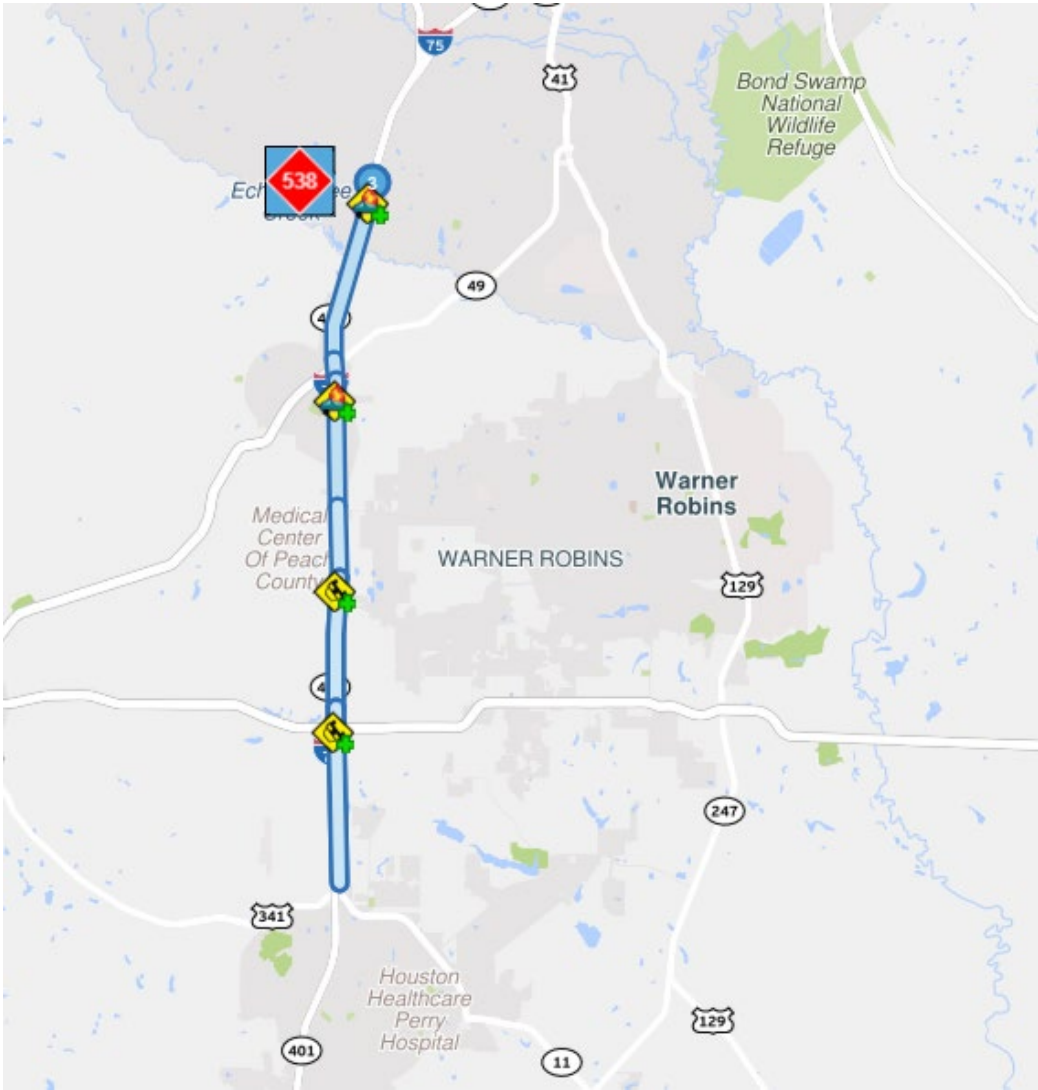
The center represents the beginning of Jan 1, 2023 and the outer edge represents the end of Dec 31, 2023.



Maximum Queue Length in Miles

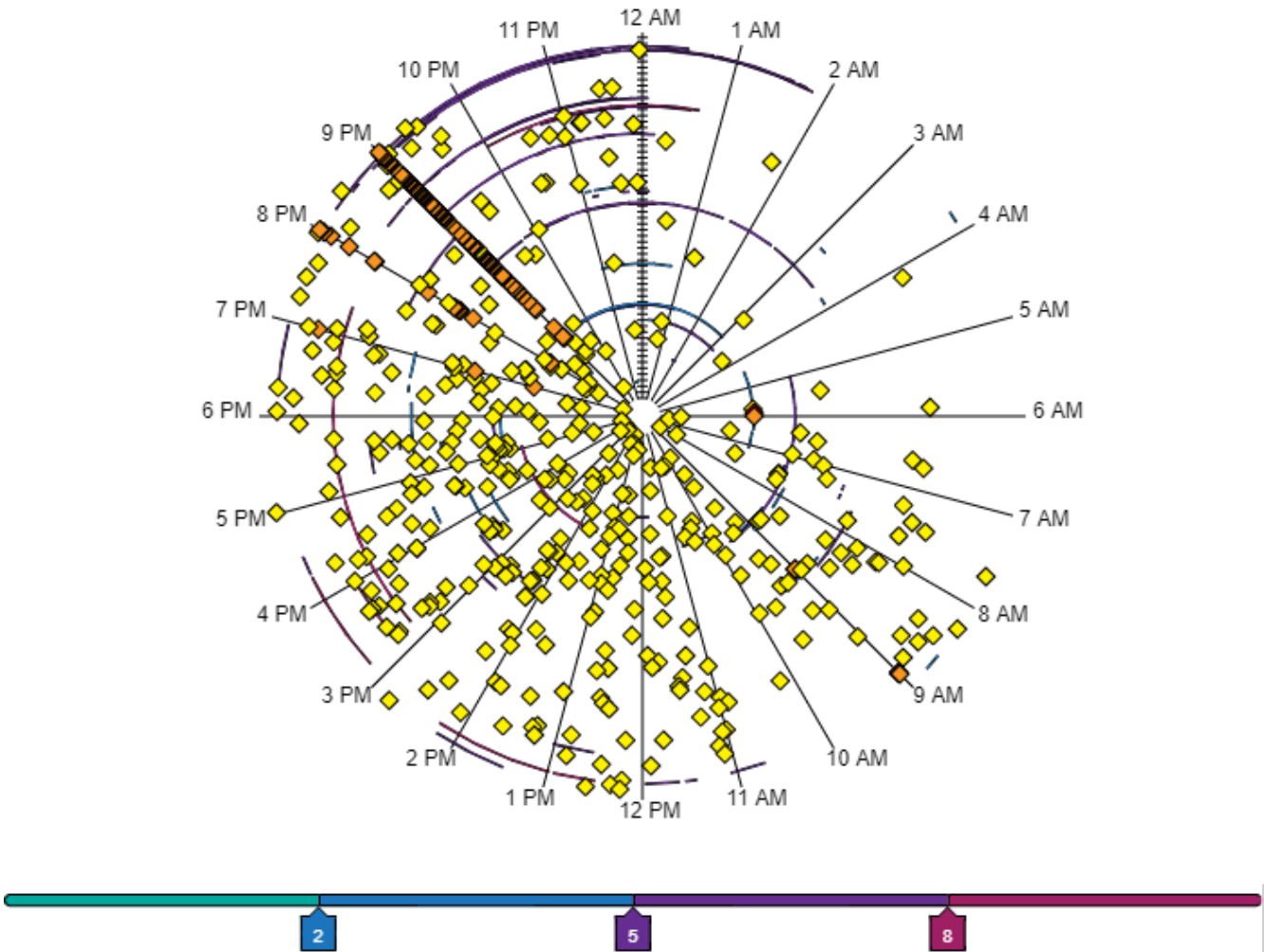
- ◆ - Severe events and incidents (i.e. emergency roadwork, medical emergencies, and injuries)
- ◆ - Roadwork
- ◆ - All other events and incidents

I-75 N at Sardis Church Rd (Exit 153)



■ Selected Location ■ Location head ■ Queue (at max length) ■ Number of Incidents

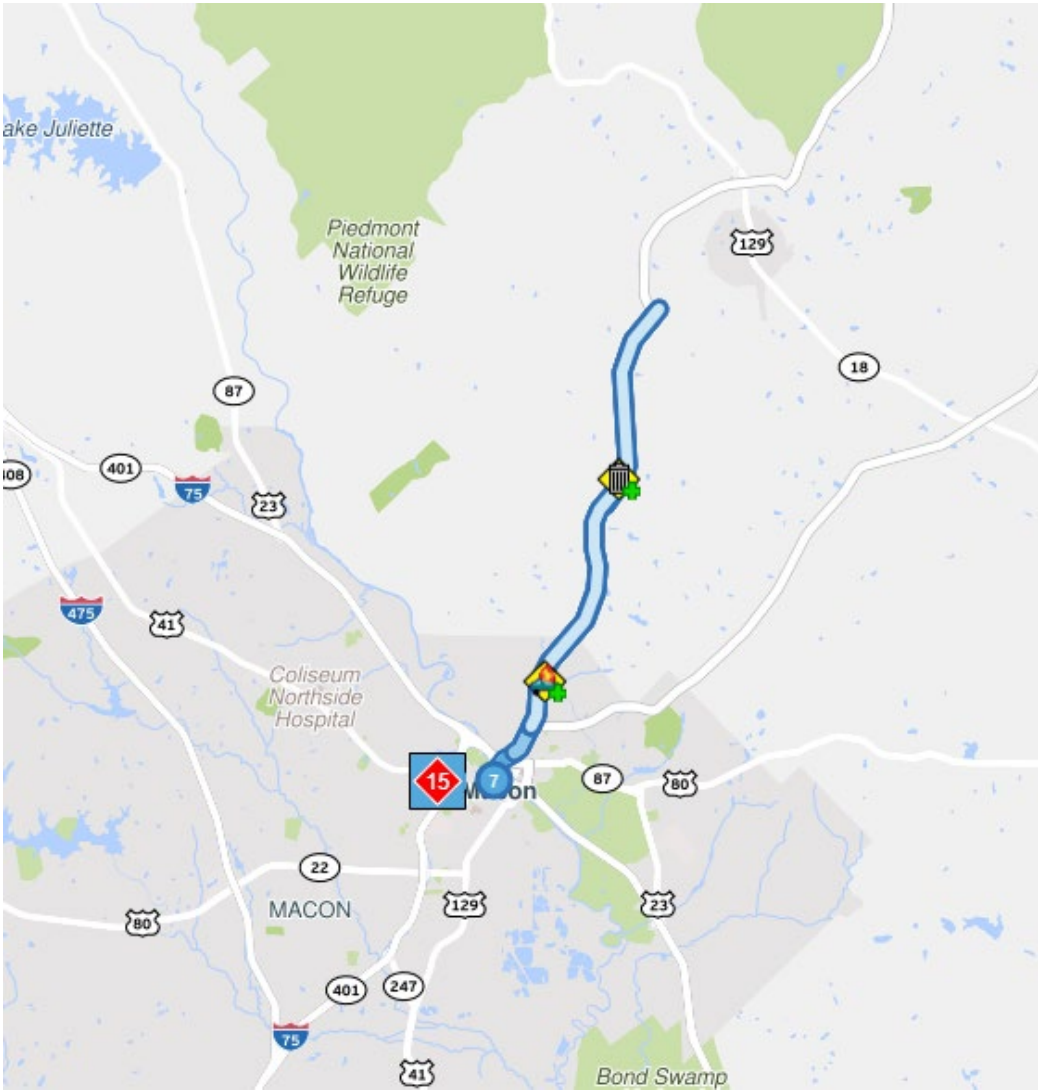
The center represents the beginning of Jan 1, 2023 and the outer edge represents the end of Dec 31, 2023.



Maximum Queue Length in Miles

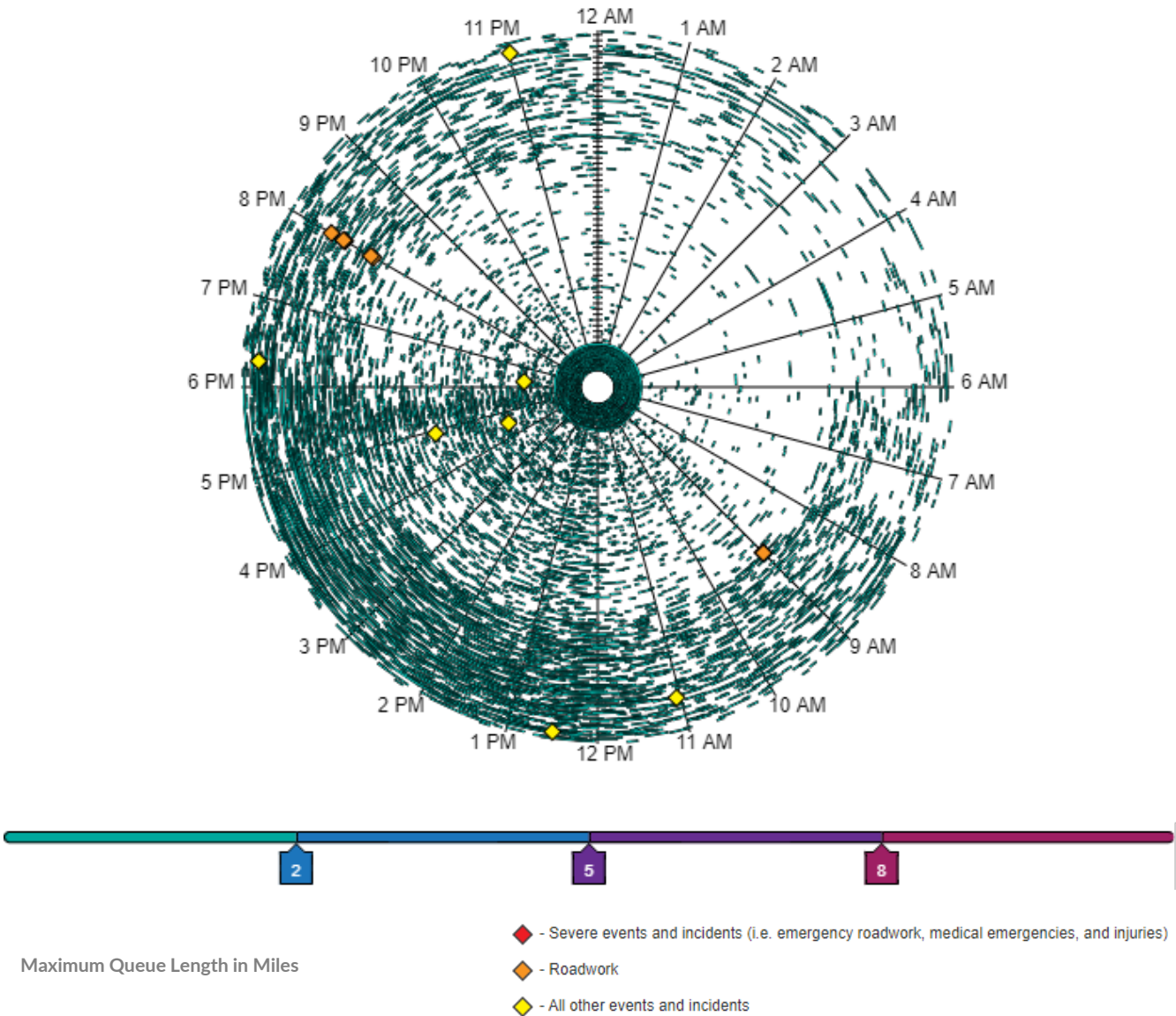
- ◆ - Severe events and incidents (i.e. emergency roadwork, medical emergencies, and injuries)
- ◆ - Roadwork
- ◆ - All other events and incidents

US-129 S at US-23/SR-19/Spring St



Selected Location Location head Queue (at max length) Number of Incidents

The center represents the beginning of Jan 1, 2023 and the outer edge represents the end of Dec 31, 2023.



Top 10 Bottlenecks Non-Interstate Roads (Jan 1 – Dec 31, 2023)

Rank*	Head Location	Avg Max Length (miles)	Avg Daily Duration
1	US-23 S at I-75 (<i>near I-75 Exit 171</i>)	0.89	3h 58m
2	US-129 S at US-23/SR-19/SR-49/Spring St	0.72	4h 24m
3	US-23 S at I-75 (<i>near I-75 Exit 169</i>)	1.46	45m
4	US-129 S at I-16/US-23/SR-19/Emery Hwy	0.53	3h 24m
5	US-80 E at I-16/James Gillis Mem Hwy	0.29	8h 29m
6	US-41 at Tucker Rd	1.46	3h 8m
7	US-23 N at US-129/SR-19/Spring St/Riverside Dr	0.74	3h 55m
8	US-80 at US-41/SR-247/Pio Nono Ave	0.38	7h 6m
9	US-23 S at US-80/SR-87/Coliseum Dr	0.35	9h 40m
10	US-23 N at SR-19 Spur/New Forsyth Rd	0.86	2h 12m

*Rank based on Total Delay (calculated by RITIS – raw speed drop weighted by VMT)

Highlights Reflect Bottlenecks on Top 10 for All Roads Too

- Understanding the overall performance of the freight network is key to identifying needs and opportunities for improvement.
- Travel time reliability for trucks and general-purpose traffic is critical to planning accurately for on-time arrivals, departures, and maintaining efficient operations.
- Data from the FHWA Office of Operations Freight Mobility Trends Analysis Tools helps evaluate performance on the highway freight network.

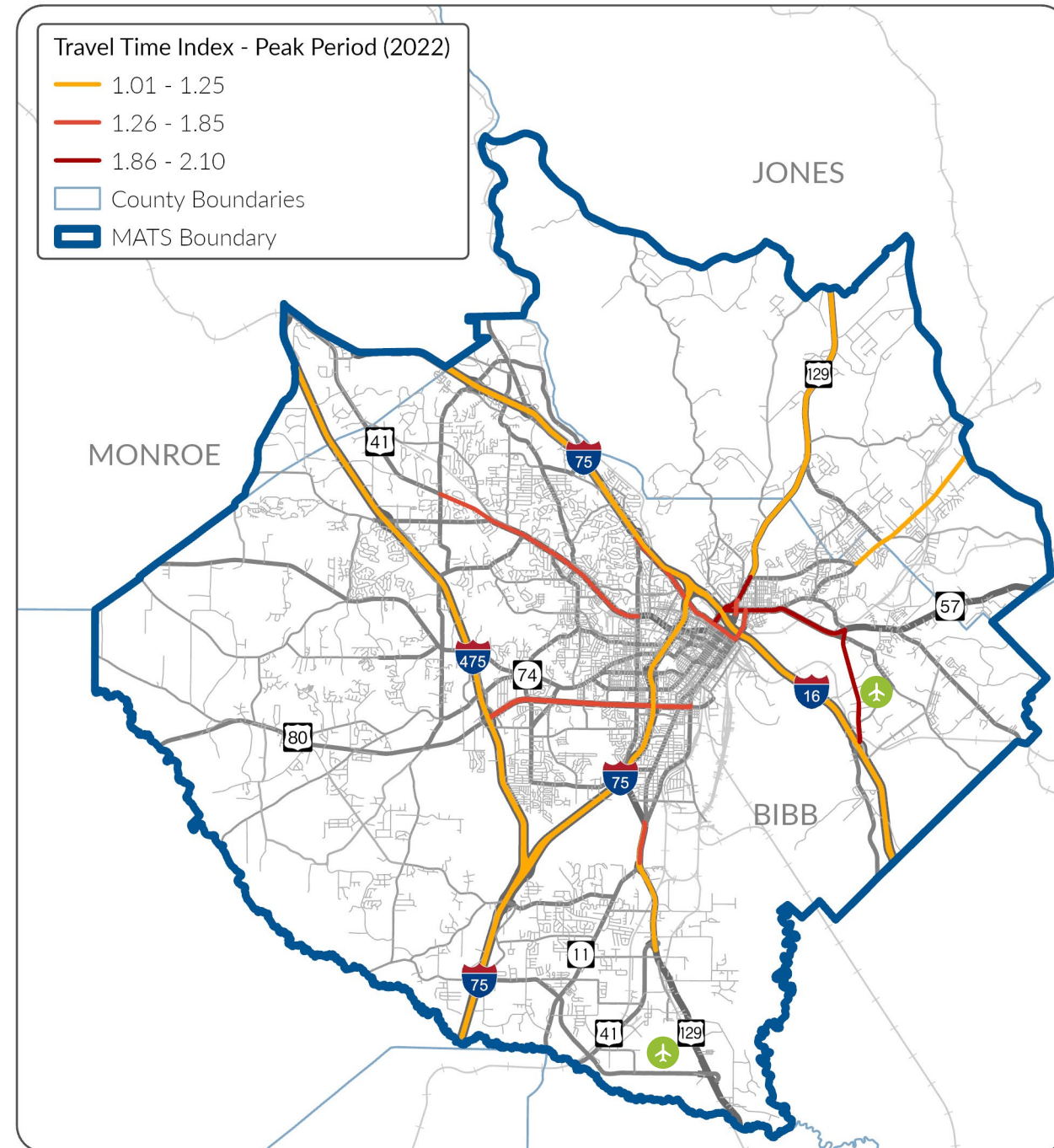
Data source: FHWA Freight Mobility Trends Tools (2022)



Federal Freight Mobility Tools

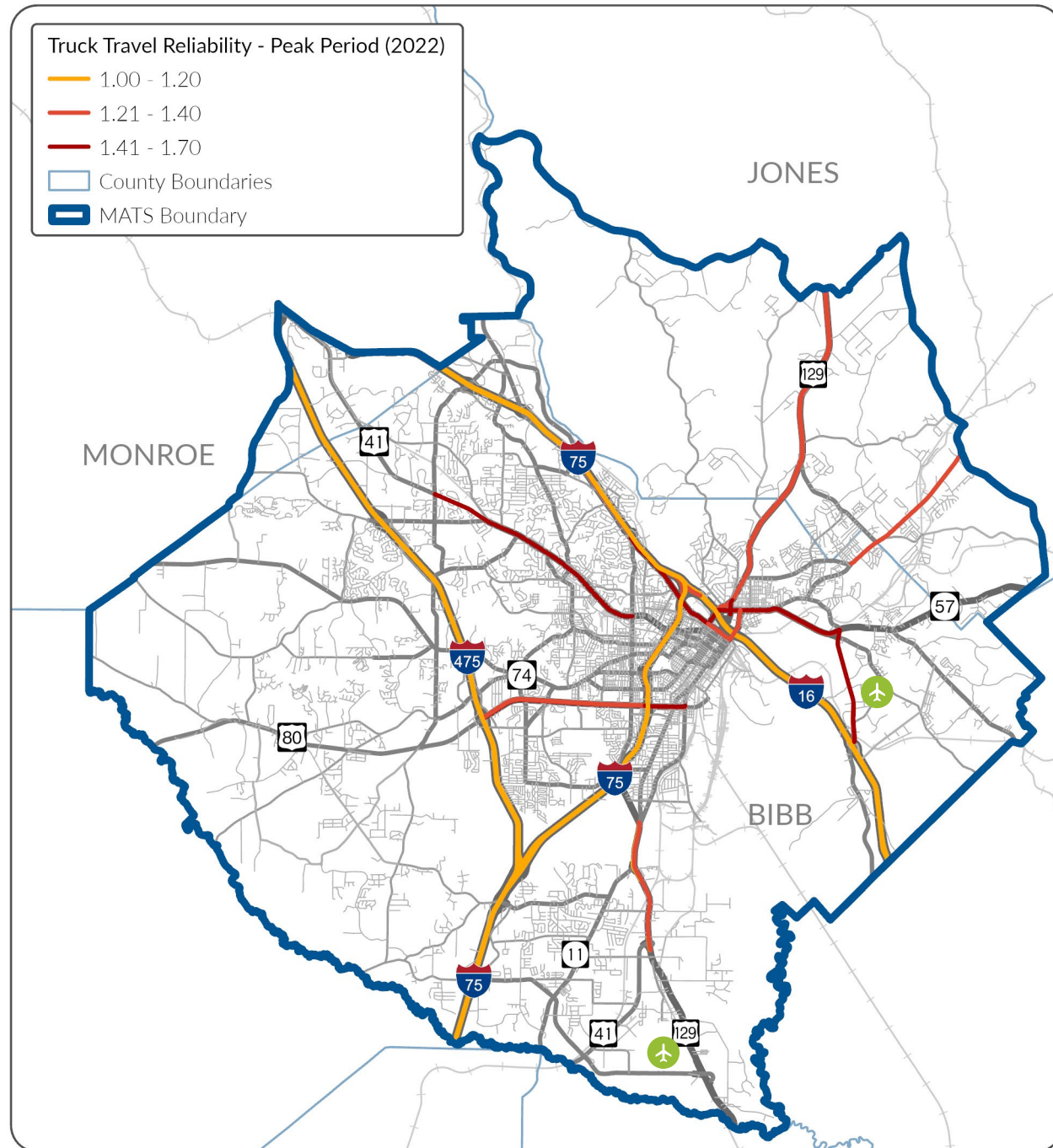
Travel Time Index

- Represents a ratio of average travel time during peak period to time required to make the same trip at free-flow speeds
- Value of 1.3, for example, indicates a 20-minute free-flow trip requires 26 minutes during the peak period
- Routes with high TTI values in MATS include US 80, US 41 between Pierce Ave and Zebulon Rd, and US 23 north of I-16



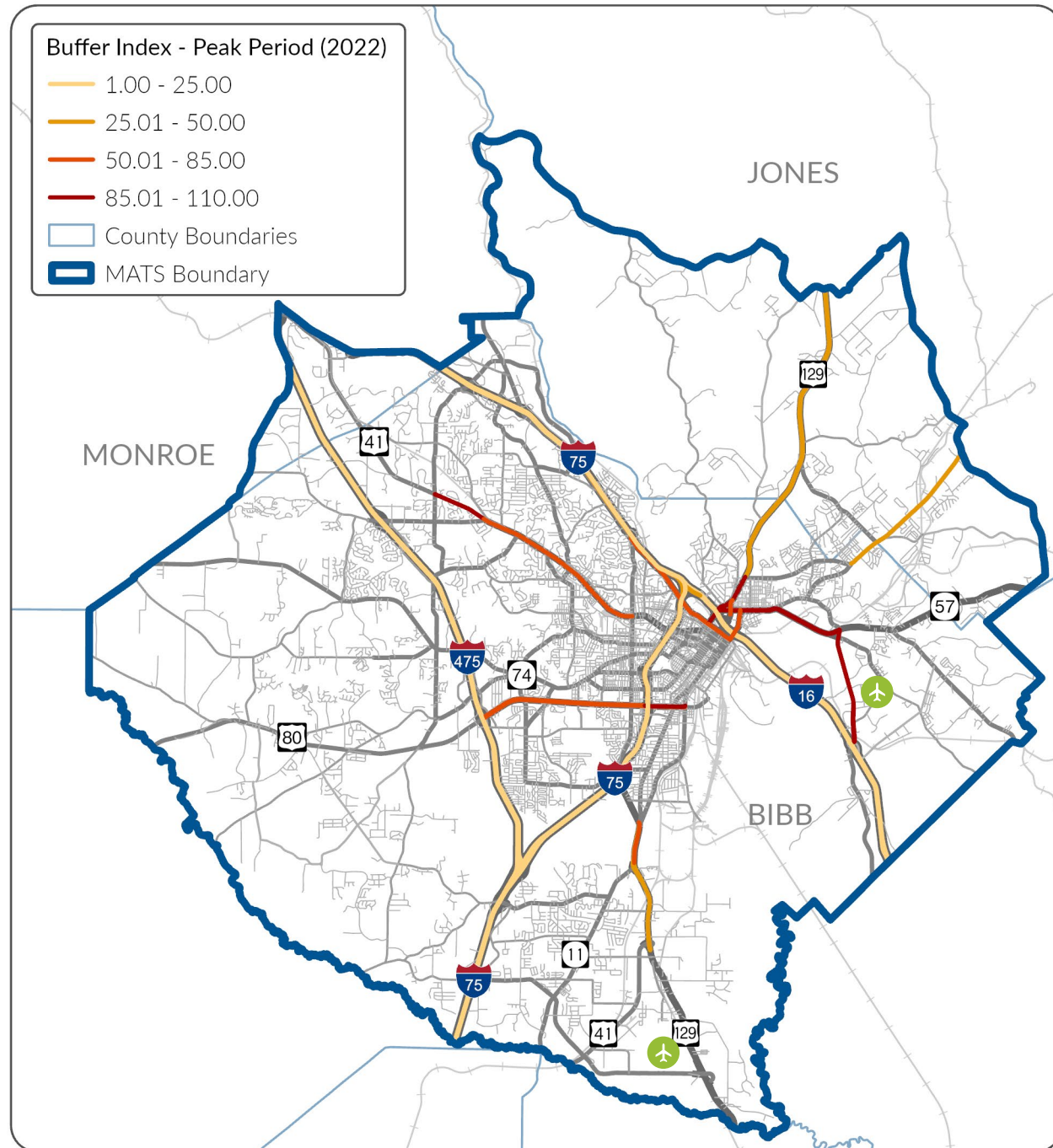
Truck Travel Time Reliability Index

- Travel time reliability measures the extent of unexpected delay – the consistency or dependability in travel times, measured day-to-day or across different period of times
- TTTR is a national freight performance measure that divides the 95th percentile travel time by the 50th percentile travel time
- Routes with high TTTR values (low reliability) include US 41 between Pierce Ave and Zebulon Rd, US 23 between US 129 and I-16 near the Macon Downtown Airport



Buffer Index

- Represents the extra time that motorists need to allow or plan for to arrive on-time for 95% of all trips
- Buffer Index of 30% means if a trip usually takes 40 minutes, a traveler should allow an extra 12 minutes of time – a total of 52 minutes
- Routes with high BI values include US 23, US 41, US 80, and US 129

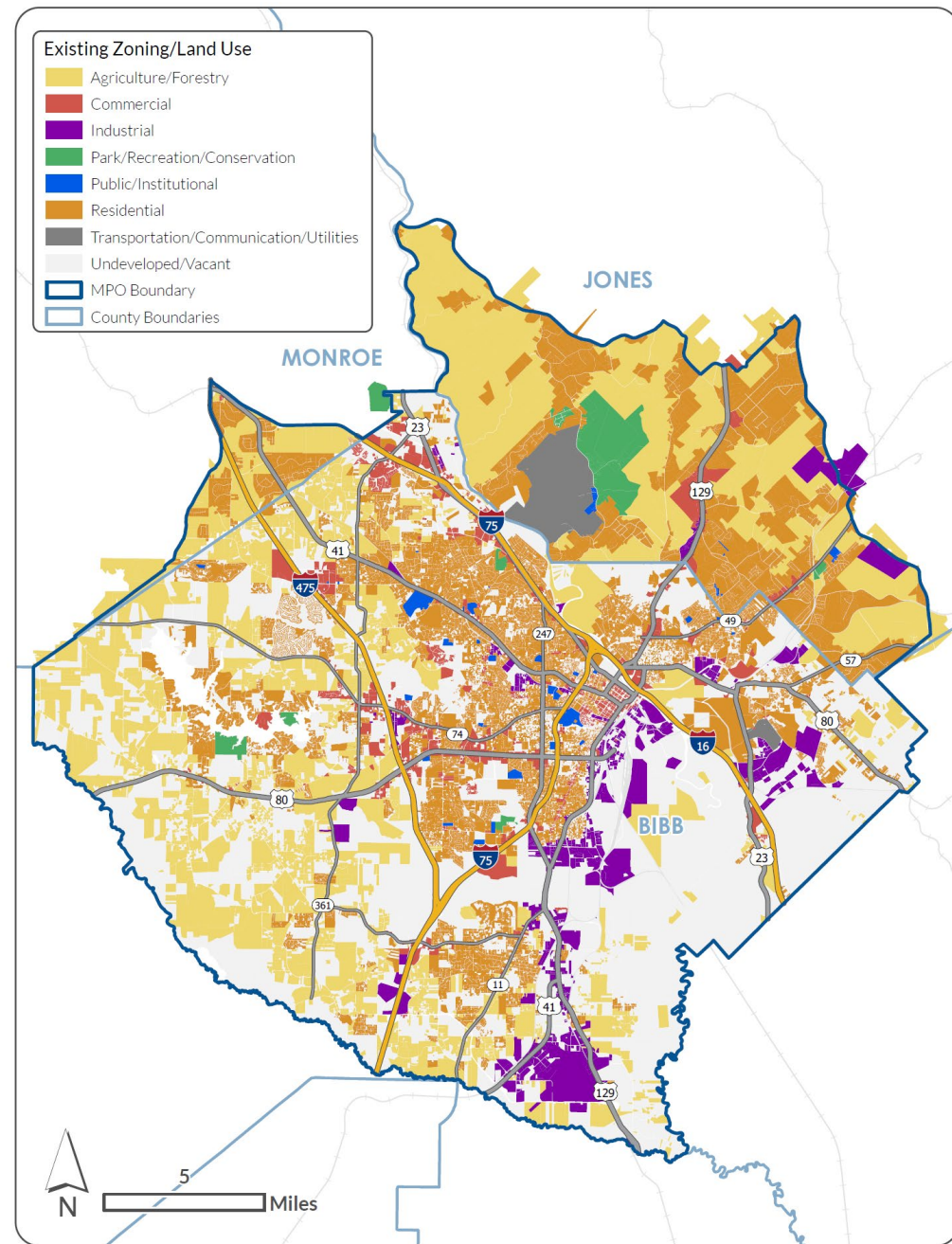




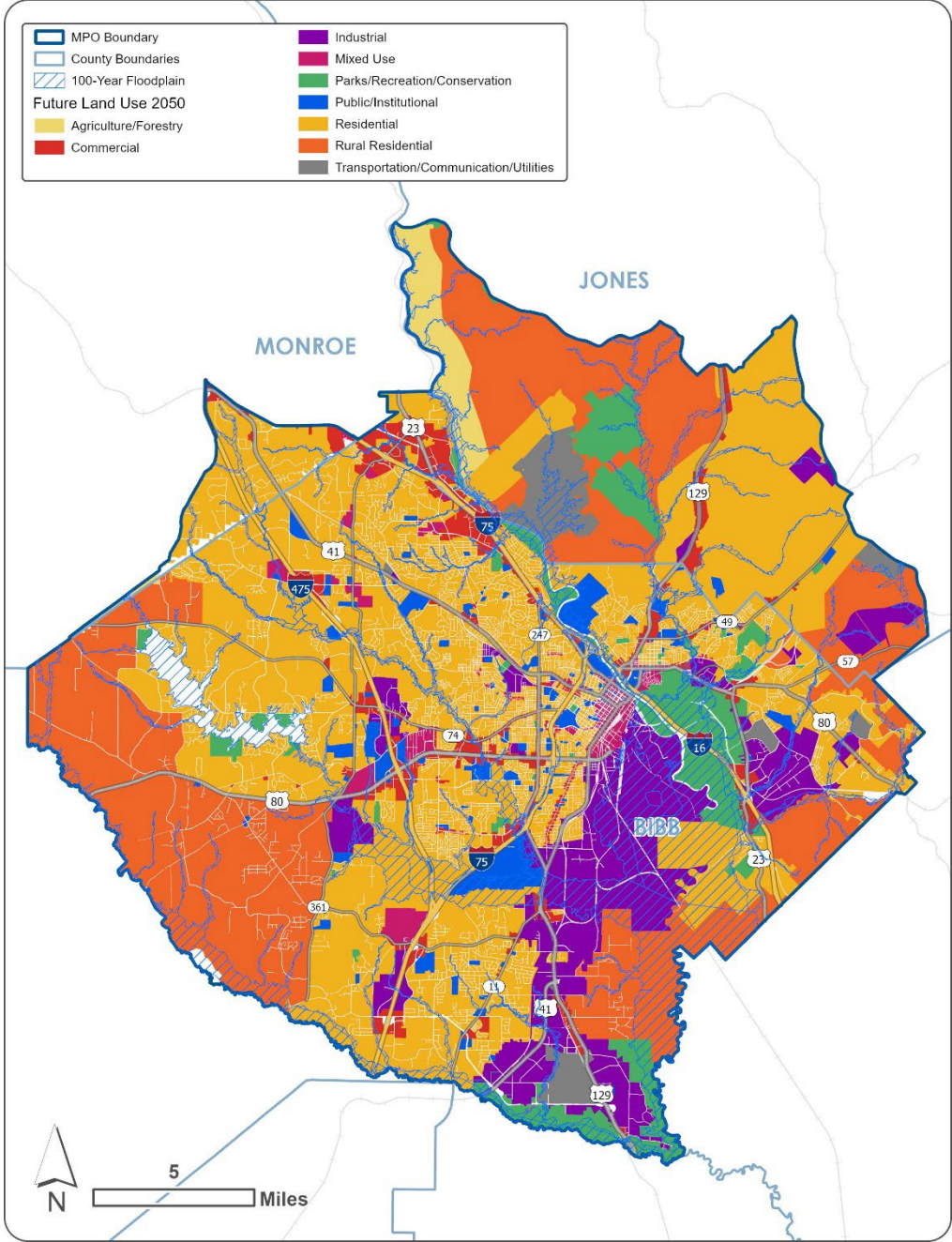
Land Use

Existing Land Use

Macon-Bibb County - Zoning (re-classed to ELU)
Monroe, Jones County - ELU



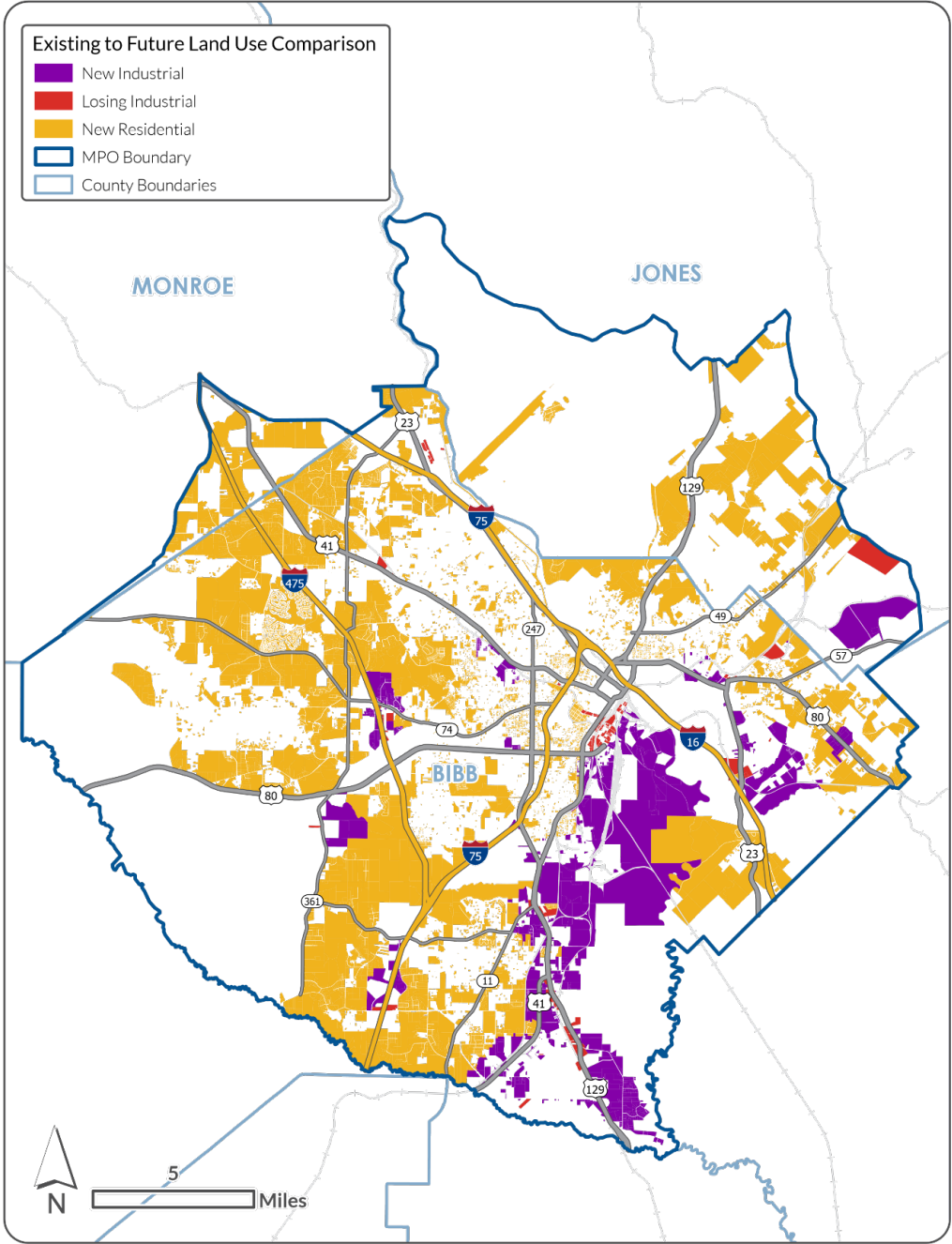
MATS Future Land Use (2050)



Land Use Changes

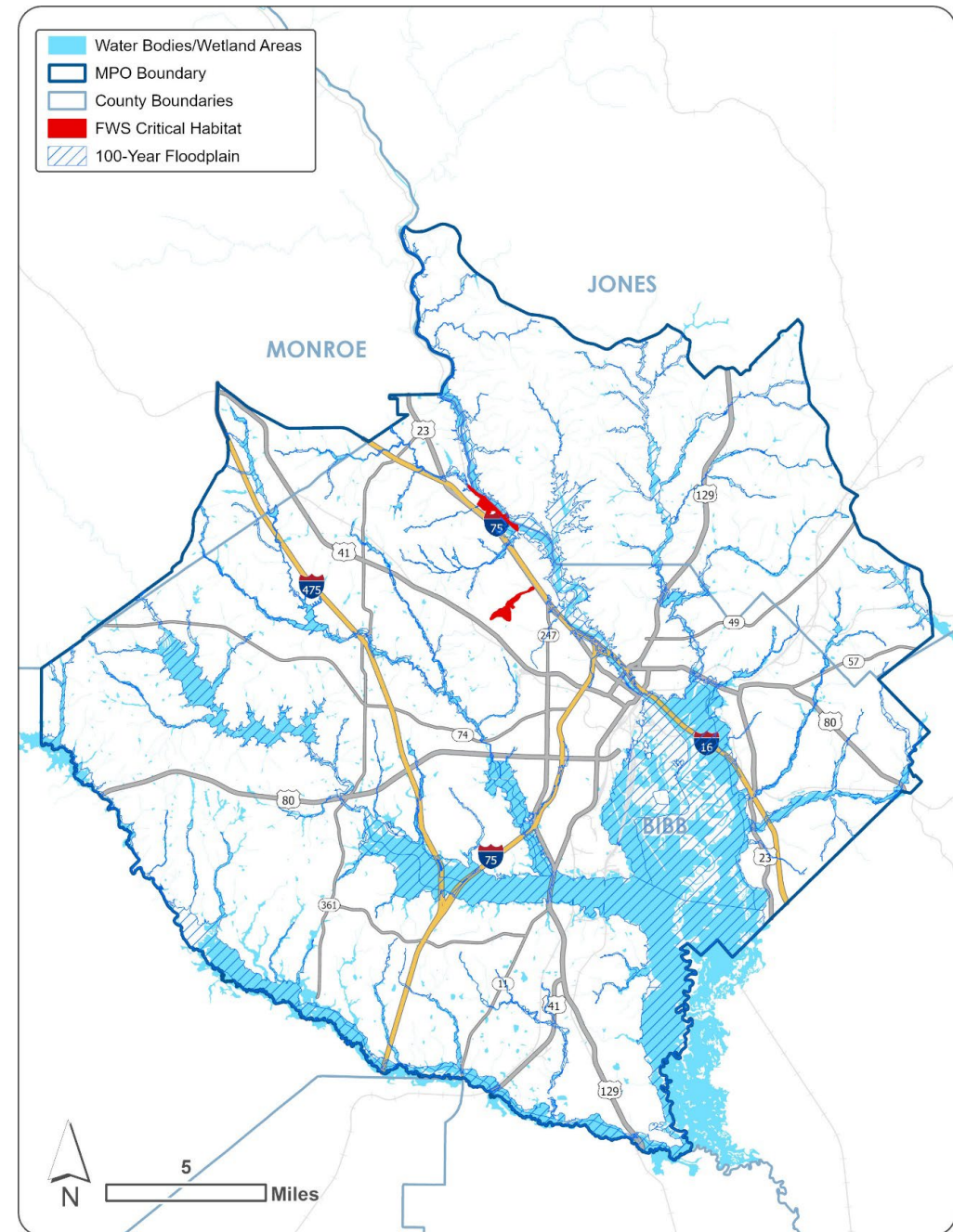


Possible changes from 2015 to 2050



Environmental Constraints

Possible changes from 2015 to 2050



Future Land Use Assessment

Identified vacant, undeveloped, and agriculture/forestry parcels

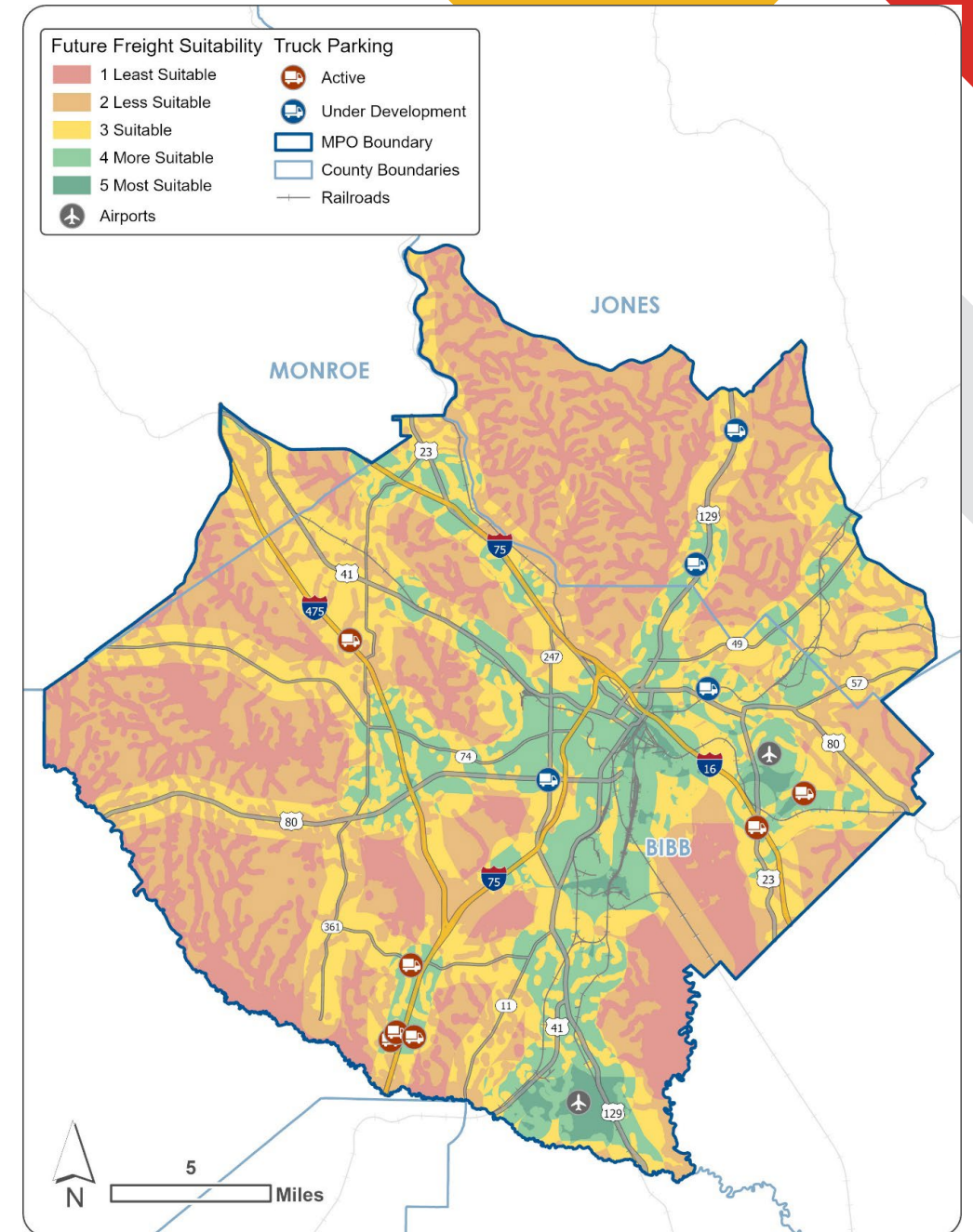
Perform a suitability analysis based on a series of factors:

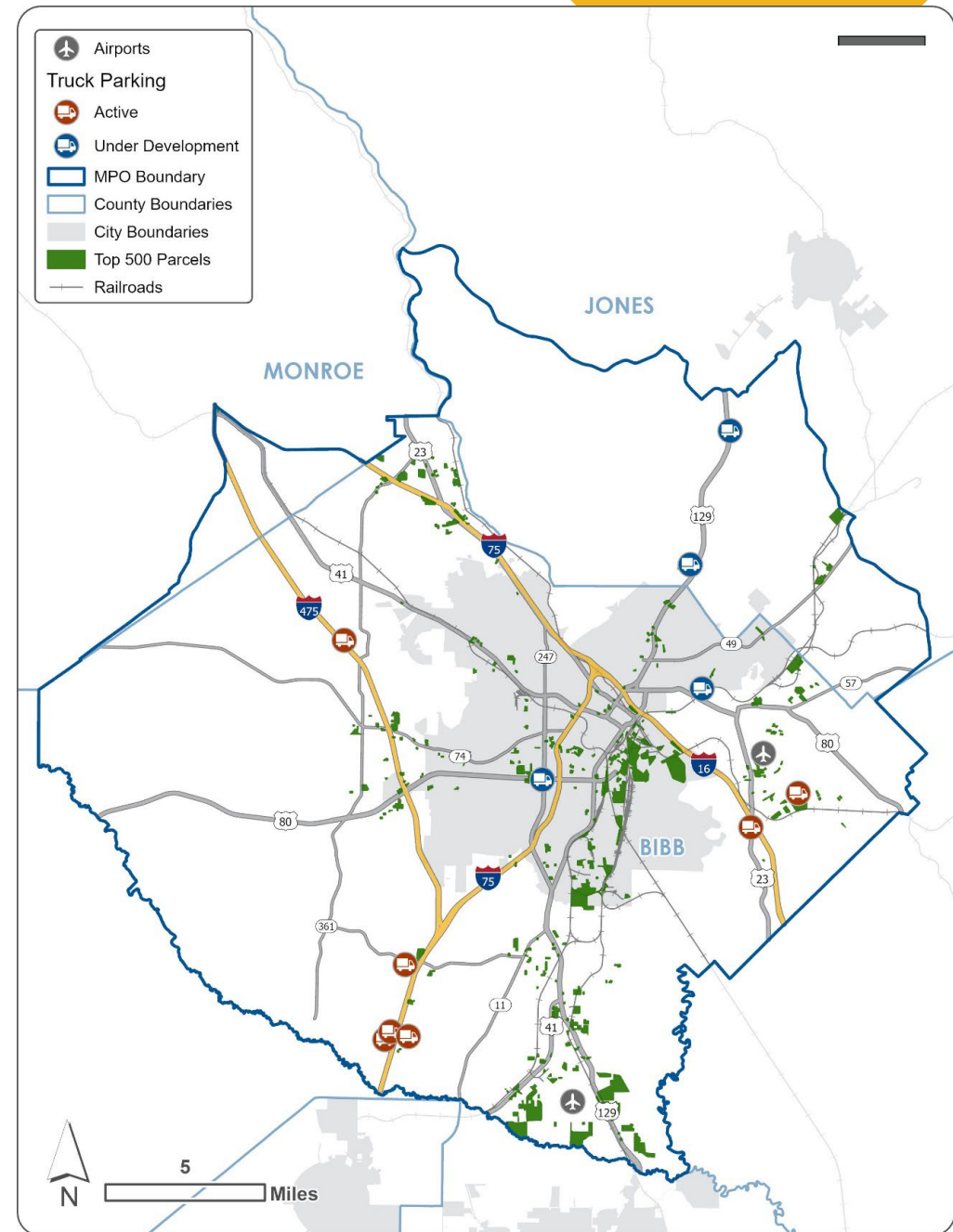
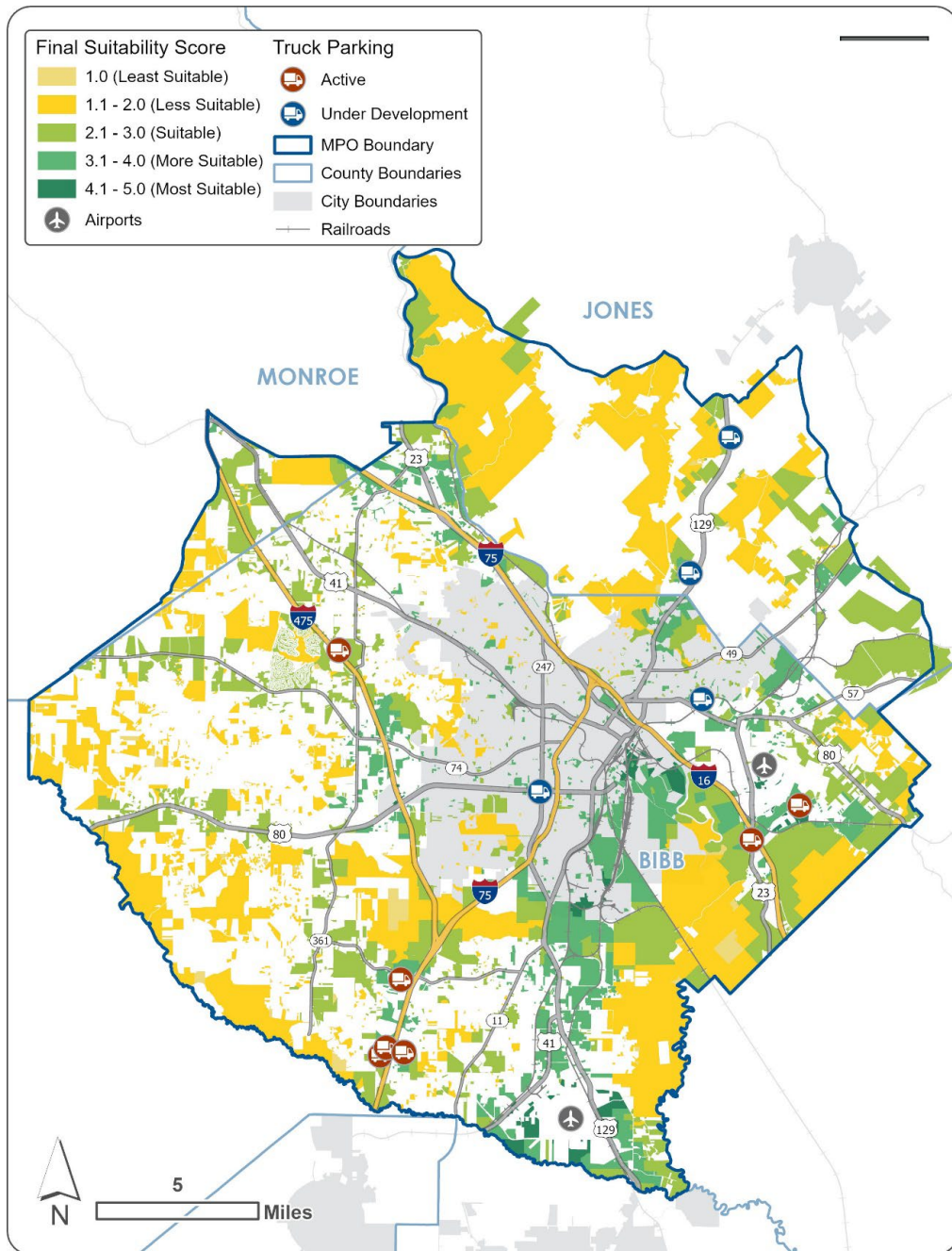
Score Increase:

- Proximity to freight networks (interstates, major roadways, airports, and rail facilities)
- Proximity to existing clusters of freight parcels

Score Decrease:

- Proximity to residential uses
- Proximity to environmental features (water bodies and wetlands)







MATS 2050 Freight Plan

The purpose of this study is to complete a regional freight plan for the Macon Area Transportation Study Metropolitan Planning Organization (MATS MPO) planning area.



Project Introduction

The Macon-Bibb Planning & Zoning Commission is in the process of completing a Regional Freight Network Plan for the Macon Area Transportation Study Metropolitan Planning Organization (MATS MPO). A map outlining the plan's study area (the MATS MPO) can be found below. The timeline to the right lists key tasks involved in the study. Each of the tasks will help MATS and the project team assess regional freight needs, strengths, challenges and opportunities through the year 2050.

Please check back here regularly for updates on the study as well as opportunities to provide input! Or to submit a comment to the project team, please see the "Leave a Comment" page in located in the website menu.

[Visit the MATS Homepage Here!](#)

Project Home

[Leave a Comment](#)

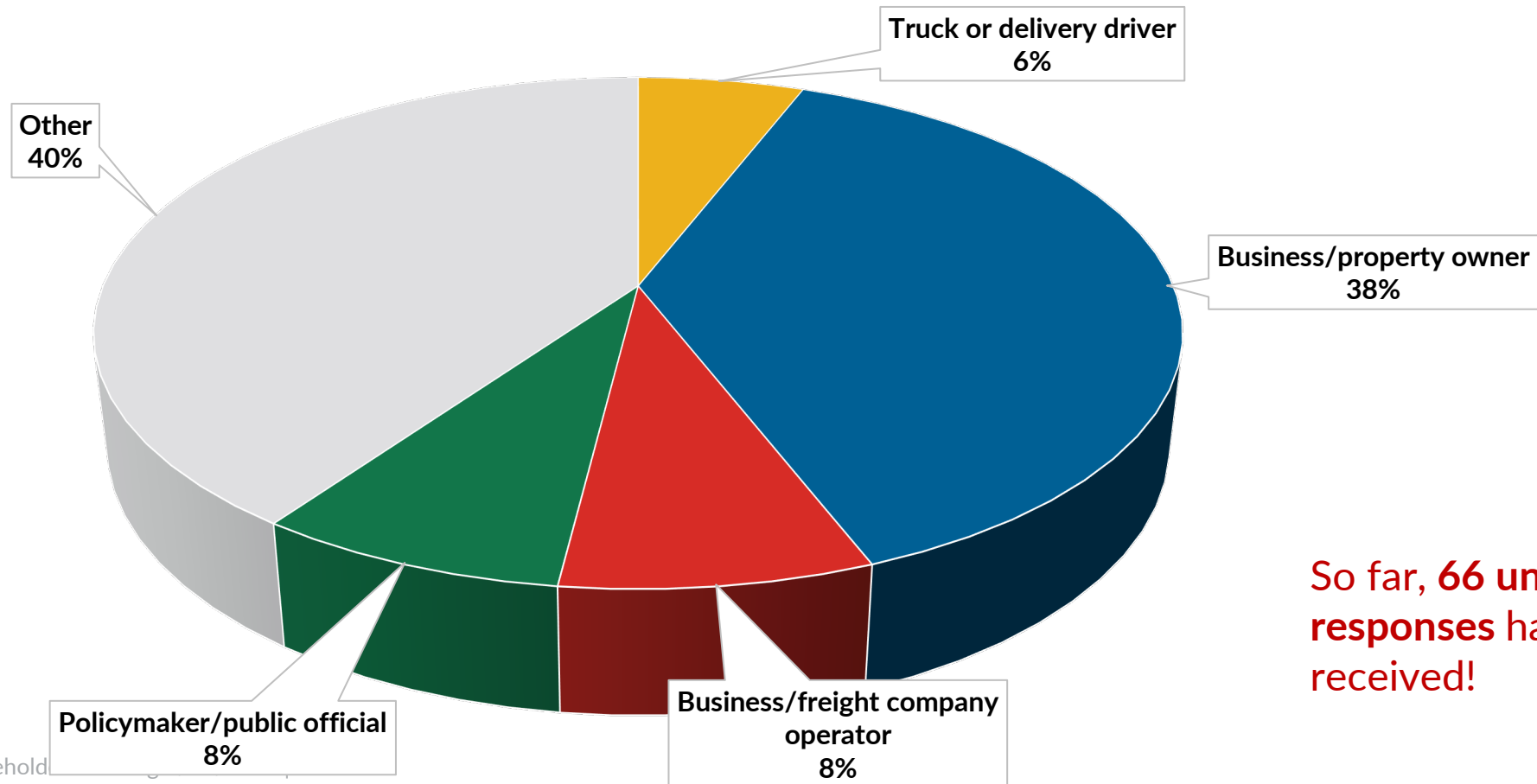
[Study Materials](#)

[MATS 2050 Freight Plan Stakeholder Survey](#)

Online Survey Responses

Who are our respondents?

Describe your relationship with freight and logistics in the Macon region.

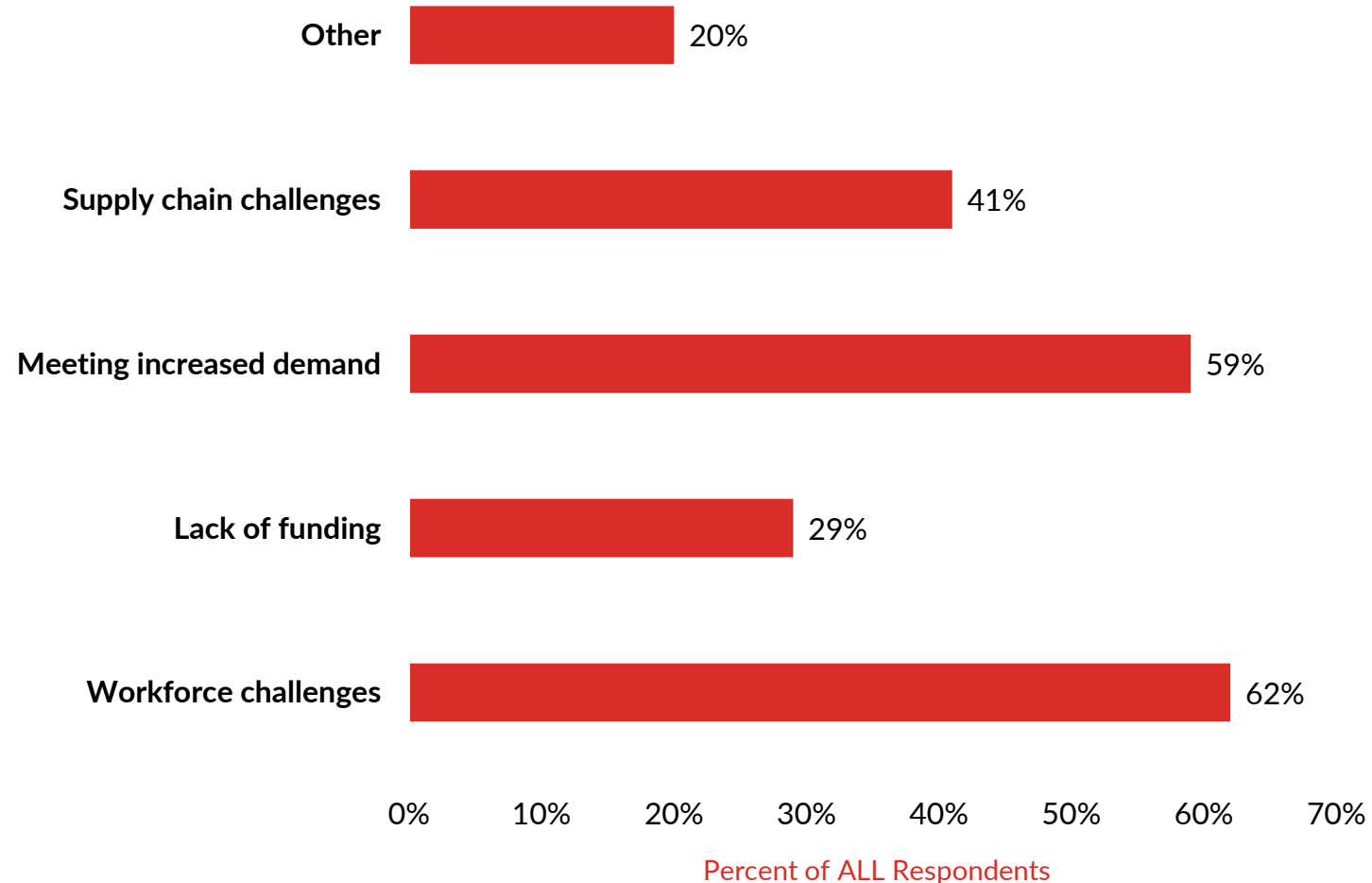


So far, **66 unique responses** have been received!

Biggest Challenges

- Other concerns:
 - Inadequate local road infrastructure
 - Overcrowded interstates
 - Continued degradation of roadway infrastructure

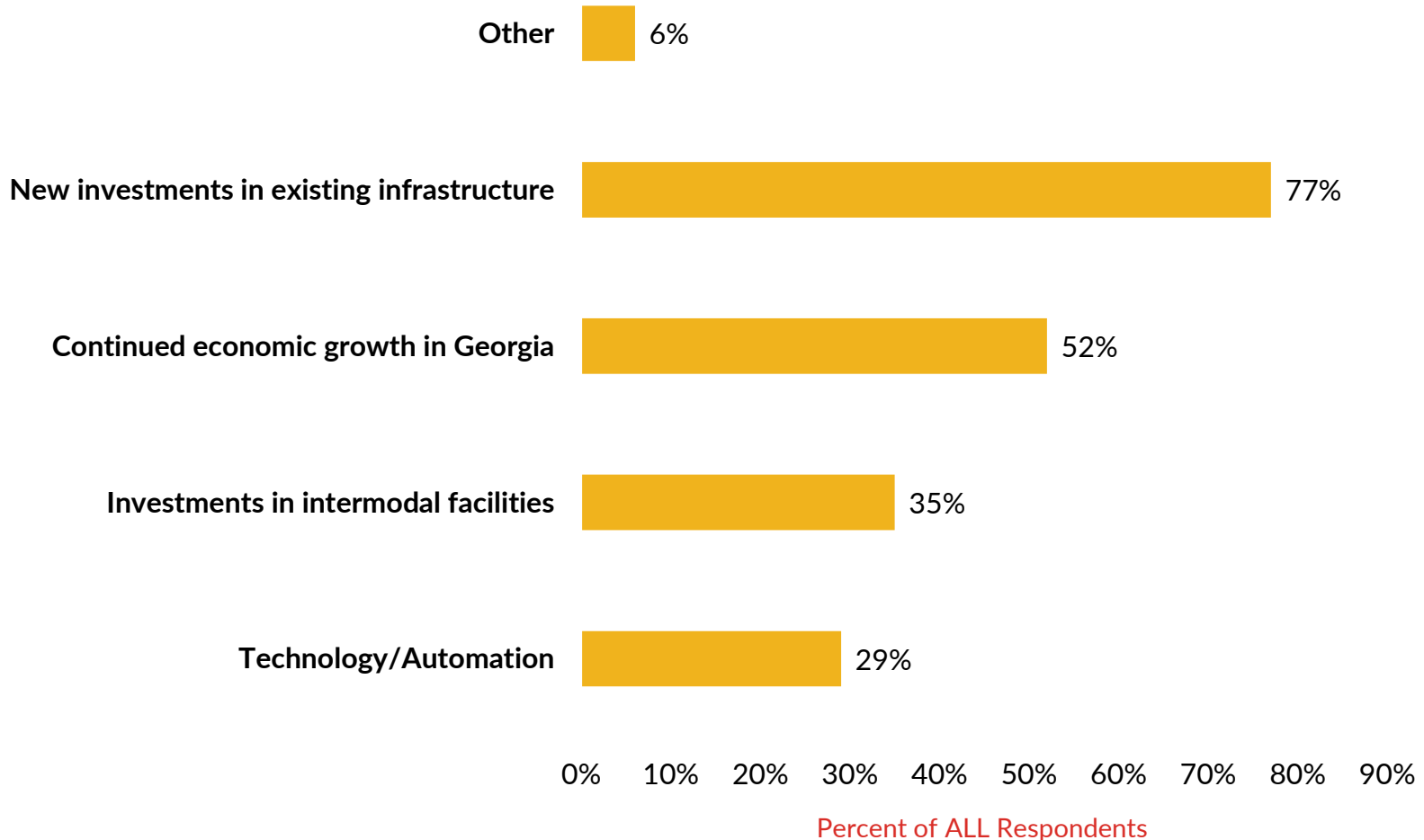
What do you see as the biggest **challenges** facing freight and goods movement in the area?



Biggest Opportunities

What do you see as the biggest **opportunities** facing freight and goods movement in the area?

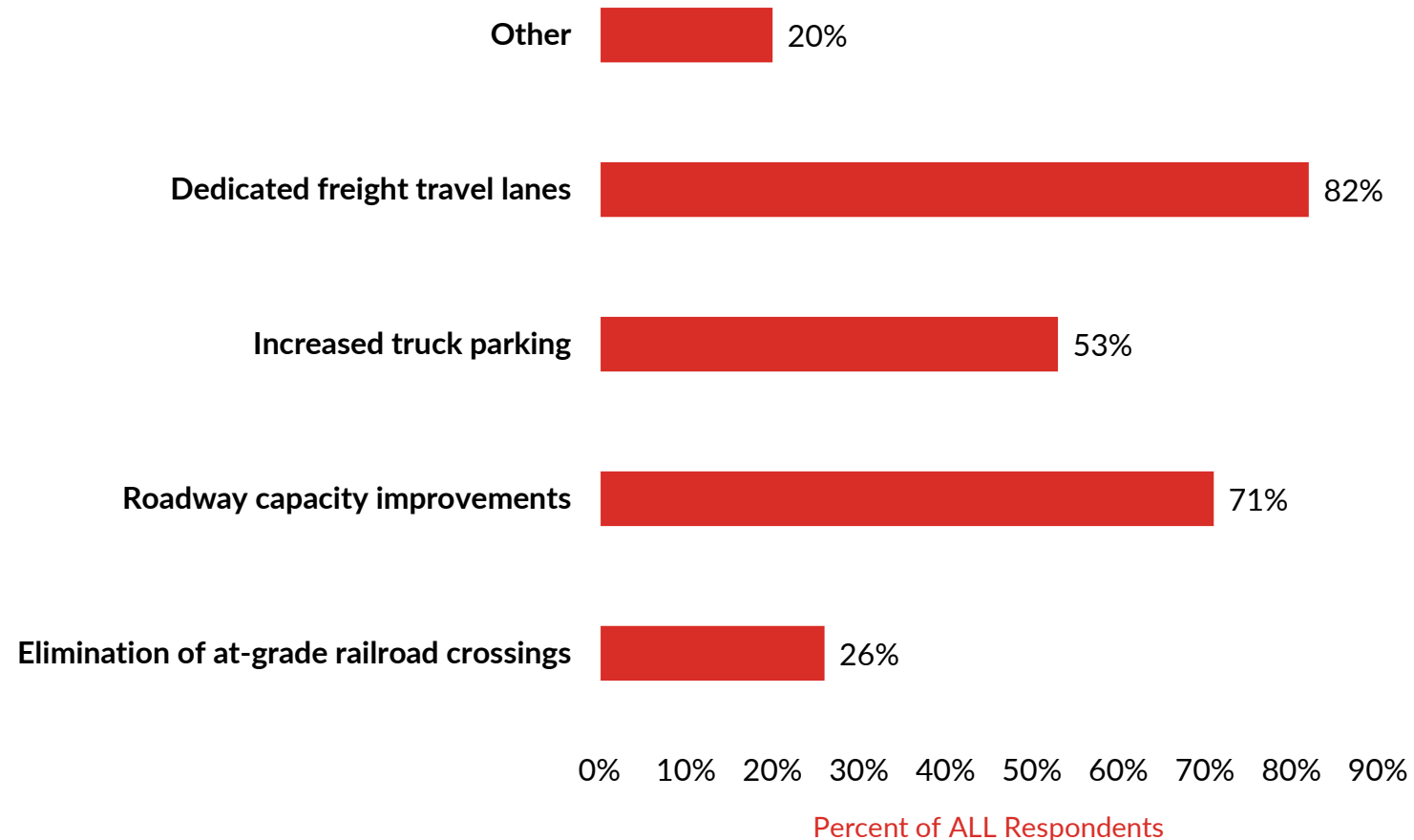
- Other concerns:
 - Commit to funding road infrastructure repair
 - Reducing warehouse footprint
 - Increasing access to airports



Ideas for Improvement

- Other concerns:
 - Design intersections with heavy truck traffic in mind
 - Automatic speed governors on heavy trucks
 - Keep trucks away from residences

What infrastructure changes would you recommend to improve freight and goods-movement in the Macon region?



Key Themes: Business/Property Owners

Specific challenges with buildings and infrastructure

- Need modernization
- Maintenance
- Environmental concerns
- Utility concerns
- Ability to better handle commercial traffic (in and around exits as well as distribution centers)

Ideas to help freight/logistics operations

- Easy access to major roadways
- Space constraints
- Easy access to intermodal facilities
- Maintain infrastructure
- Reduce congestion
- Not enough rail transport – freight *and* passenger

Ideas to facilitate existing business operations/future growth

- Workforce development assistance
- Fast track roadway improvements
- Passenger rail
- Infrastructure development plans for projects not shovel ready

Key Themes: Policymakers/Public Officials

Freight related **concerns** raised by constituents

- Traffic congestion
- Lack of truck parking or staging
- Railroad crossings
- Environmental and deforestation concerns

Hurdles faced in **addressing** freight related concerns

- Workforce challenges
- Lack of political will
- Lack of funding



Community & Environmental Impact Assessment

EquityScreen

Overview of the Process:

- Identification of the most recent and relevant equity focused data metrics
- GIS Data Analysis
- Client and Stakeholder Review and Input
- Identification of Communities or Areas Impacted by Freight Movements
- High-Level Mitigation Measures



Why Is This Important?

The environmental justice principles set by the USDOT are summarized as follows:

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

To meet these standards, the impacts of freight on communities (demographic, public health, environmental, and socioeconomic) must be mitigated via effective transportation planning strategies.

Equity Categories



Phase 1:
Analyze metrics in
each category

Demographics

Public Health

Transportation + Freight Facilities

Environment

Economics

Community and Equity Impacts Metrics

Demographic – Race/Ethnicity

- % Black
- % Hispanic
- % 2 or More Races
- % White Alone
- % Disability

Public Health

- % Disability
- Asthma Among Adults
- Type 2 Diabetes Among Adults
- Cancer Prevalence
- Life Expectancy

Environmental

- Hazardous Waste Exposure
- Superfund (NPL) Site Exposure

Transportation

- % No Vehicle
- Diesel Matter Exposure
- % Below Poverty
- Traffic Proximity & Volume
- DOT Travel Barrier Score

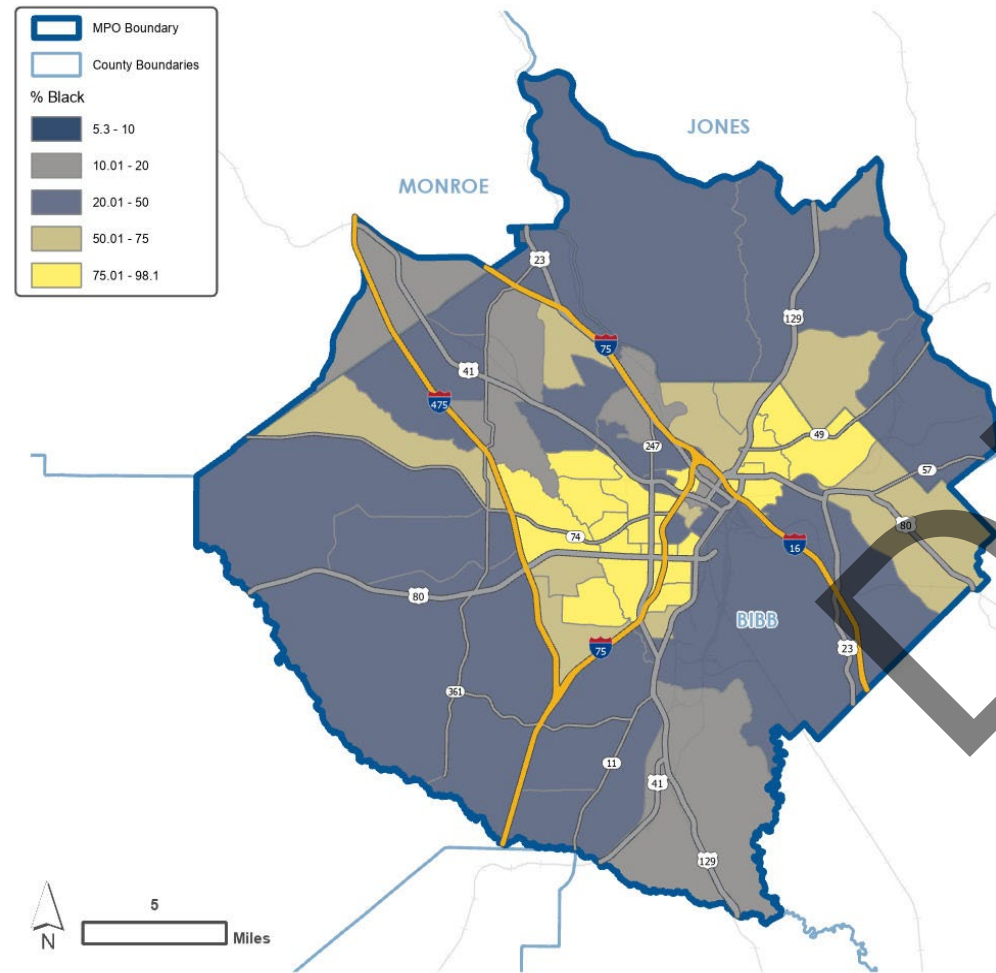
Economics

- % Below Poverty
- Median Family Income
- Unemployment Rate
- % No High School Degree
- % Vacant Housing
- Housing Less Than \$50,000

Demographics

% BLACK

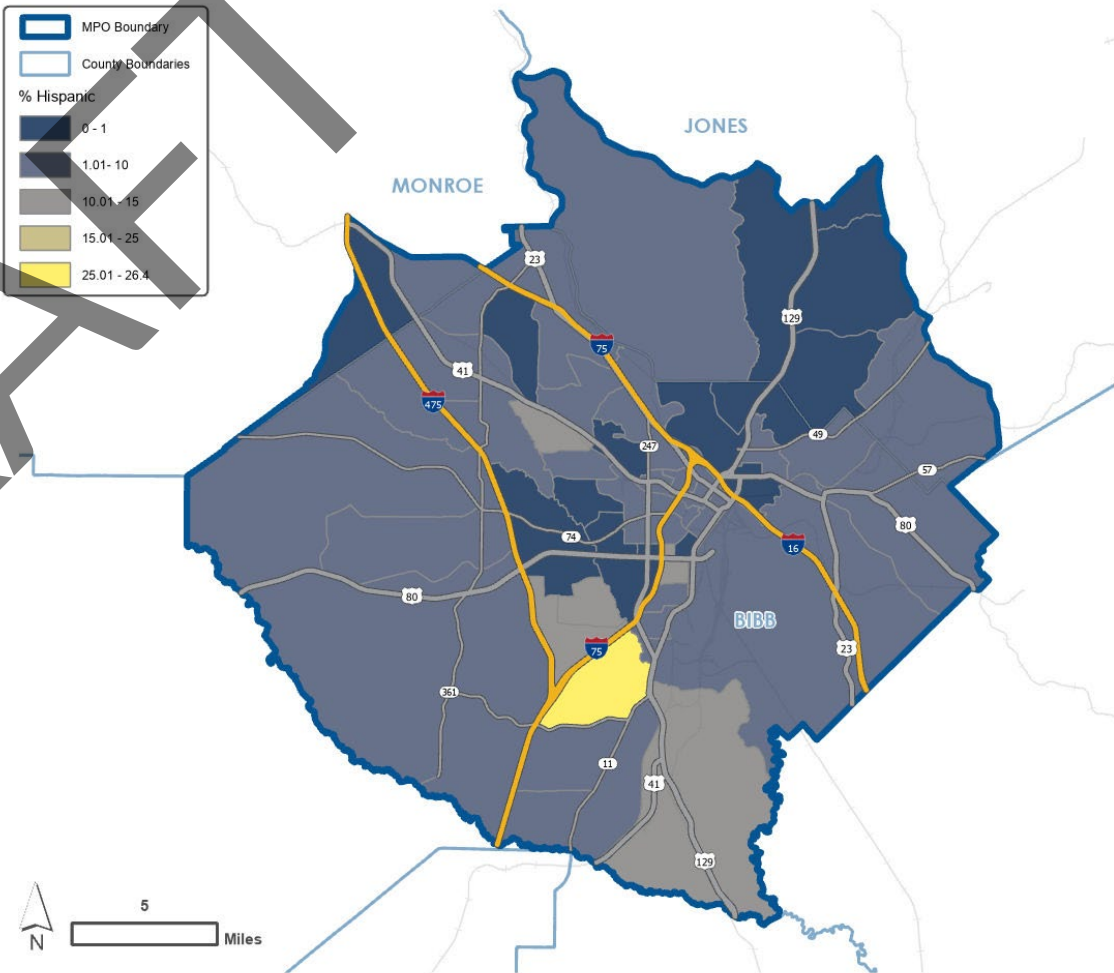
- USA: 12.1%
- GA: 60.6%
- MATS: 54.5%



Data Source: US Census (ACS 2022)

% HISPANIC

- GA: 9%
- USA: 18.7%
- MATS: 4.3%

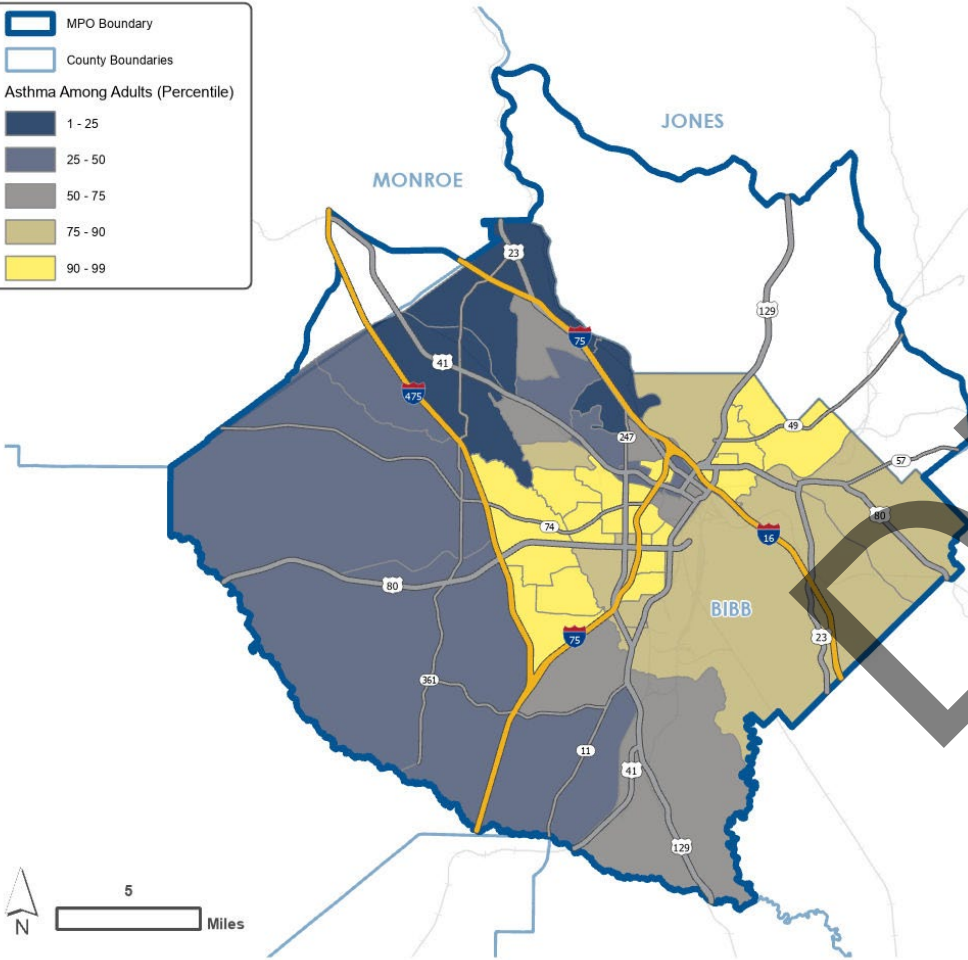
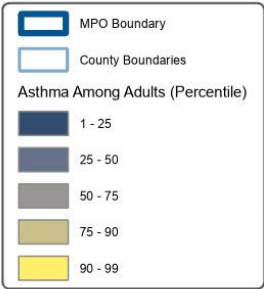


Data Source: US Census (ACS 2022)

Public Health

ASTHMA AMONG ADULTS

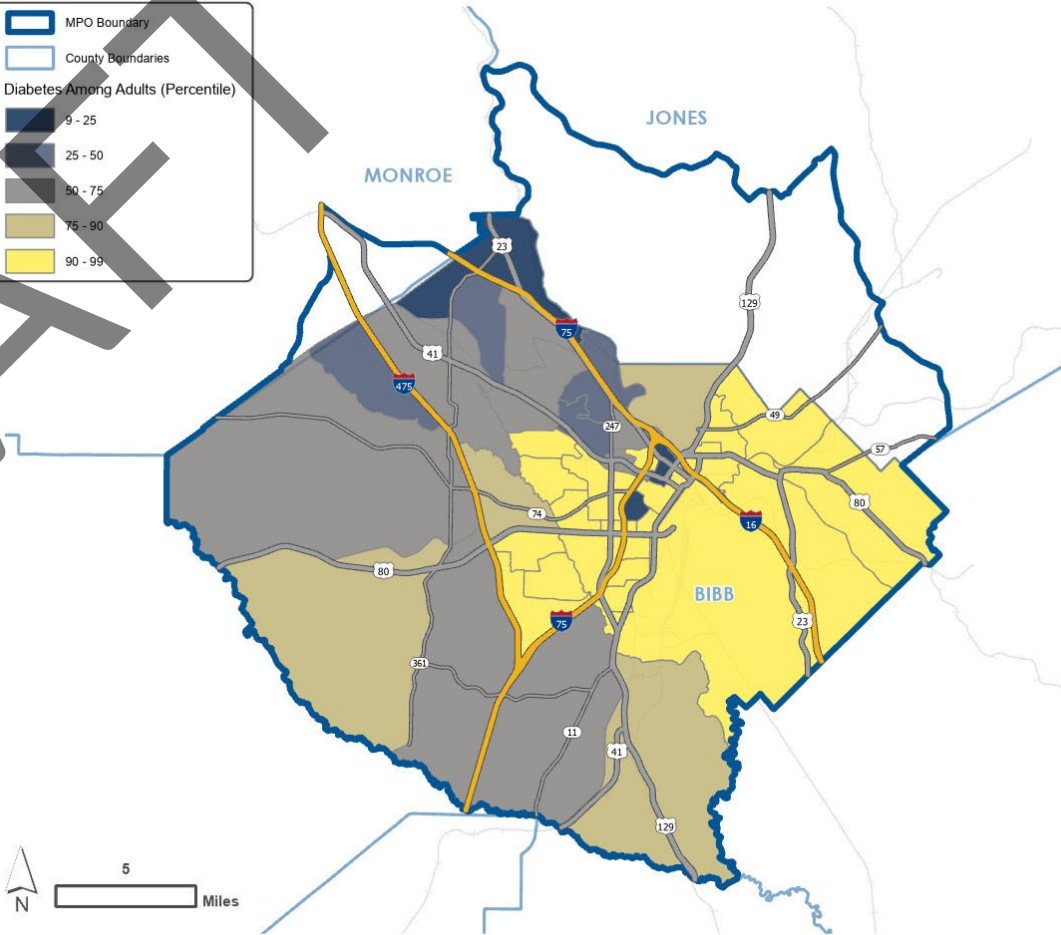
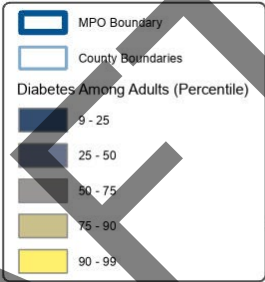
- USA: 7.7%
- GA: 8.9%
- MATS: 9.4%



Data Source: EPA CEQ 2020

TYPE 2 DIABETES AMONG ADULTS

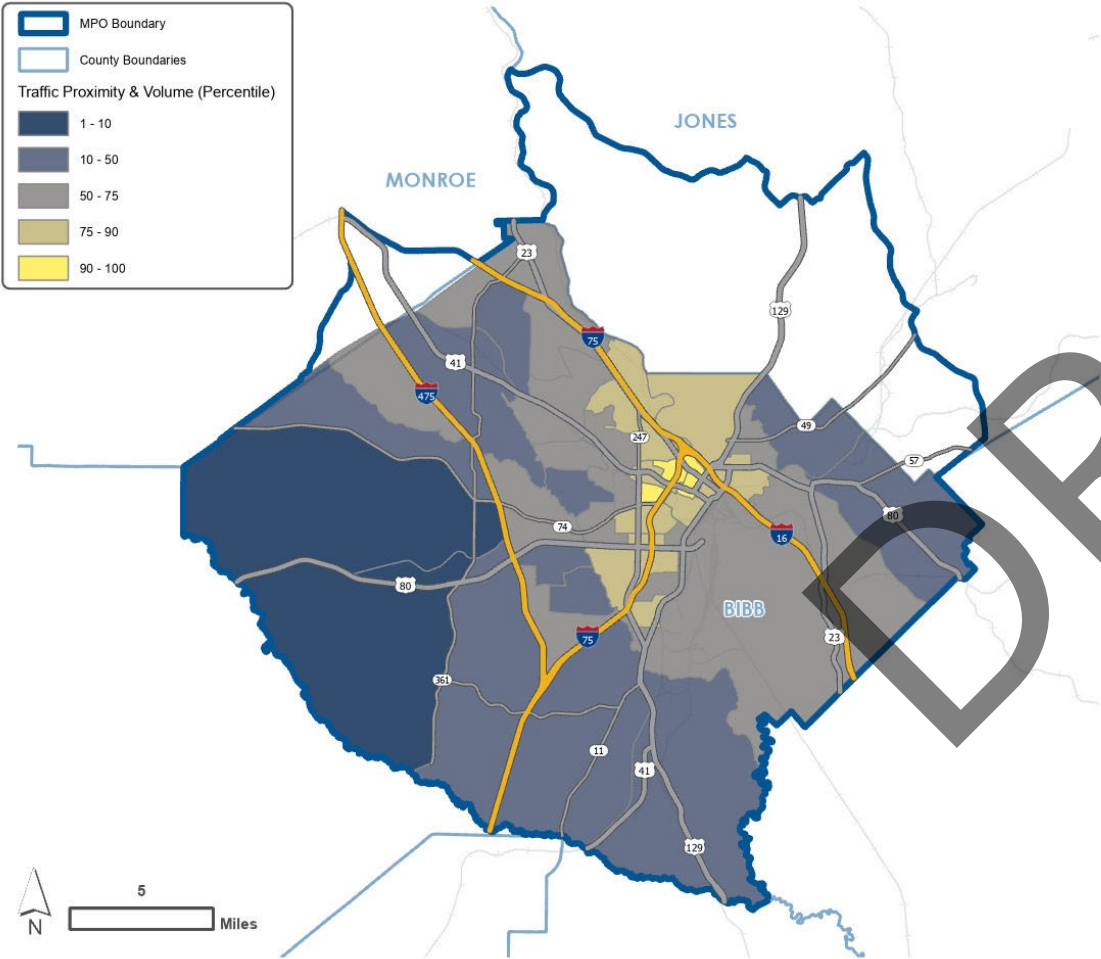
- USA: 10.3%
- GA: 12.4%
- MATS:



Data Source: EPA CEQ 2020

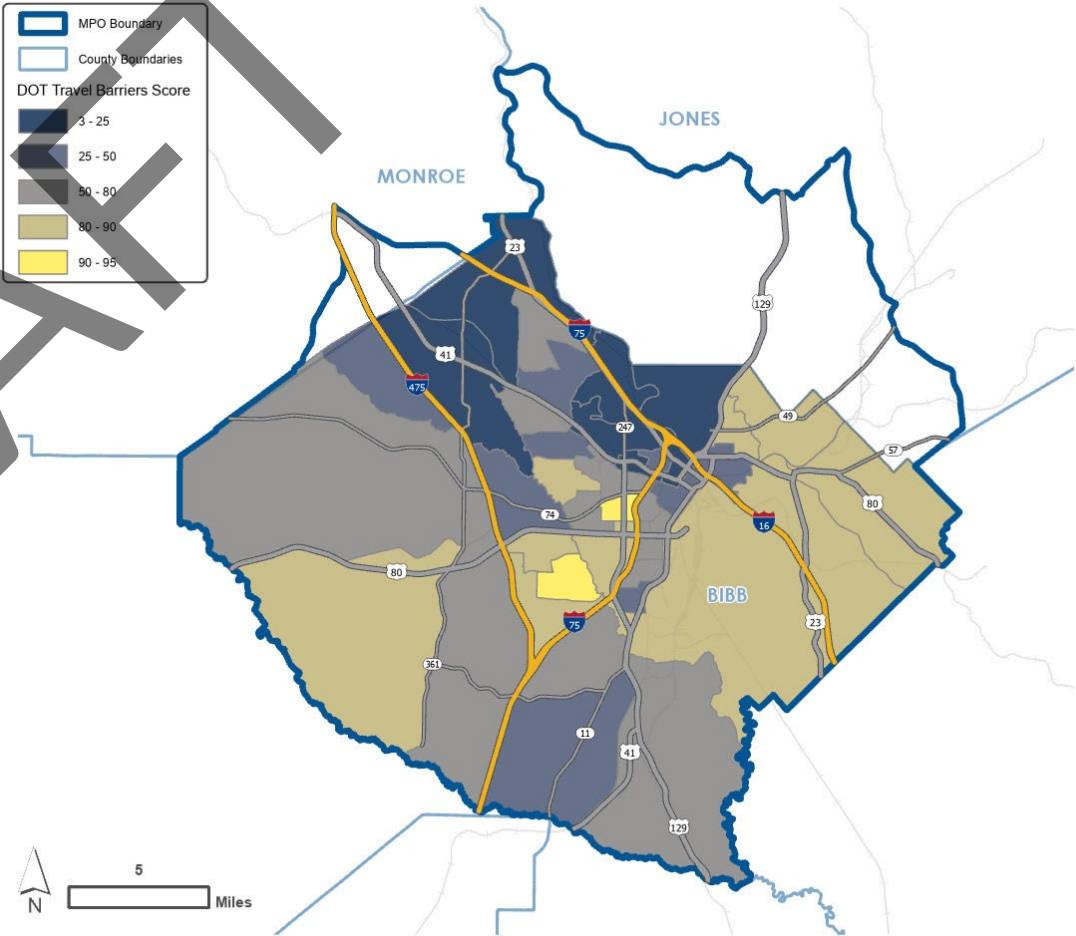
Transportation

TRAFFIC PROXIMITY & VOLUME
(Measure the count of vehicles per day divided by distance)



Data Source: EPA CEQ 2020

DOT TRAVEL BARRIER SCORES
(Communities with higher scores may experience longer commute & limited vehicle access.)

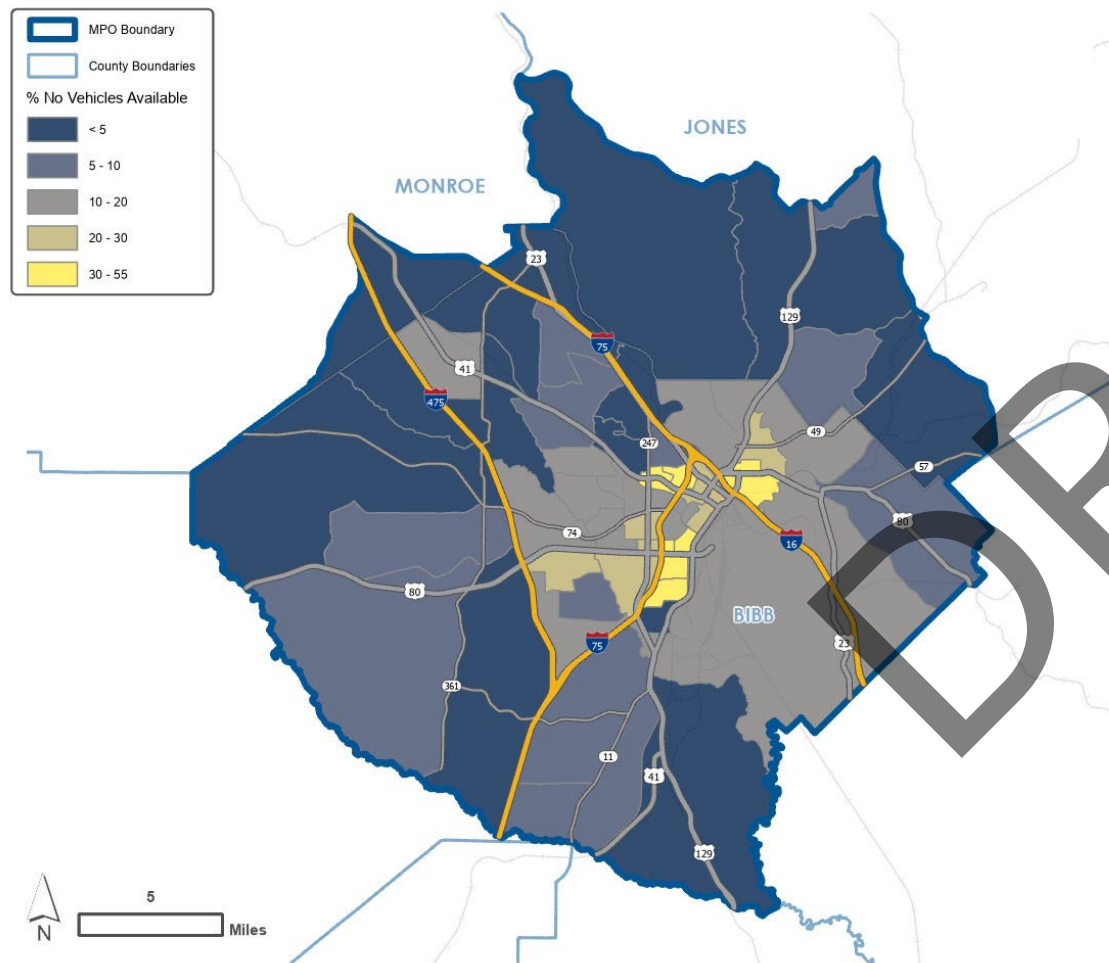


Data Source: EPA CEQ 2020

Transportation

% NO VEHICLE

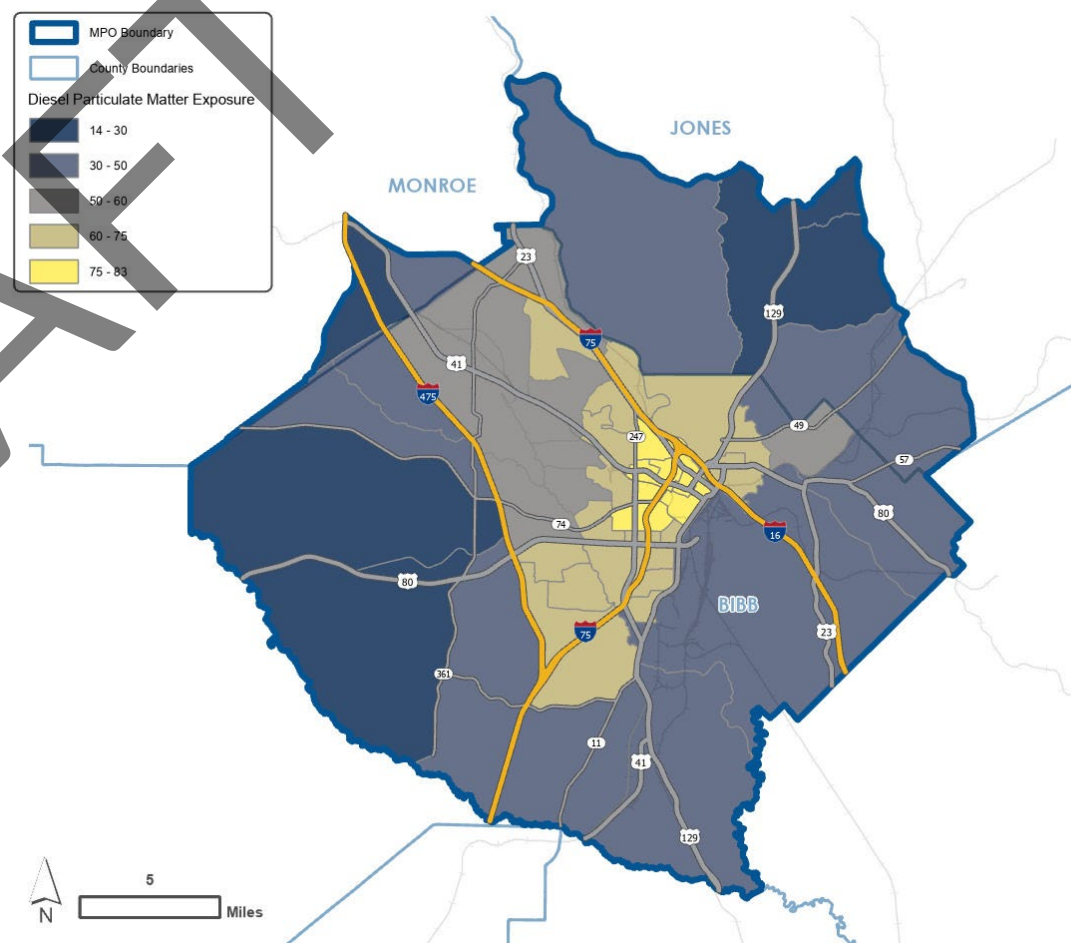
- USA: **8.45%**
- GA: **8.7%**
- MATS: **8.05%**



Data Source: US Census (ACS 2022)

DIESEL MATTER EXPOSURE

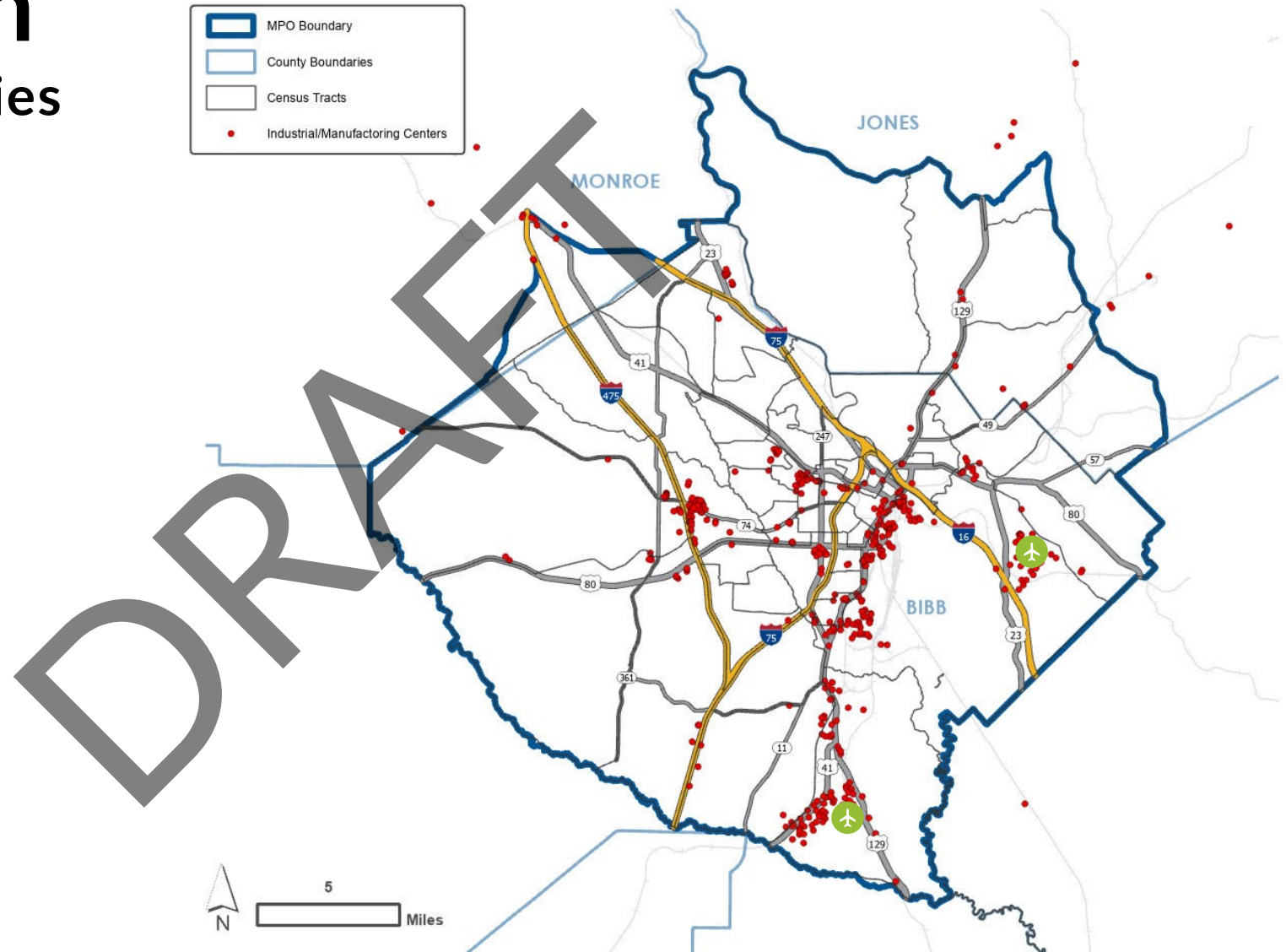
(Diesel particulate matter is listed as a mobile-source air toxic due to the health effects linked to exposure from vehicles.)



Data Source: EPA CEQ 2020)

Transportation

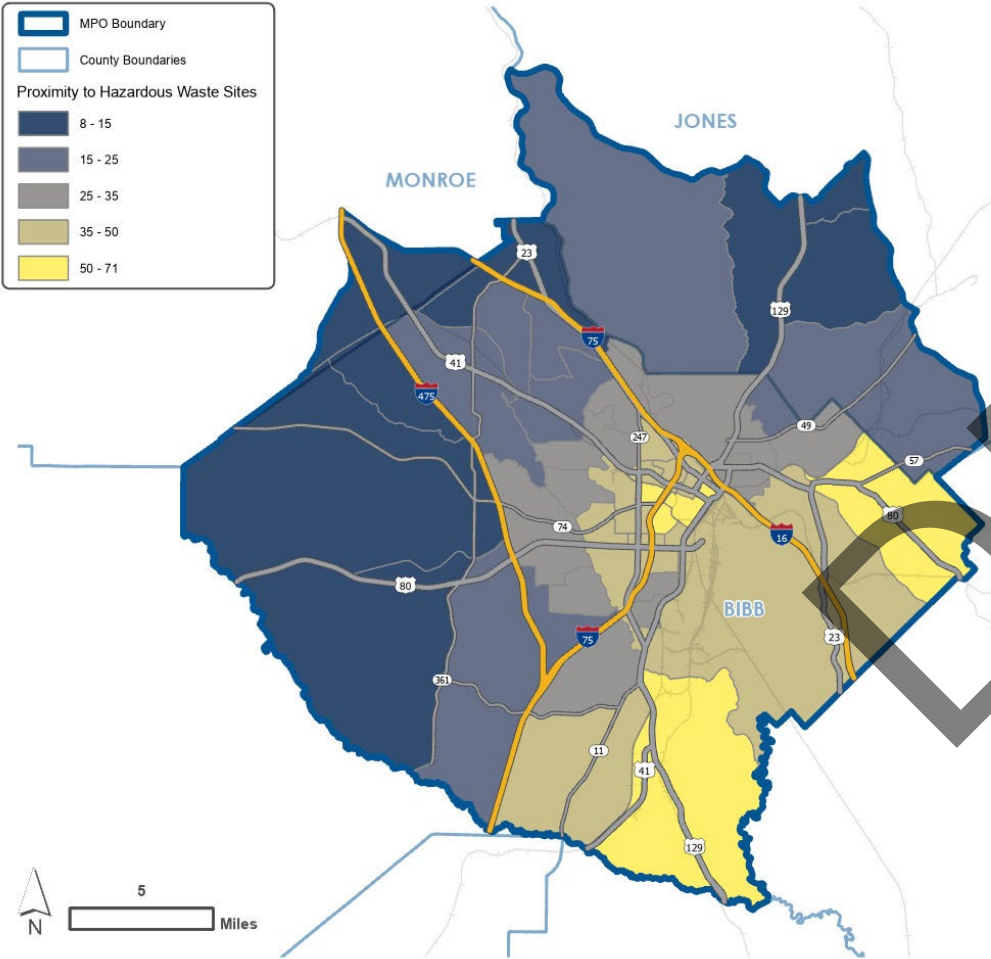
Freight Generating Facilities



Environment

HAZARDOUS WASTE EXPOSURE

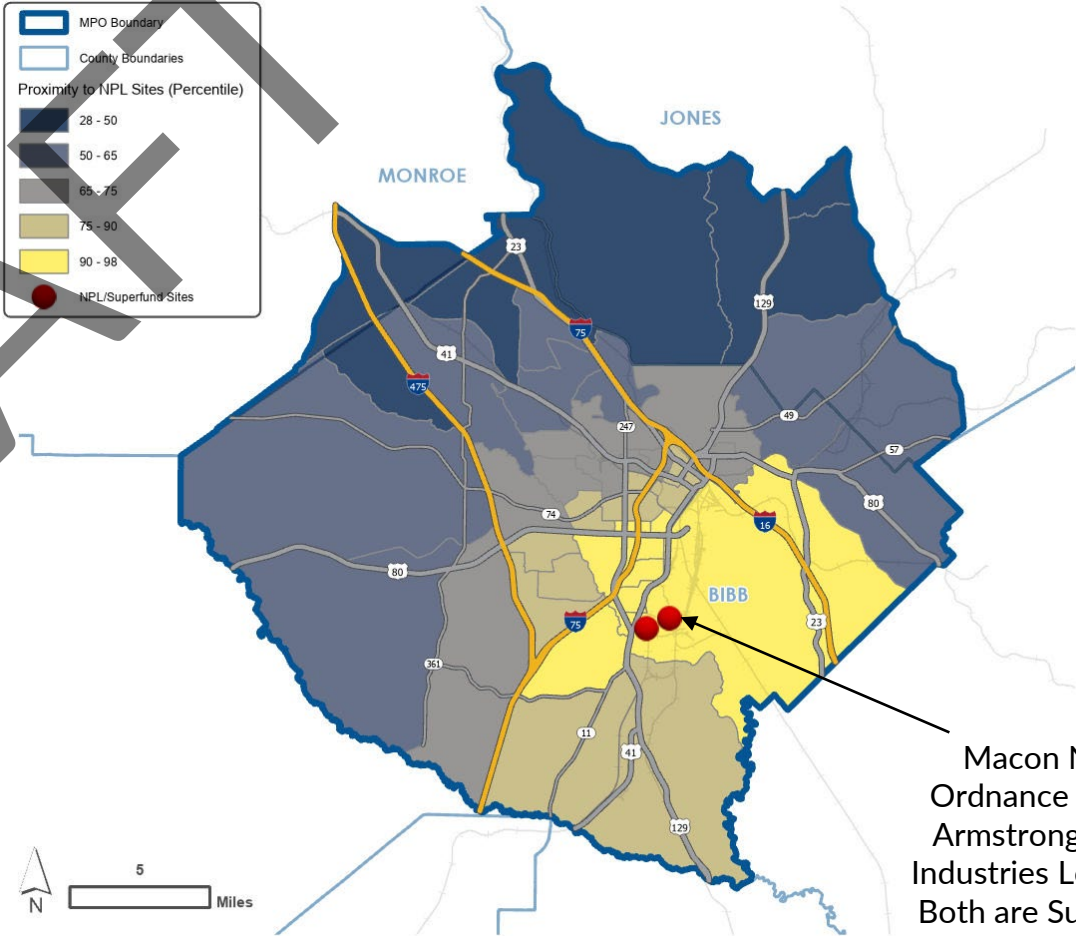
(Measures how close people might live to a facility that handles hazardous waste.)



Data Source: EPA CEQ 2020

NATIONAL PRIORITIES LIST (NPL/SUPERFUND) SITE EXPOSURE

(A location contaminated by toxic waste & designated by the EPA for prioritized cleanup.)



Data Source: EPA CEQ 2020

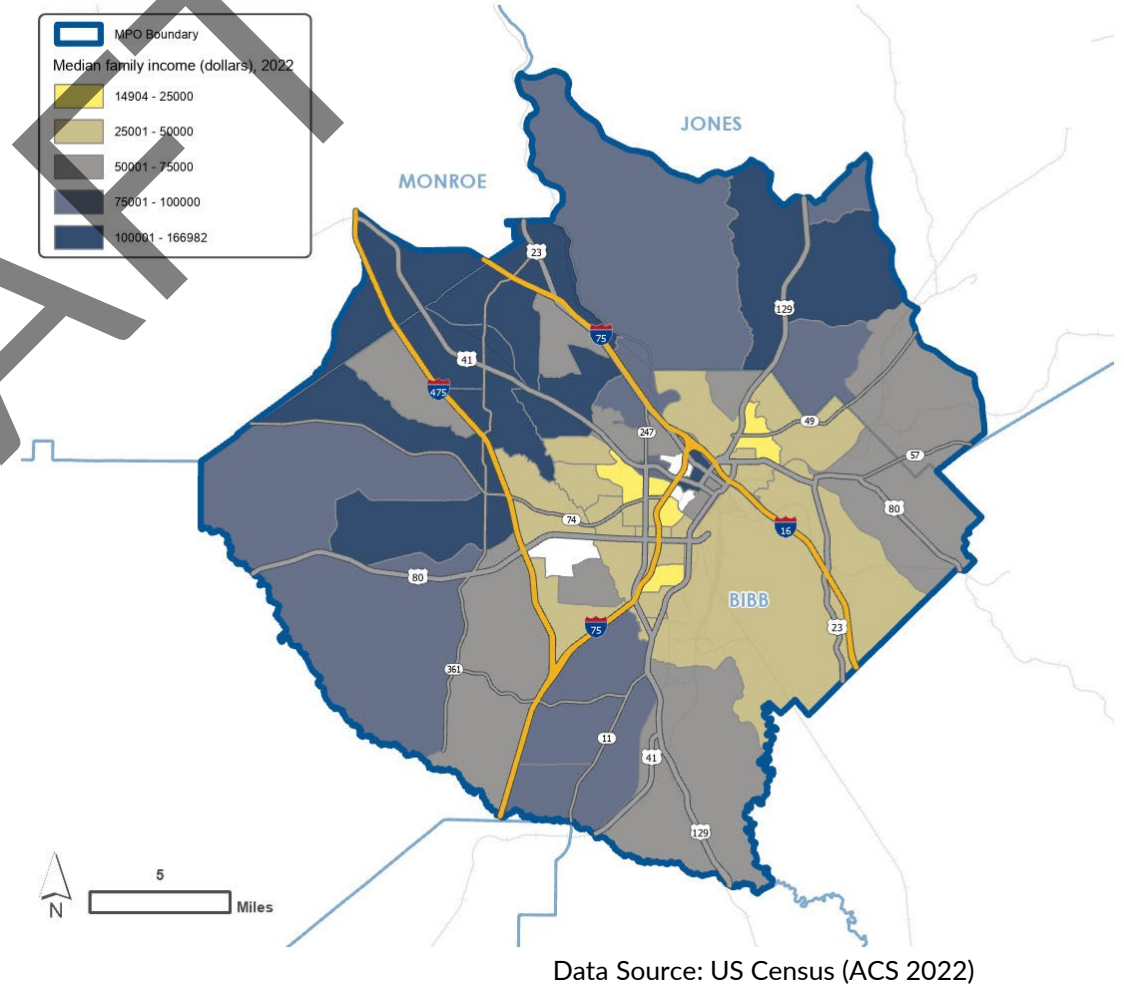
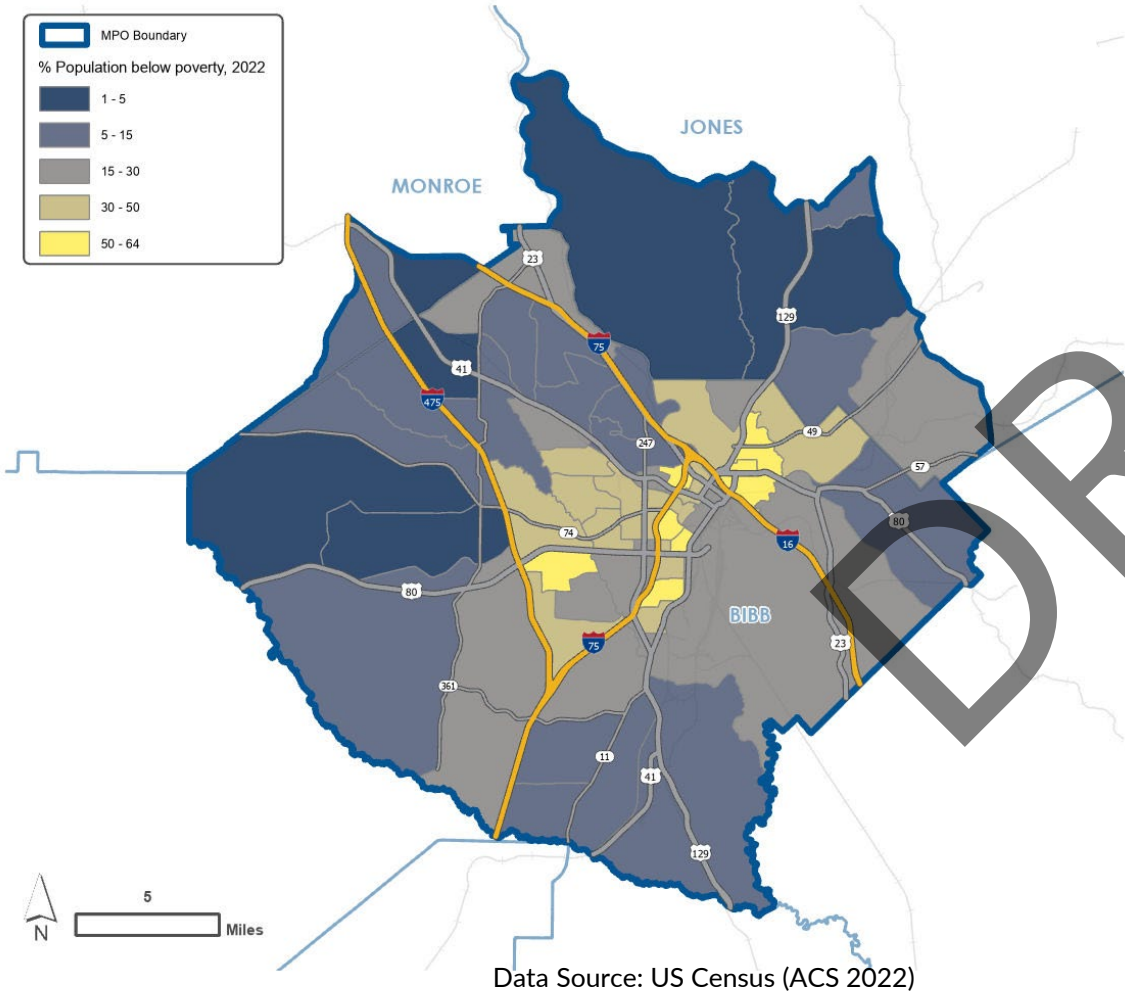
Economics

% BELOW POVERTY

- USA: **11.5%**
- GA: **12.7%**
- MATS: **23.5%**

MEDIAN FAMILY INCOME

- USA: **\$74,580**
- GA: **\$72,837**
- MATS: **\$47,625**



Initial Findings

Demographics/Race & Ethnicity:

Majority of Black-Americans reside in the downtown area, while many White-Americans reside on the periphery of the city core. Hispanics tend to live within the southern region of Bibb County with a high concentration along I-75.



Public Health:

Many tracts in Bibb Co. tend to have a greater percentage of disabled civilians than the national average of 13.3%. Interestingly, located north of the I-75/I-16 intersection. On the eastern side of the county along the southern I-16 route there is a tract with significantly lower life expectancy. Much of the downtown core fall within the 90th percentile of Adults with Asthma.



Transportation:

Along the downtown core we see many tracts that contain a high percentage of no access to vehicles and exposure to diesel particulate, as well as being in the highest percentile of proximity to traffic volume.



Environment:

Bibb Co. is the location for two National Priorities List (NPL/Superfund) Sites – the Macon Naval Ordnance Plant & the Armstrong World Industries site. The southeast of the county is at a higher percentage of proximity to hazardous waste.



Economics:

Many tracts in the downtown core are below the poverty line and contain higher percentages of unemployment. Interestingly, there are a line of tracts just south of downtown along the eastern edge of I-75 that contain a high percentage of owned houses valued at less than \$50,000. The average house today tends to be over \$400,000.

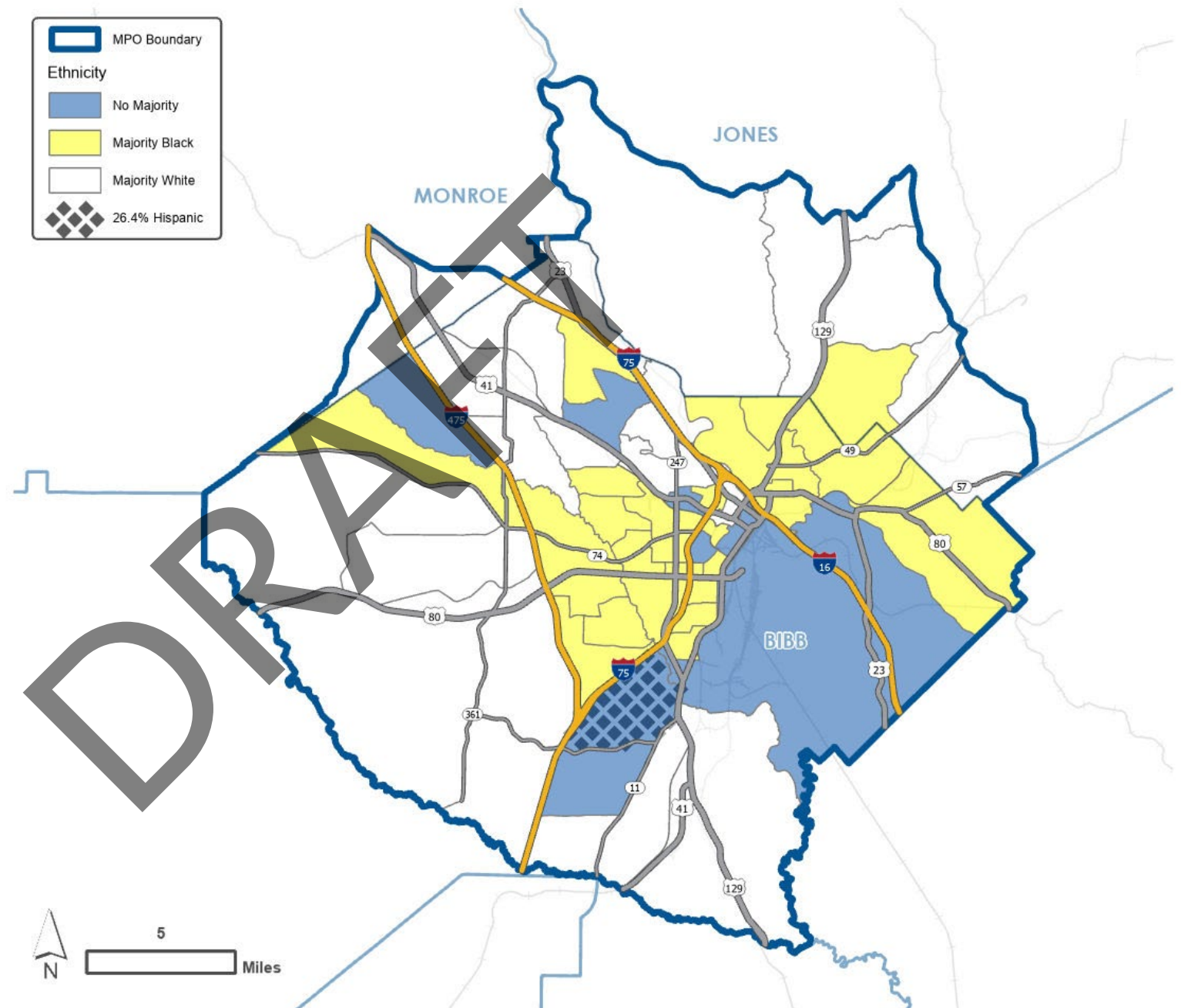


Phase 2: Tiered Measures

- Overlay datasets and perform analysis
- Tier the census tracts in each category (1=Low Impact, 2=Medium, and 3= High Impact)
- Select the areas that may experience the highest freight impacts - **currently in process**

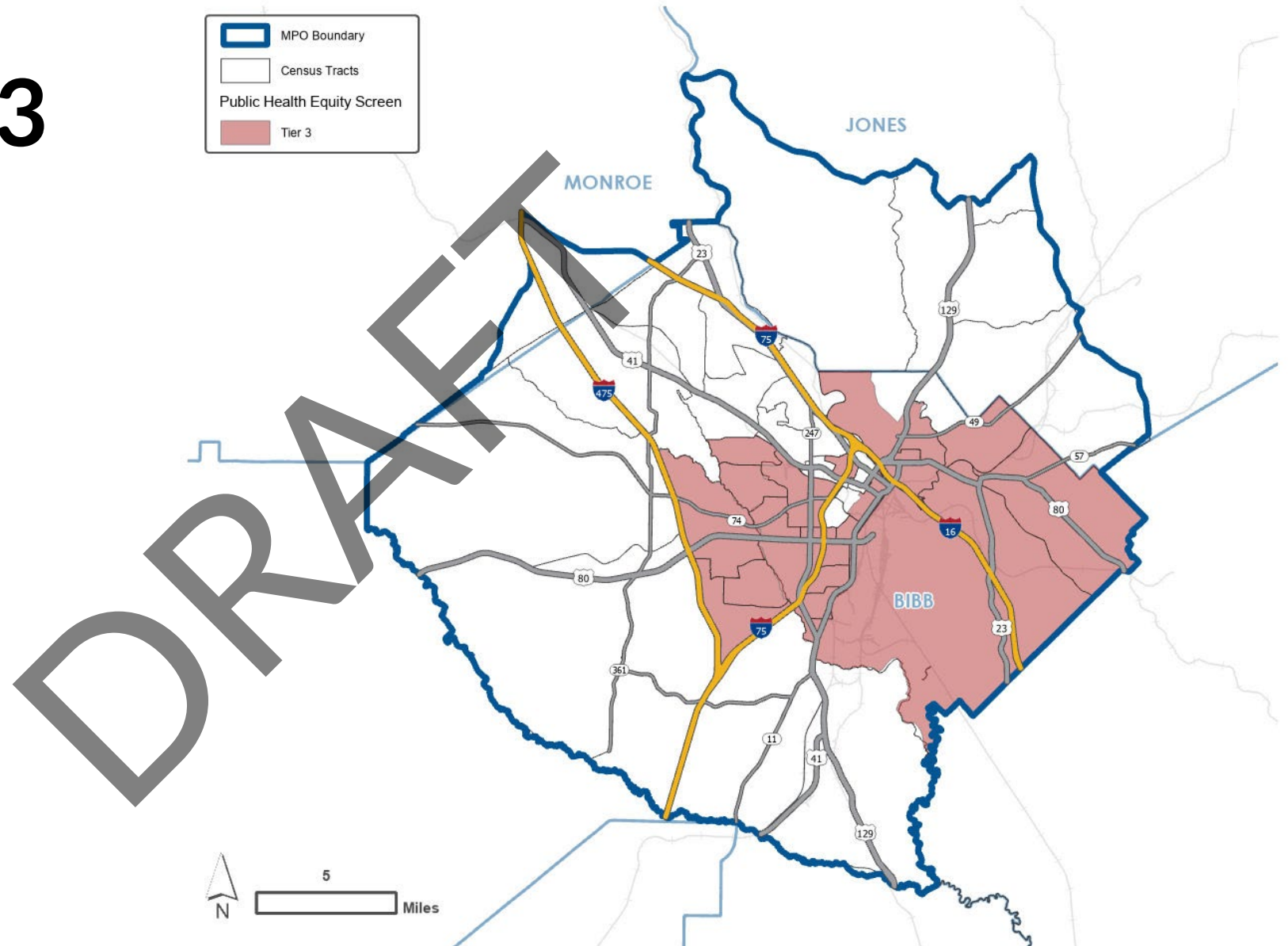
Race / Ethnicity

- No Majority
- Majority Black
- Majority White
- Census tract with a high Hispanic %



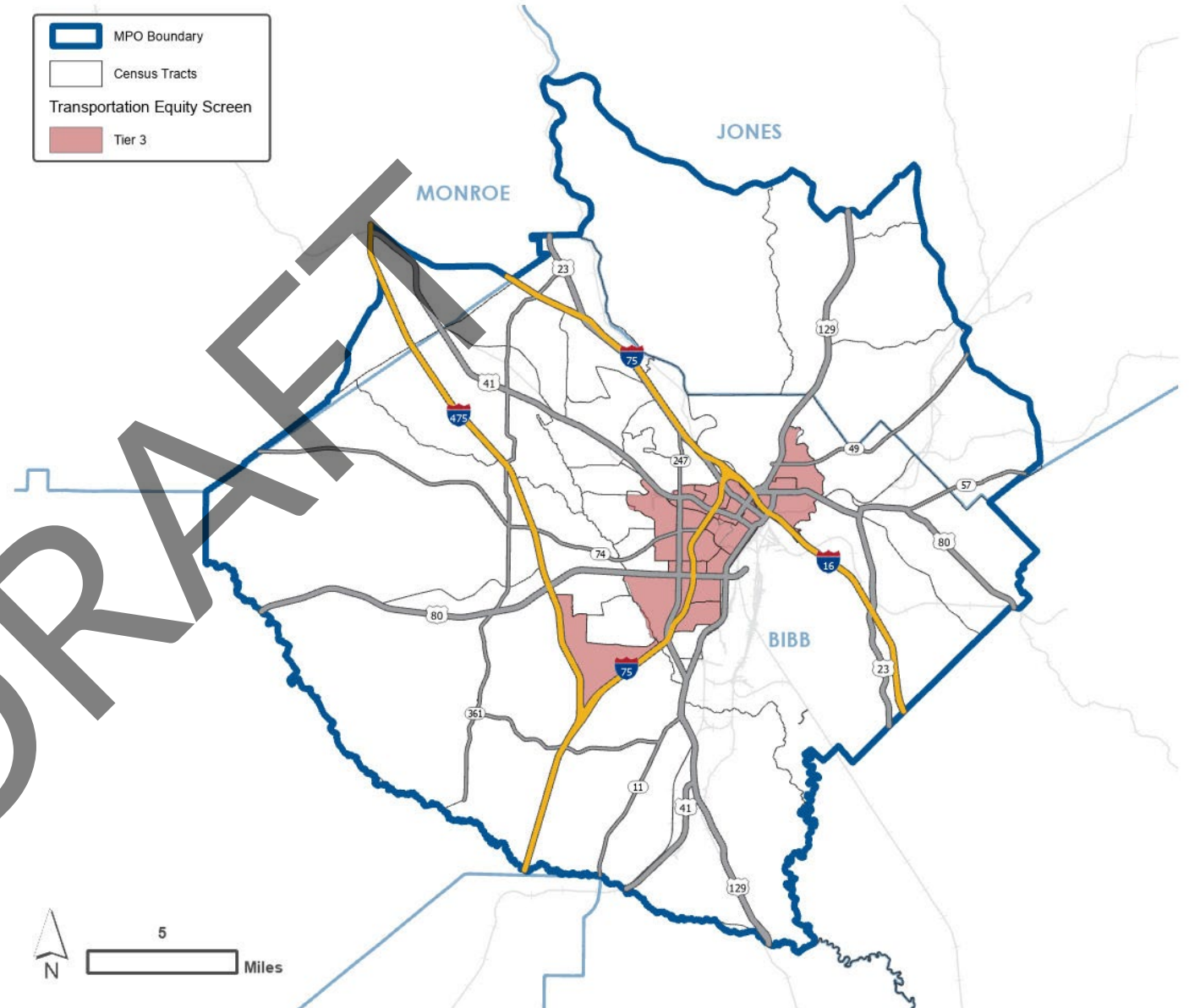
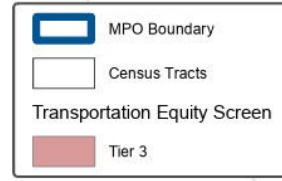
Public Health Metrics – Tier 3

- % Civilian w/ Disability
- Type 2 Diabetes Among Adults
- Cancer Prevalence
- Life Expectancy
- Asthma Among Adults



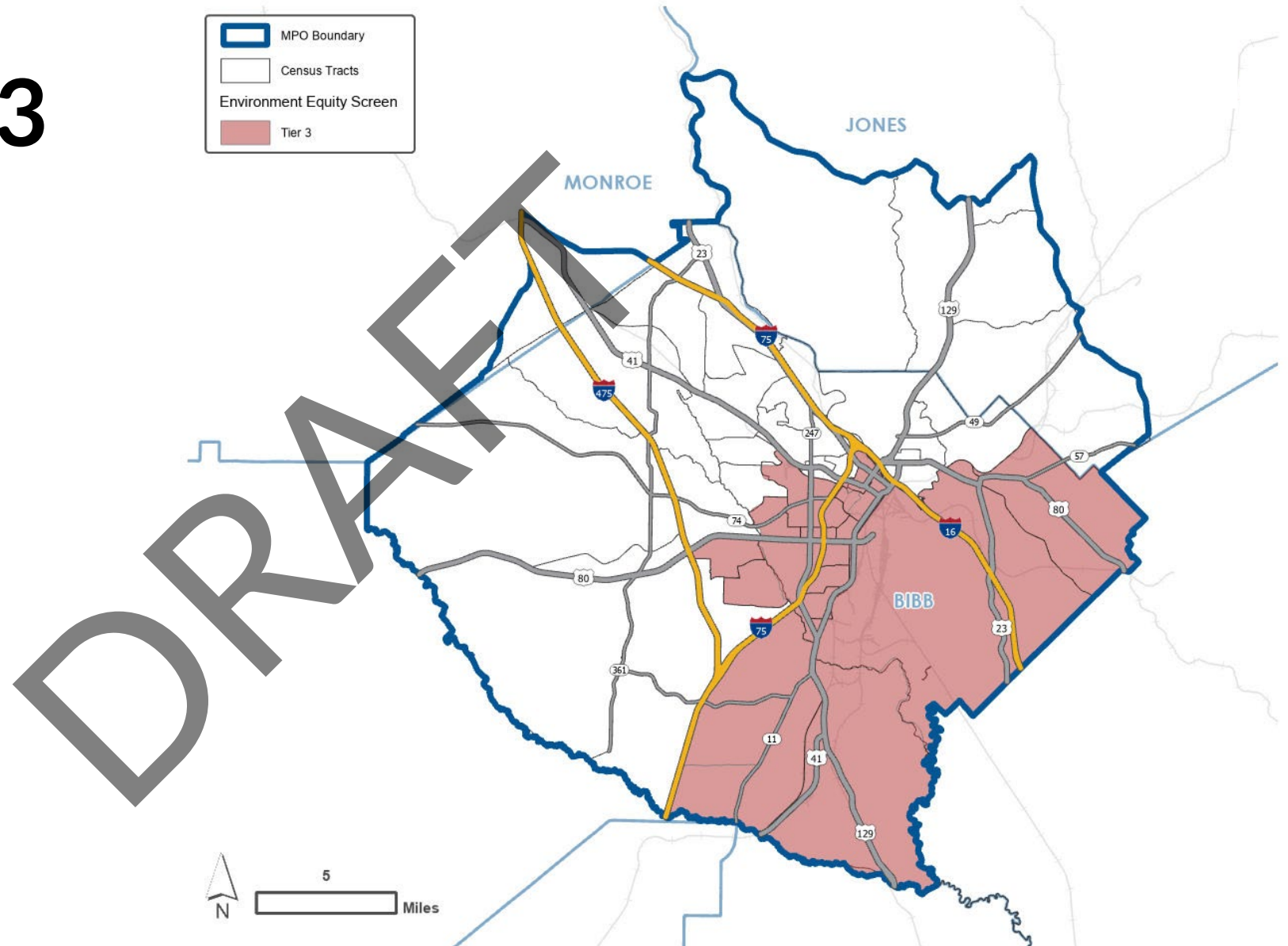
Transportation Metrics – Tier 3

- Traffic Proximity & Volume
- DOT Travel Barrier Scores
- Diesel Particulate Matter Exposure
- % No Vehicle Access



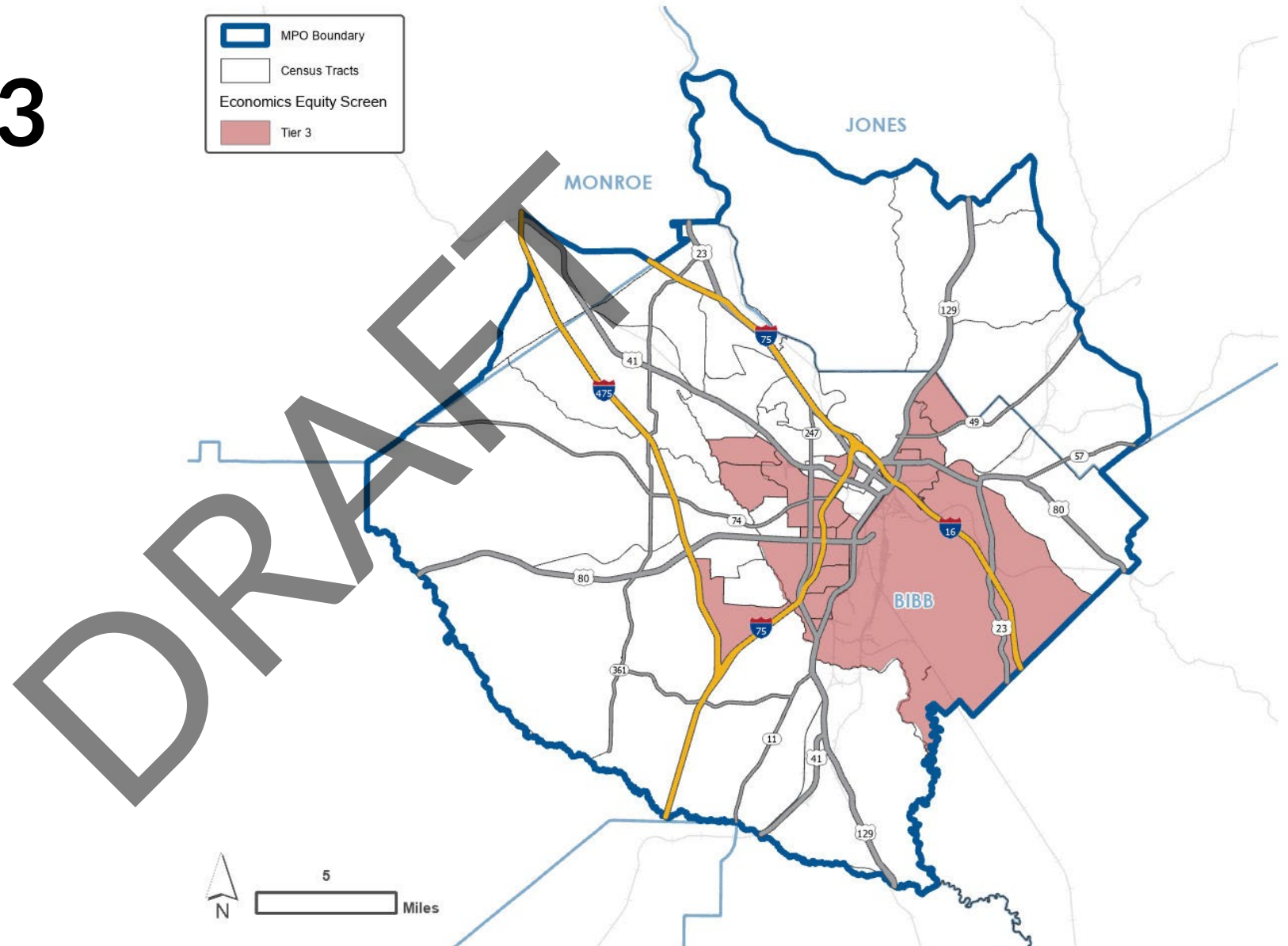
Environmental Metrics – Tier 3

- Proximity to Hazardous Exposure Sites
- Proximity to NPL/Superfund Sites



Economics Metrics – Tier 3

- % Unemployment
- % House Less Than 50k
- % Below Poverty
- Median Family Income



Potential Freight Mitigation Measures

- Separate incompatible land uses and cluster industrial uses
- Establish buffer zones and noise barriers (utilize green infrastructure)
- Restrict truck access to certain roads (or functional classifications)
- Reduce queuing/idling of trucks and trains where possible (scheduling facility appointments, establishing “no idle” zones)
- Use signage to identify most efficient freight routes and minimize unnecessary truck travel
- Retrofit equipment with cleaner technologies and promote the usage of cleaner fuels
- Utilize emerging technologies (signal priority, auxiliary power units, and adaptive traffic control systems) where appropriate

Columbus, GA (Peer Region)

- **Freight density mapping**
 - Identify and forecast primary freight corridors/flows
 - Identify potential bottlenecks and specific network constraints
- **Efficient travel and land use patterns that generate less congestion**
 - Parking management
 - Land use or zoning controls
 - Clustering land uses
- **Operating existing capacity more efficiently**
 - Access management
 - Geometric improvements to roads
 - Optimization and synchronization of traffic signal timing
- **Increasing base capacity**
 - Adding freight only lanes
 - Redesigning bottlenecks and intersections to increase capacity
- **Implementation of Intelligent Transportation Systems (ITS)**
- **Identification and upgrade of high-volume, high-risk rail crossings**



Additional Discussion & Next Steps

Next Steps

- Wrap up Freight Needs Assessment
- Prepare 2nd technical memo – Land Use, Community and Environmental Impact Assessment, and Economic Development Market Assessment
- Begin assessment of system vulnerabilities and resiliency strategies
- Start developing potential recommendations

Next Stakeholder Committee Meeting:

- *Tentatively ... Early December?*
- *Could also be in January...*

Thank you

Erin Thoresen, AICP – Consultant Project Manager

erin.thoresen@greshamsmith.com

Mike Greenwald – MPO Technical Coordinator

mgreenwald@mbpz.org

Lauren Leary – Spatial Plans, Founder & Principal Planner

lauren@spatialplans.com