

# Greensboro Urban Area MPO



**Technical Coordinating Committee  
January 22, 2020**



***P L E A S E . . .***

**Set all cellular phones and  
electronic devices to “silent” mode.**

**Thank You!**

# Action Items

**January 22, 2020**

*Action Business Other*



## **TECHNICAL COORDINATING COMMITTEE**

**Minutes of November 13, 2019**

**10:30 a.m., Greensboro, NC**

**Third Floor, GDOT Conference Room**

**Melvin Municipal Office Building**

### **Attendance**

Tyler Meyer	<i>GDOT/MPO</i>	Elizabeth Jernigan	<i>GSO Parks and Recreation</i>
Craig McKinney	<i>GDOT/MPO</i>	Stephen Robinson	<i>NCDOT Division 7</i>
Lydia McIntyre	<i>GDOT/MPO</i>	Mark Kirstner	<i>PART</i>
Tram Truong	<i>GDOT/MPO</i>	Scott Whitaker	<i>Summerfield</i>
Yuan Zhou	<i>GDOT/MPO</i>	Sean Taylor	<i>Oak Ridge</i>
Chandler Hagen	<i>GDOT/MPO</i>	Michael Abuya	<i>NCDOT TPD</i>
Gray Johnston	<i>GDOT/GTA</i>	Joe Geigle	<i>FHWA</i>
George Linney	<i>GTA</i>		

***Tyler Meyer called the meeting to order at approximately 10:37 AM.***

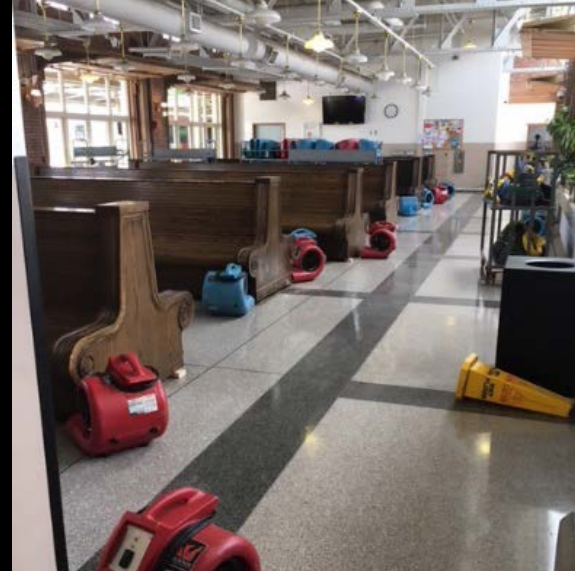


# MTIP Amendment: Statewide Project R-5966

ID #	DESCRIPTION	FUNDS	PHASE	FY 2020
<u>TD-5279</u>	<u>Various, Tribal Transportation</u>	<u>FTTP</u>	<u>CST</u>	<u>\$2,275,000</u>
	<u>Statewide</u>			

- Statewide projects enable eligible small-scale work at eligible locations anywhere in the state
- MTIPs should match STIP for consistent statewide project listings, even for statewide project that will not be used in the MPO area
- R-5966 is a statewide project to improve access to tribal lands
- There are no tribal lands in the Greensboro MPO Area
- Project addition needed for administrative consistency

# MTIP Amendment: TD-5279 Galyon Depot Renovations



- Depot Renovation project out for bids soon
- July rainstorm made clear roof replacement needs to be included
- November MTIP amendment added federal and local funding needed to incorporate roof replacement into TD-5279
- NCDOT agreed to increase its share to match the City's – BOT approval February 6

# MTIP Amendment: TD-5279 Galyon Depot Renovations

**Current MTIP** (*strikethrough text reflects needed changes*)

ID #	DESCRIPTION	FUNDS	PHASE	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
TD-5279	Renovation of J. Douglas Galyon Depot.	FBUS	CST		\$1,489,000				
		L	CST		\$373,000				
		T	CST		<del>\$270,000</del>				

**Proposed MTIP:** (*Underlined text for proposed changes or additions*)

ID #	DESCRIPTION	FUNDS	PHASE	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
TD-5279	Renovation of J. Douglas Galyon Depot.	FBUS	CST		\$1,489,000				
		L	CST		\$373,000				
		T	CST		<u>\$373,000</u>				

Action    Business    Other

**Recommended Action:** Amend MTIP



# MTIP Amendment: TA-6732 PART Replacement Buses



- PART applied for & was awarded a \$6.8 million discretionary Section 5339 grant late last year
- 14 buses, 6 paratransit style vehicles, and 25 vanpool vehicles will be replaced between 2020-2022

ID #	DESCRIPTION	FUNDS	PHASE	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
TA-6732	Replacement and Expansion	FBUS		\$6,780,000					
	Fleet Vehicles	L		\$1,695,000					

# MTIP Amendment: EB-6037C

## A&Y & Downtown Greenway Phase 4





# MTIP Amendment: EB-6037C A&Y Greenway & Downtown Greenway Phase 4

**CITY OF GREENSBORO  
ENGINEERING & INSPECTIONS DEPARTMENT  
ENGINEERING DIVISION**

**DOWNTOWN GREENWAY PHASE 4 & A&Y GREENWAY  
CITY PROJECT NOS. P-05645-04 & P-05644A-04**

LIMITS: FROM SPRING GARDEN STREET TO  
NORTH OF BENJAMIN PARKWAY

**VOLUME 1 OF 4**

**INDEX OF SHEETS**

SHEET NO.	DESCRIPTION
101	TITLE SHEET
102	GENERAL NOTES
103	EXISTING CONDITIONS
104	PROPOSED CONDITIONS
105	CONSTRUCTION DETAILS
106	CONSTRUCTION DETAILS
107	CONSTRUCTION DETAILS
108	CONSTRUCTION DETAILS
109	CONSTRUCTION DETAILS
110	CONSTRUCTION DETAILS
111	CONSTRUCTION DETAILS
112	CONSTRUCTION DETAILS
113	CONSTRUCTION DETAILS
114	CONSTRUCTION DETAILS
115	CONSTRUCTION DETAILS
116	CONSTRUCTION DETAILS
117	CONSTRUCTION DETAILS
118	CONSTRUCTION DETAILS
119	CONSTRUCTION DETAILS
120	CONSTRUCTION DETAILS

**STANDARD TOPO SYMBOLS**

**ENGINEER**  
**Kimley»Horn**

**DATE:** JUNE 13, 2019

**Current MTIP for EB-6037**

ID #	DESCRIPTION	FUNDS	PHASE	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
EB-6037	Rails to Trails, Statewide	TALTS	R/W	\$8,000,000	\$2,000,000				
		L	R/W	\$2,000,000	\$500,000				
		L	CST						\$10,000,000

**Proposed MTIP for EB-6037C**

ID #	DESCRIPTION	FUNDS	PHASE	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
EB-6037C	A&Y Greenway and Downtown	TAANY	CST			\$1,400,000			
	Greenway Ph 4, Spring Garden St to Benjamin Pkwy. Construct Multiuse Path.	L	CST			\$1,100,000			

Action Business Other

**Recommendation: Amend MTIP**



# TRANSIT RESOURCE ALLOCATION PLAN FY 2020-2022

## Transit Resource Allocation Plan Update



Action Business Other

## RESOLUTION TO APPROVE TRANSIT RESOURCE ALLOCATION PLAN

FY 2020-2022

A motion was made by TAC Member \_\_\_\_\_ and seconded by TAC Member \_\_\_\_\_ for the adoption of the following resolution and upon being put to a vote was duly adopted.

WHEREAS, the Greensboro Urban Area MPO has established a Transit Resource Allocation Plan to guide the disbursement of federal transit formula funds between eligible recipients in the MPO area; AND

WHEREAS, the plan has been developed in consideration of transit system characteristics, ridership numbers, existing agreements, five year budgets, available funding sources, and other information; AND

WHEREAS, this plan has been in effect since 2017, with updates in 2019; AND

WHEREAS, the MPO has determined to update the plan at this time to cover fiscal years FY 2020-2022; AND

WHEREAS, the MPO has established the intention of updating this plan every three years,

**NOW THEREFORE** be it resolved, by the Greensboro Urban Area Transportation Advisory Committee, to approve the Greensboro Urban Area Transit Funding Allocation Plan FY 2020-2022, dated January 22, 2020, on this day January 22, 2020.

# 2020 Safety Performance Measure Targets

## RESOLUTION ENDORSING TARGETS FOR SAFETY PERFORMANCE MEASURES ESTABLISHED BY NCDOT

A motion was made by TAC Member \_\_\_\_\_ and seconded by TAC Member \_\_\_\_\_ for adoption of the following resolution, which upon being put to a vote was duly adopted.

**WHEREAS**, the Greensboro MPO has been designated by the Governor of the State of North Carolina as the Metropolitan Planning Organization (MPO) responsible, together with the State, for the comprehensive, continuing, and cooperative transportation planning process for the MPO's metropolitan planning area; and;

**WHEREAS** the Highway Safety Improvement Program (HSIP) final rule (23 CFR Part 490) requires States to set targets for five safety performance measures annually, by August 31, and;

**WHEREAS**, the North Carolina Department of Transportation (NCDOT) has established targets for five performance measures based on five year rolling averages for: (1) Number of Fatalities, (2) Rate of Fatalities per 100 million Vehicle Miles Traveled (VMT), (3) Number of Serious Injuries, (4) Rate of Serious Injuries per 100 million VMT, and (5) Number of Non-Motorized (bicycle and pedestrian) Fatalities and Non-motorized Serious Injuries, and;



# 2020 Safety Performance Measure Targets

Safety Performance Measures	5-year Rolling Averages				
	Baseline (Actual)			Target	
	2012-2016	2013-2017	2014-2018	2015-2019	2016-2020
Number of Fatalities	1,340.60	1,362.80	1,396.40	1,214.70	1,227.80
Fatality Rate	1.228	1.216	1.217	1.097	1.084
Number of Serious Injuries	2,399.80	2,865.20	3,362.20	2,490.60	2,812.80
Serious Injury Rate	2.191	2.528	2.904	2.228	2.462
Number of NonMotorized Fatalities and Serious Injuries	438.8	457	494.8	403.7	494.6

**Recommendation:** Approve Resolution

Action Business Other

# Business Items

*Action*   *Business*   *Other*

# Revised MPO Meeting Schedule



## 2020 MPO Meeting Schedule

Technical Coordinating Committee (TCC) 10:30 am - 12:00 pm

Transportation Advisory Committee (TAC) 2:00 pm - 4:00 pm

<b>Wednesday, January 22</b>	<b>Wednesday, July 22</b>
<b>Wednesday, February 26</b>	<b>Wednesday, August 19*</b>
<b>Wednesday, April 15*</b>	<b>Wednesday, September 23</b>
<b>Wednesday, May 20*</b>	<b>Wednesday, November 18*</b>
<b>Wednesday, June 24</b>	<b>Wednesday, December 9*</b>

*\* Meeting not held on the usual fourth Wednesday to avoid schule conflicts.*

# Piedmont Triad Regional Modeling Program

## A General Overview

Mark E. Kirstner, AICP  
Director of Planning

John Kim, PhD  
Regional Transportation Modeler

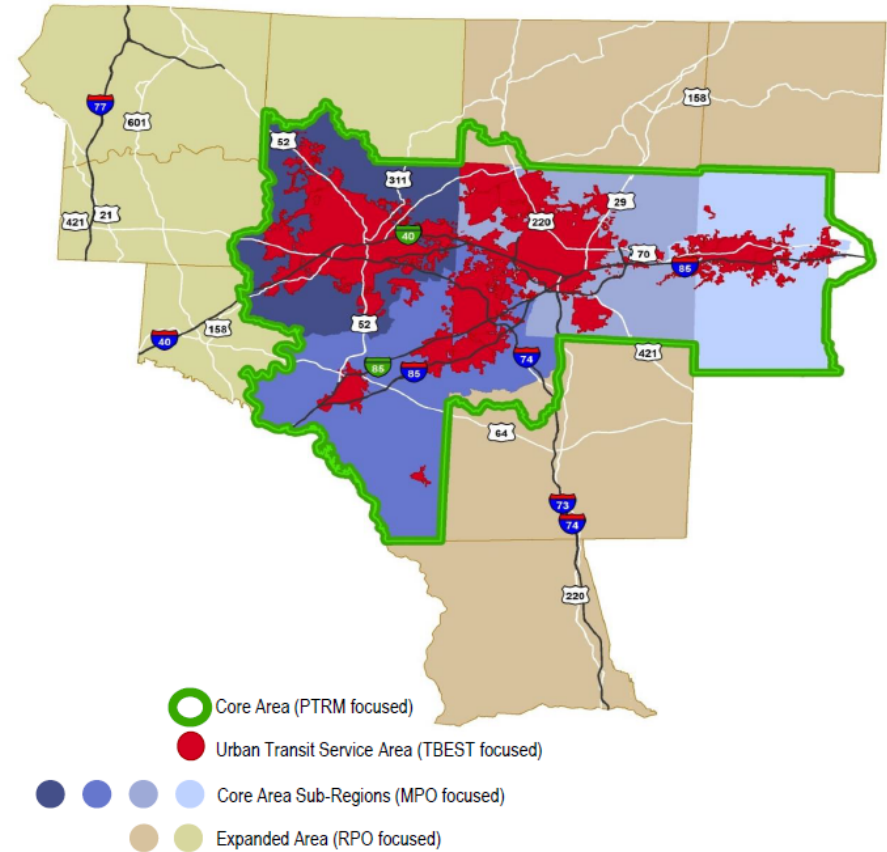


*Piedmont Triad*  
*Regional Model*



# We will cover...

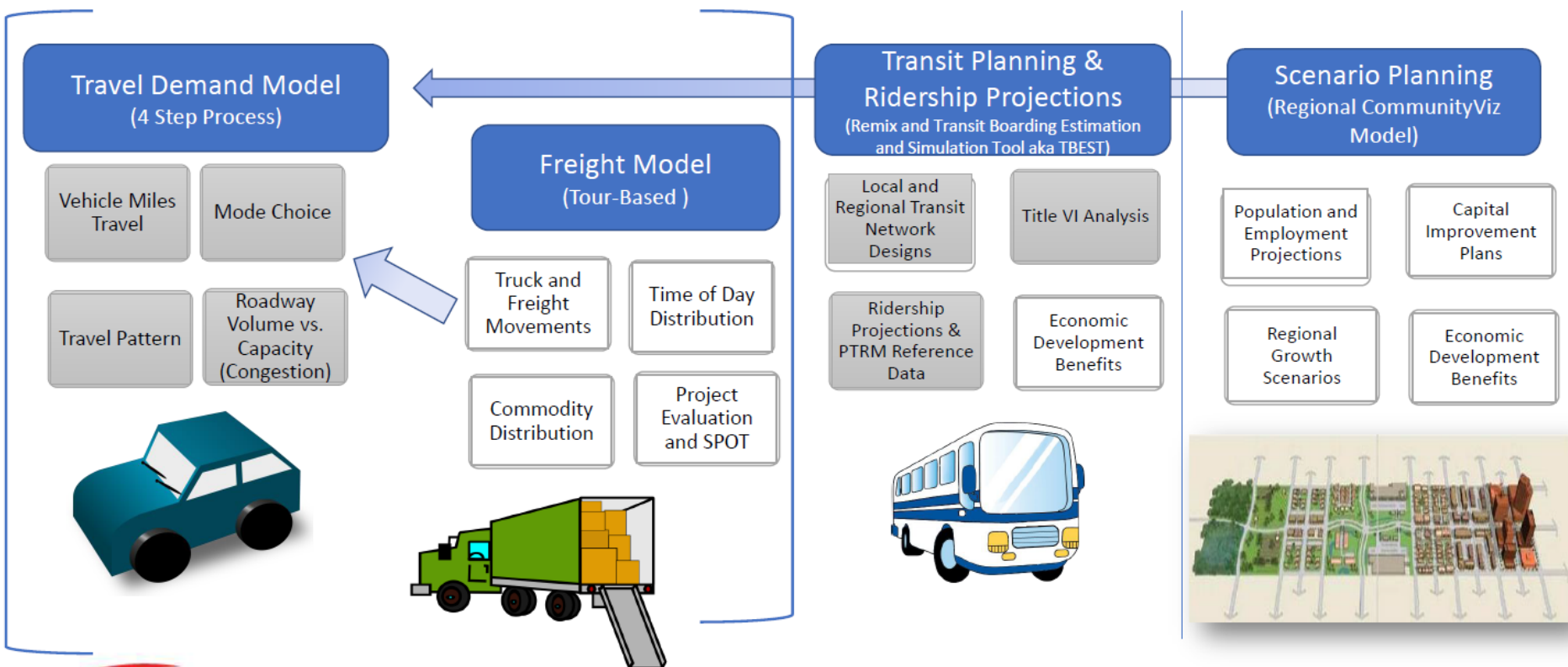
- What the program consists of
- Why do we have a Travel Demand Model
- How the Travel Demand Model works
- Integrating Land Use and Transportation Planning
- A Brief History and What's Next



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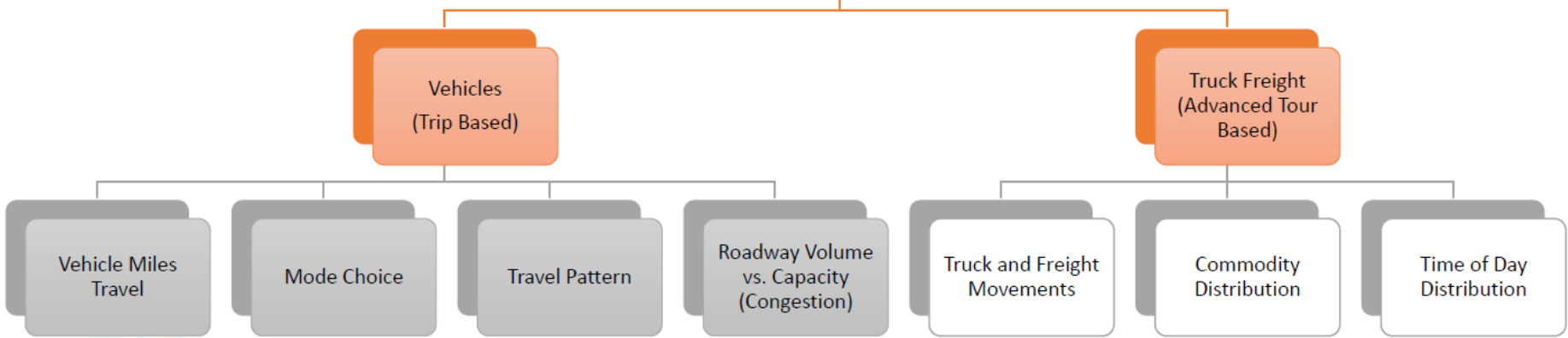
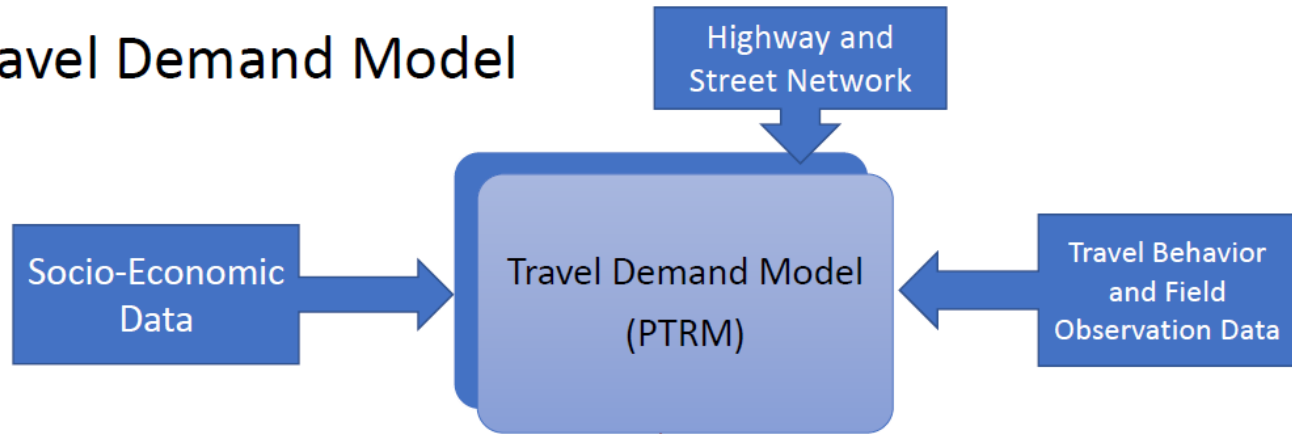
# Piedmont Triad Regional Modeling Program



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# Regional Travel Demand Model



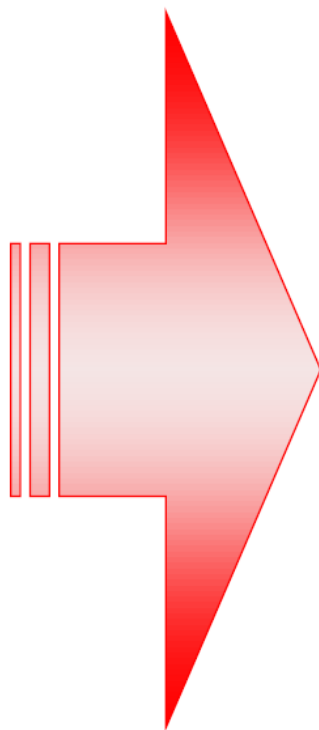
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# Users and Uses

- MPO's
- NCDOT
  - Transportation Planning Division
  - Program Development
  - Division Offices
- Consultants



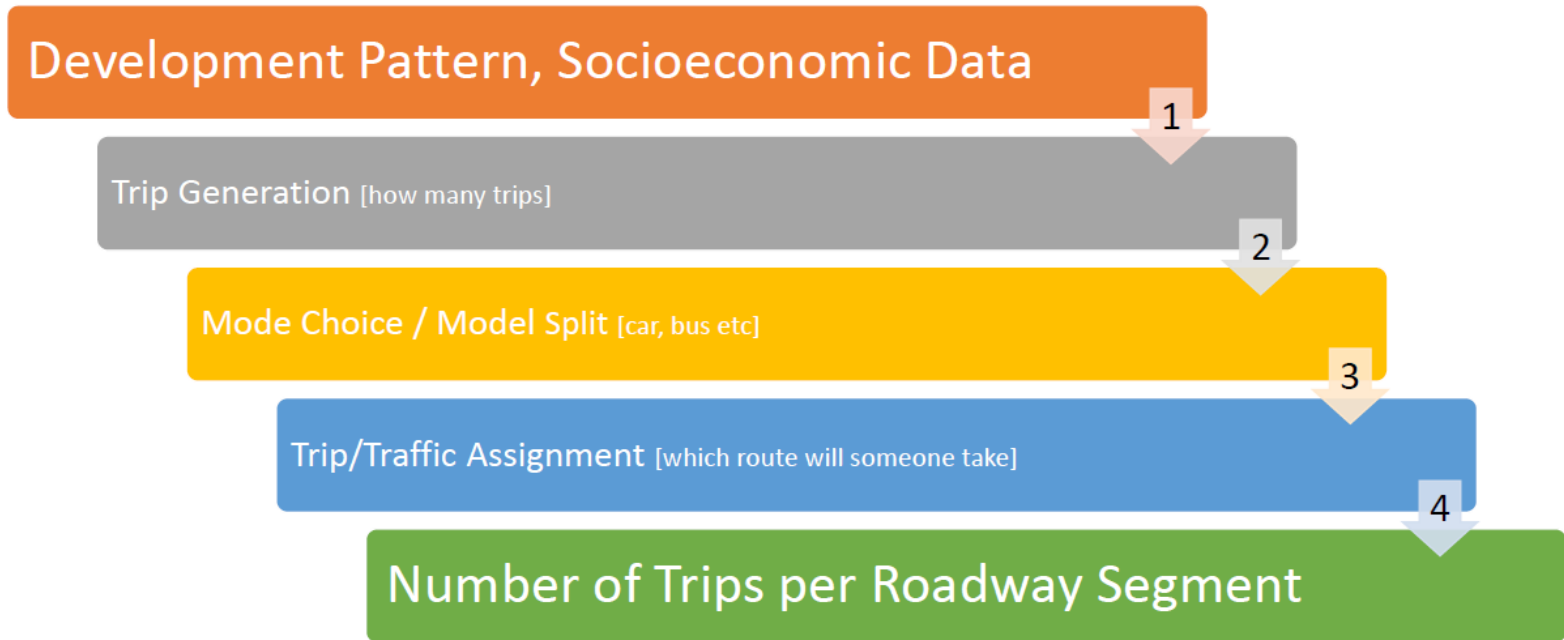
- Metropolitan Transportation Plans
- Project Studies and Evaluations
- SPOT Process (MTIP and STIP)
- Congestion Management
- Scenario Planning
- Intelligent Highway Technology Deployment

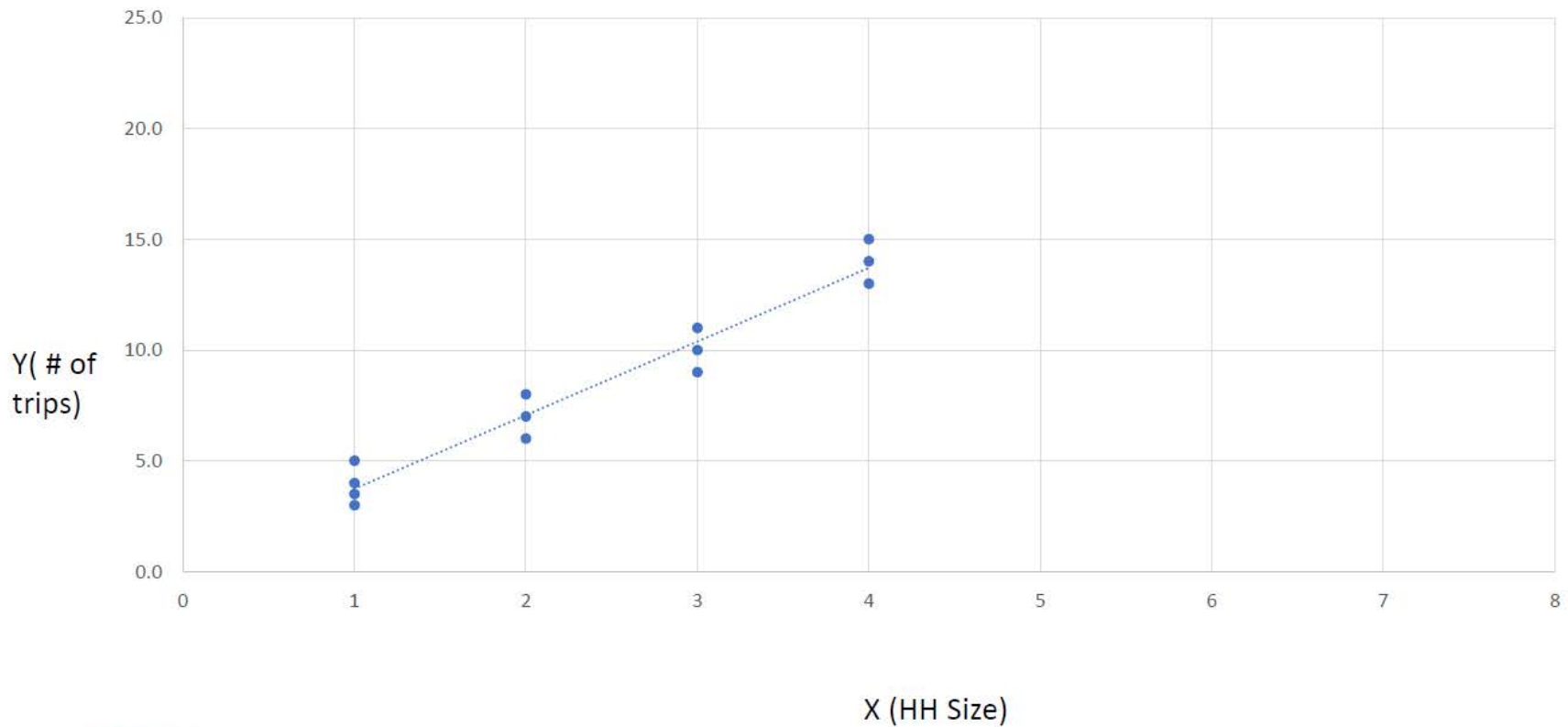


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# The Four Step Travel Demand Model Structure

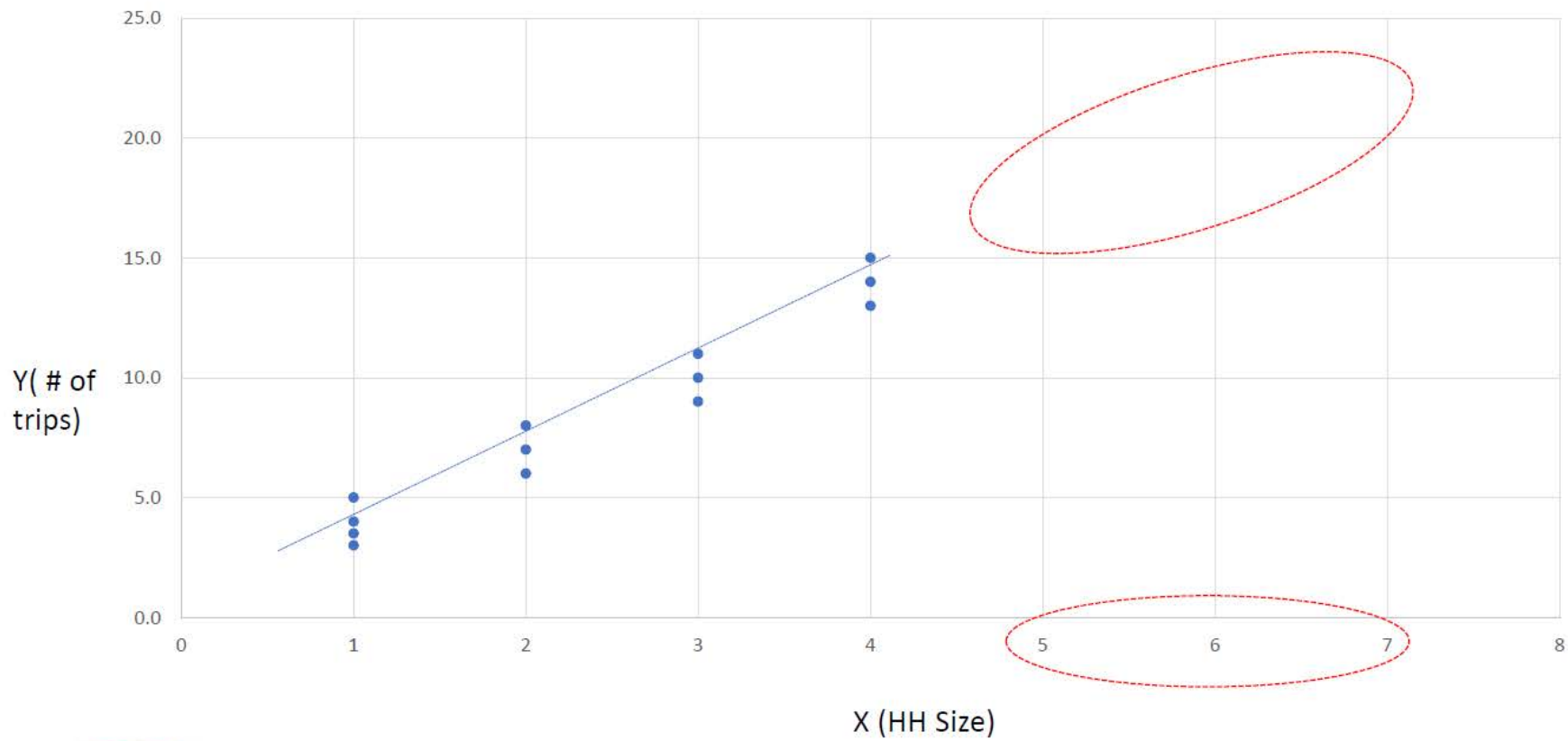




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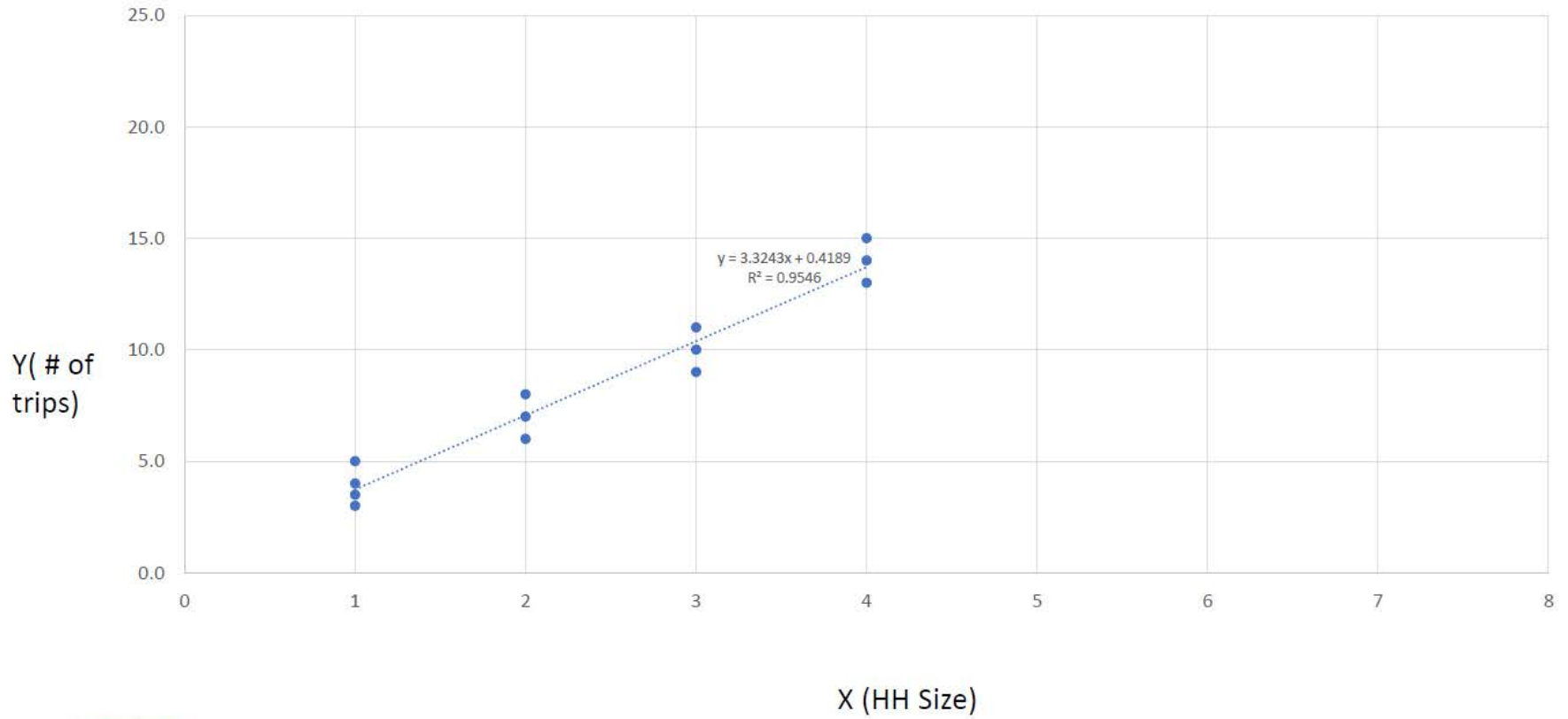
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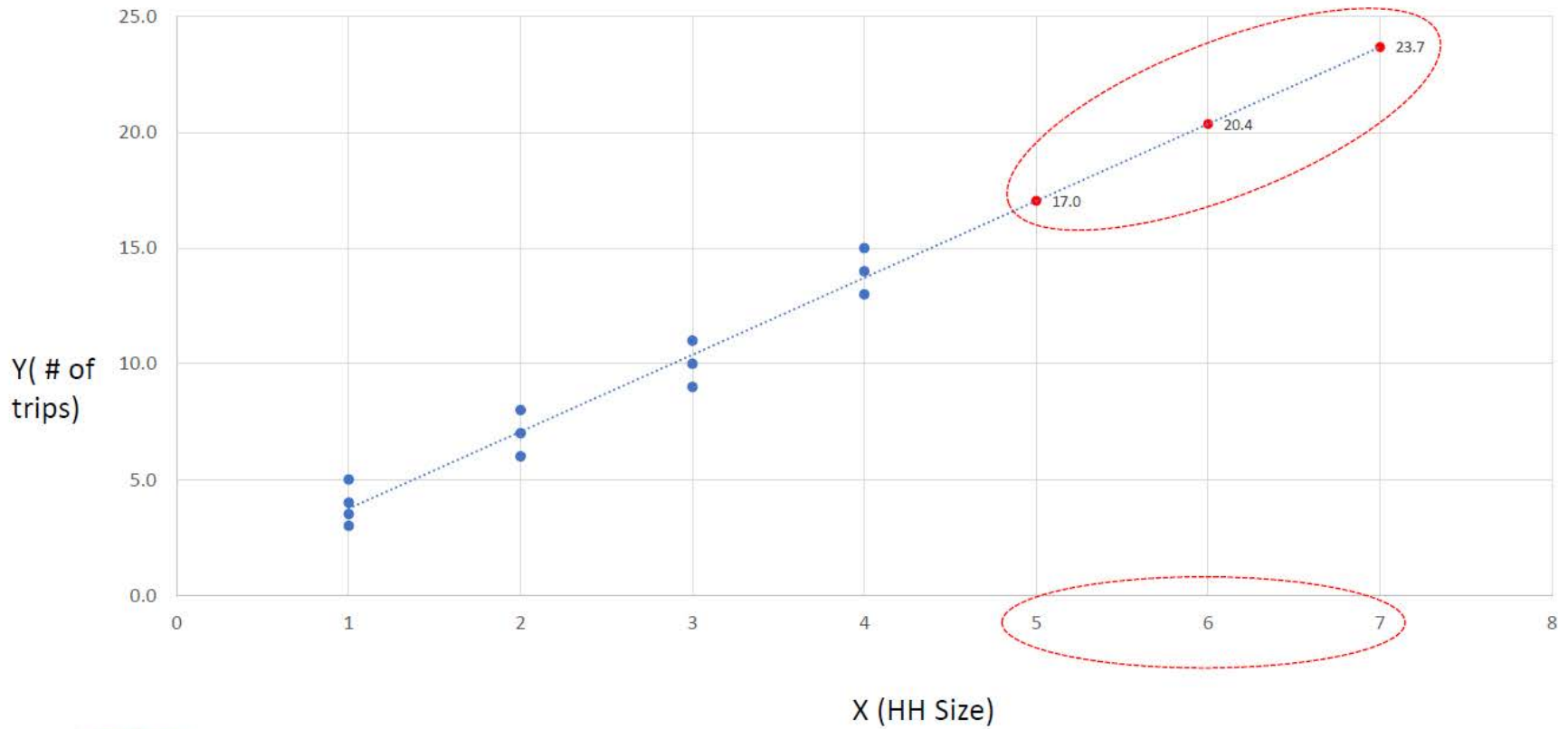
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## Inside of PTRM (Piedmont Triad Regional Travel Demand Model)

$$Y_i = \theta_0 + \theta_1 X_{1i} + \theta_2 X_{2i} + \dots + \theta_k X_{ki} + E_i$$

$$T_{ij}^m = P_i^m \frac{\exp(V_j^m)}{\sum_{j' \in \text{Zones}} \exp(V_{j'}^m)}$$

$$P(d, m) = \frac{\exp\{\beta(V_d + V_d^*)\} \exp(\lambda V_{dm})}{\sum_{d'} \exp\{\beta(V_{d'} + V_{d'}^*)\} \sum_{m'} \exp(\lambda V_{dm'})}$$

$$t' = t_0 \left( 2 + \sqrt{\alpha^2 \left( 1 - \frac{v}{c} \right)^2 + \beta^2} - \alpha \left( 1 - \frac{v}{c} \right) - \beta \right)$$

$$\text{Minimize } Z\{T_{ijr}\} = \sum_a \int_0^{V_a} C_a(v) dv$$

⋮  
⋮  
⋮



**Computerized Algorithm**



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```


1615 CopyDatabase(highway_db_orig, highway_db)
1616 interim_flow table = scen_data_dir + "Interim\VDF_LinkFlow.bin"
1617 op_skim_matrix = Args.[OP Highway Skims] //scen_data_dir + "Interim\HwyOPSkim.mtx"
1618 pk_skim_matrix = Args.[PK Highway Skims] //scen_data_dir + "Interim\HwyPKSkim.mtx"
1619 nm_skim_matrix = Args.[NM Skims] //scen_data_dir + "Interim\NM_Dist.mtx"
1620 {llayer, llayer} = RunMacro("TCB Add DB Layers", highway_db,)
1621 NewFlds = [{"AB_PKTIME", "real"}, // add initial am and md calculated wait times
1622 {"BA_PKTIME", "real"},
1623 {"AB_OPTIME", "real"},
1624 {"BA_OPTIME", "real"}] // facility type
1625 ok = RunMacro("TCB Add View Fields", {llayer, NewFlds})
1626 if !ok then goto quit
1627
1628 netflds = [{"Length", llayer+".Length", llayer+".Length"},
1629 {"[AB_Lanes_AM / BA_Lanes_AM]", llayer+".AB_Lanes_AM", llayer+".BA_Lanes_AM"},
1630 {"[AB_Lanes_OP / BA_Lanes_OP]", llayer+".AB_Lanes_OP", llayer+".BA_Lanes_OP"},
1631 {"[AB_Lanes_PM / BA_Lanes_PM]", llayer+".AB_Lanes_PM", llayer+".BA_Lanes_PM"},
1632 {"HOV", llayer+".HOV", llayer+".HOV"},
1633 {"Toll", llayer+".Toll", llayer+".Toll"},
1634 {"LOVToll", llayer+".LOVToll", llayer+".LOVToll"},
1635 {"HOVToll", llayer+".HOVToll", llayer+".HOVToll"},
1636 {"TrkToll", llayer+".TrkToll", llayer+".TrkToll"},
1637 {"[AB_Capacity / BA_Capacity]", llayer+".AB_Capacity", llayer+".BA_Capacity"},
1638 {"[AB_AMCapacity / BA_AMCapacity]", llayer+".AB_AMCapacity", llayer+".BA_AMCapacity"},
1639 {"[AB_MDCapacity / BA_MDCapacity]", llayer+".AB_MDCapacity", llayer+".BA_MDCapacity"},
1640 {"[AB_FMCapacity / BA_FMCapacity]", llayer+".AB_FMCapacity", llayer+".BA_FMCapacity"},
1641 {"[AB_NTCapacity / BA_NTCapacity]", llayer+".AB_NTCapacity", llayer+".BA_NTCapacity"},
1642 {"ALPHA", llayer+".ALPHA", llayer+".ALPHA"}, // JL Added for Conical function
1643 {"FF Time", llayer+".FF Time", llayer+".FF Time"},
1644 {"[AB_FF_Time / BA_FF_Time]", llayer+".AB_FF_Time", llayer+".BA_FF_Time"},
1645 {"[AB_FF_Time_Toll / BA_FF_Time_Toll]", llayer+".AB_FF_Time_Toll", llayer+".BA_FF_Time_Toll"}] // Free-flow time accounting for
1646
1647 // Set Route Choice Factor at 0.1
1648 RCFACTOR = 0.1
1649
1650 // STEP 1: Fill Dataview
1651 Opts = null
1652 Opts.Input.[Dataview Set] = {highway_db+"|"+llayer, llayer}

```

Normal text file

length: 716,504 lines: 15,484 Ln: 1,613 Col: 12 Sel: 0|0

Windows (CRLF) UTF-8 IN5



Scenarios

- 2017BASE
- 2017ALT1
- 2025NBLED

Stop after stage  
 Run all steps

Setup

Build Scenario Hwy Layer and Route System

Network Diagnostic Procedure

Create Walk/Drive Access

Model Steps:

Feedback Iterations: 0

Fixed Distribution Option:

- Trip Generation
- Create Network
- Modal Split
- Trip Distribution
- PA to OD
- Highway Assignment
- Transit Assignment
- Feedback
- Fixed Distribution
- Summit Input Preparation

Model Summary Reports

Summary Plots

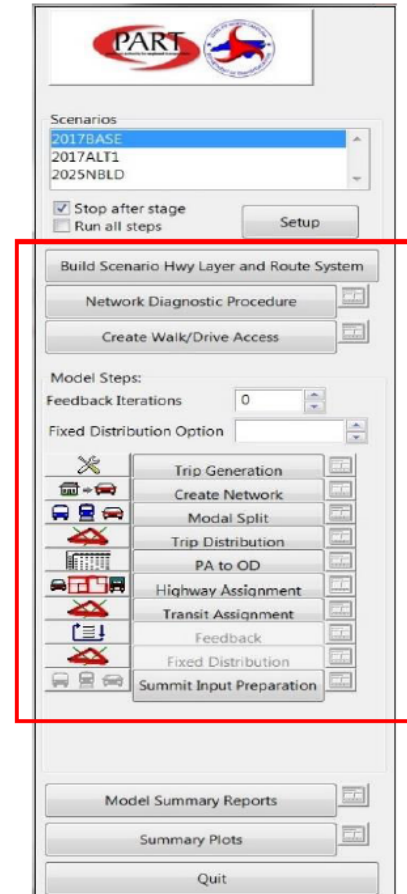
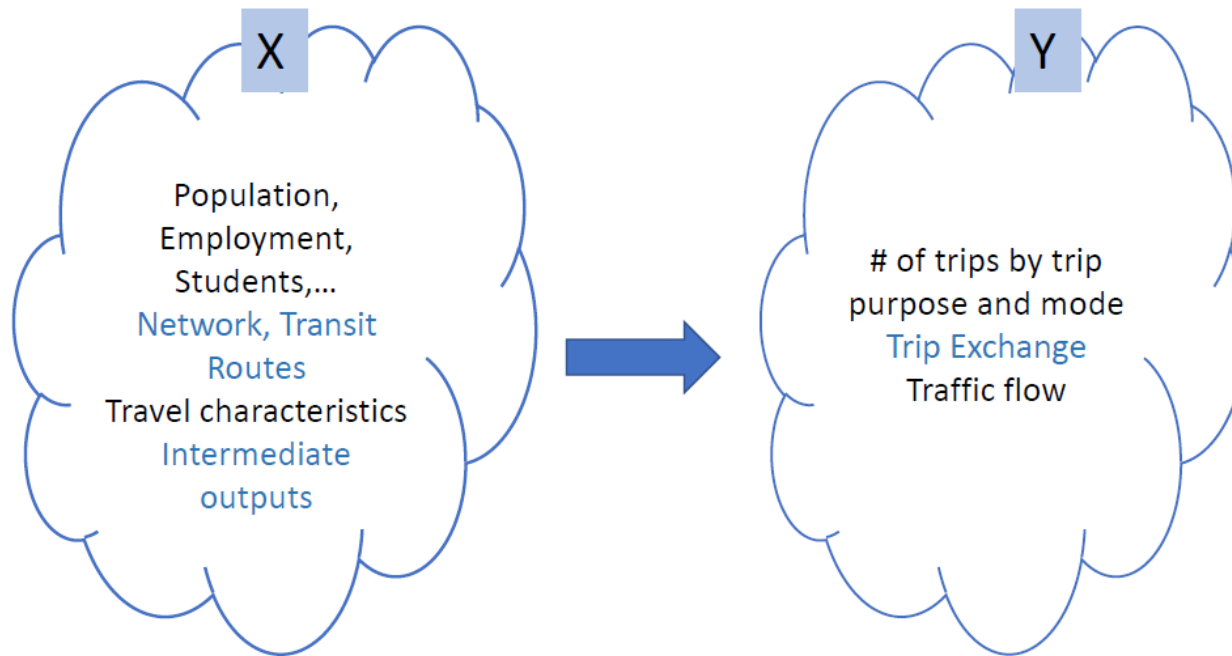
Quit

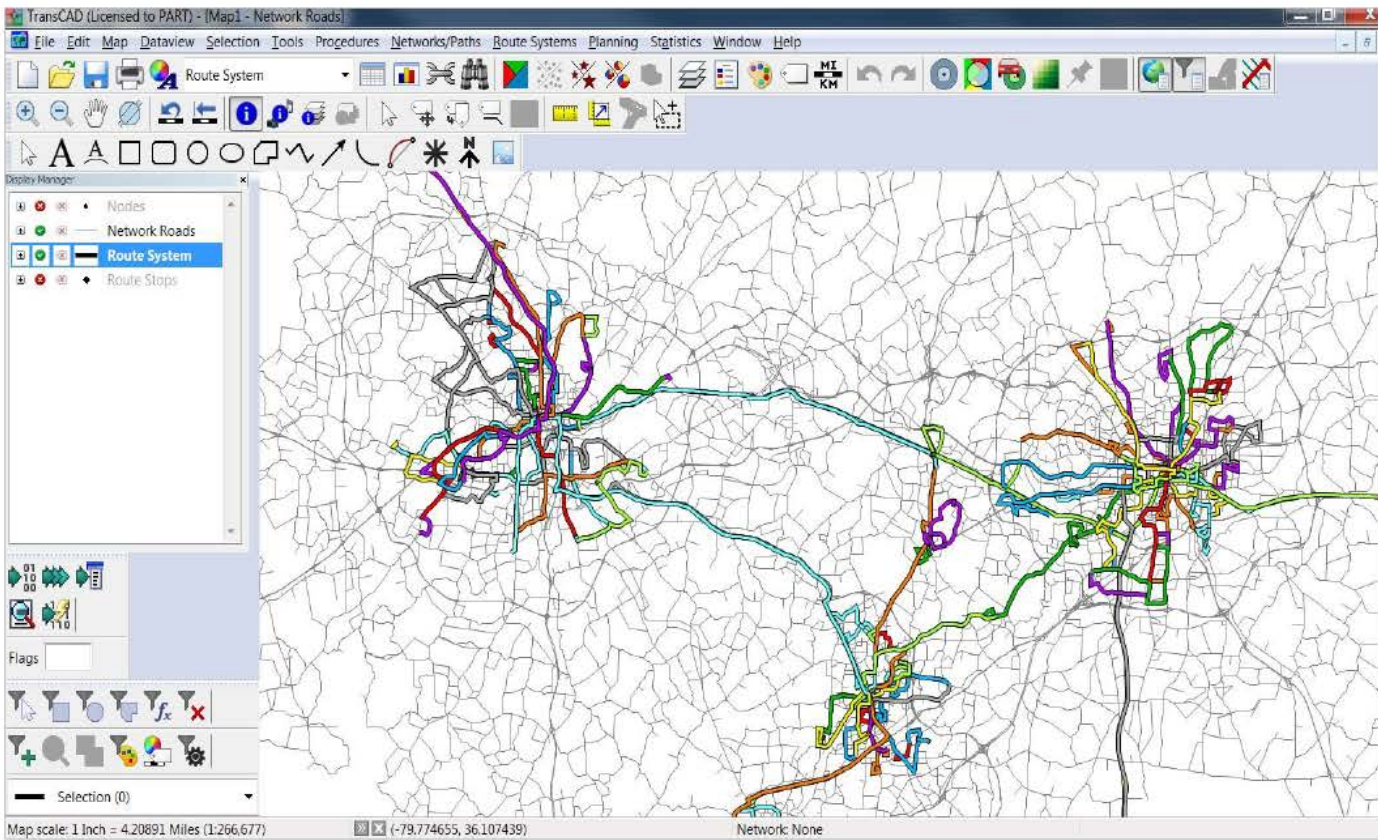


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# X & Y of PTRM

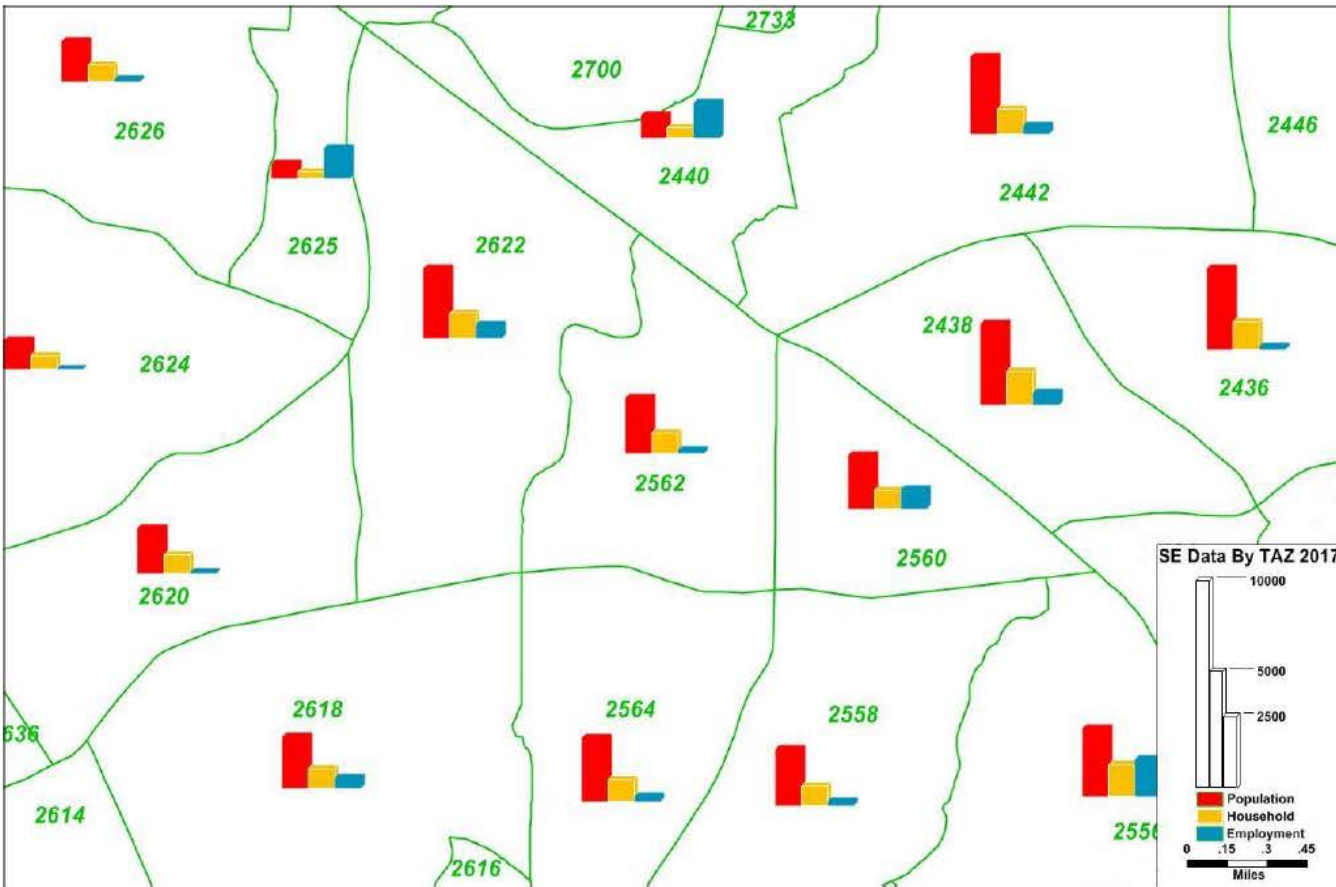




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Scenarios  
 2017BASE  
 2017ALT1  
 2025NBLD

Stop after stage  
 Run all steps

Setup

Build Scenario Hwy Layer and Route System  
 Network Diagnostic Procedure  
 Create Walk/Drive Access

Model Steps:  
 Feedback Iterations: 0  
 Fixed Distribution Option:

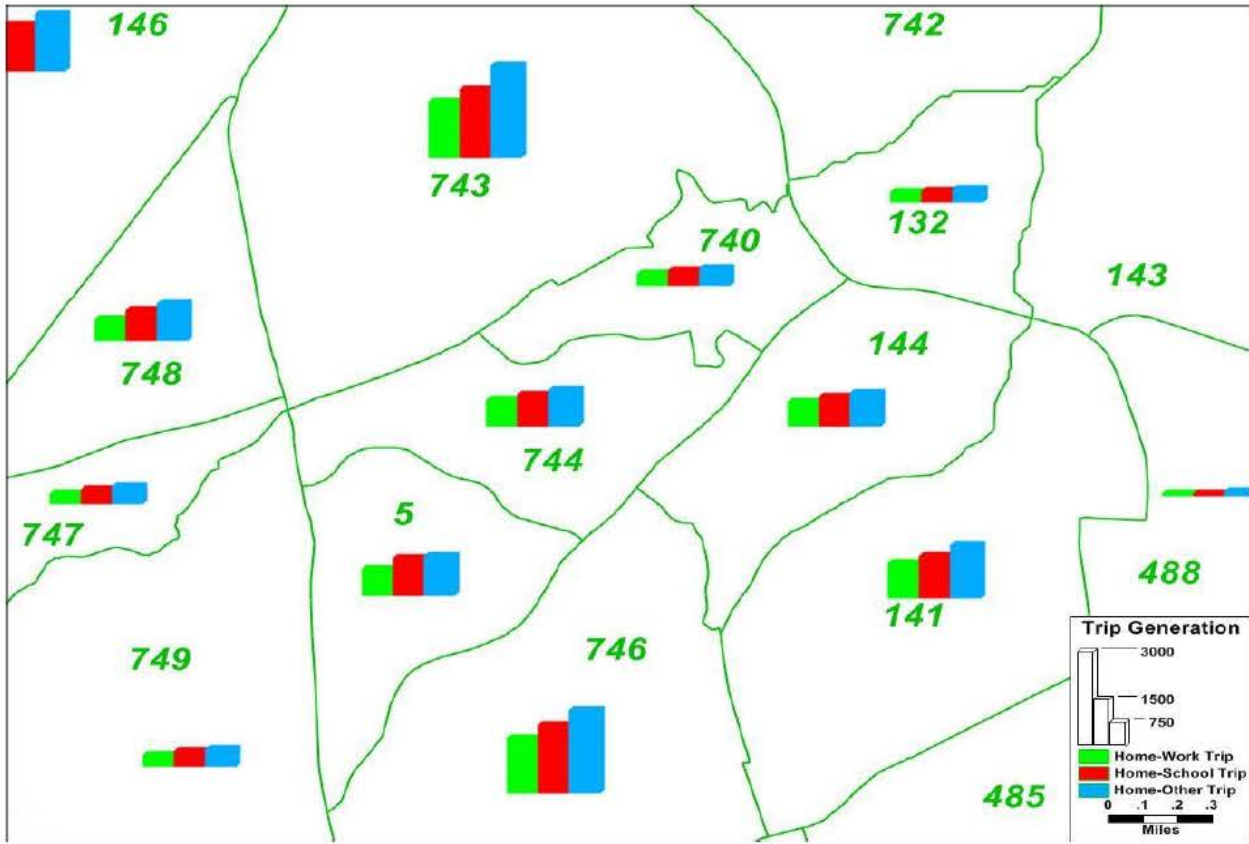
	Trip Generation	
	Create Network	
	Modal Split	
	Trip Distribution	
	PA to OD	
	Highway Assignment	
	Transit Assignment	
	Feedback	
	Fixed Distribution	
	Summit Input Preparation	



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**Scenarios**

- 2017BASE
- 2017ALT1
- 2025NBLD

Stop after stage  
 Run all steps

**Build Scenario Hwy Layer and Route System**

Network Diagnostic Procedure  
 Create Walk/Drive Access

**Model Steps:**

Feedback Iterations: 0  
 Fixed Distribution Option: [dropdown]

**Trip-Generation** (highlighted)

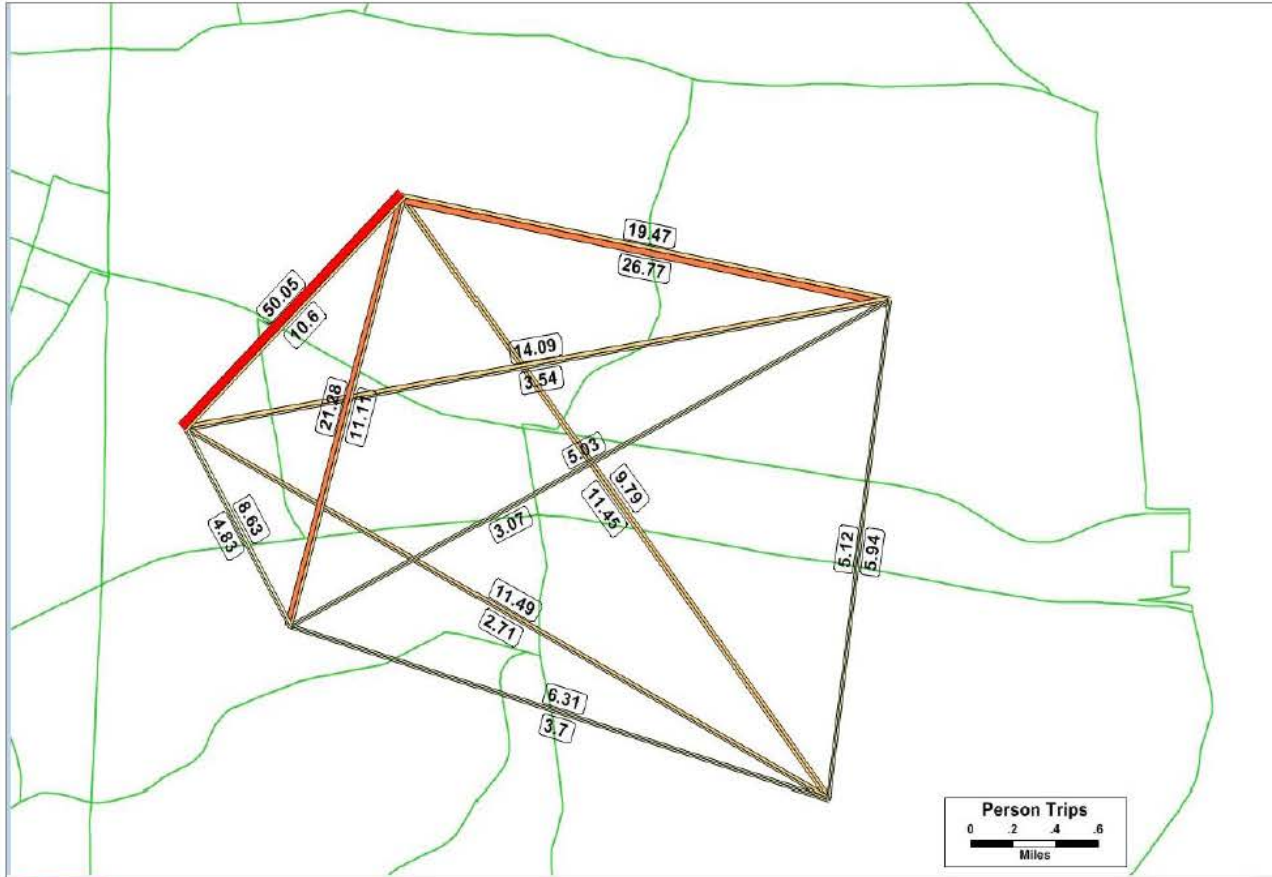
- Create Network
- Modal Split
- Trip Distribution
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- Transit Assignment
- Feedback
- Fixed Distribution
- Summit Input Preparation

Model Summary Reports  
 Summary Plots  
 Quit



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Scenarios  
 2017BASE  
 2017ALT1  
 2025NBLED

Stop after stage  
 Run all steps

Build Scenario Hwy Layer and Route System  
 Network Diagnostic Procedure  
 Create Walk/Drive Access

Model Steps:  
 Feedback Iterations: 0  
 Fixed Distribution Option:

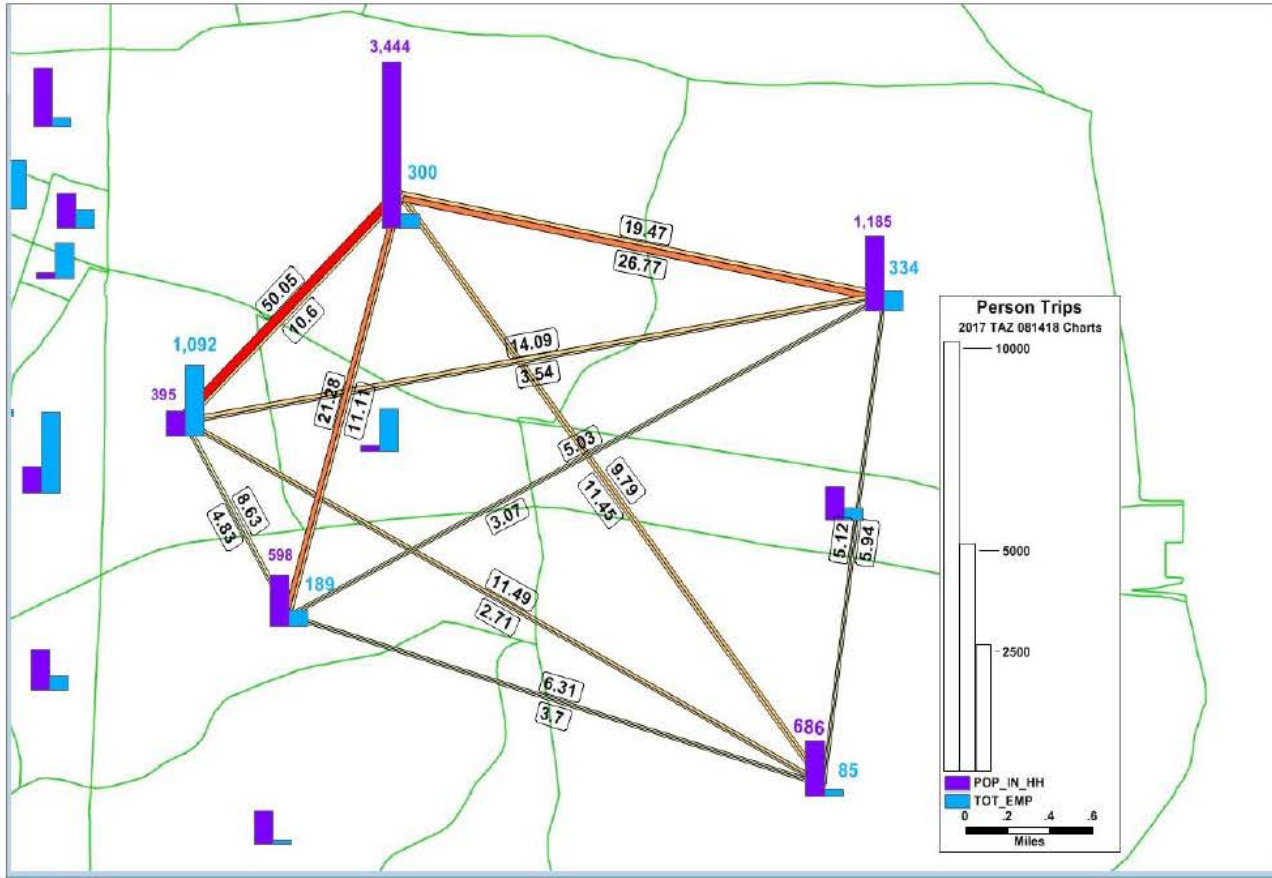
- Trip Generation
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- Summit Input Preparation

Model Summary Reports  
 Summary Plots  
 Quit



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**PART**  
government authority for regional transportation

Scenarios:  
 2017BASE  
 2017ALT1  
 2025NBLD

Stop after stage  
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Network Diagnostic Procedure

Create Walk/Drive Access

Model Steps:  
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Model Summary Reports

Summary Plots

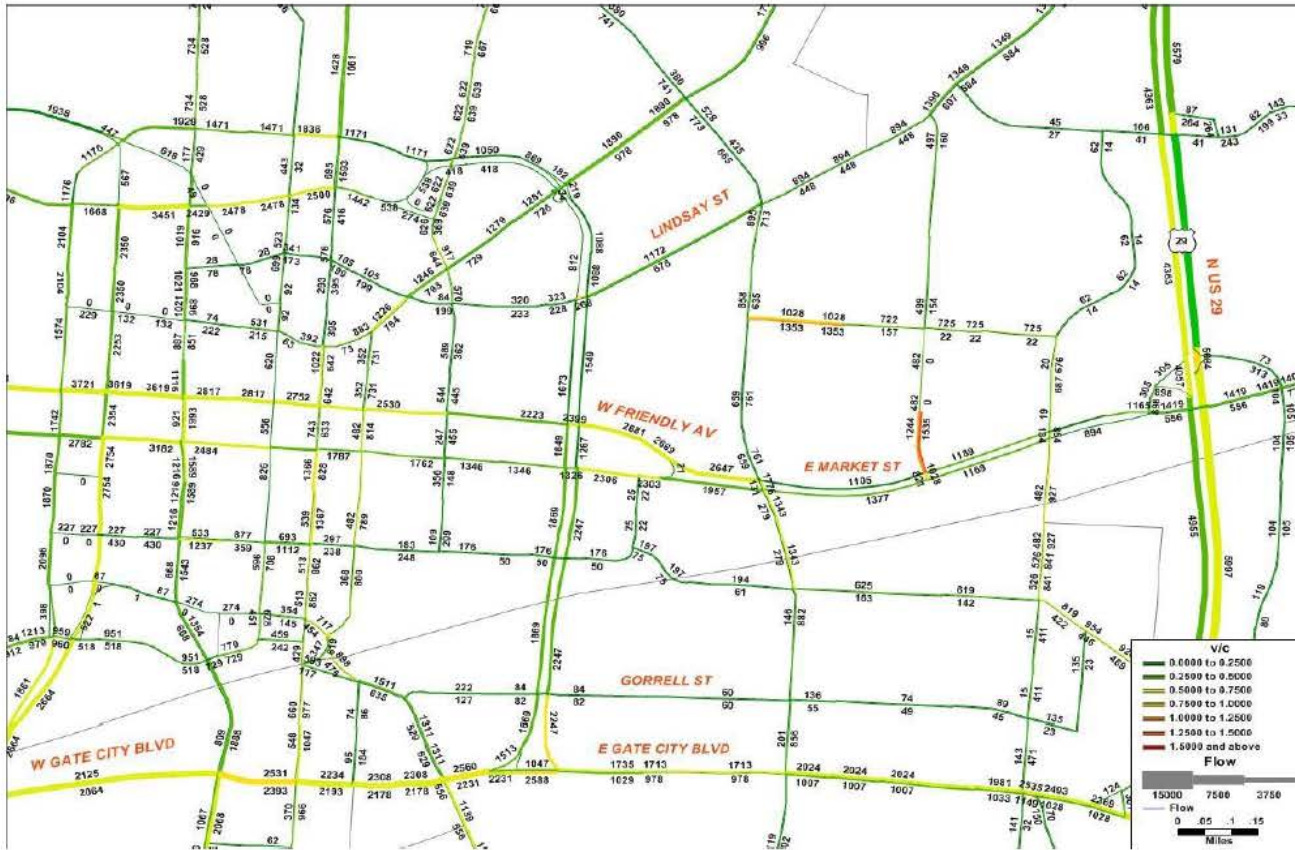
Quit



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Scenarios

- 2017BASE
- 2017ALT1
- 2025NBLD

Stop after stage  
 Run all steps

Setup

---

Build Scenario Hwy Layer and Route System

Network Diagnostic Procedure

Create Walk/Drive Access

---

Model Steps:

Feedback Iterations: 0

Fixed Distribution Option:

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- Summit Input Preparation

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Model Summary Reports

Summary Plots

Quit



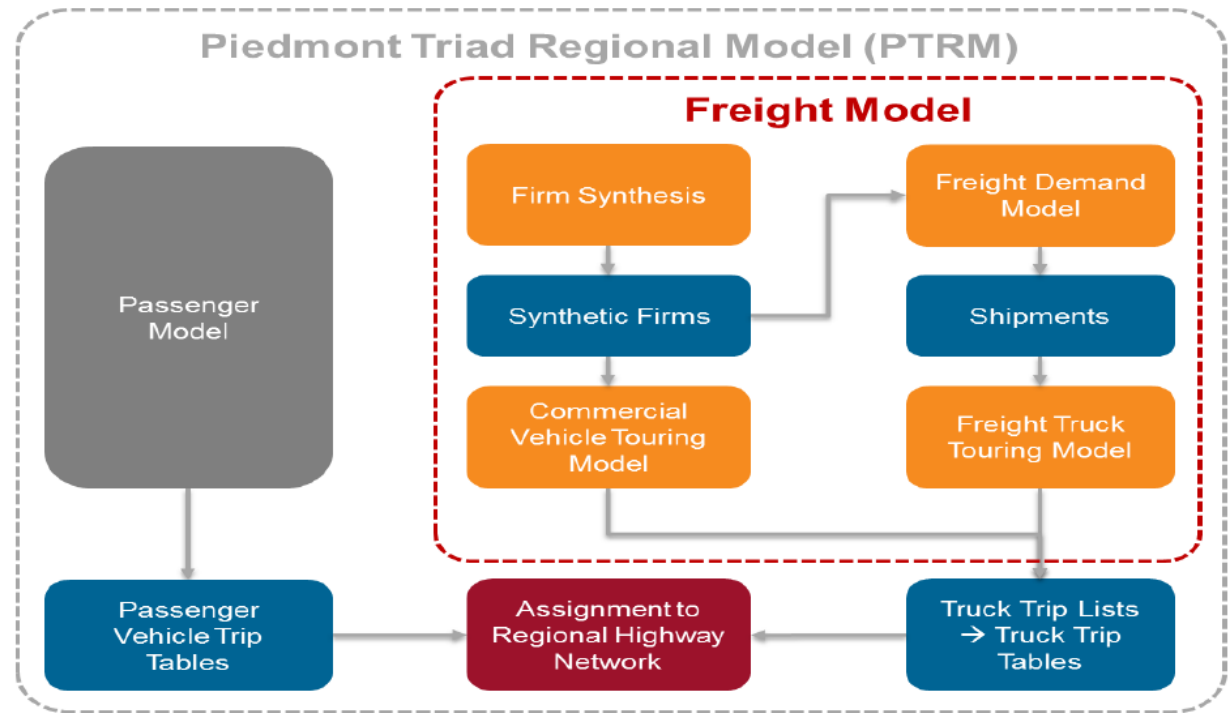
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# Integration into Travel Demand Model

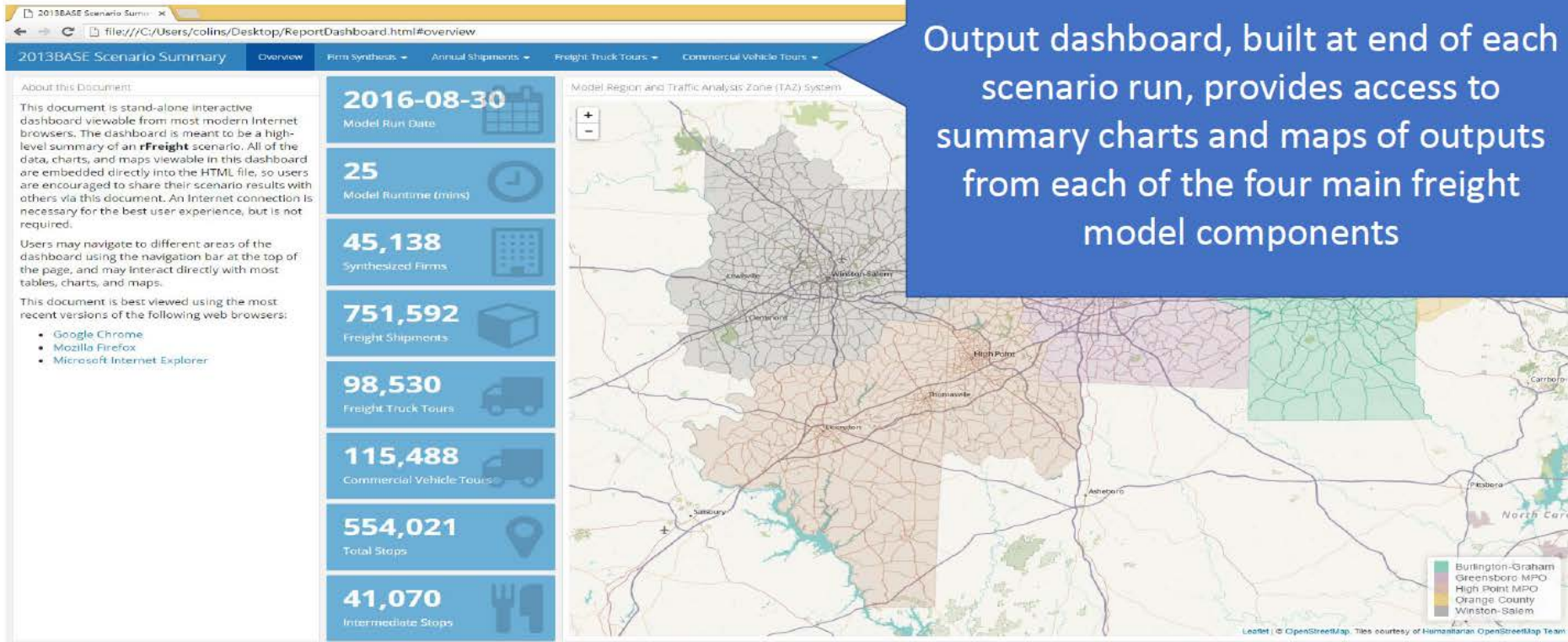
## Main model components:

- Firm Synthesis
- Freight Truck Touring Model
- Commercial Vehicle Touring Model





# How can these outputs be visualized?



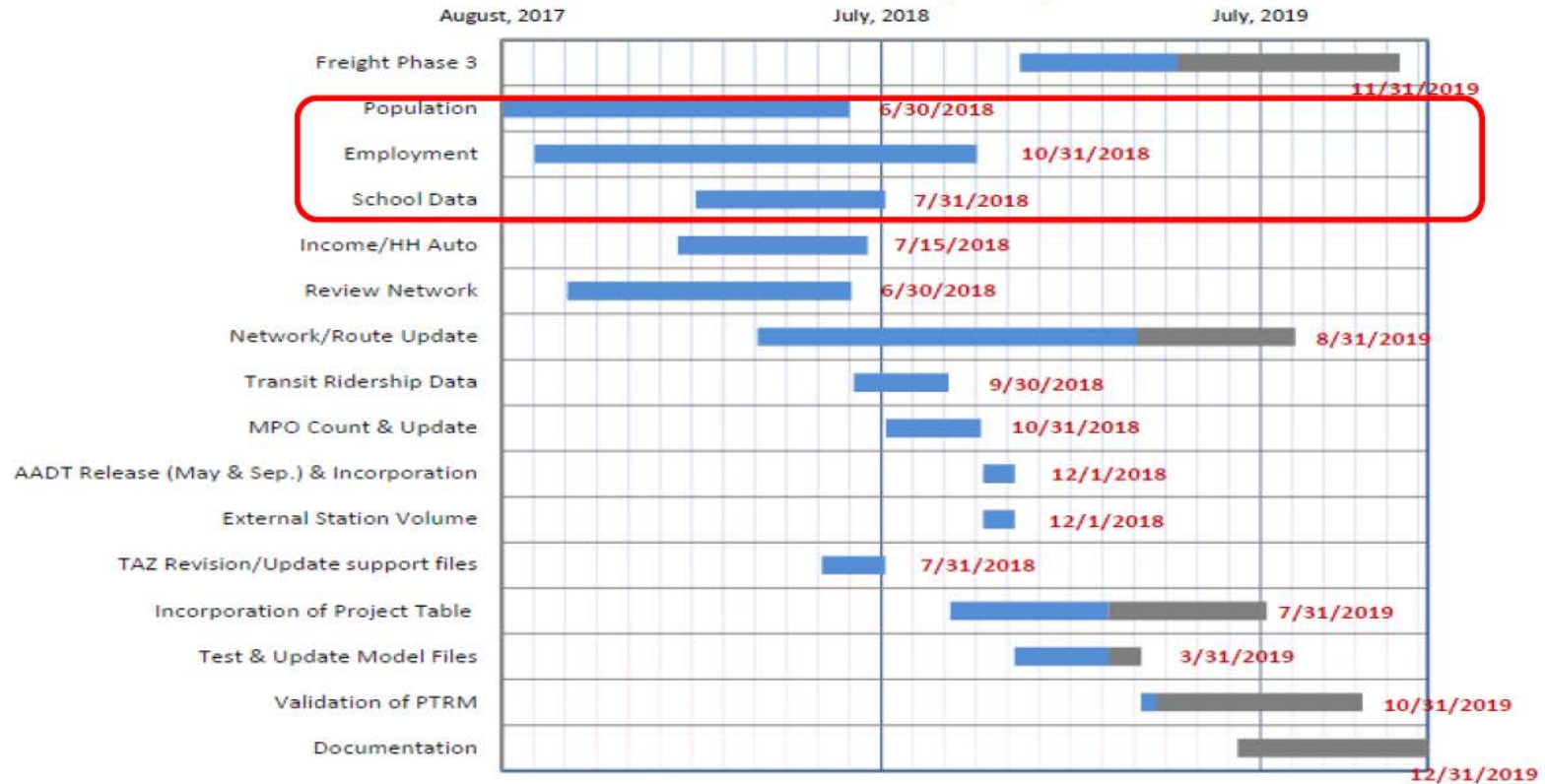
Output dashboard, built at end of each scenario run, provides access to summary charts and maps of outputs from each of the four main freight model components



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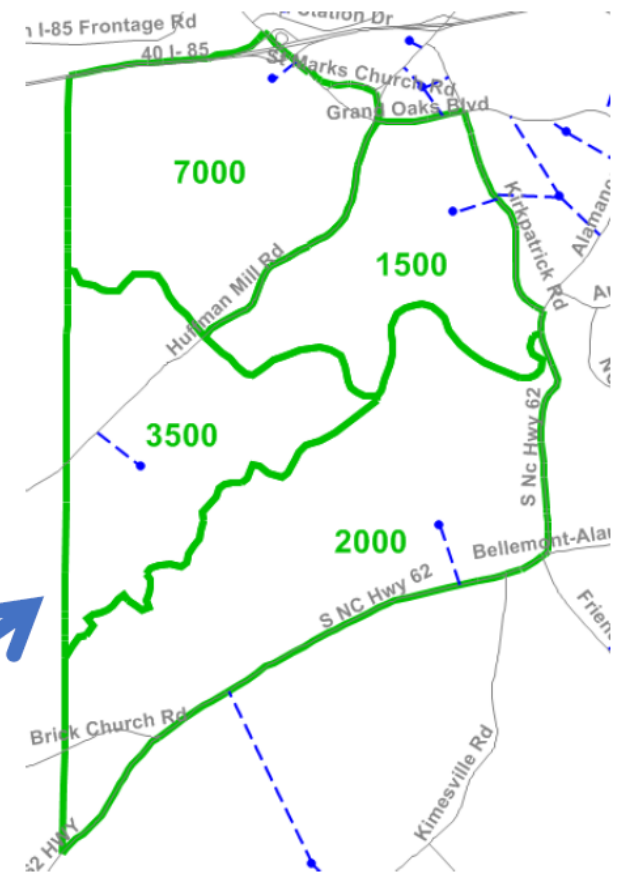
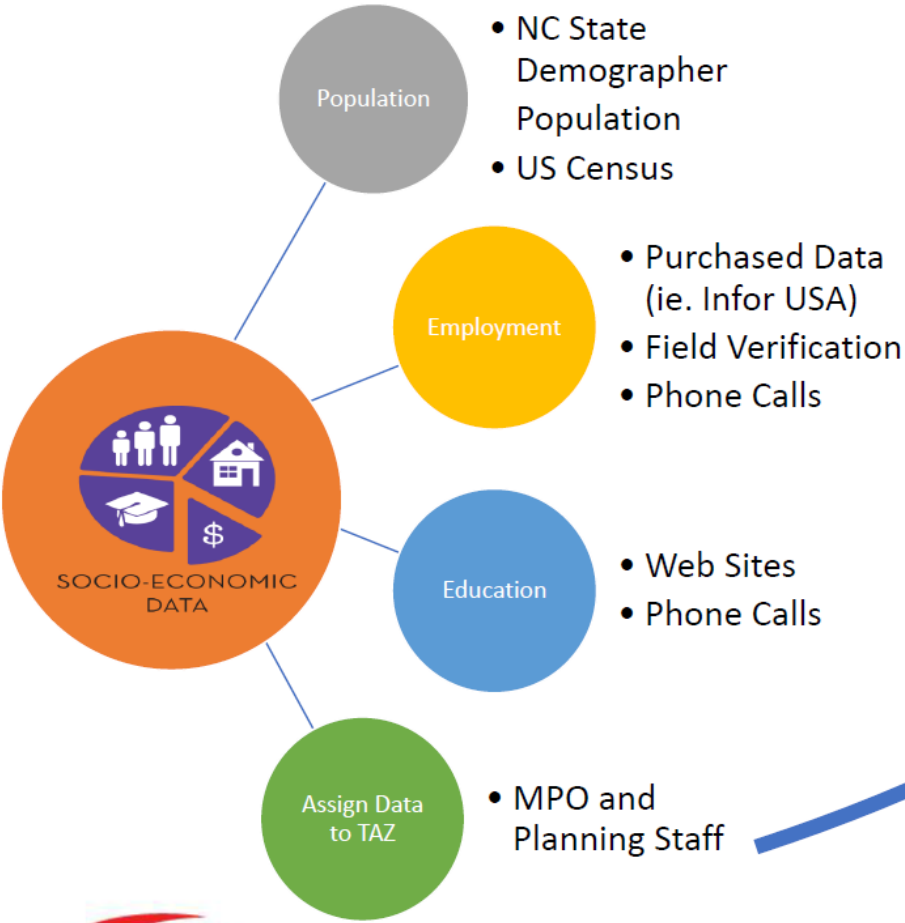
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## Timeline of PTRM BASE YEAR (2017) UPDATE



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# The Bottom Up Approach – CommunityViz



## Carrying Capacity Analysis

Development constraints. These areas are 'off the table' for allocating new growth.



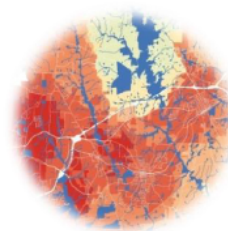
## Development Status Assignments

Determines whether new growth is allowed in a parcel.



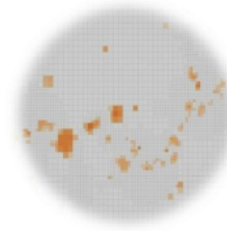
## Place Type Assignments & Build-Out Estimates

Community types define the existing or future land use for each parcel. Build-out potential estimates the development yield for each parcel based on its assigned development status, community type & general development values.



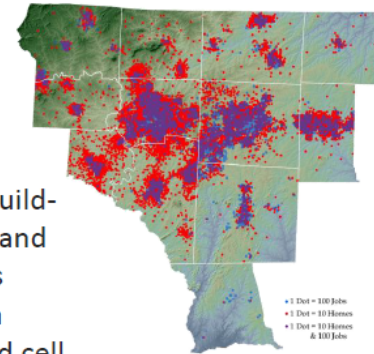
## Land Suitability Analysis Calculations

Measures the attractiveness of individual parcels for attracting new development.



## Growth Allocation

Performed using build-out potential and land suitability statistics calculated for each parcel, TAZ and grid cell.



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Connecting Communities



# A Brief History and What's Next

- MOU Regional Travel Demand Model - 2002
- MOU designating planning tasks of regional significance - 2004
- First Official Triad Regional Model 2004
- MOA governing development, maintenance and usage of PTRM – 2007
- Regional Model Updates 2009, 2013, 2017 - (100% completed)
- Update MOU and increase support - Current



[www.PARTnc.org](http://www.PARTnc.org)

**Connecting Communities**



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THE END



[www.PARTnc.org](http://www.PARTnc.org)

Connecting Communities

# Draft FY 2020-2021 UPWP

- Prioritization 6.0 & MTIP
- 2045 MTP & CTP (long range transportation plan)
- Mobility Greensboro 2040 implementation
- Vision Zero Action Plan implementation
- Pedestrian & bicycle planning, outreach, and projects
- Model update, freight model development, household travel survey
- Data collection and performance management

*MPO self-certification & UPWP adoption are due by March 15*

# Congestion Management Process Update (CMP)

- Required for MPOs with > 200,000 population
- Precursor to the MTP
- Multi-Modal Evaluation
- Identifies system and corridor level congestion
- Identifies performance measures and strategies

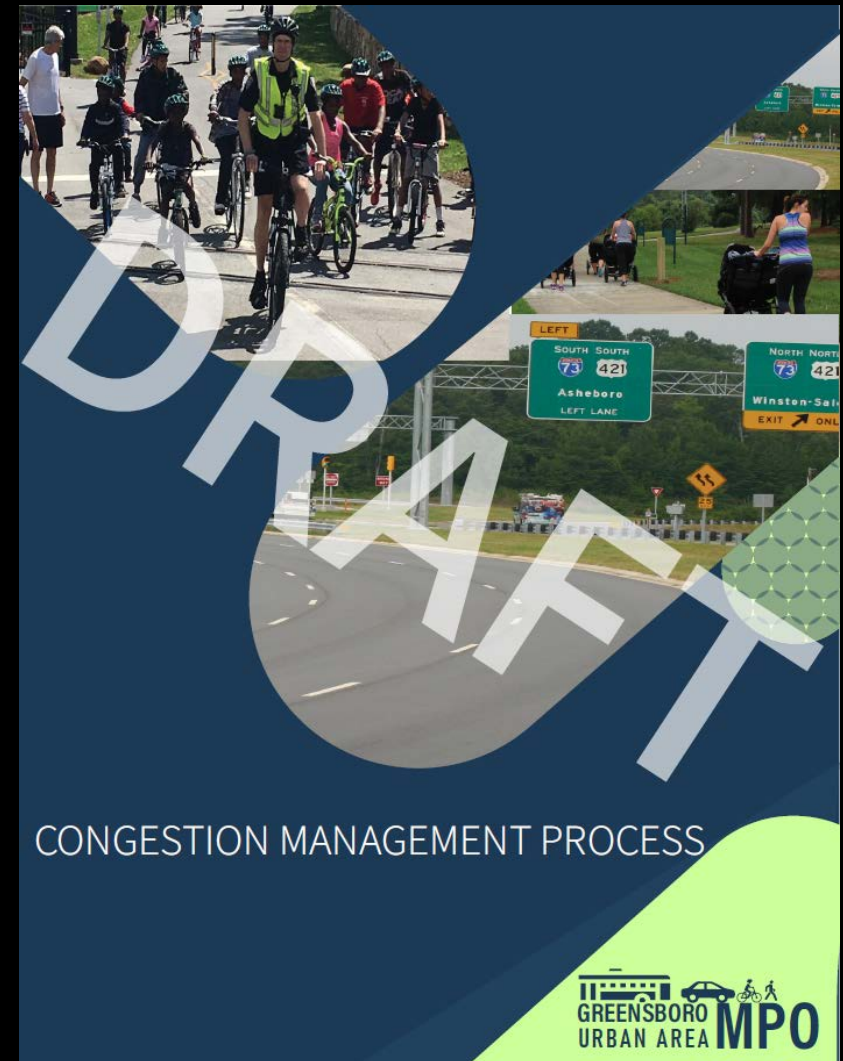
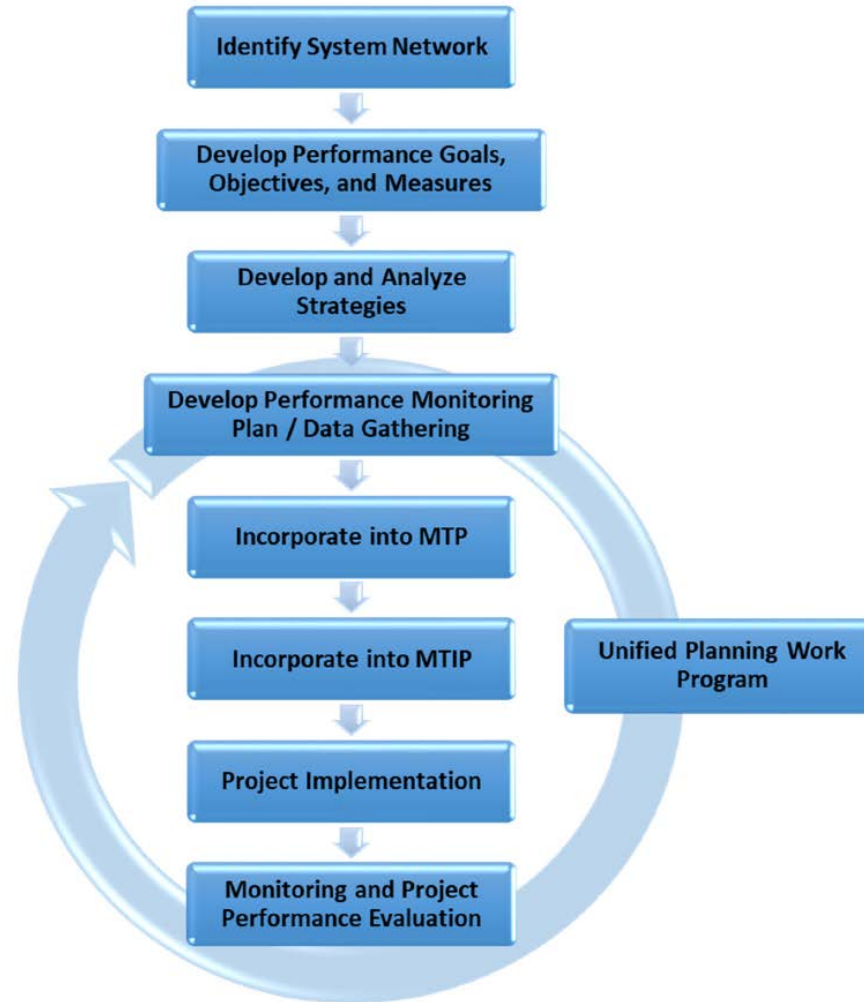


Figure 1.2 Greensboro Urban Area Congestion Management Process



# Congestion Management Process (CMP)

## Document Snap Shot:

- ✓ Introduction
- ✓ Existing Conditions
- ✓ Multi-Modal Performance Evaluation
- ✓ Management Strategies
- ✓ Findings and Recommendations



# Congestion Management Process (CMP)

## ROADWAY PERFORMANCE

### Goal: Mobility

**Objective:** Reduce the % Centerline Miles experiencing congestion by 15% by 2025.

**Measure 1:** Existing Centerline Miles by functional class

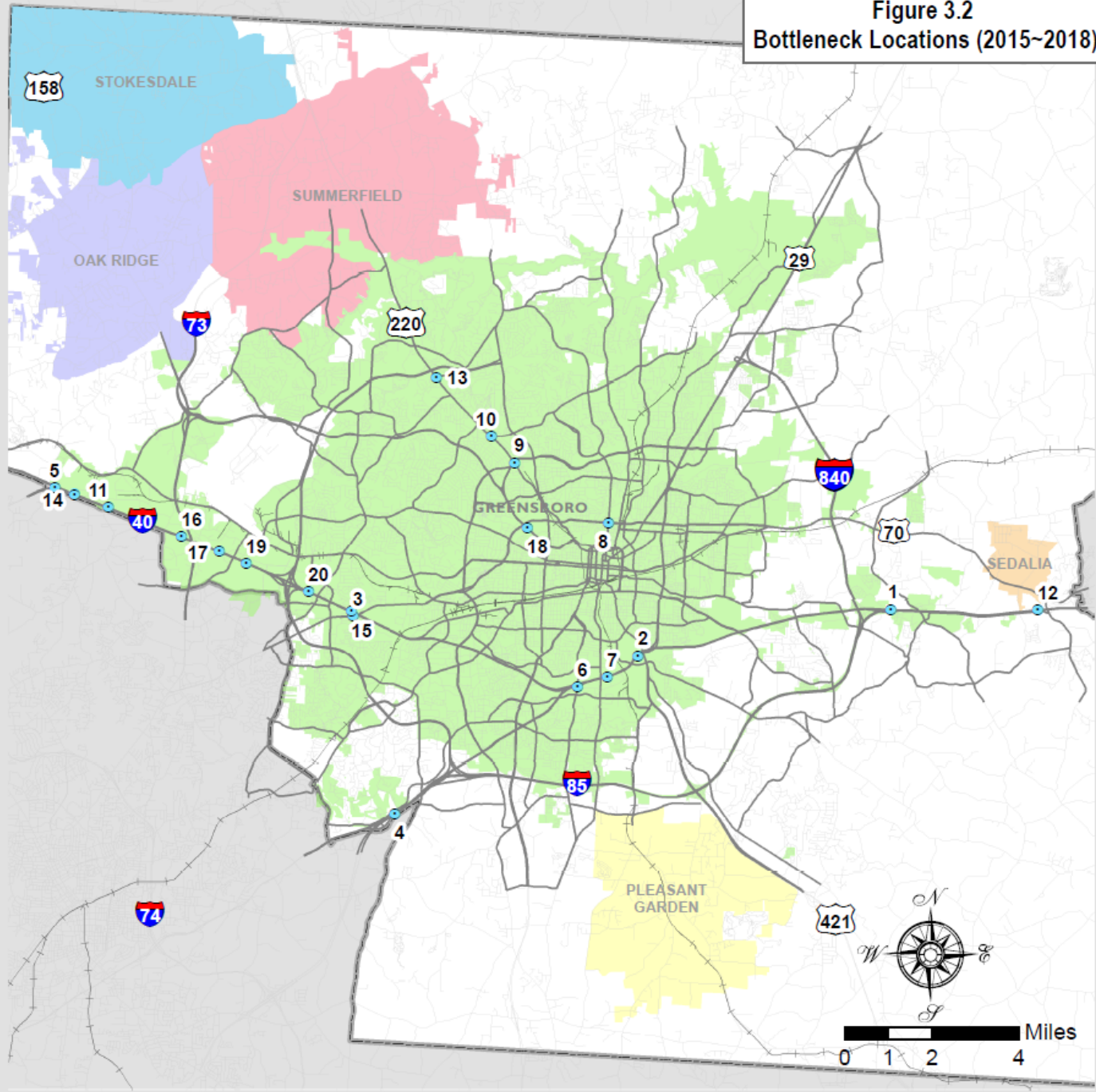
**Measure 2:** Identification of Highest Bottleneck Locations

**Measure 3:** 2014-2018 Vehicle Hours of Delay

**Measure 4:** 2014-2018 % Below Free Flow Speed

**Source:** I-95 Corridor Coalition's Vehicle Probe Project (VPP), Piedmont Triad Regional Model Version 5.1

**Figure 3.2**  
**Bottleneck Locations (2015-2018)**



**Greensboro MPO**  
**Congestion**  
**Management Process**

● Bottleneck Head

Map ID	Head Location
1	I-40 W @ Mt Hope Church Rd/Exit 132
2	US 29 S @ I-40/I-85-Br/US 421
3	Wendover Ave S @ I-40/Fordham Blvd
4	I-85 N @ I-85-BI/US 29/US 70/Exit 118
5	I-40 W @ I-40-Br/Exit 206
6	I-40 E @ I-85-Br/US 29/US 70/Exit 219
7	I-40 E @ Elm-Eugene St/Exit 125
8	Wendover Ave N @ N Elm St
9	US 220 S @ Benjamin Pky/W Cone Blvd
10	US 220 N @ Pisgah Church Rd
11	I-40 W @ Sandy Ridge Rd/Exit 208
12	I-40 W @ Rock Cr Dairy Rd/Exit 135
13	Cotswold Ave E @ US 220/Battleground Ave
14	I-40 E @ I-40-Br/Exit 206
15	I-40 W @ Wendover Ave/Exit 214
16	I-40 W @ NC-68/Regional Rd/Exit 210
17	I-40 W @ Gallimore Dairy Rd
18	Benjamin Pky S @ W Wendover Ave/Green Valley Rd
19	I-40 E @ Gallimore Dairy Rd
20	I-40 E @ I-73/US 421

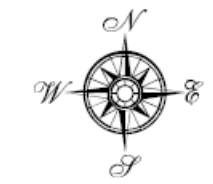
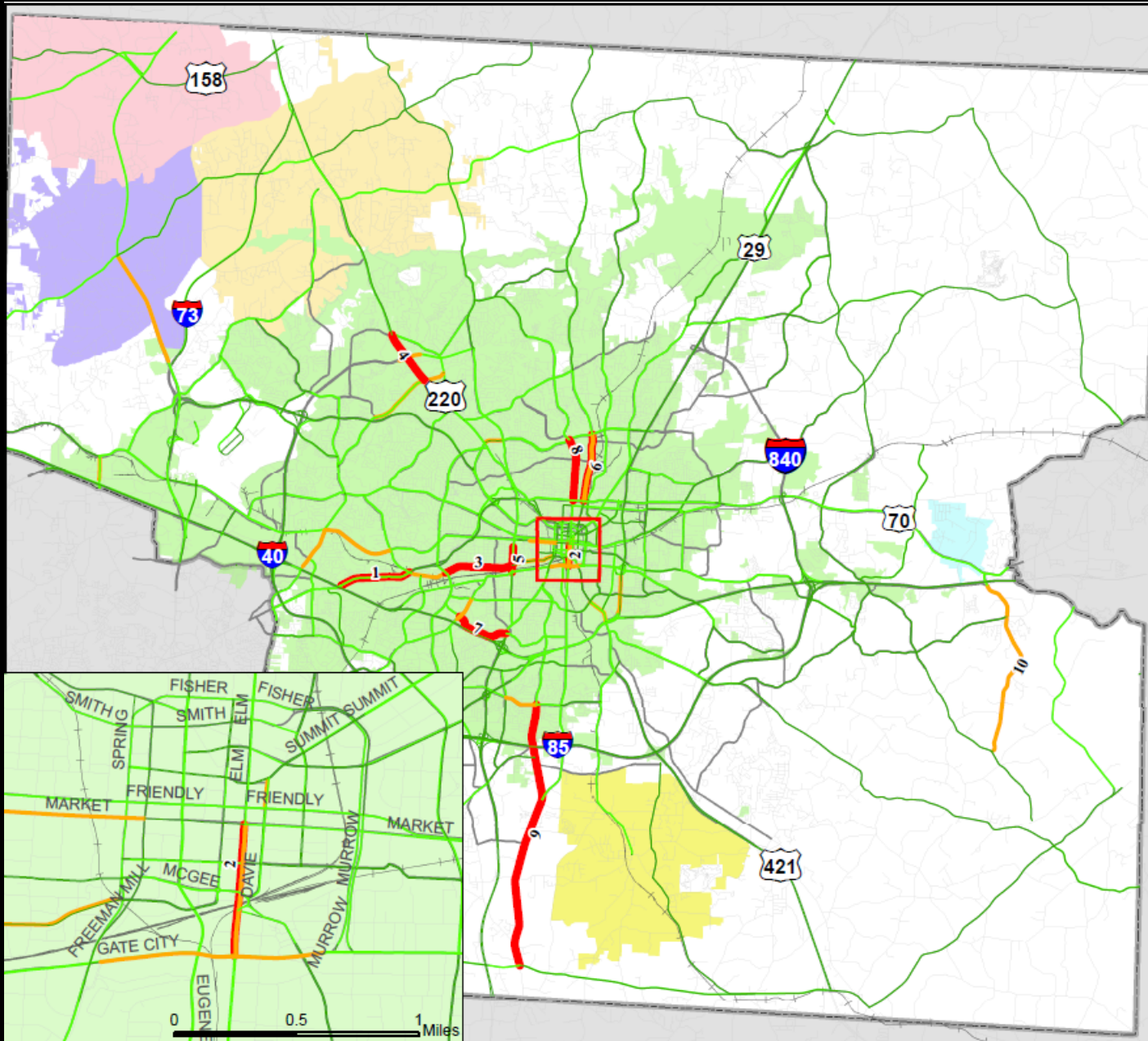


Greensboro MPO  
Congestion Management Process

Figure 3.7  
Vehicle Hours of Delay

2018 Weekday PM Peak  
VHD

- None ( $\leq 0$ )
- Light (0.01 ~ 0.25)
- Moderate (0.26 ~ 0.50)
- Heavy ( $>0.5$ )



0 1 2 4 Miles



Figure 3.15 GTA Ridership (2014~2019)

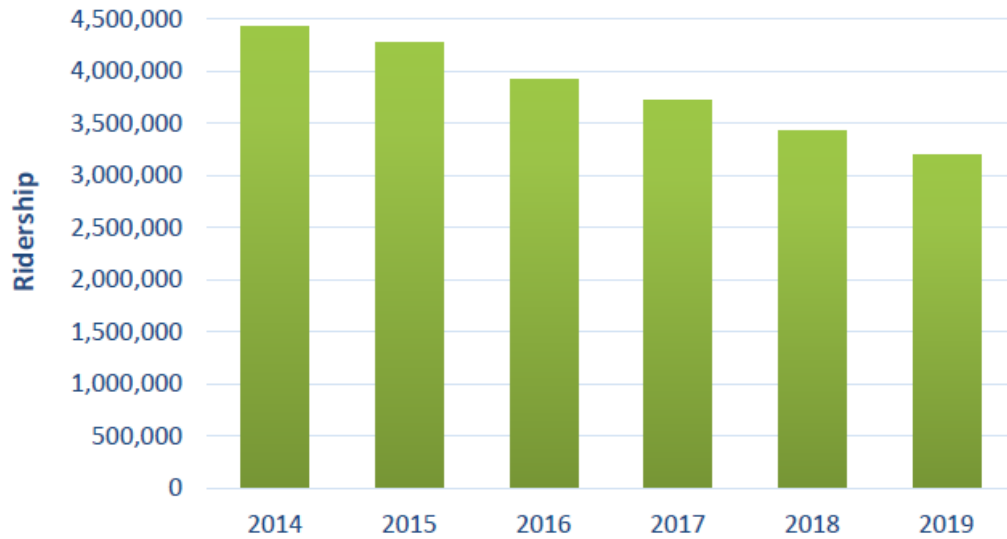
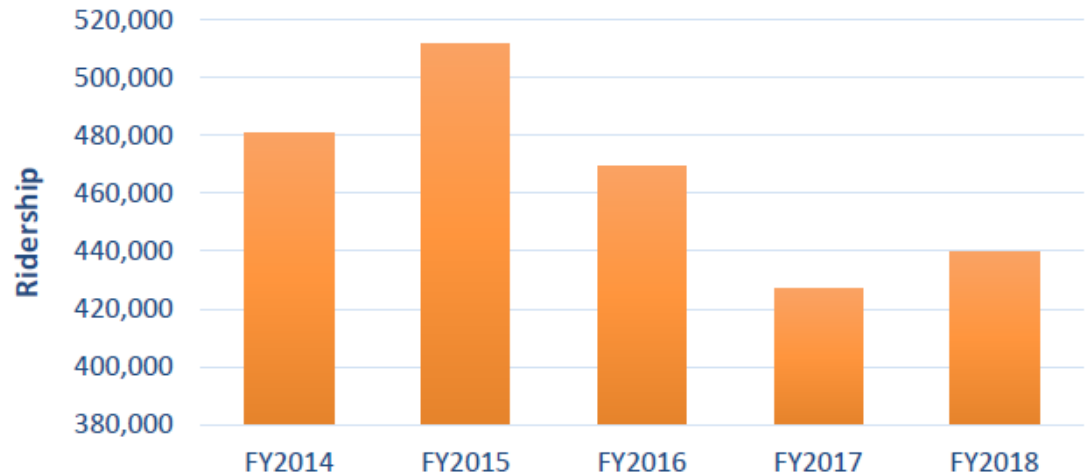


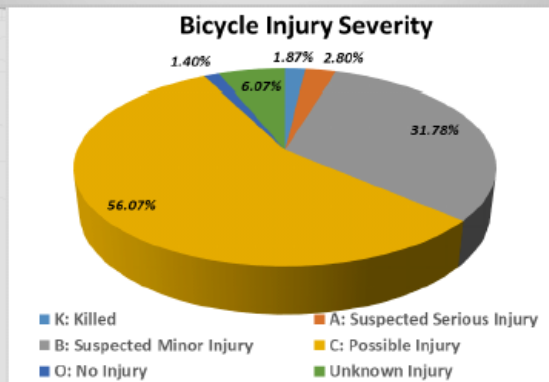
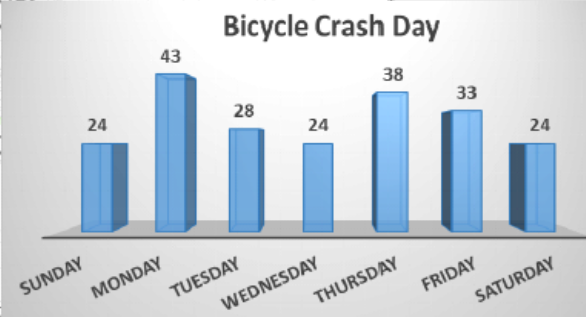
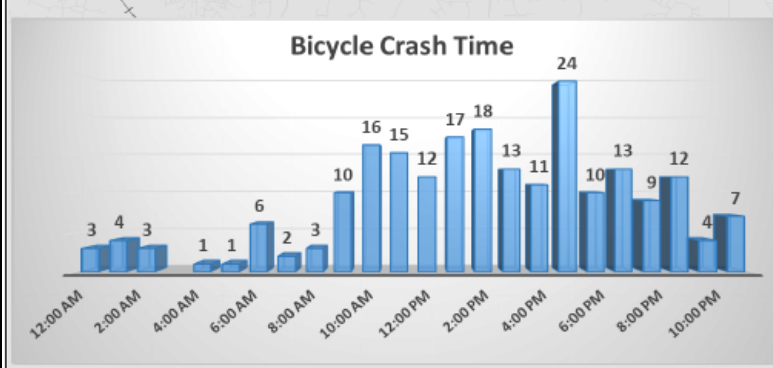
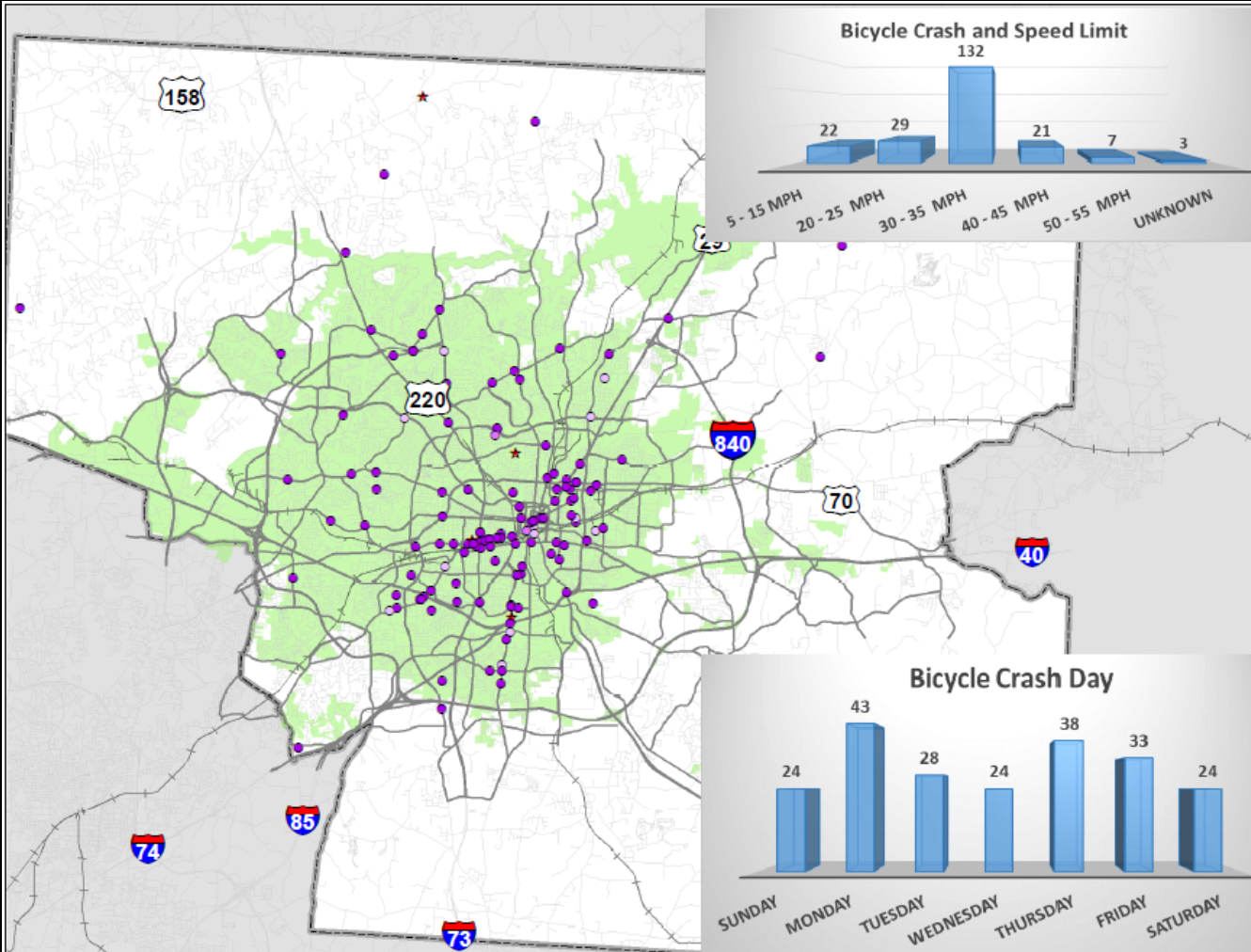
Figure 3.16 PART Ridership (FY 2014~2018)





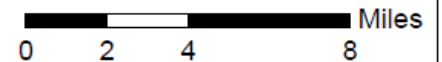
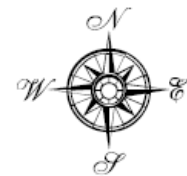
# Greensboro MPO Congestion Management Process

Figure 3.13  
Bicycle Crash  
Summary Data (2014~2018)



## Bicyclist Injury Severity

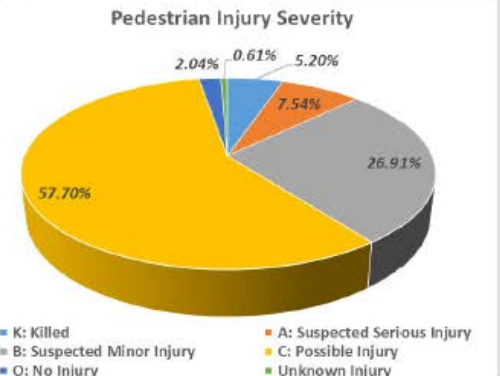
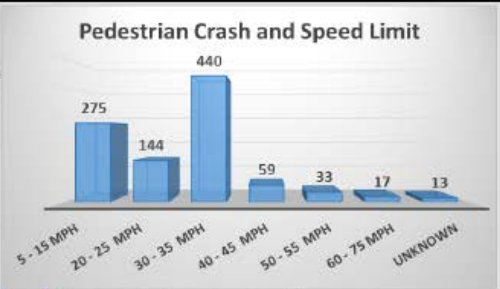
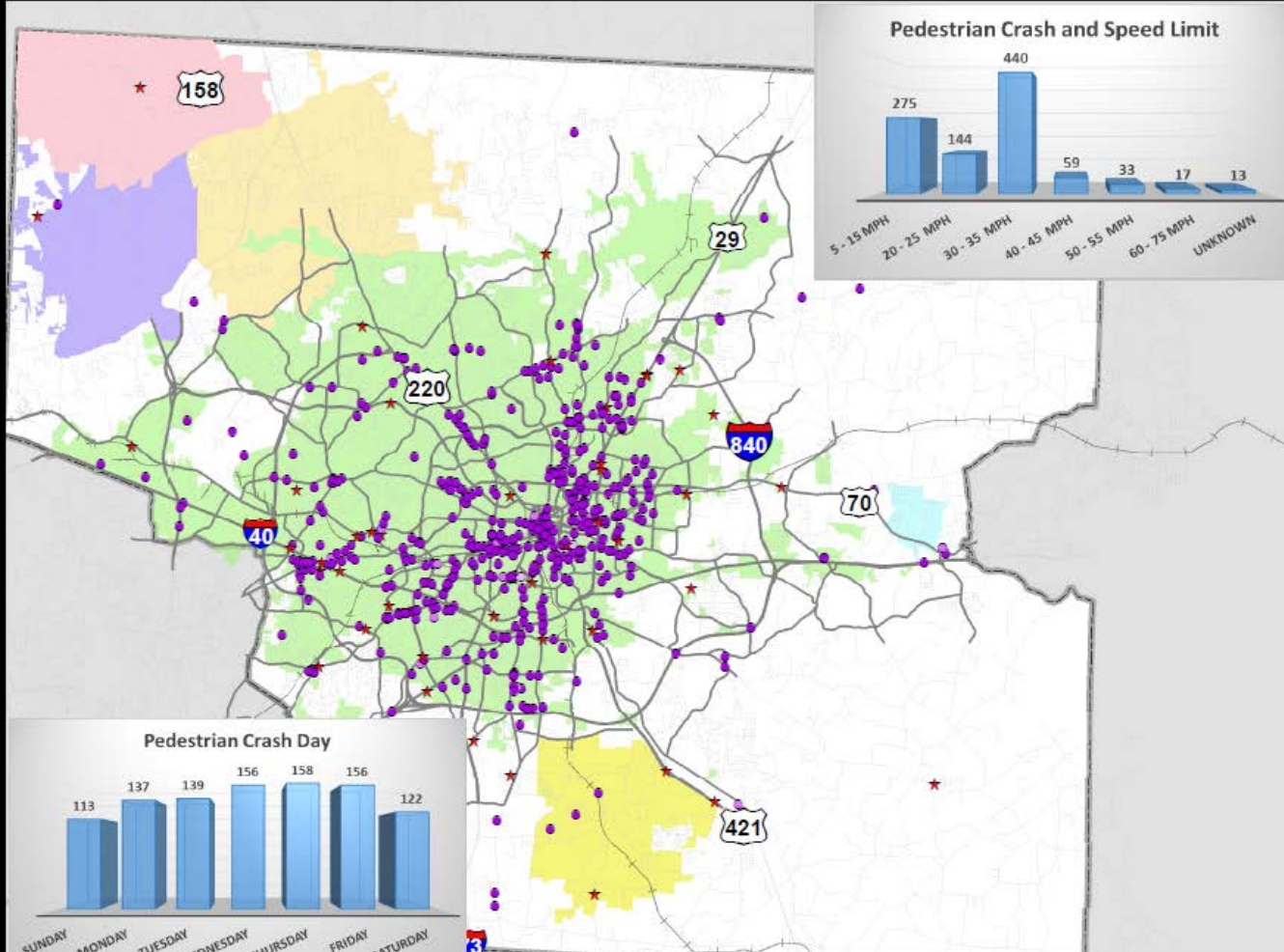
- ★ K: Killed
- ★ A: Disabling Injury
- B: Evident Injury
- C: Possible Injury
- O: No Injury
- Unknown Injury





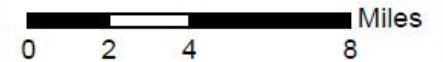
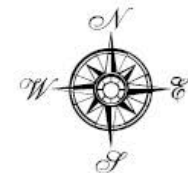
# Greensboro MPO Congestion Management Process

Figure 3.14  
Pedestrian Crash  
Summary Data (2014~2018)



### Pedestrian Injury Severity

- ★ K: Killed
- ★ A: Disabling Injury
- B: Evident Injury
- C: Possible Injury
- O: No Injury
- Unknown Injury



**Table 4.2 Potential Transit Strategies for the GUAMPO CMP Toolbox**

Strategies/Projects	Congestion and Mobility Benefits	Costs and Impacts	Implementation Timeframe
<p><b>Increasing Bus Route Coverage or Frequencies</b></p> <p>Provides better accessibility to transit to a greater share of the population. Increasing frequency makes transit more attractive to use. May require investment in new buses which would create a capital cost per passenger trip. May also include new routes or extensions to existing routes.</p>	<ul style="list-style-type: none"> <li>* Increase transit ridership</li> <li>* Decrease travel time</li> <li>* Reduce daily VMT</li> <li>* Improved convenience and travel reliability</li> <li>* Reduced traffic congestion due to trips switched from driving alone to transit</li> </ul>	<p>Low to Moderate (New bus purchases likely; increased operating costs)</p>	<p>Short-term: 1 to 5 years (includes planning, engineering, and construction)</p>
<p><b>Park-and-Ride Lots</b></p> <p>Can be used in conjunction with HOV lanes and/or express bus services. They are particularly helpful for encouraging HOV use for longer distance commute trips.</p>	<ul style="list-style-type: none"> <li>* Reduce regional VMT (up to 0.1 percent)</li> <li>* Increase mobility and transit efficiency</li> <li>* Reduce SOV trips</li> <li>* Increase transit boardings and mode share</li> <li>* Decrease congestion by increasing vehicle occupancy rate</li> </ul>	<p>Low to Moderate (Structure costs for transit stations; Land acquisition costs)</p>	<p>Medium-term: 5 to 10 years (includes planning, engineering, and construction)</p>
<p><b>Employer Incentive Programs</b></p> <p>Encourages additional transit use through transit subsidies of mass transit fares provided by employers</p>	<ul style="list-style-type: none"> <li>* Increase transit ridership</li> <li>* Decrease travel time</li> <li>* Decrease daily VMT</li> </ul>	<p>Low to Moderate (Cost of incentives to employers offering employee benefits for transit use)</p>	<p>Short-term: 1 to 5 years</p>
<p><b>Electronic Payment Systems and Universal Farecards</b></p> <p>Equipment that allows riders to electronically pay a transit fare by using credit, debit and magnetic fare cards. Interchangeable smartcard payment system (including RFID) can be used as a fare payment method for multiple transit agencies throughout the region</p>	<ul style="list-style-type: none"> <li>* Reduce daily VMT</li> <li>* Reduce congestion</li> <li>* Increase transit ridership</li> <li>* Decrease travel time</li> <li>* Decrease operating costs</li> </ul>	<p>Moderate to High (Implementation costs vary based on system design and functionality)</p>	<p>Short-term: 1 to 5 years</p>
<p><b>Enhanced Transit Amenities</b></p> <p>Includes vehicle replacement/upgrades and better shelters or stations, which furthers the benefits of increased transit use</p>	<ul style="list-style-type: none"> <li>* Decrease daily VMT</li> <li>* Decrease congestion</li> <li>* Increase ridership</li> </ul>	<p>Low to Moderate</p>	<p>Short-term: 1 to 5 years (includes planning, engineering, and construction)</p>
<p><b>Local Circulator</b></p> <p>Fixed-route service within an activity area, such as a CBD or campus, designed to reduce short trips by car.</p>	<ul style="list-style-type: none"> <li>* Reduce VMT</li> <li>* Reduce SOV trips</li> <li>* Increase transit ridership &amp; boardings</li> </ul>	<p>Low to Moderate (may require new bus purchases)</p>	<p>Short-term: 1 to 5 years (includes planning, engineering, and construction)</p>

# Congestion Management Process (CMP)

- The City and MPO should continue to study, prepare for, and pursue smart city initiatives to improve traffic management, incident management, and data collection.
- The MPO should continue implementing Vision Zero Greensboro program to better address safety problems and integrate safety more centrally into its mobility and planning philosophy.
- Further development and collection of data for evaluating the performance of the transportation system.
- The MPO should expand the focus of the CMP in the future to be more of a Performance Management Plan tracking the MPOs performance management goals and targets.
- Identify other transportation related data sources and smart technologies that can be used to gather and analyze data.



# Congestion Management Process (CMP)

*TAC Approval in February*

Action Business Other

**DRAFT**

CONGESTION MANAGEMENT PROCESS

GREENSBORO URBAN AREA MPO

# Division Engineer Updates

*Action Business Other*



# Project Updates

*Action Business Other*

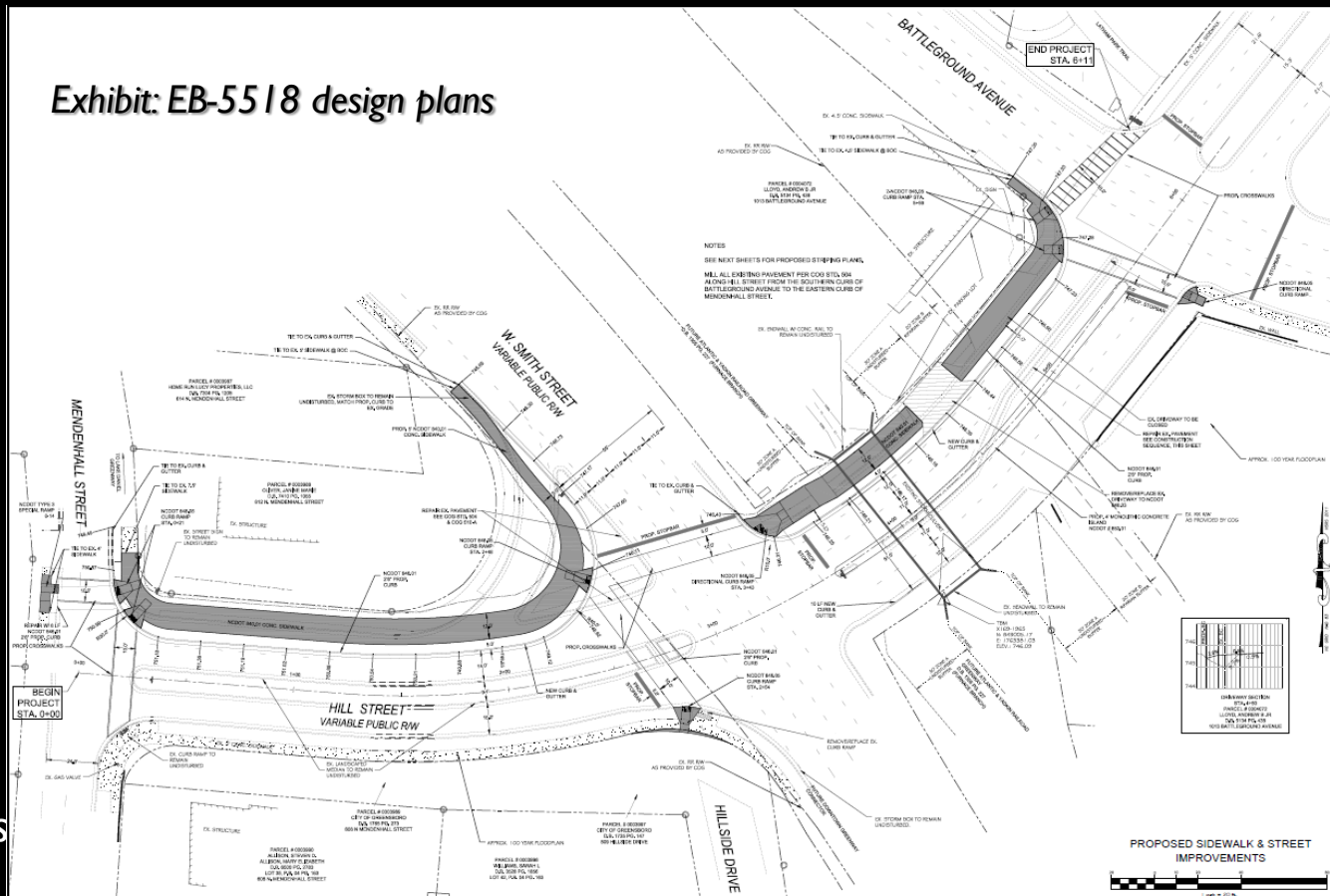
# Project Updates

January 24 MPO BPAC Meeting

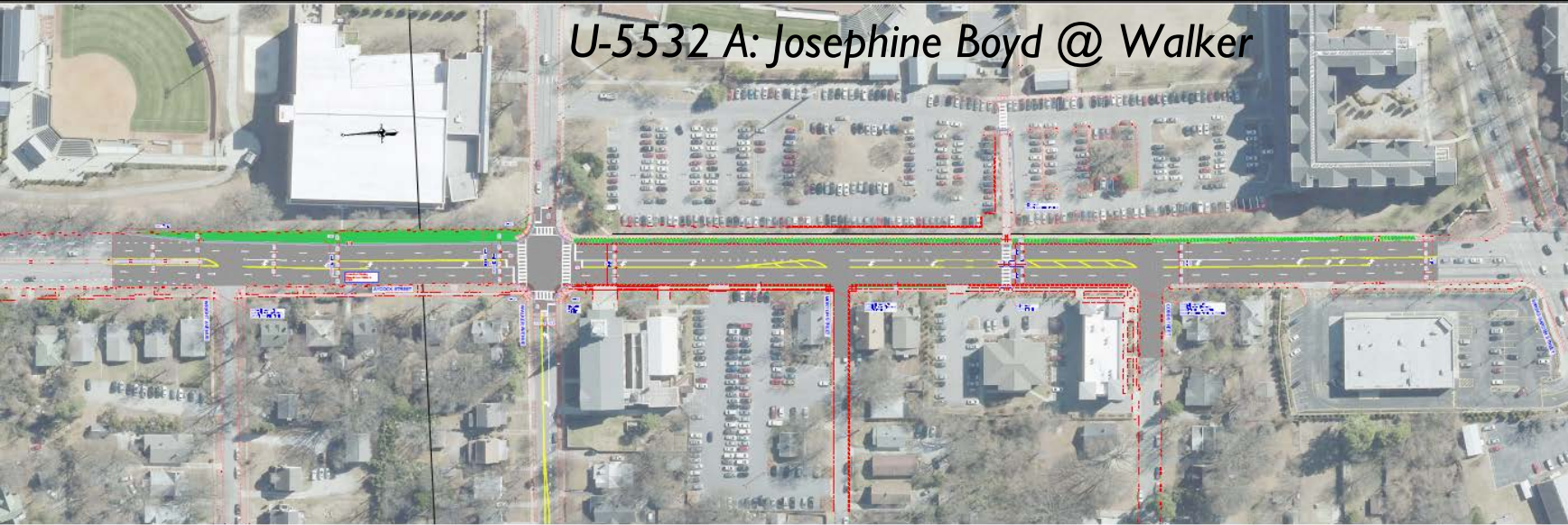
January 23 EB-5518 Latham Park Greenway Pre-Bid Meeting

February 6 EB-5518 Latham Park Greenway Bid Opening

Exhibit: EB-5518 design plans



# Obligated Projects Stalled at NCDOT



Action Business Other

# Strategic Reports

February 26 Next MPO Meetings

FY 21 UPWP under development for January review

# Other Items

**1. Member Updates**

**2. Wrap up**





# Technical Coordinating Committee January 22, 2020