Studying the Effects of Future Development Potential in the Cool Springs Area of Franklin, Tennessee

Adam Moser, P.E.

Beth Ostrowski, P.E., P.T.O.E.

HISTORIC FRANKLIN TENNESSEE

KCI TECHNOLOGIES

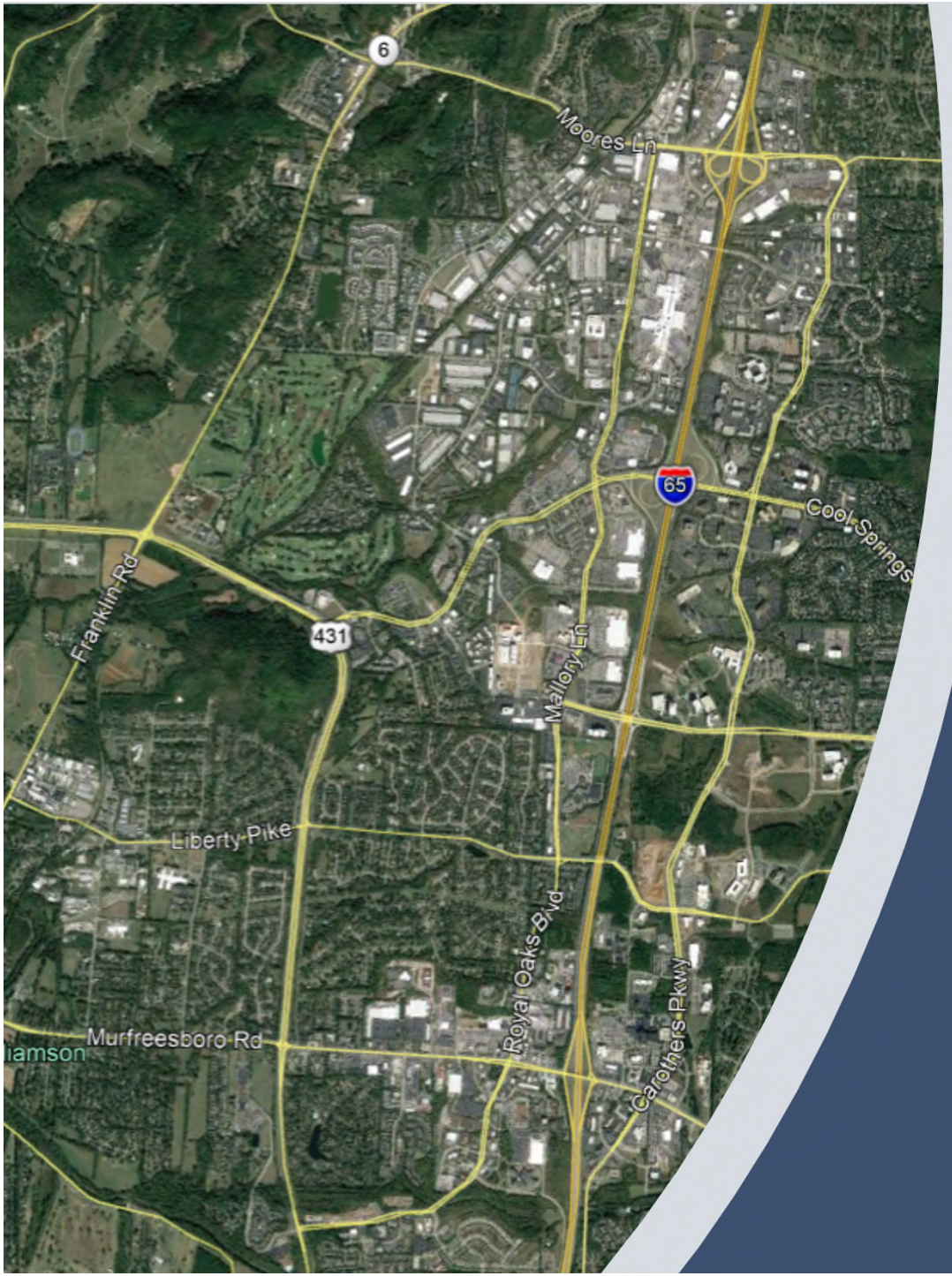
City of Franklin, TN

- Founded in 1799 – 20 miles south of Nashville
- 7th Largest City in TN
- 8th - Best Places to Live in U.S. (Money Magazine 2020)
- Named All American City – National Civic League 2020

- Over the last 10 years (2010-2020):
  - 44% Job Increase
  - 33% Population Increase

- Cool Springs Area (existing):
  - 5.1M Sq Ft - Office
  - 4.2M Sq Ft – Retail
  - 3300 Hotel Rooms
  - 85,000 Sq Ft – Conference Space

HISTORIC
FRANKLIN
TENNESSEE



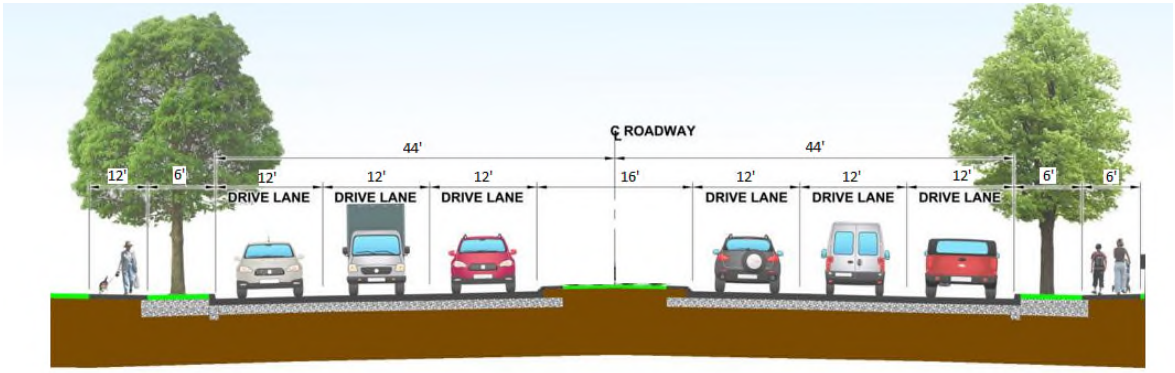
Cool Springs Area

HISTORIC FRANKLIN TENNESSEE

Genesis of the Study

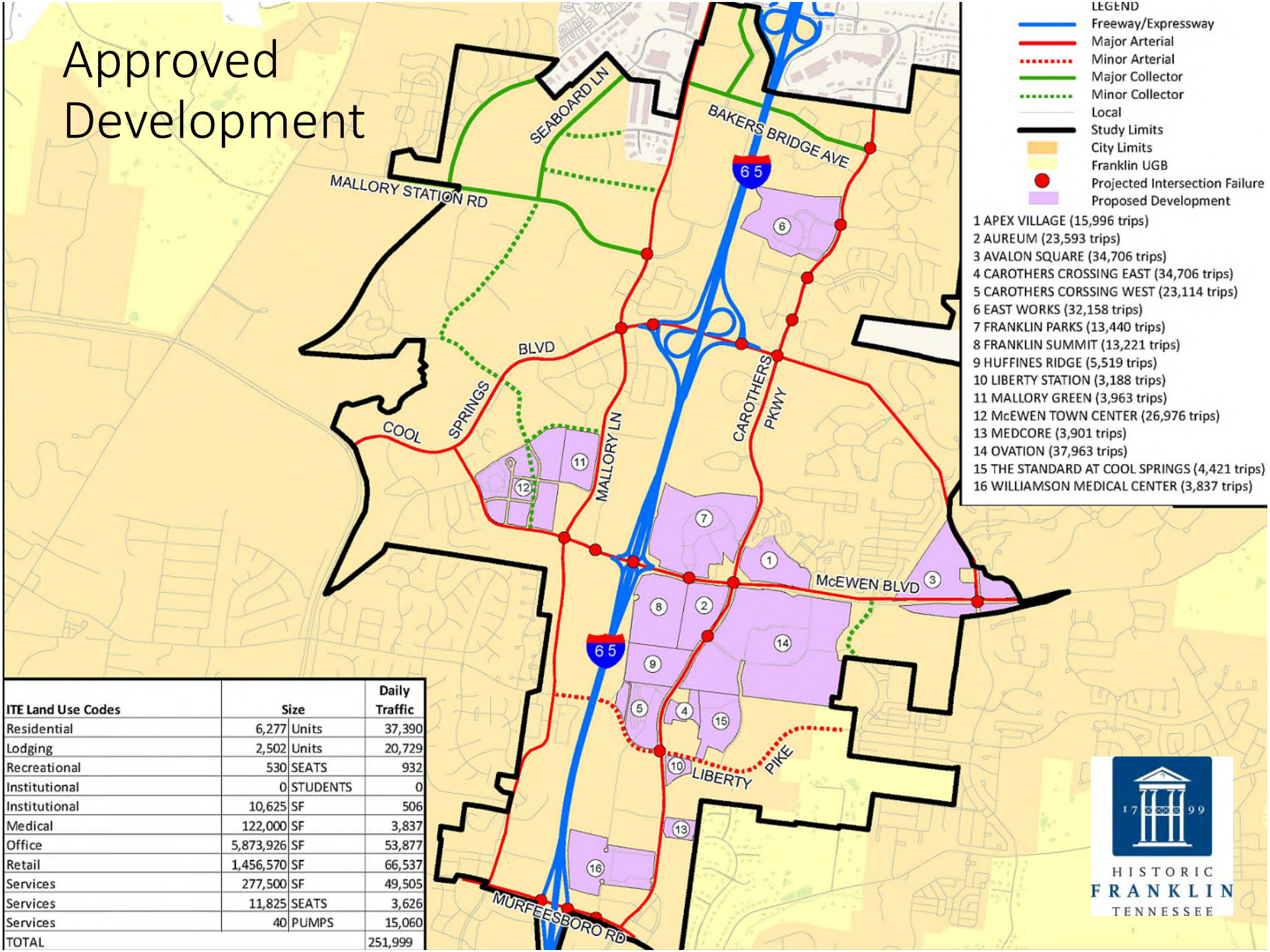
- Existing transportation plans done in last 5 – 10 years appeared to already be outdated based on approved development
  - Comprehensive Transportation Network Plan (Connect Franklin) 2016
    - Infrastructure Project Priorities
  - Integrated Growth Plan (IGP) 2013

PROPOSED TRIP GENERATON OF APPROVED DEVELOPMENTS **246%** HIGHER THAN ESTIMATED IN IGP!

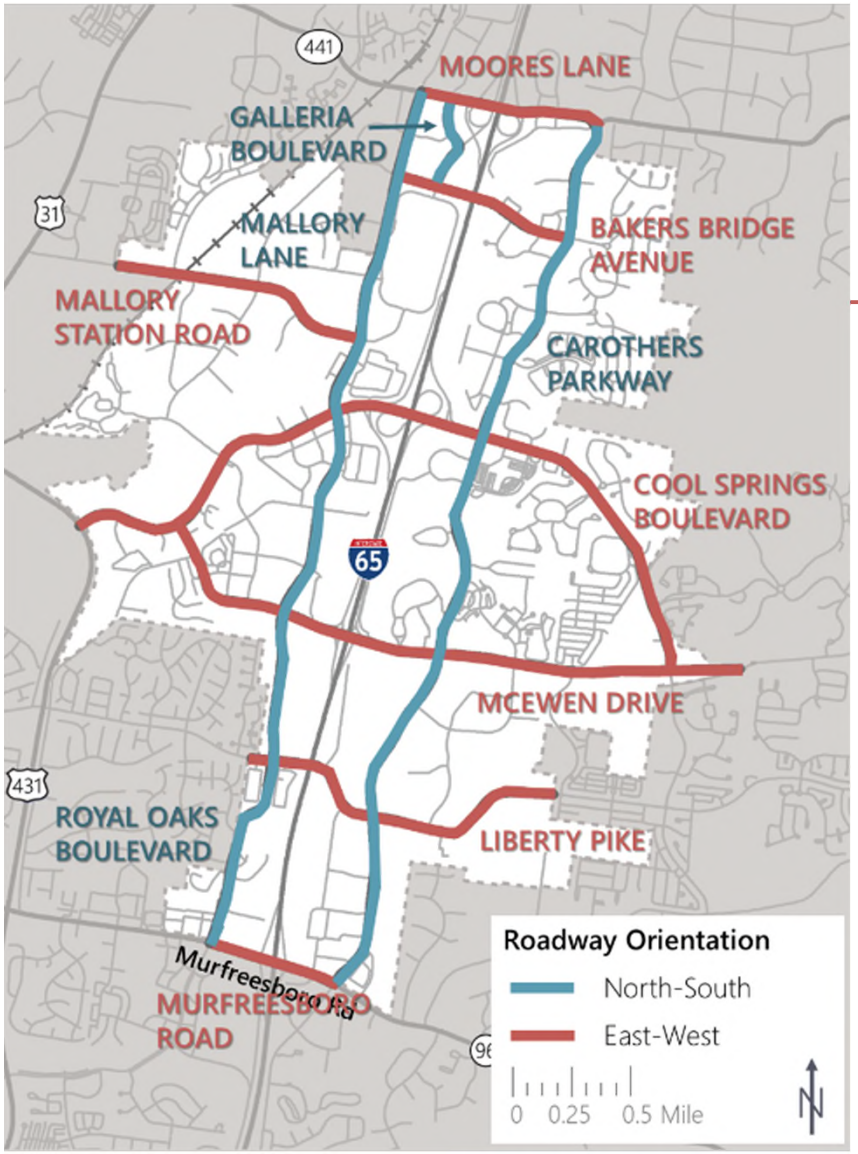


HISTORIC FRANKLIN TENNESSEE

Approved Development



ITE Land Use Codes	Size		Daily Traffic
Residential	6,277	Units	37,390
Lodging	2,502	Units	20,729
Recreational	530	SEATS	932
Institutional	0	STUDENTS	0
Institutional	10,625	SF	506
Medical	122,000	SF	3,837
Office	5,873,926	SF	53,877
Retail	1,456,570	SF	66,537
Services	277,500	SF	49,505
Services	11,825	SEATS	3,626
Services	40	PUMPS	15,060
TOTAL			251,999



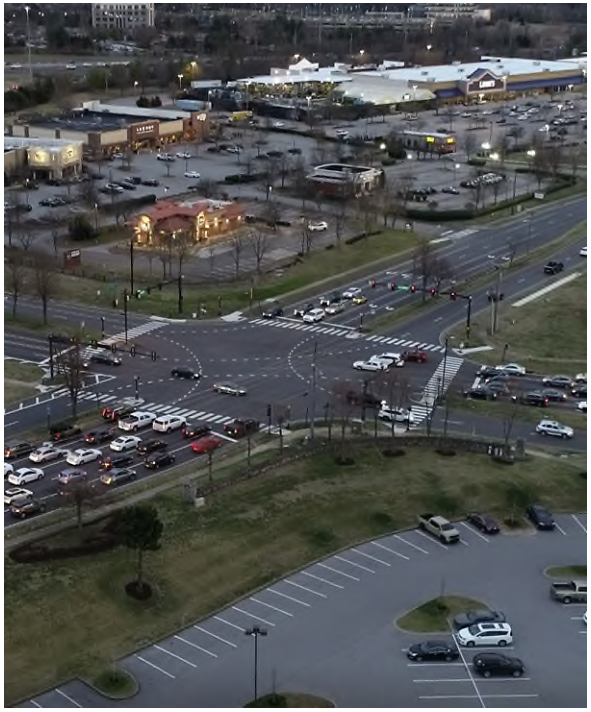
Study Basics

Study Scope Summary:

Task 1: Inventory and analyze existing conditions

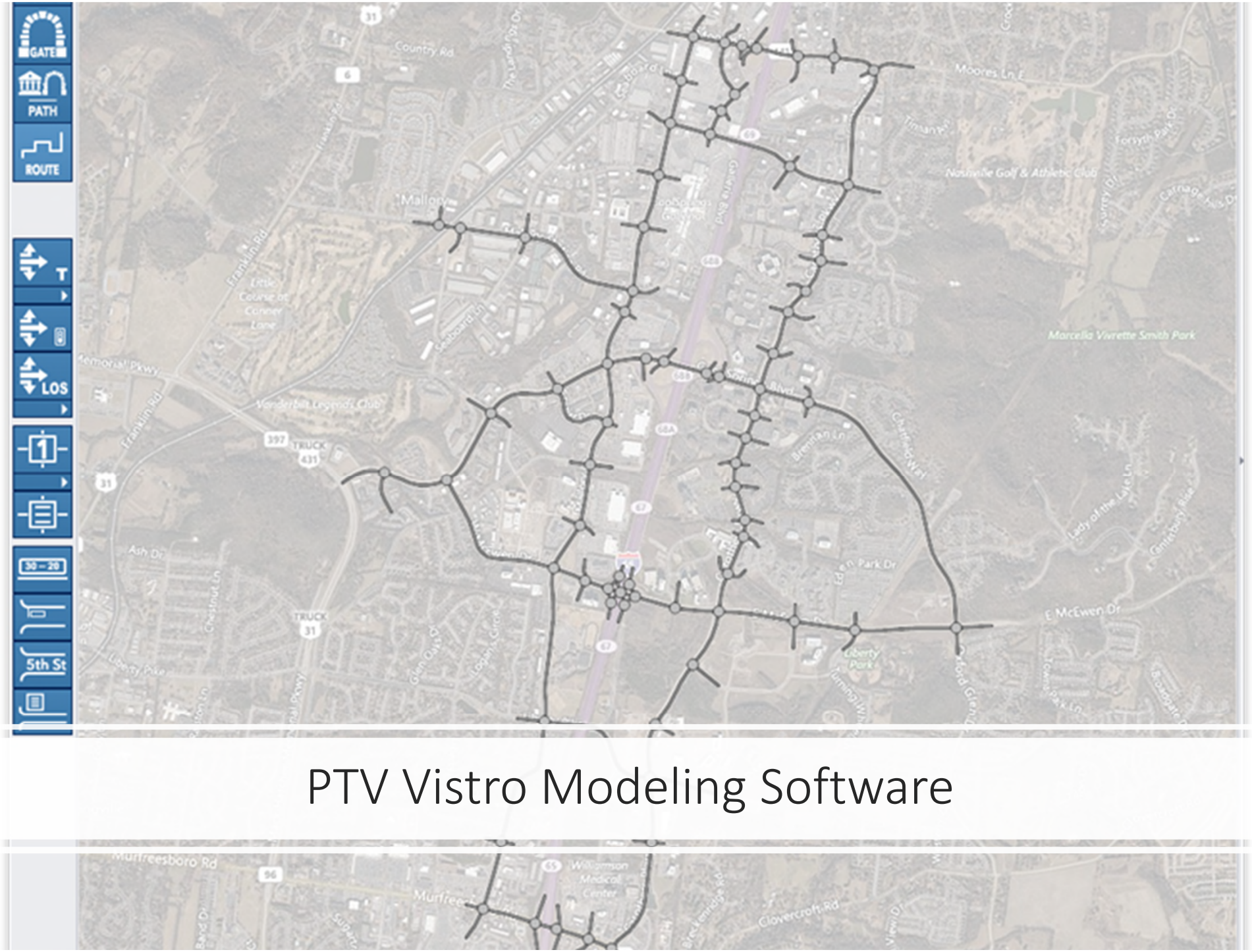
Task 2: Evaluate potential impacts to the transportation system from approved and future development scenarios

Task 3: Recommend infrastructure and operational improvements as well as policy strategies for achieving desired transportation outcomes



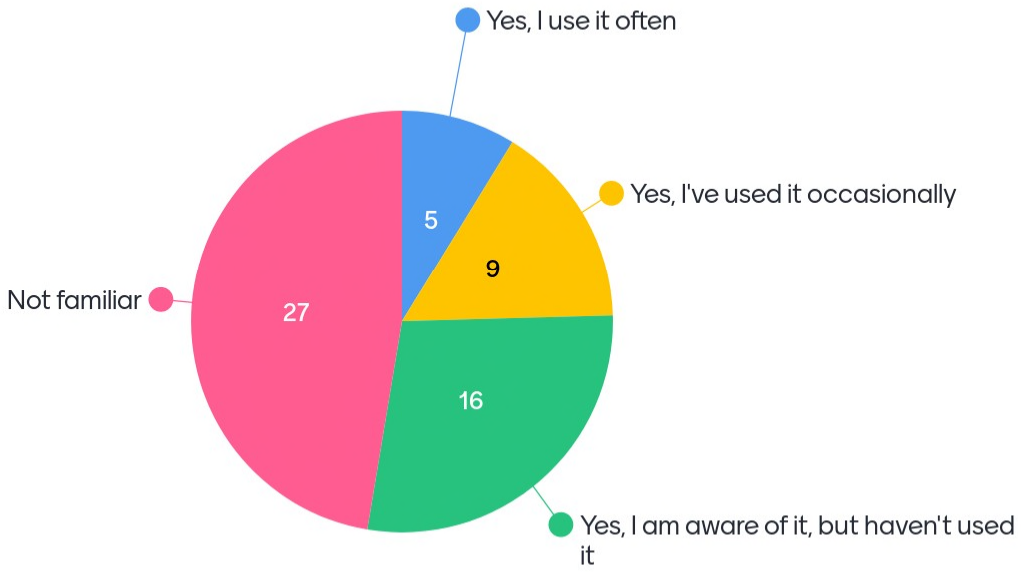
Data Collection

- Turning Movement Counts
- Tube Counts
- Field Inventory
- Peak Hour Observations
- Drone Footage



PTV Vistro Modeling Software

Are you familiar with PTV Vistro and do you use it?

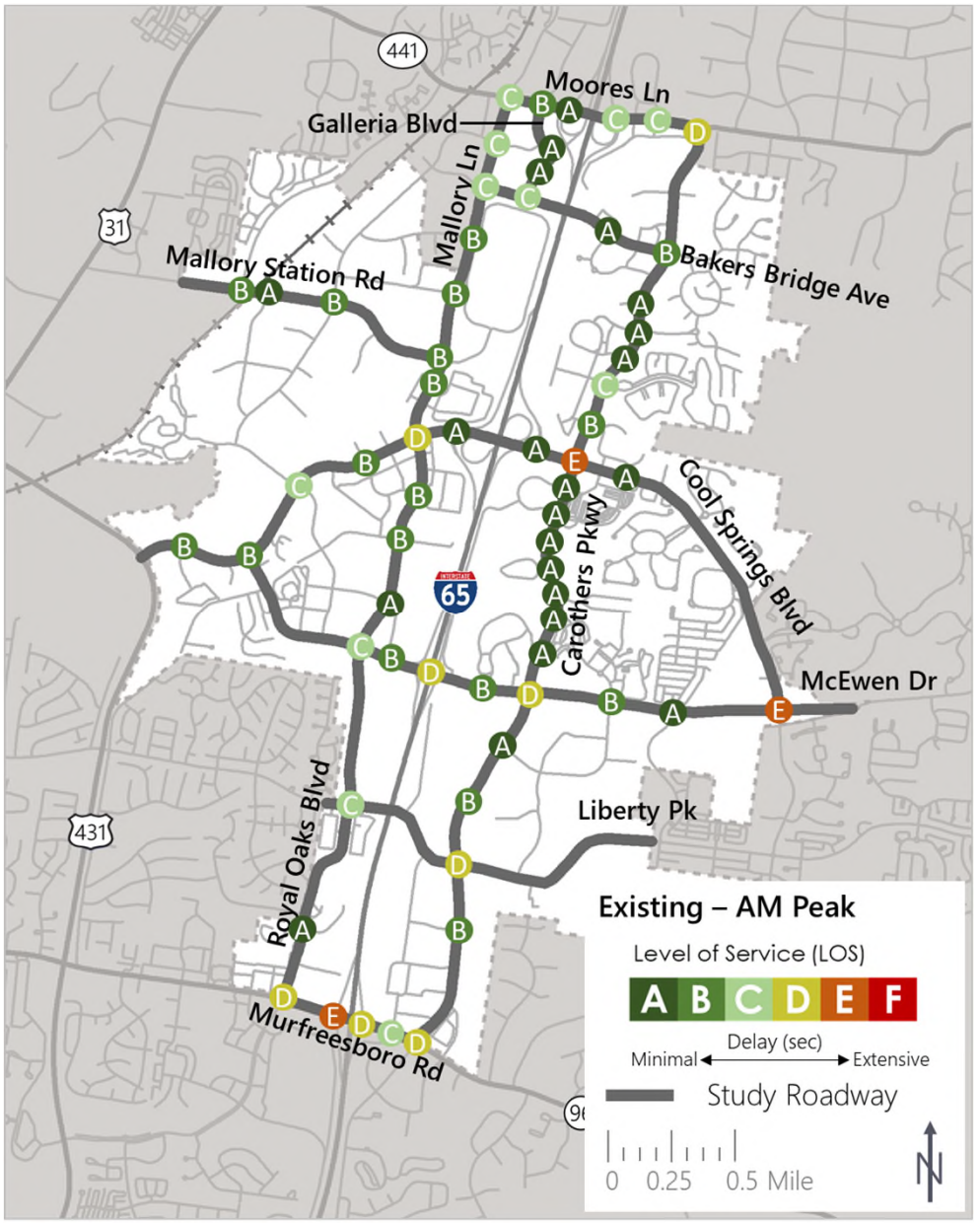


57

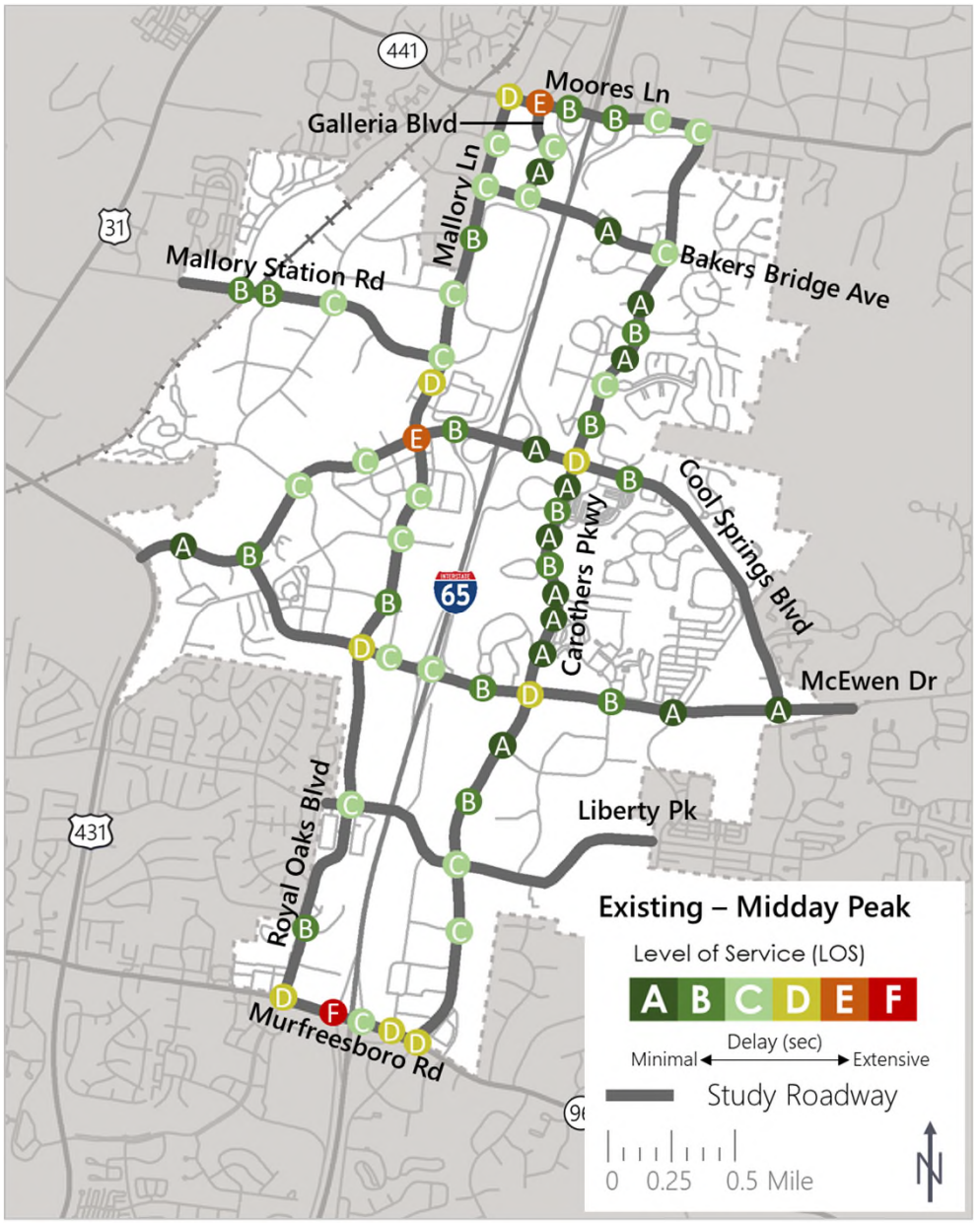
Benefits of PTV Vistro

- Quantifiable and Relatable Results
- Compatibility
- Flexibility
  - Multiple Scenarios in One File
  - Easy Updating
  - Trip Generation Built into Model
  - Internal Program QC
  - Trip Distribution via Zones, Gates, and Paths
  - Scenario Testing

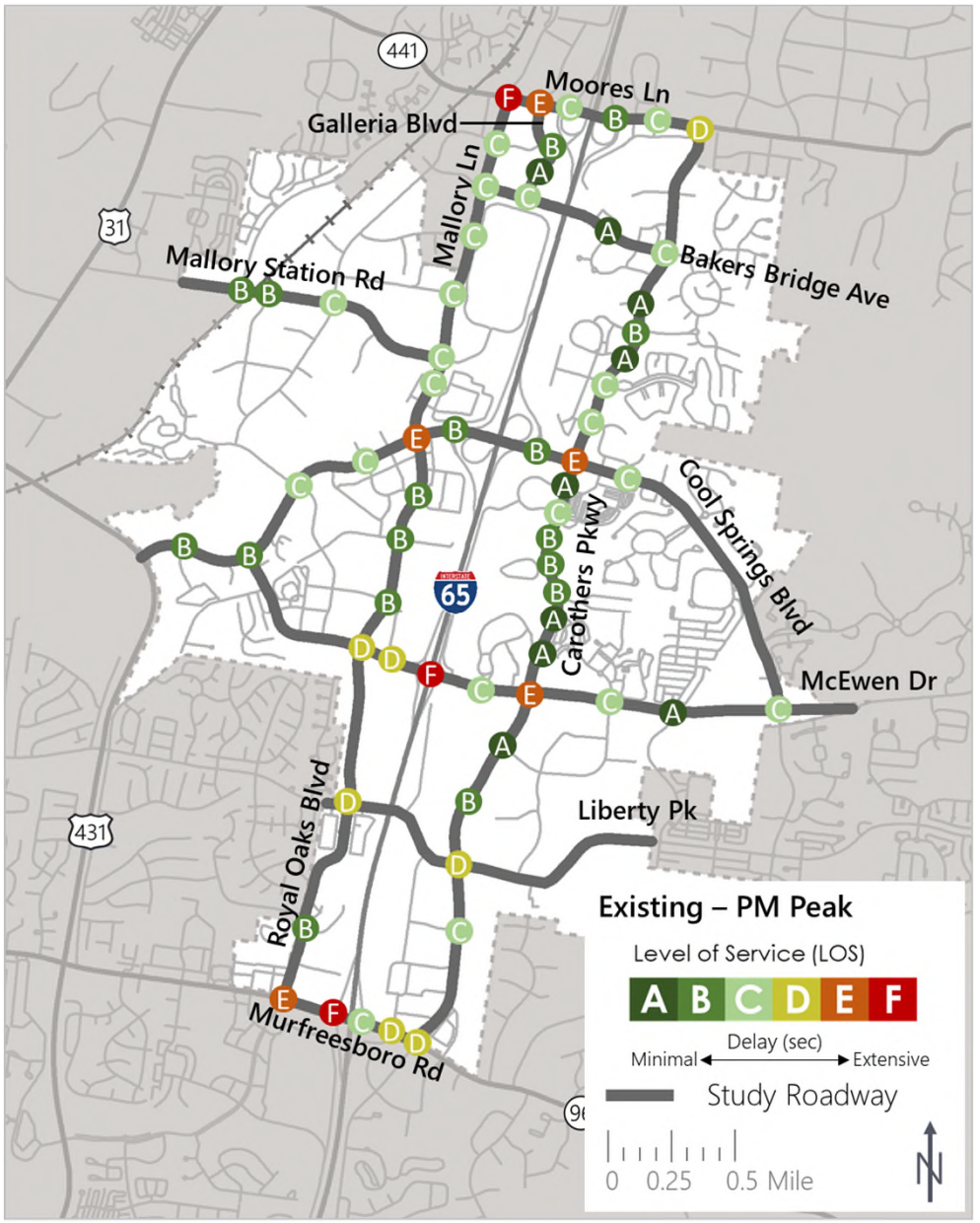
Existing Analysis: AM Results



Existing Analysis: Midday Results



Existing Analysis: PM Results



FUTURE SCENARIOS (2030)

ALL SCENARIOS INCLUDE

- Generalized background growth
- Programmed and recommended improvements stated in traffic impact studies

APPROVED DEVELOPMENT

- 50% Build out
- 100% Build out

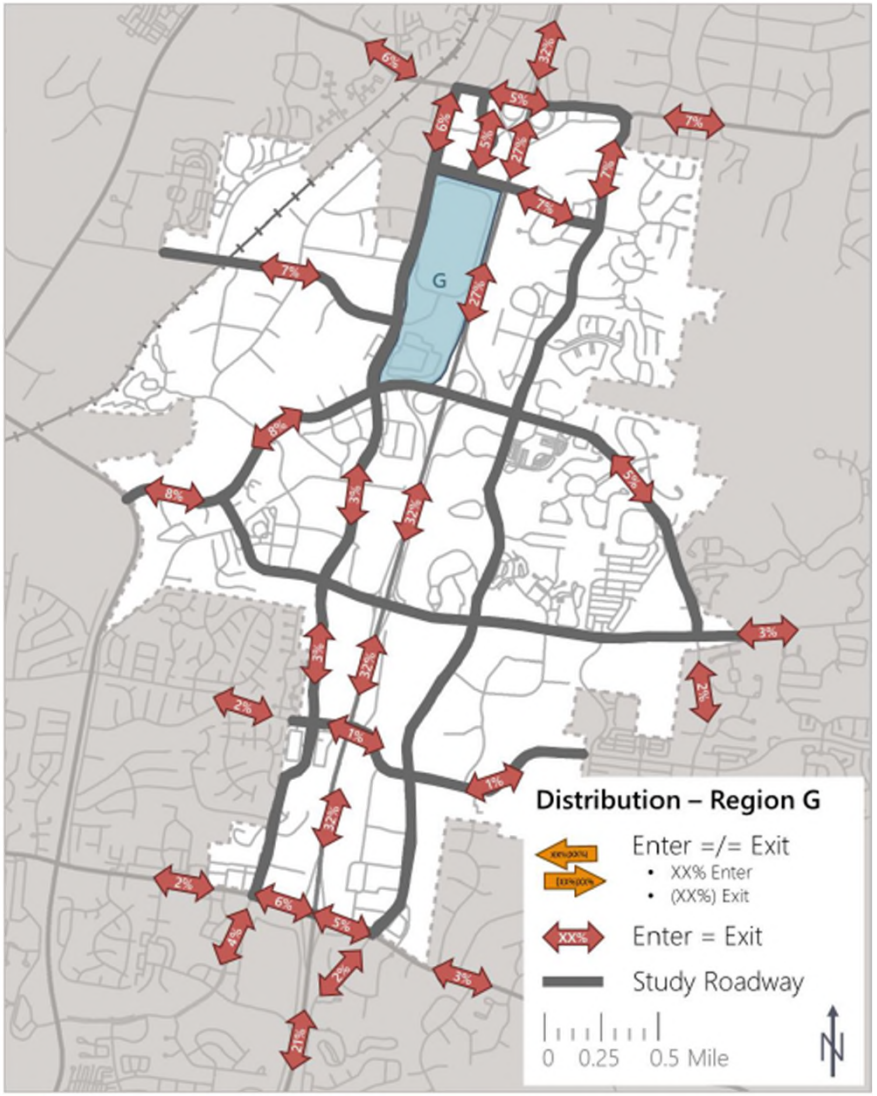
MAXIMIZED DEVELOPMENT

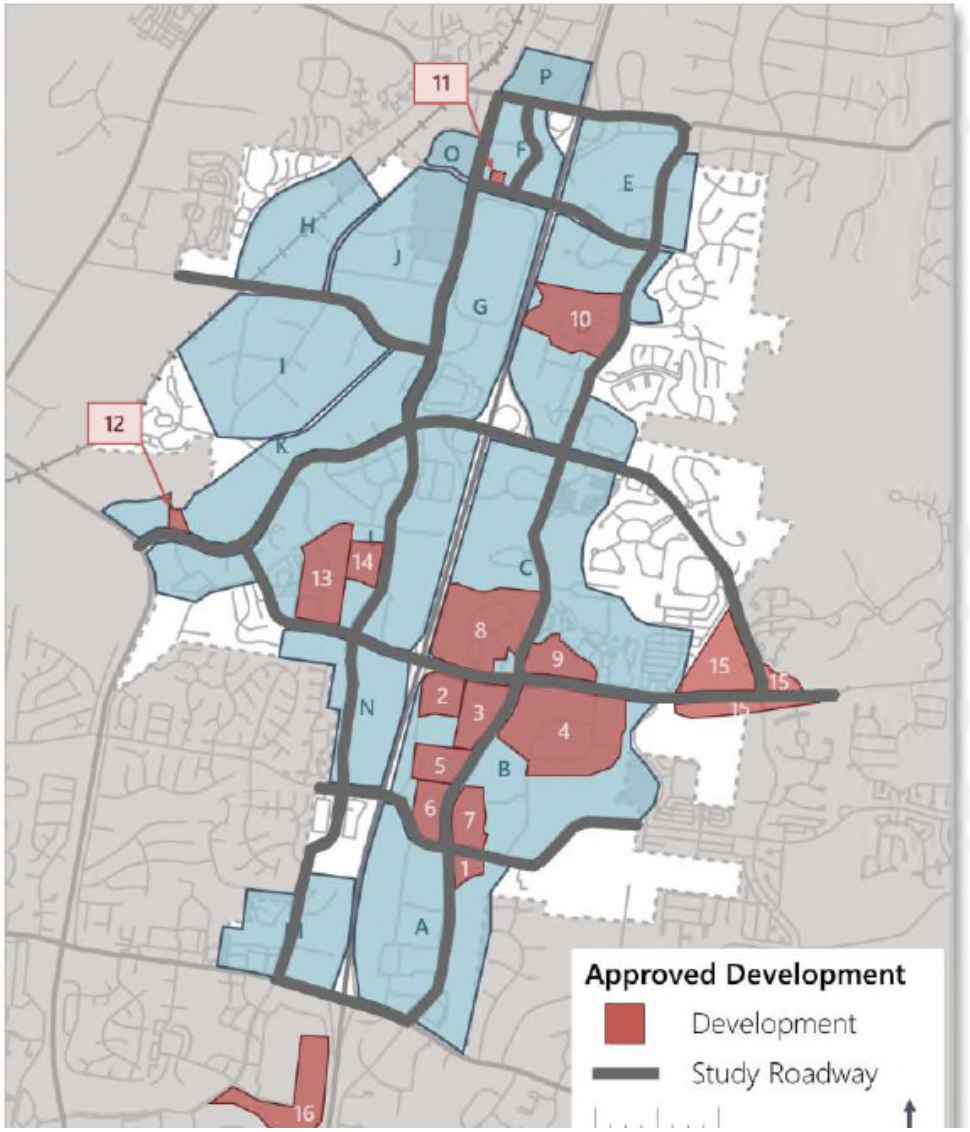
- 25% Development Potential
- 50% Development Potential
- 100% Development Potential

BACKGROUND GROWTH AND DISTRIBUTION

- **Background Growth**
  - Historic Counts
  - TDOT AADT data
  - StreetLight analysis

- **Distribution**
  - StreetLight analysis



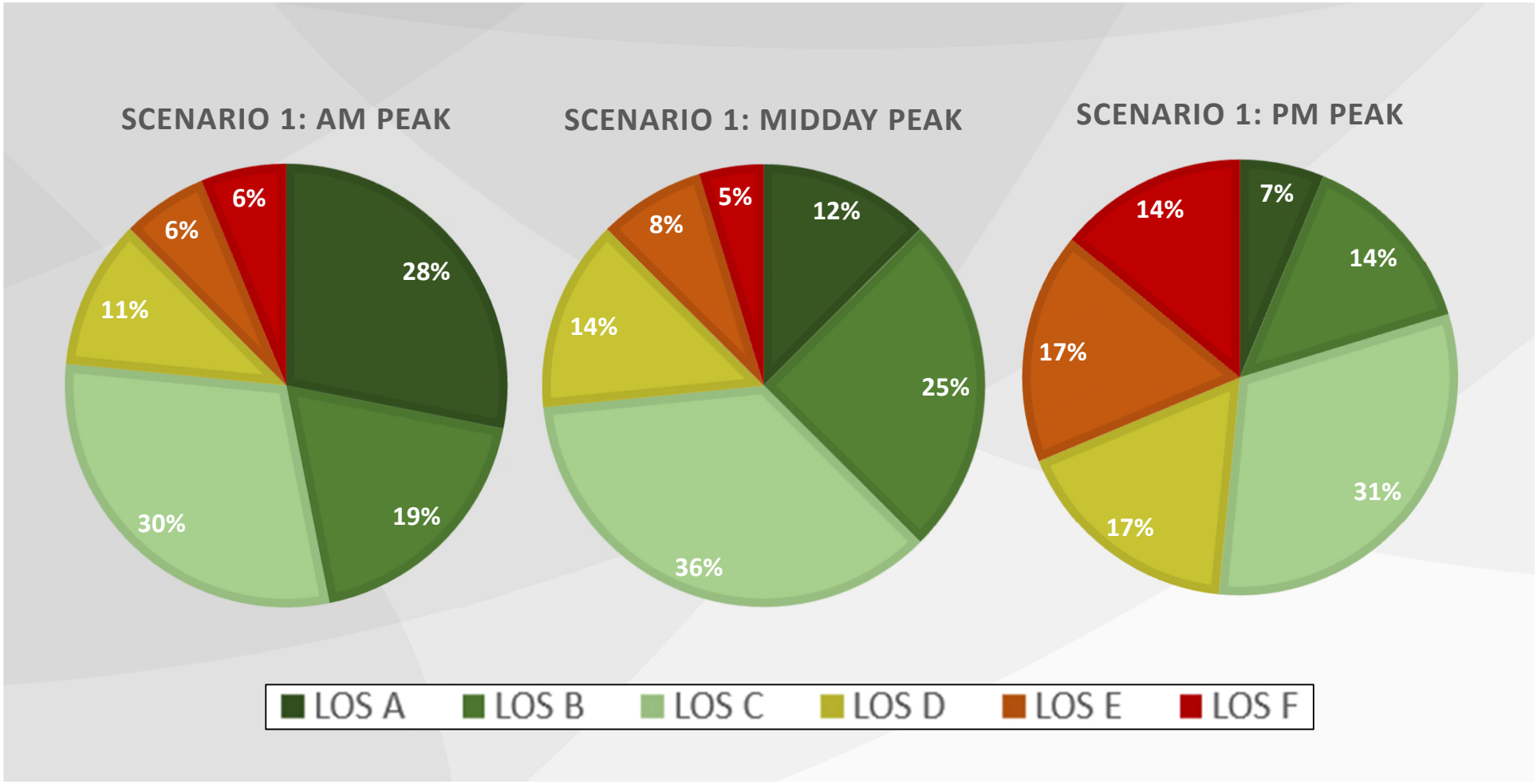


APPROVED DEVELOPMENT

1. Liberty Station
2. Franklin Summit
3. Aureum
4. Ovation
5. Huffines Ridge
6. Carothers Crossing West
7. Carothers Crossing East
8. Apex Village
9. Franklin Park
10. East Works
11. 7086 Bakers Bridge Avenue
12. The Franklin at Legends
13. Mallory Green
14. McEwen Town Center
15. Avalon Square
16. Vintage Franklin

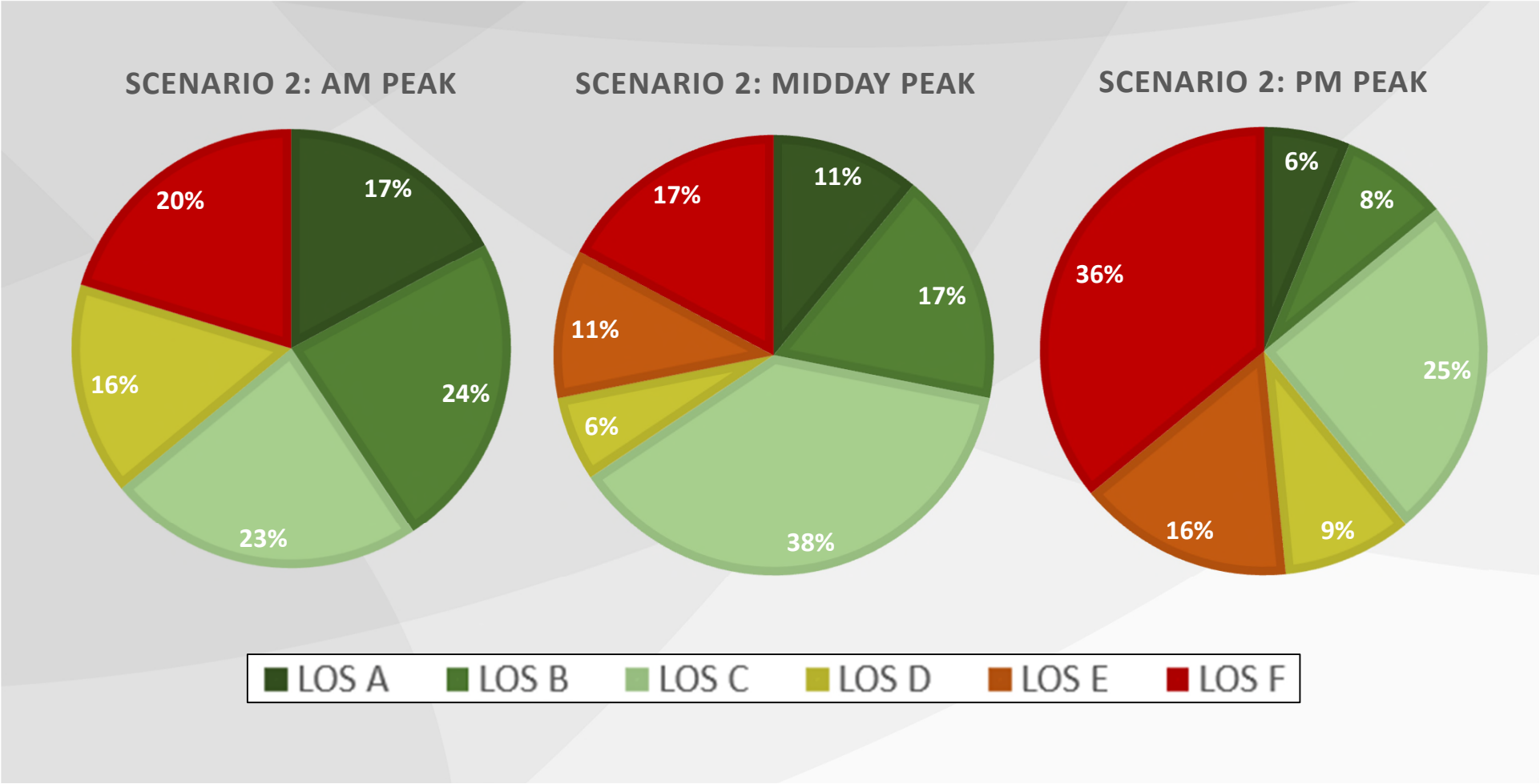
Scenario 1:

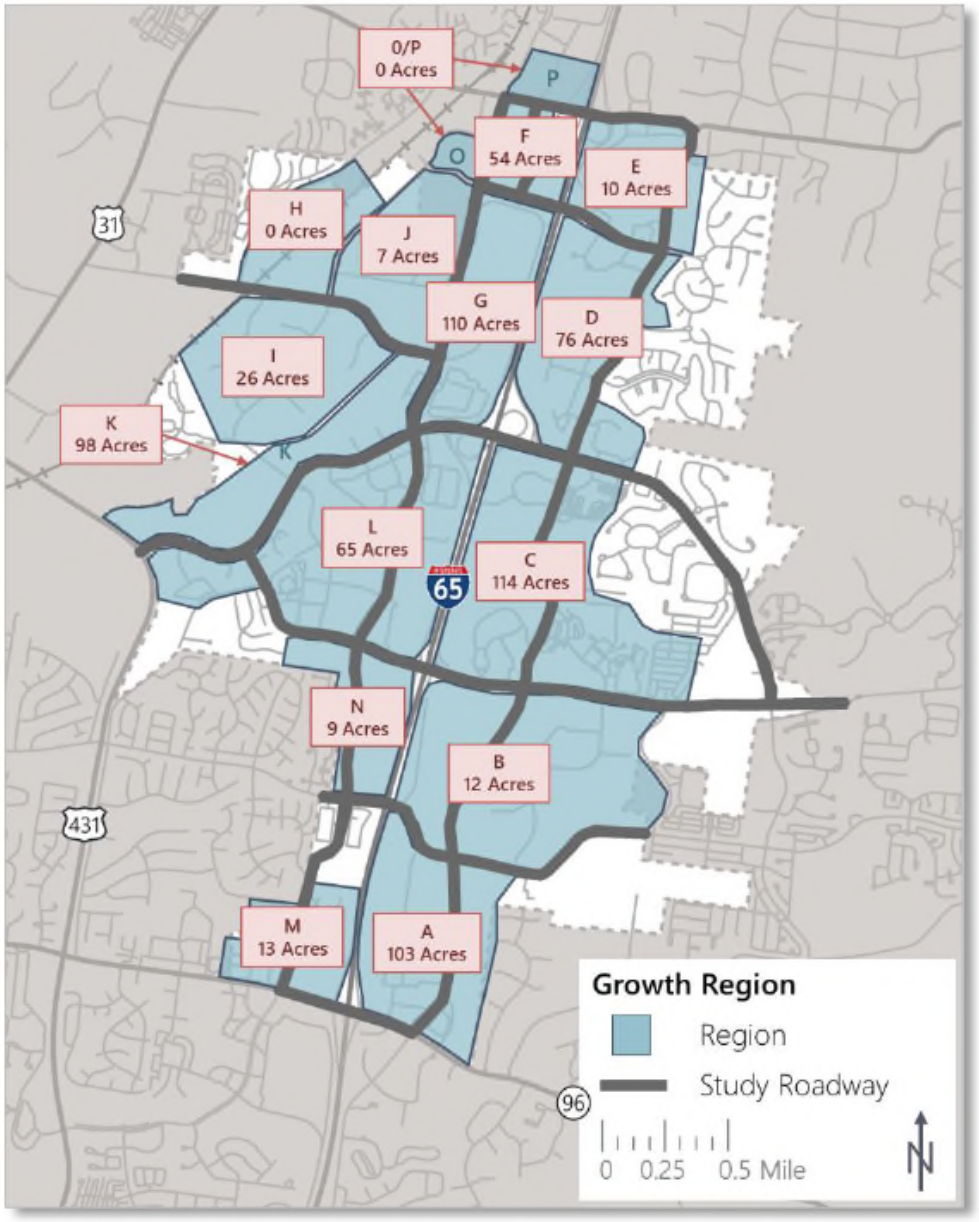
50% APPROVED DEVELOPMENT RESULTS



Scenario 2:

100% APPROVED DEVELOPMENT RESULTS

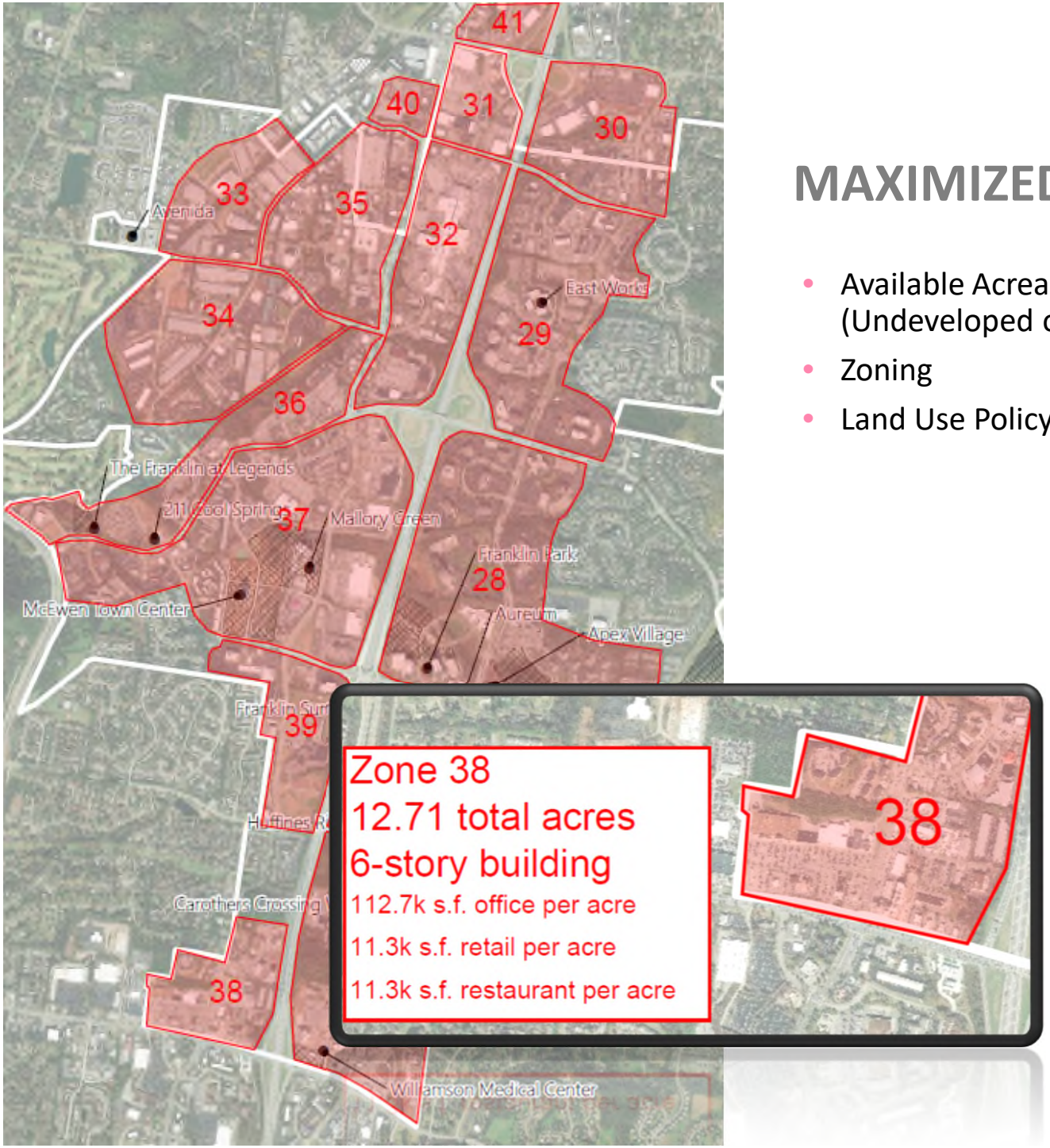




MAXIMIZED DEVELOPMENT

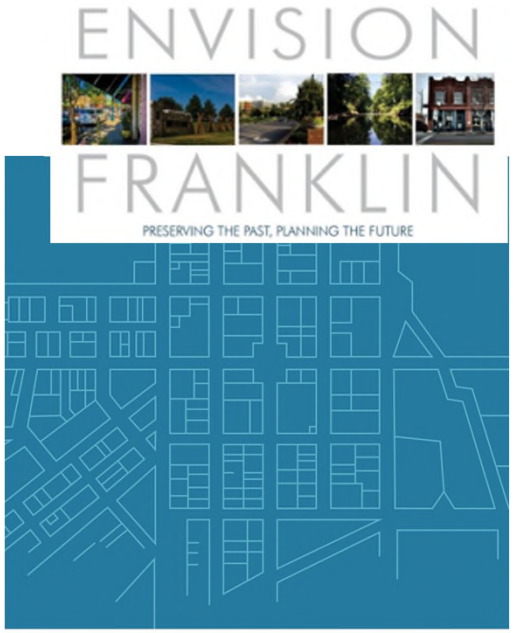
- Available Acreage Determination (Undeveloped or for Redevelopment)
- Zoning
- Land Use Policy

- 695 acres
- Trip Generation
  - 129,980 AM peak hour trips,
  - 204,004 Midday peak hour trips
  - 162,190 PM peak hour trips



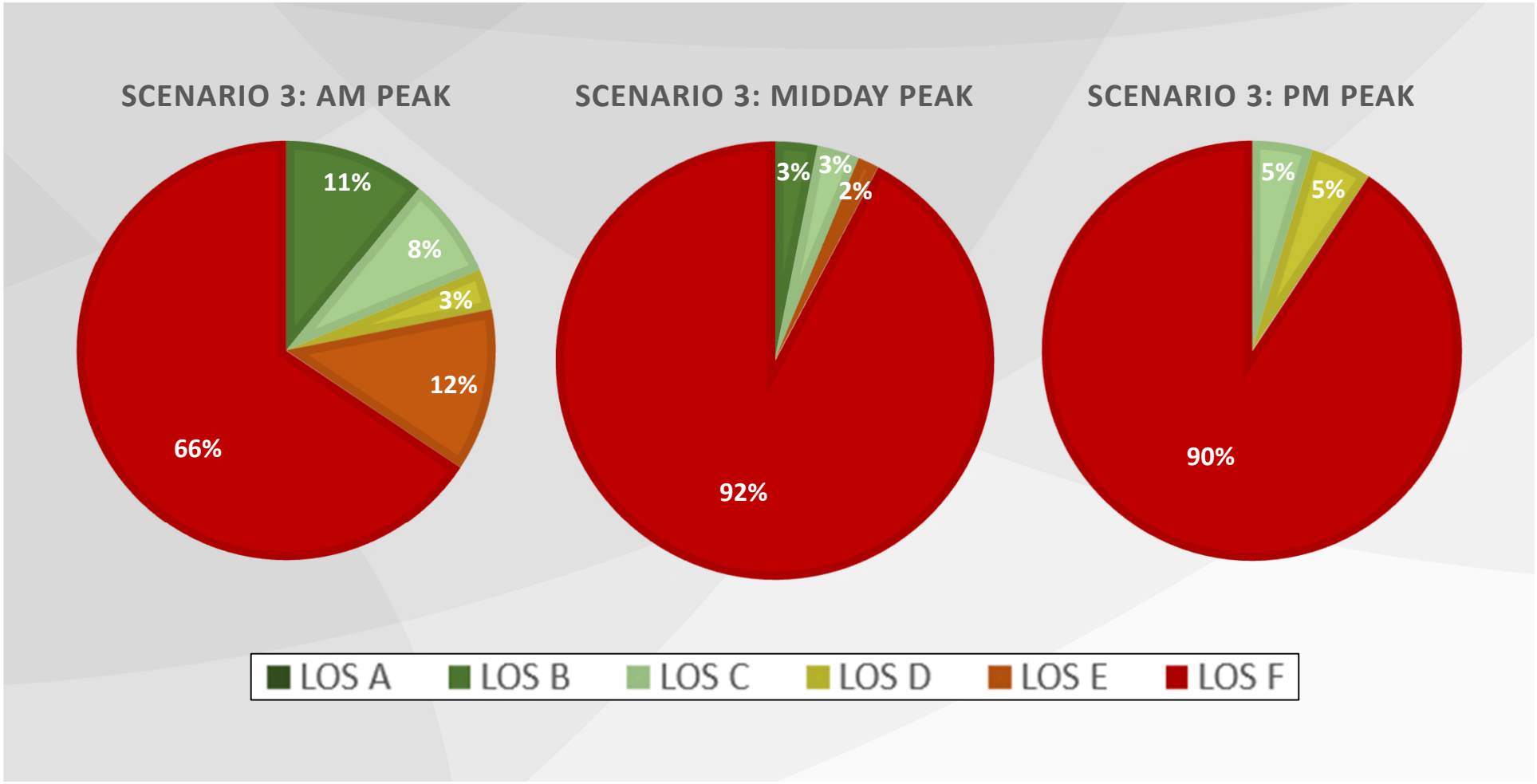
MAXIMIZED DEVELOPMENT

- Available Acreage Determination (Undeveloped or for Redevelopment)
- Zoning
- Land Use Policy



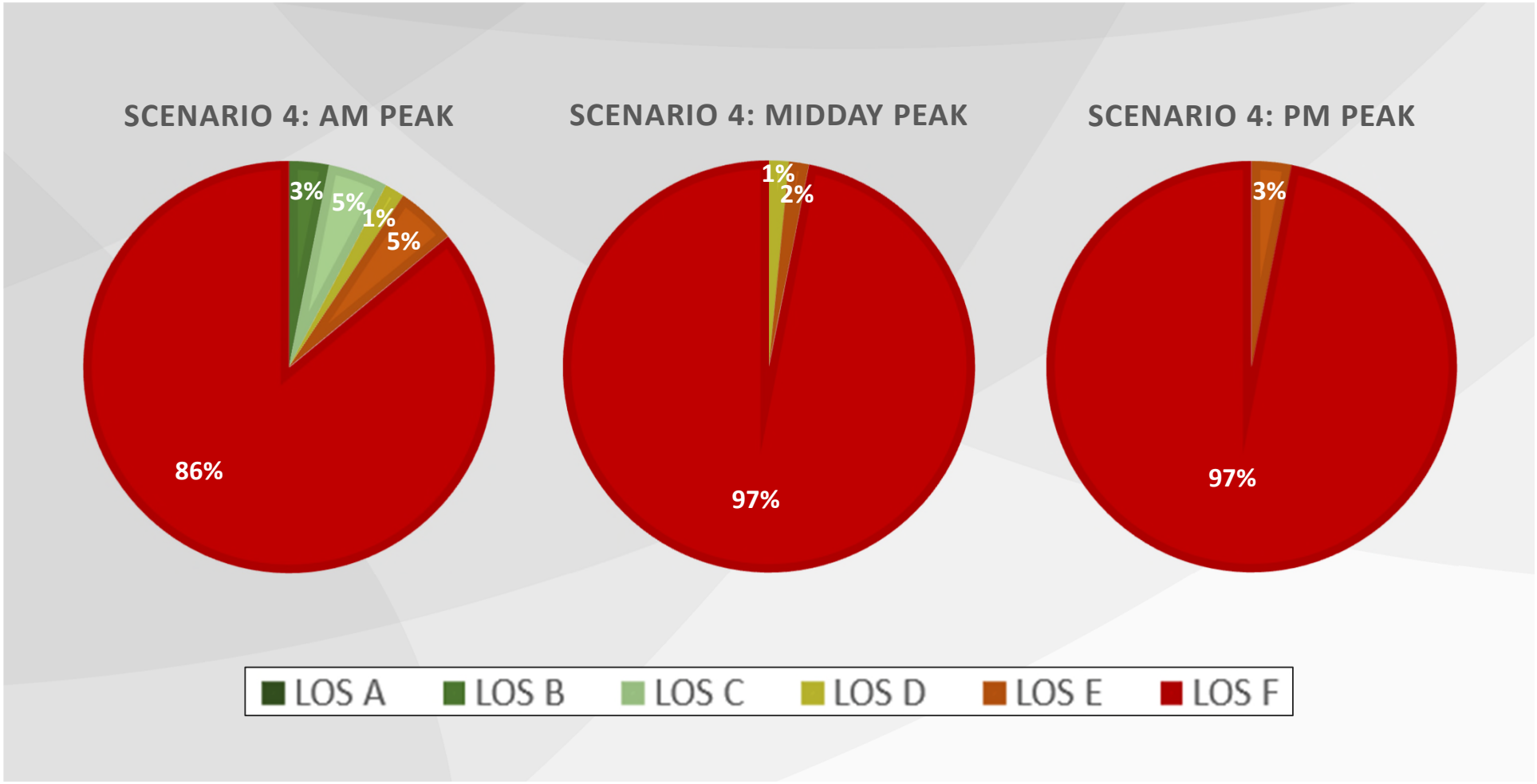
Scenario 3:

25% MAXIMIZED DEVELOPMENT RESULTS



Scenario 4:

50% MAXIMIZED DEVELOPMENT RESULTS



100% Maximized Development Results

We broke the model.

So, What Now?

Existing Policy Documents

- Envision Franklin
- Connect Franklin
- City of Franklin Zoning Ordinance
- Transportation & Street Standards
- Integrated Growth Plan
- Traffic Impact Analysis
- Multimodal Transportation Network Study

Proposed Recommendation Areas

Development Approval Practices

Trip Reduction Strategies

More Multimodal Options

Development Approval Practices

Current Practice

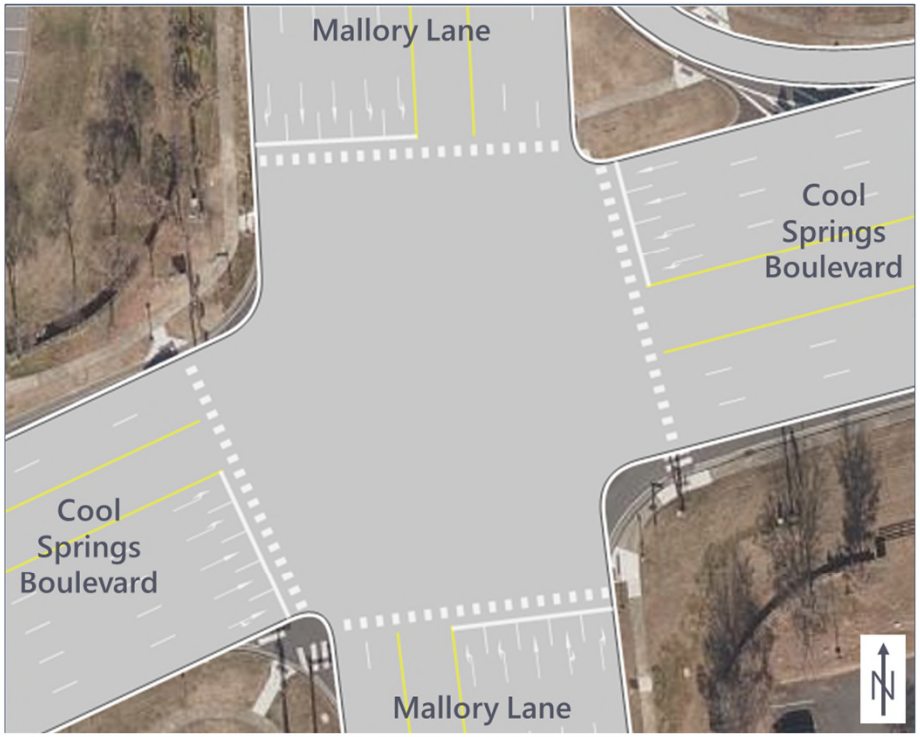
Development impacts are assessed based on intersection Level of Service (LOS) and must be mitigated when LOS D is not maintained.

Current Issue

LOS D is already unachievable in many areas with existing and approved development.

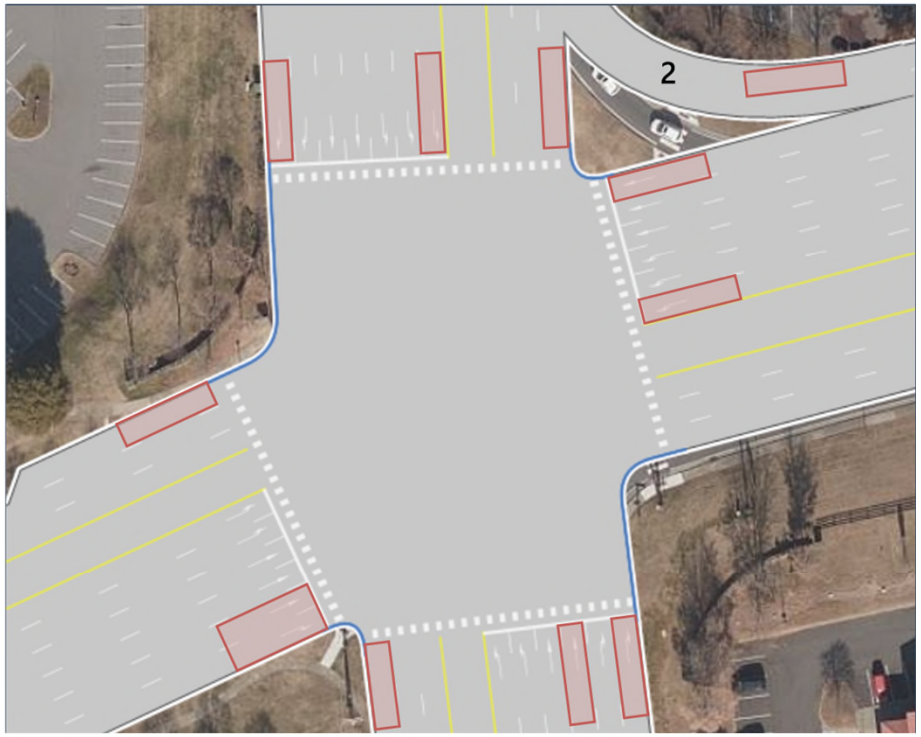
Development Approval Practices

Before Improvement



AM	MID	PM
D (44.7)	F (84.3)	F (110.2)

After Improvement



AM	MID	PM
D (39.0)	D (48.8)	D (51.2)

Development Approval Practices

Proposed Recommendations

- Retain a LOS target, mitigating development impacts as much as possible realizing that LOS D will not always be achievable.
- Use alternative metrics such as Vehicle Miles Traveled (VMT) to assess systemwide impacts and explore broader mitigation options.

Development Approval Practices

Example Problem

→ New and sizeable mixed-use development coming to Cool Springs

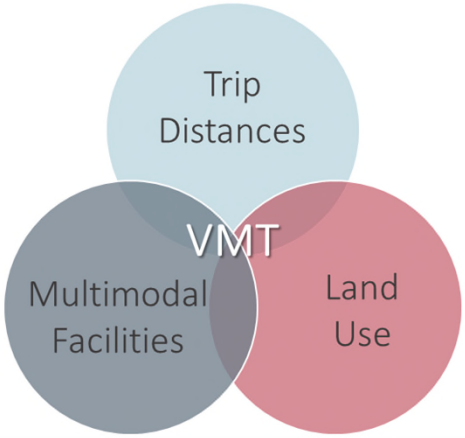
→ More vehicles on the roads, but the nearby intersections are already failing with LOS F

→ How do we assess and mitigate impacts?

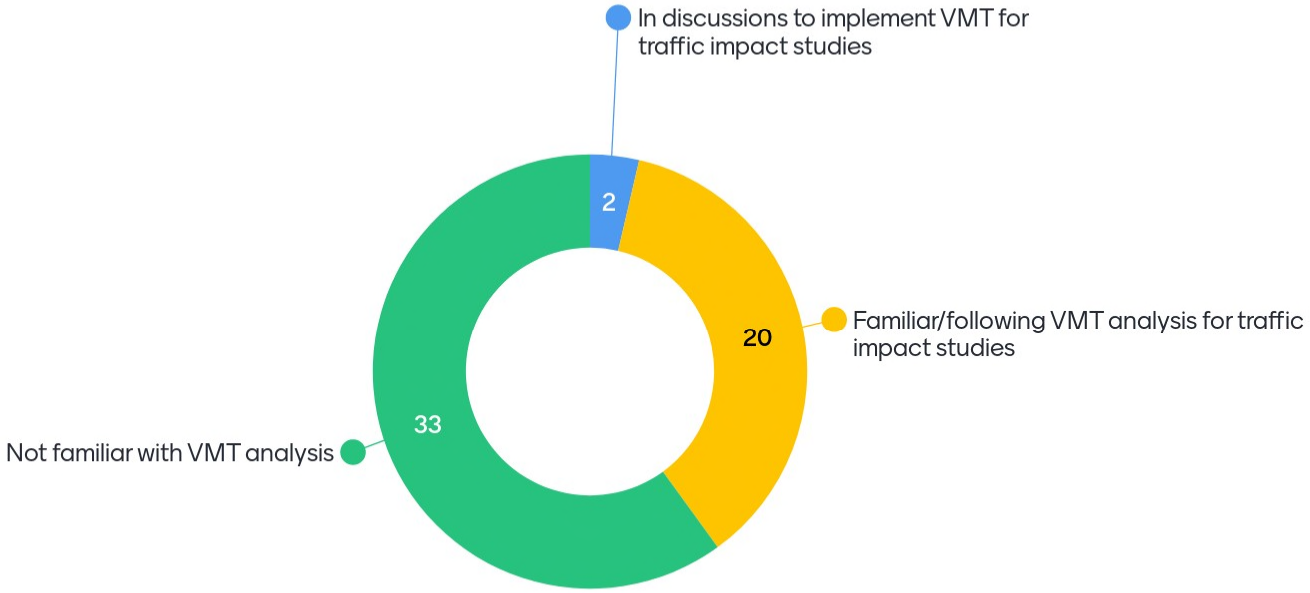
Example Solution

→ Calculate expected VMT of development to better understand the causes of congestion

→ Require alternative mitigation measures to address impacts as much as possible



What is your experience with VMT analysis and implementation?



Trip Reduction Strategies

Current Practice

The City's zoning encourages mixed-use development in strategic areas and allows for shared parking arrangements where appropriate.

Current Issue

Maintaining the City's quality of life will become increasingly difficult without reducing the number of vehicles on the roadways.

Trip Reduction Strategies

Proposed Recommendations

- Create a toolbox of Travel Demand Management (TDM) strategies that:
    - Includes both programs and infrastructure investments,
    - Is tailored to Franklin's workforce, development patterns, and existing infrastructure, and
    - Is discussed with incoming applicants as the City works through the site development and approval process.

Trip Reduction Strategies

Program Examples

- → Educational and Marketing Campaigns
- → Carpool/Vanpool Programs
- → Alternative Mode Incentives for Employees
- → Shared Vehicle Fleets
- → Telecommute/Remote Work Alternatives

Infrastructure Examples

- → Off-Site Parking with Transit Circulator
- → Bike Parking, Lockers, Showers, Repair Stations
- → Priced Parking Strategies

More Multimodal Options

Current Practice

- Current infrastructure and policy accommodates vehicles, transit users, bicyclists, and pedestrians.
- Impact fees are allocated primarily to roadway infrastructure improvements.

Current Issue

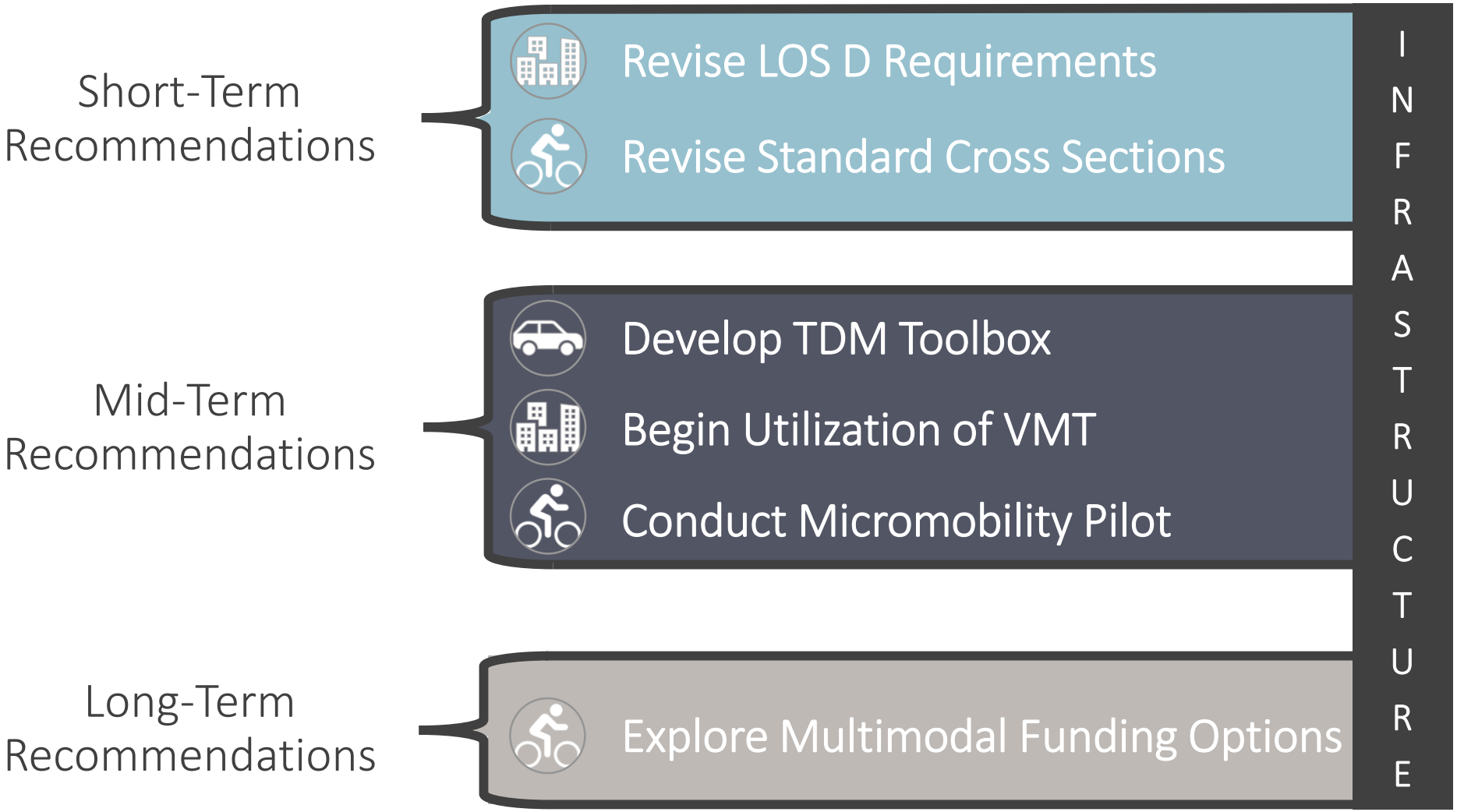
- Policies currently limit possibilities for other micromobility options.
- Impact fee ordinance does not explicitly allow for multimodal investments as a mitigation measure for development impacts.

More Multimodal Options

Proposed Recommendations

- Pilot programs should be used to temporarily test innovative technologies (e.g., e-bikes, scooters, etc.) and assess their long-term potential for reducing trips.
- Standard cross sections should be evaluated to ensure that they safely and efficiently accommodate various forms of travel.
- Additional multimodal fees should be explored to ensure that incoming developments are helping to provide multimodal options desired by the City.

Implementation Timeline



Presentation to Board

Comments Received from Board/Mayor:

- **Agree with exploring policy alternatives** other than infrastructure or widening
- **Transit needs to be promoted with new development** – Stops, Ridership Commitment
- **Agree with LOS recommendations** – clarify expectations
- **Need to have a better understanding of Travel Demand Management (TDM)** – Developer to propose w/ specific examples and results if trip reduction requested
- **How will COVID-19 affect these results -** remote work, changed schedules
- They were a little 'cool' on micro-mobility – bad taste

HISTORIC
FRANKLIN
TENNESSEE

Next Steps

Items Already Implemented:

- **Changed Minimum LOS Criteria in Street Standards**
  - **Overall intersection maintain LOS D or better (Peak Hour)**
  - **Turning movements allowed to LOS E (Peak Hour)**
  - **Maintain existing LOS (if E, keep E)**
  - **Otherwise, implement other mitigation measures:**
    - **Reduce Density**
    - **Alternate Intersection Design**
    - **TDM (remote work, vanpool, priced parking, transit)**
    - **Revise/Enhance roadway cross-sections to promote other modes**

Future:

- **Revisit Transit Studies –** Cool Springs Circulator
- **Micromobility Pilot Study** – What is needed?
- **Explore Use of VMT** – Regional Level or City?
- **Multimodal Funding** – Development

HISTORIC
FRANKLIN
TENNESSEE

Thank you

HISTORIC FRANKLIN TENNESSEE

Adam Moser, P.E.
City of Franklin, TN
adam.moser@franklintn.gov

KCI TECHNOLOGIES

Beth Ostrowski, P.E., P.T.O.E.
KCI Technologies, Inc.
beth.ostrowski@kci.com