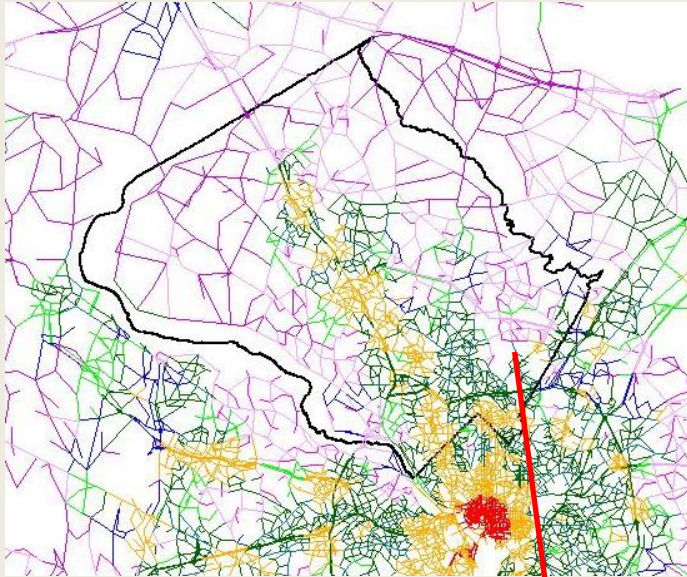


# White Oak Science Gateway (WOSG) Master Plan Preliminary Transportation Analysis

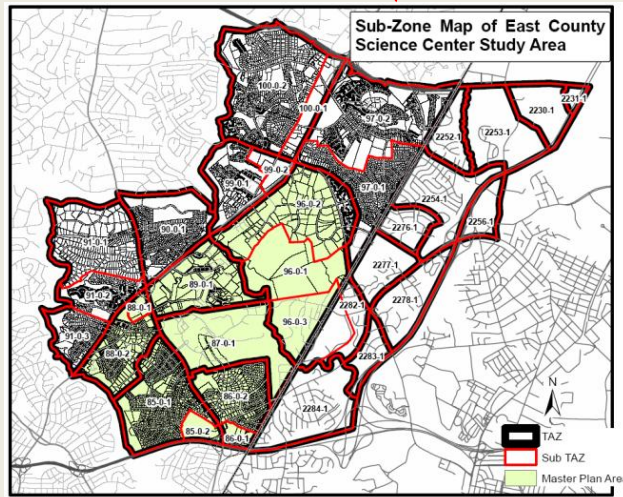
Presentation to the White Oak Science Gateway CAC  
May 22, 2012

# Transportation Modeling Process Overview

# Regional Model/Local Model Relationship



Local Area Model



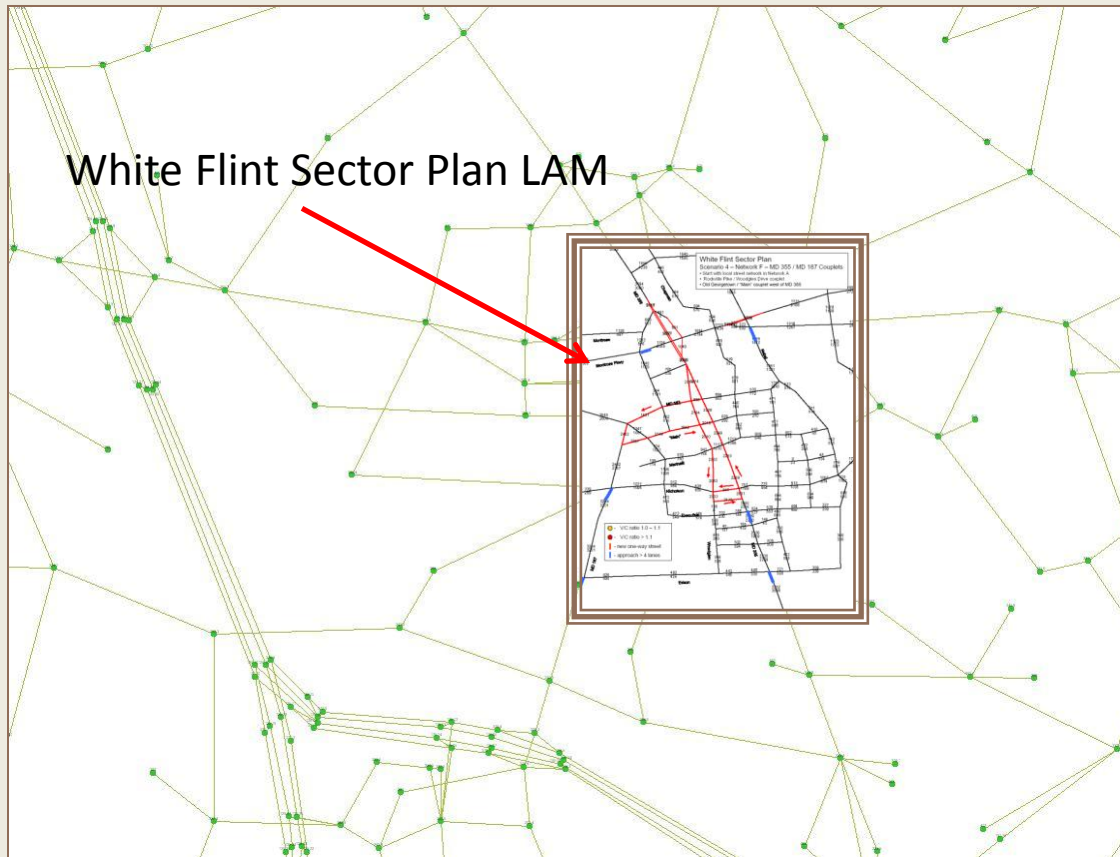
## Regional Model

- Same tool as that used by Metropolitan Washington Council of Governments
- Reflects county-wide and regional traffic effects (including those from Howard and Prince Georges Counties)
- Output – Policy Area Mobility Review (PAMR) results (used to evaluate area-wide land use/transportation balance and transportation adequacy)

## Local Model

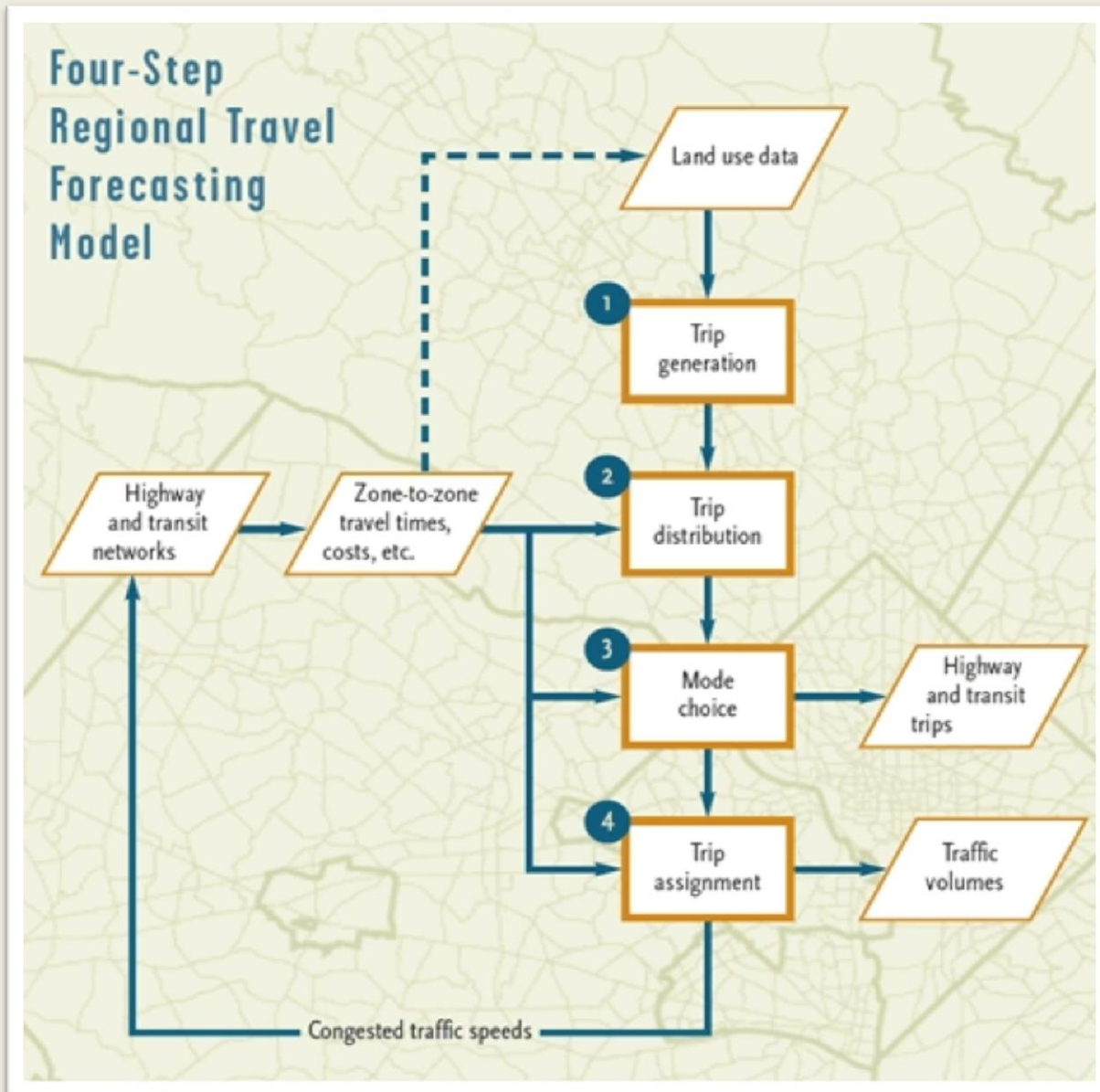
- More Detailed/Fine Grain Analysis
- Output – Critical Lane Volumes (CLVs) for intersections (including “Four Corners” @ US 29/MD 193)
- Compare with established policy area standard (1475 CLV in this case)
- Regional model “feeds” though trips into Local Area Model

# Relationship Between Regional and Local Models



- Regional and local models work in tandem
- Local model tool is pragmatic for Plan area where local planning/zoning recommendations will be made
- Process works for master plan level decision making as in Germantown, Great Seneca Science Center and White Flint

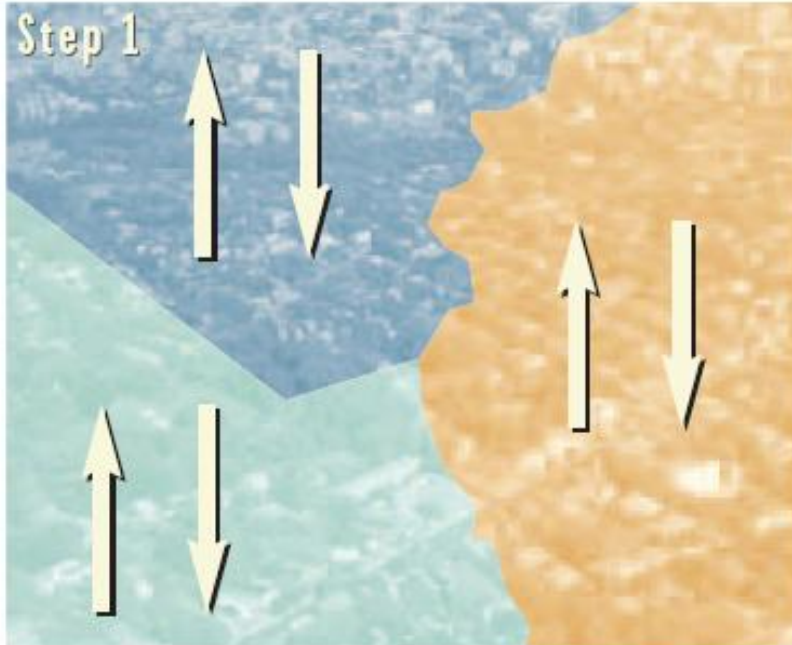
# Regional Model Framework



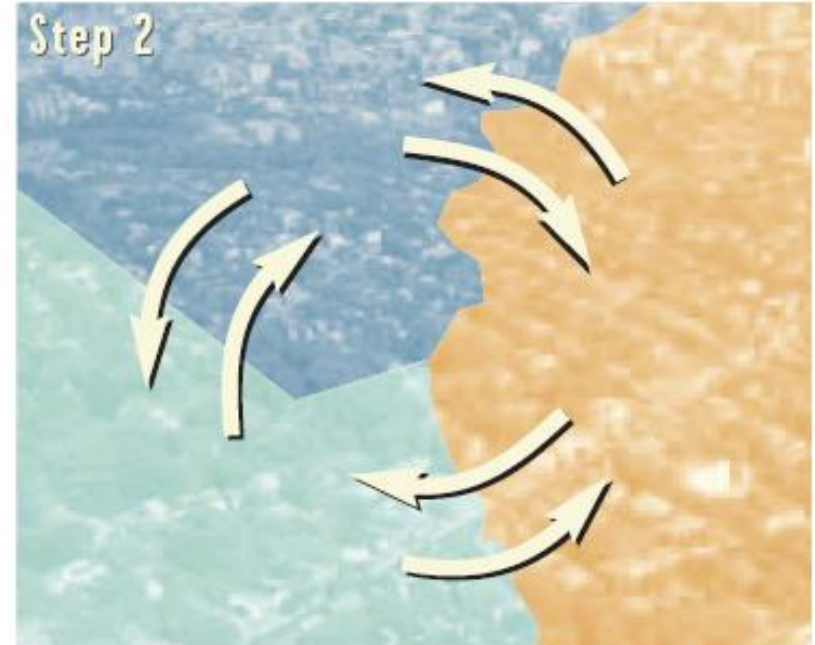


# Regional Model Framework

- **Trip Generation:** How many trips are produced?
- **Trip Distribution:** Where are people going?



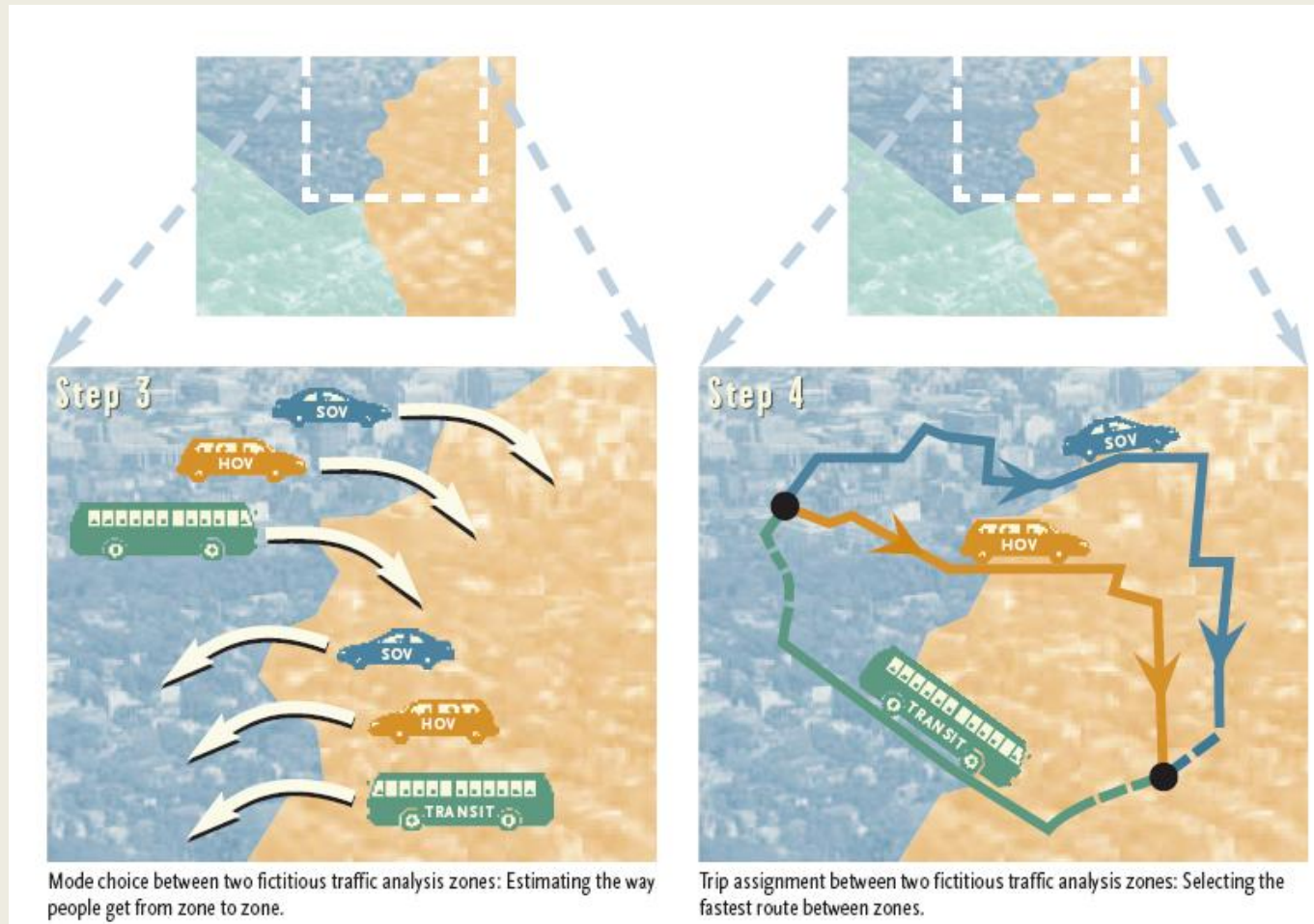
Step 1  
Trip generation in three fictitious traffic analysis zones: This step estimates the number of trips produced by and attracted to each zone.



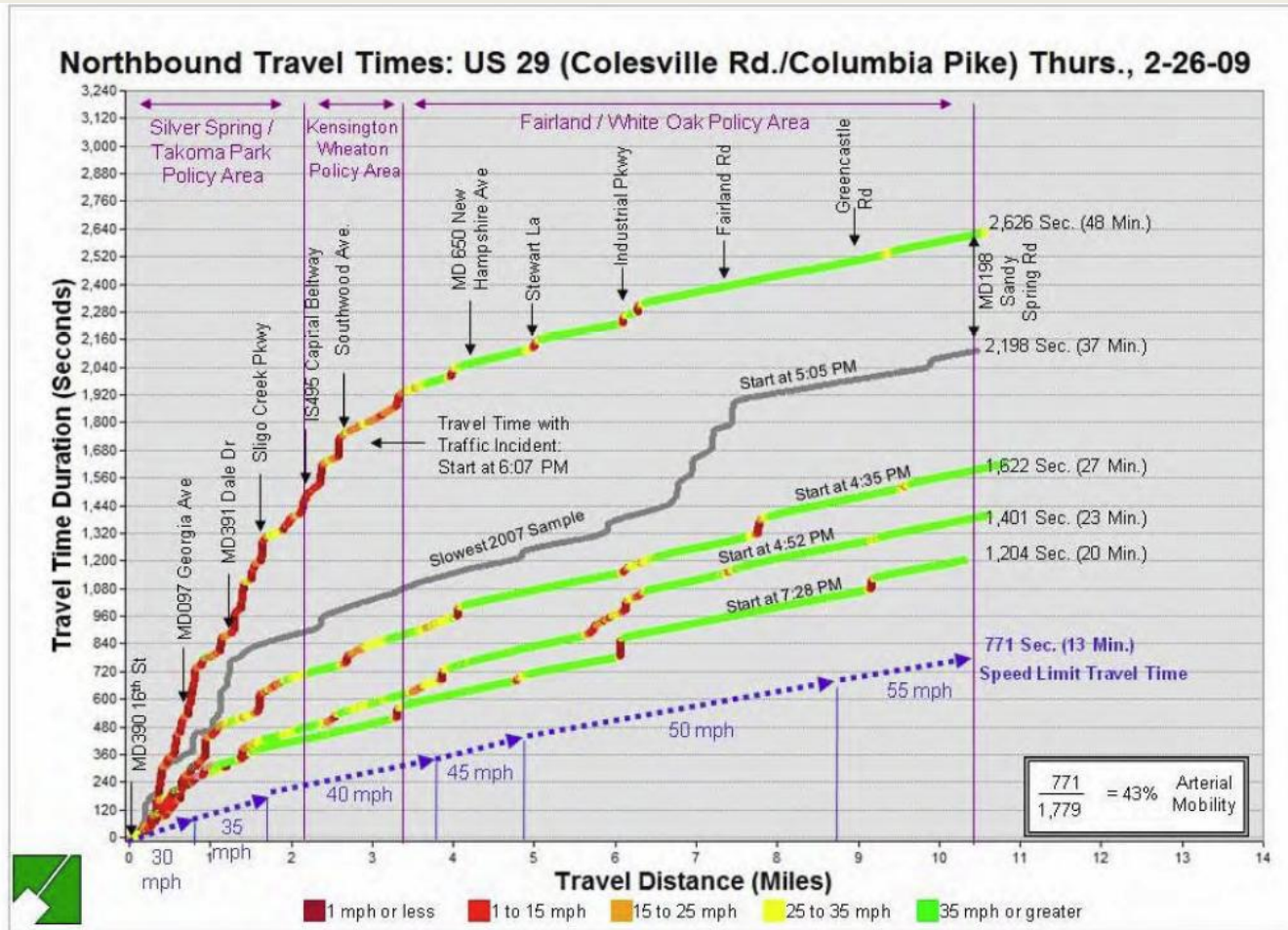
Step 2  
Trip distribution among three fictitious zones: This step estimates how many trips are going from zone to zone.

# Regional Model Framework

- **Mode Choice:** What method/mode of travel are people using?
- **Trip Assignment:** What route are people taking?



# Current Traffic – US 29



## US 29 Mobility

- Problems are generally at failing intersections
- Definition of future relative arterial mobility can be determined with the regional model

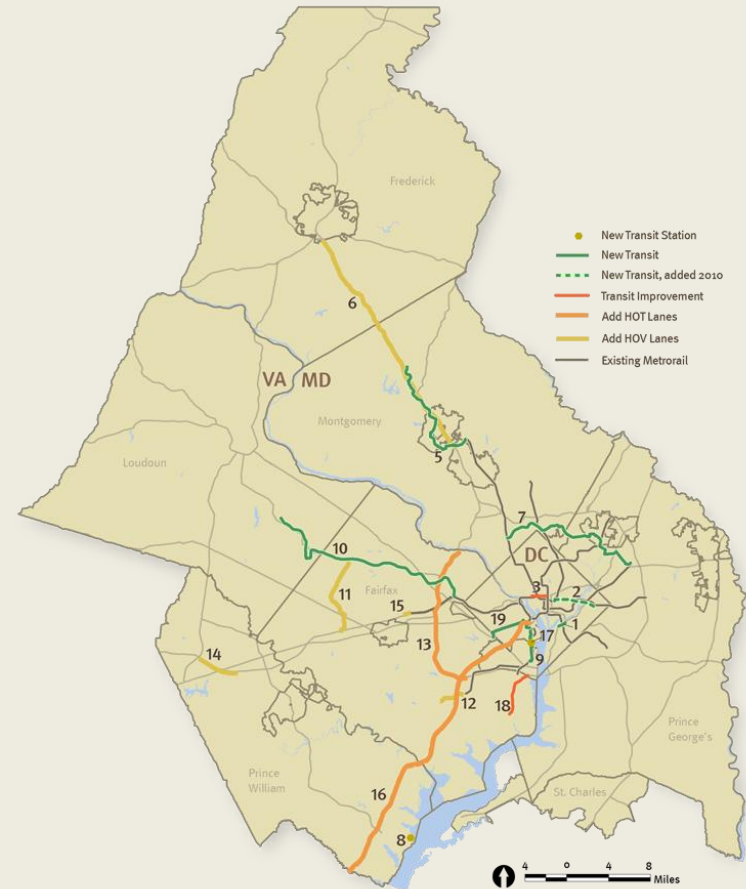


# Transportation Network Assumptions: Constrained Long Range Transportation Plan (CLRP)

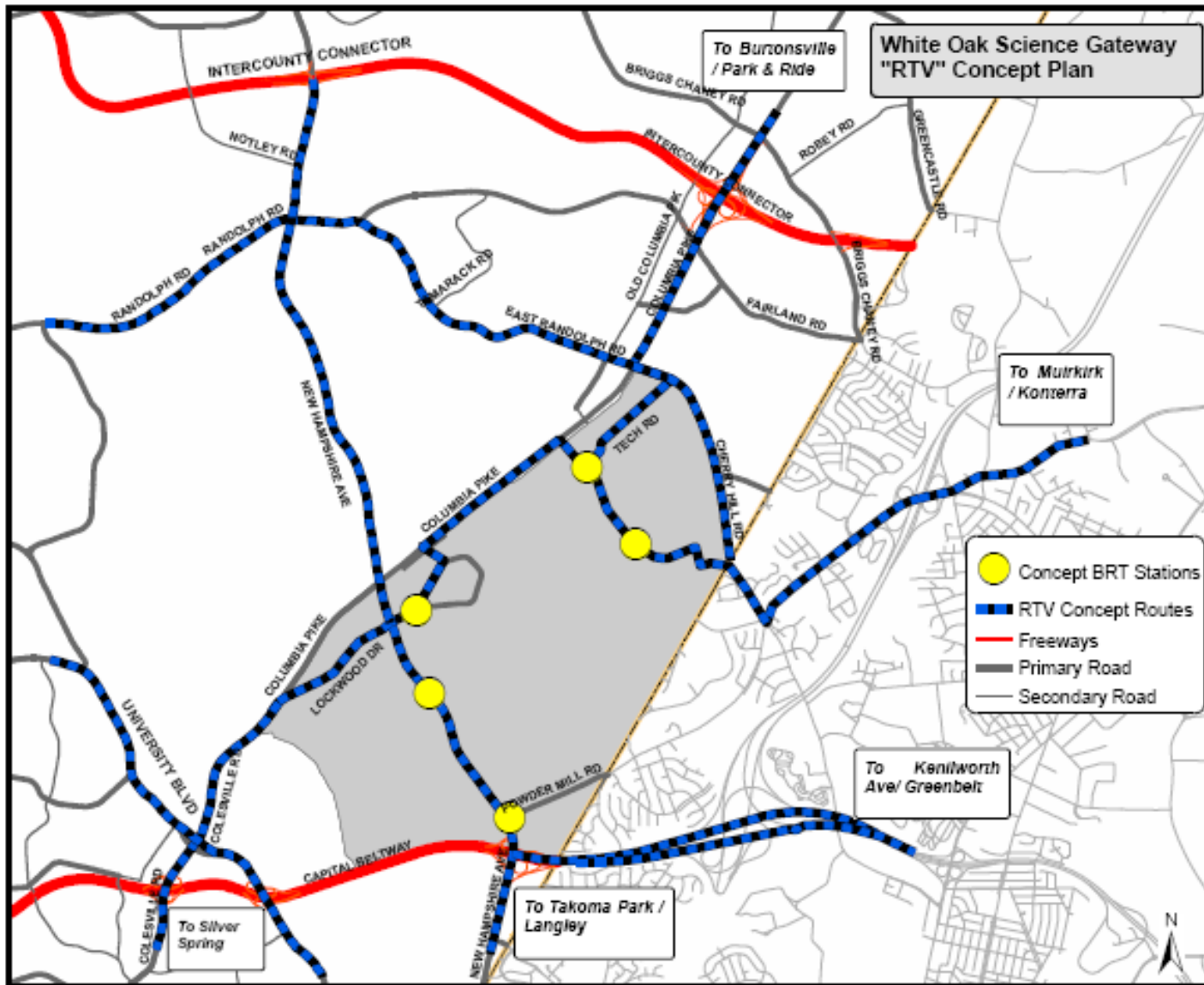
## Highways



## Transit



# WOSG Area Bus Rapid Transit (BRT) Network



# WOSG Land Use/Transportation Scenarios:

**1. Existing Conditions:** 2010 Land Use/2010 Network

**2. Base Future Year:** 2040 Round 8.0 Land Use/CLRP Network

**3. Master Plan Alternative:** Master Plan Alternative Scenario Land Use /CLRP Network + Master Planned interchanges + local roadway network improvements + BRT

WOSG: Summary of Development Numbers				
Development Scenario	Commercial (sq. ft.)	Single Family Dwellings	Multi-Family Dwellings	Total Dwelling Units
Existing Conditions (Built)	11,187,298	2,260	4,858	7,118
Base Future Year (2040 Rnd 8.0)	15,854,064	2,404	5,194	7,598
Master Plan Alternative Scenario	25,434,851	2,785	12,903	15,688

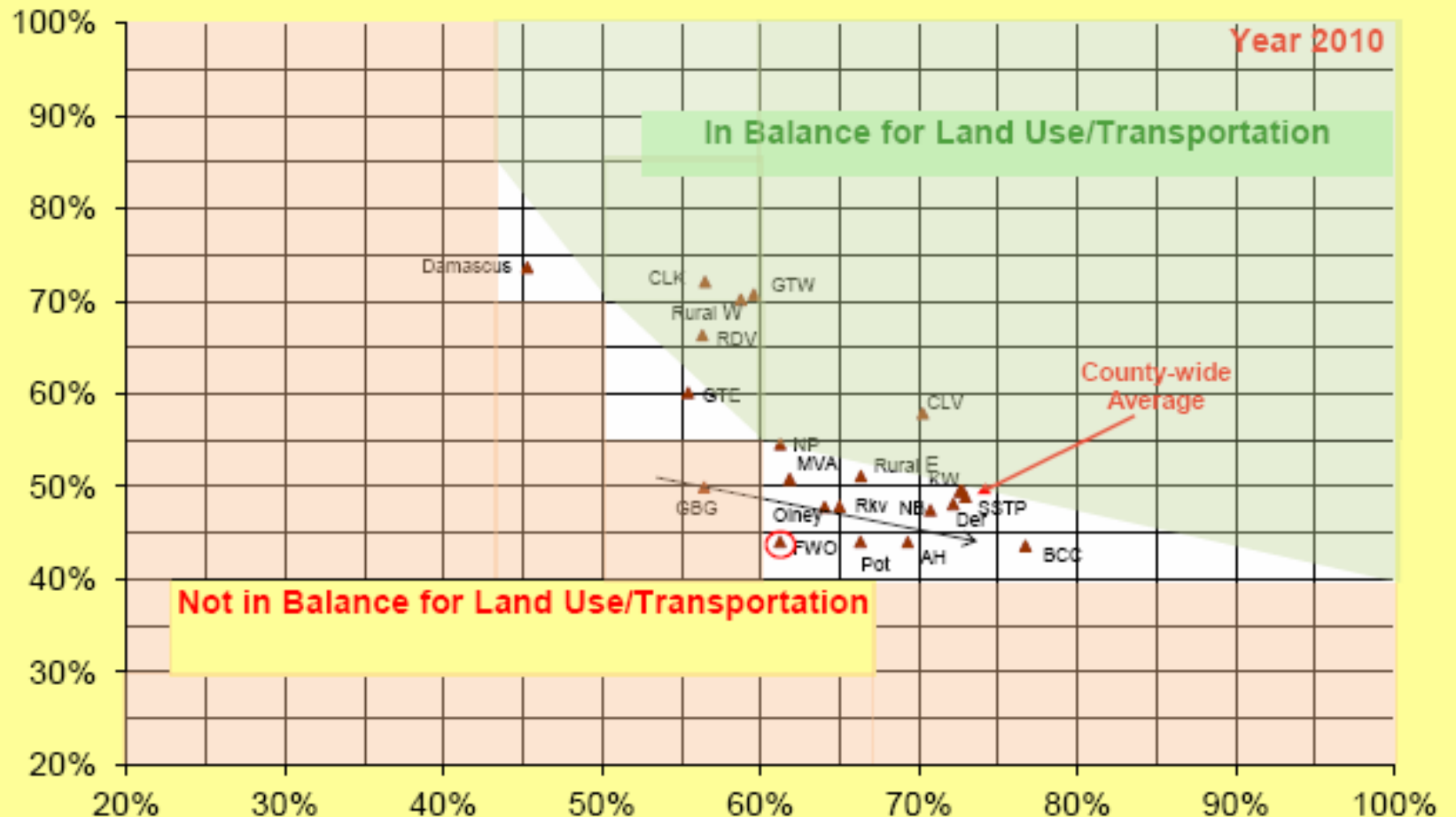
# Area-wide Transportation Analysis: Policy Area Mobility Review



# 2010 PAMR Analysis

## Year 2010 PAMR Chart - WOSG Existing Conditions

**Relative Arterial Mobility:** (Congested Arterial Speed Relative to Arterial Free Flow Speed)

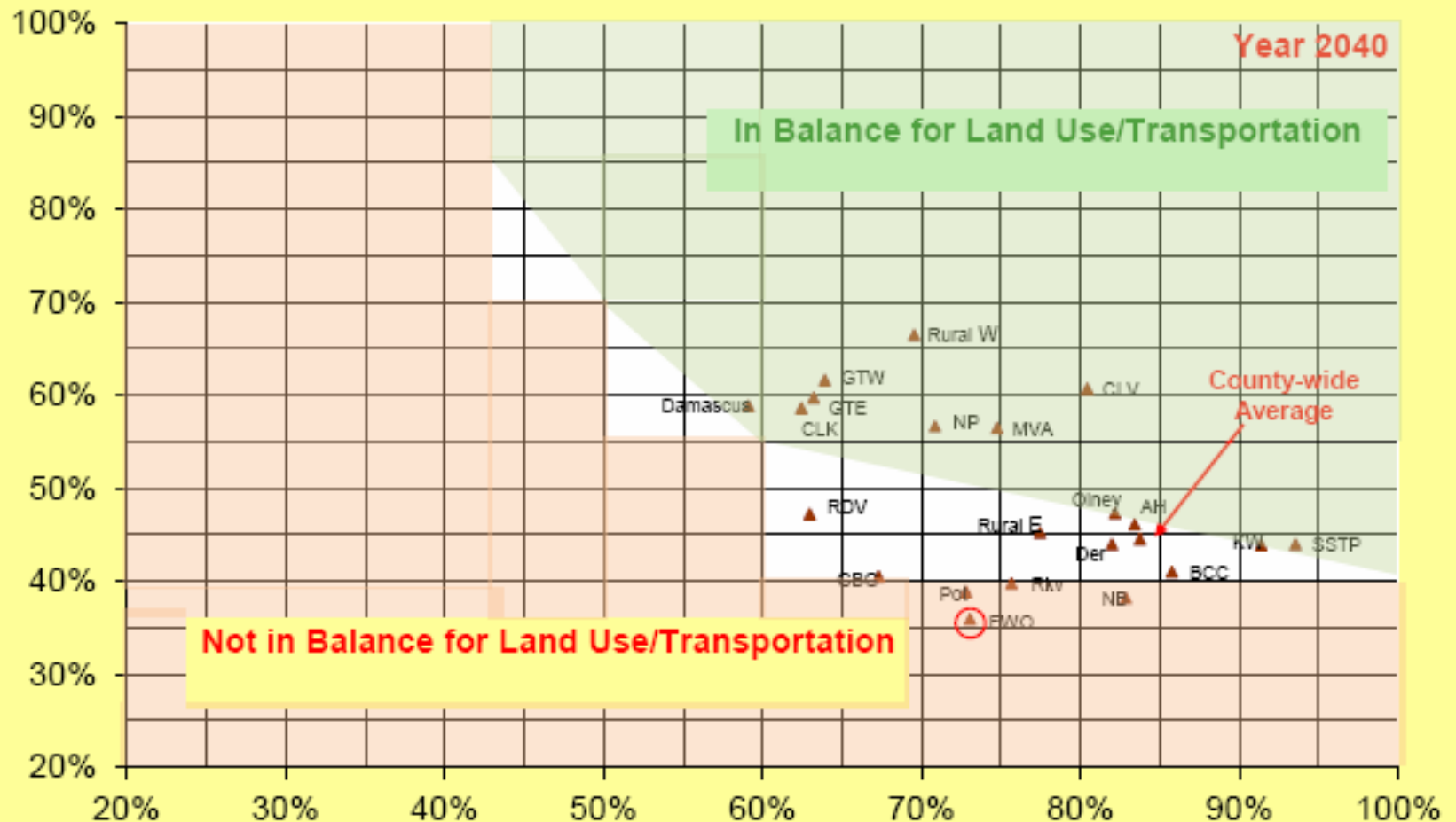


**Relative Transit Mobility:** (Overall Transit Speed Relative to Overall Speed Using Arterials)<sub>13</sub>

# 2040 PAMR Analysis

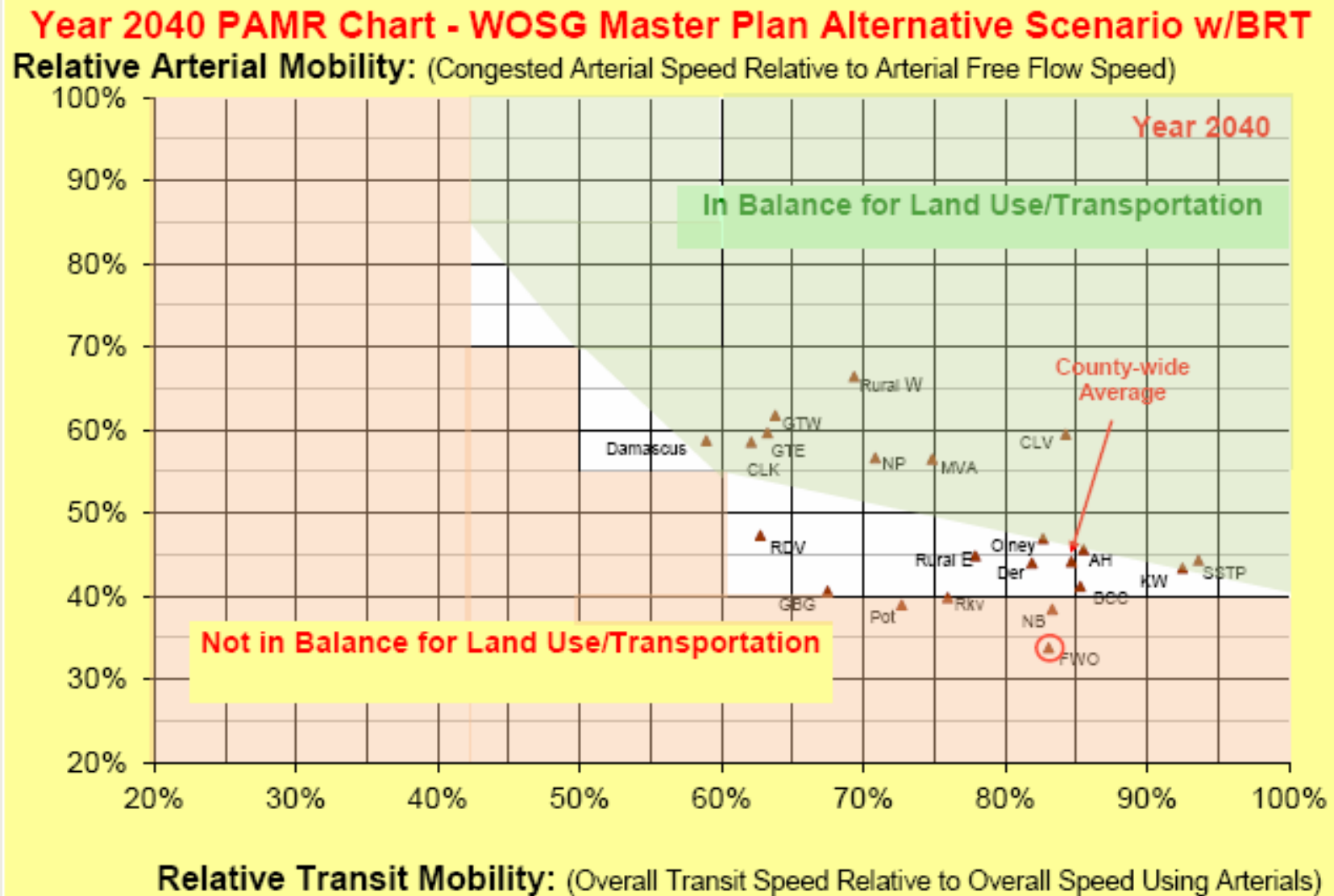
## Year 2040 PAMR Chart - 1997 White Oak/Fairland Master Plan

**Relative Arterial Mobility:** (Congested Arterial Speed Relative to Arterial Free Flow Speed)



**Relative Transit Mobility:** (Overall Transit Speed Relative to Overall Speed Using Arterials)

# WOSG Master Plan Alternative Scenario PAMR Analysis



# Local Area Model Analysis: Intersections



# Assumptions

- Auto Driver Mode Share
  - 2040 Base Future Year Scenario
    - 86% of commuters drive to jobs in plan area
  - 2040 Master Plan Alternative
    - 75% of commuters drive to jobs in five locations:
      - Site 2 / Percontee
      - Hillandale Shopping Center
      - White Oak Shopping Center
      - Labor College
    - 86% of commuters drive to jobs in all other locations

# Assumptions

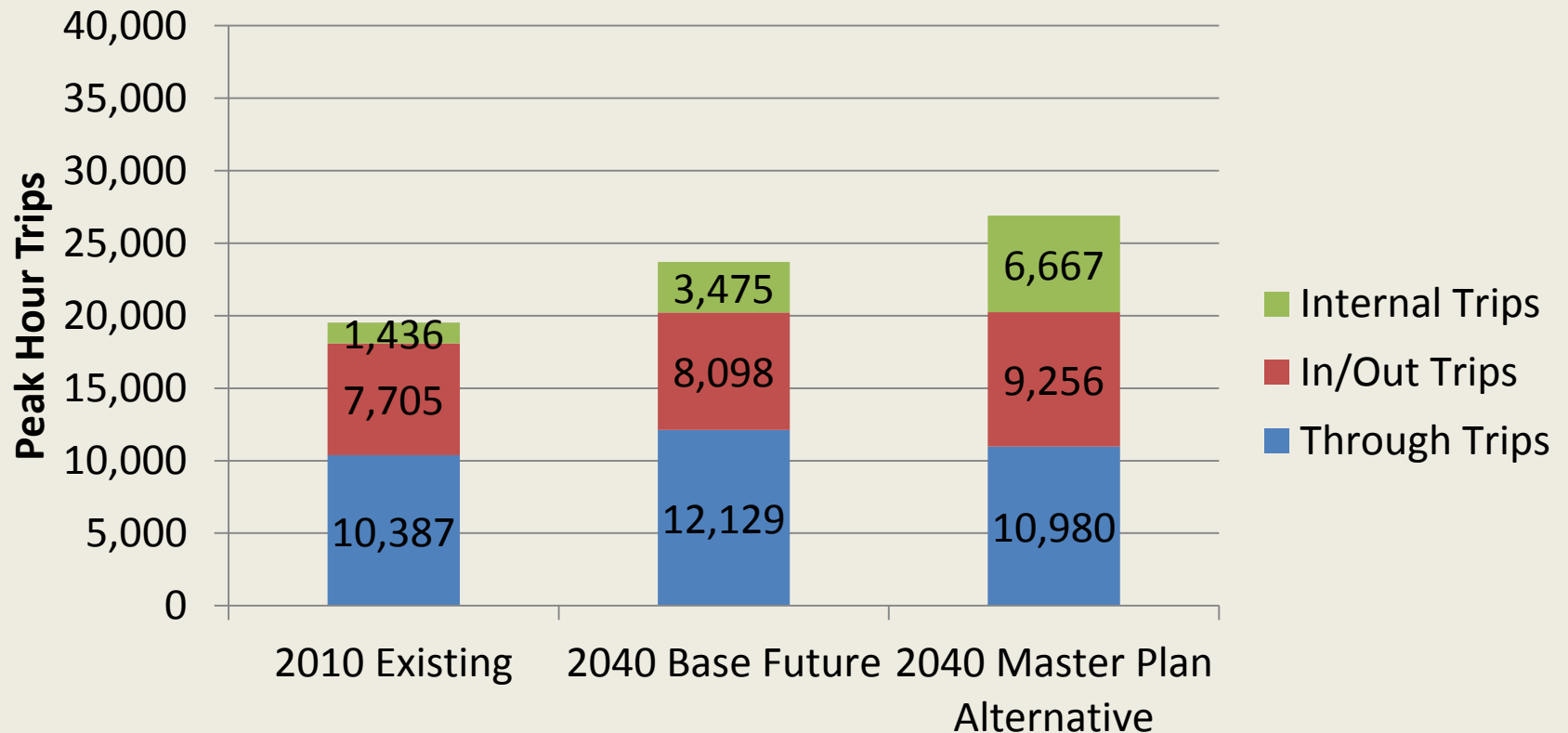
- Network for Master Plan Alternative Scenario
  - Three BRT routes
    - US 29
    - New Hampshire Ave
    - Randolph Rd
  - Old Columbia Pike bridge over Paint Branch
  - Planned interchanges
    - Fairland Rd / Musgrove Rd
    - Tech Rd / Industrial Pkwy
    - Stewart Ln
    - Briggs Chaney Rd
    - Blackburn Rd / Greencastle Rd

# Assumptions

- Trip Generation Rates per 1,000 GSF
  - Same as Great Seneca Science Corridor

Land Use	AM Peak Hour	PM Peak Hour
Office	1.30	1.20
Retail	1.00	3.00
Industrial	1.00	1.00
Other	1.00	1.00

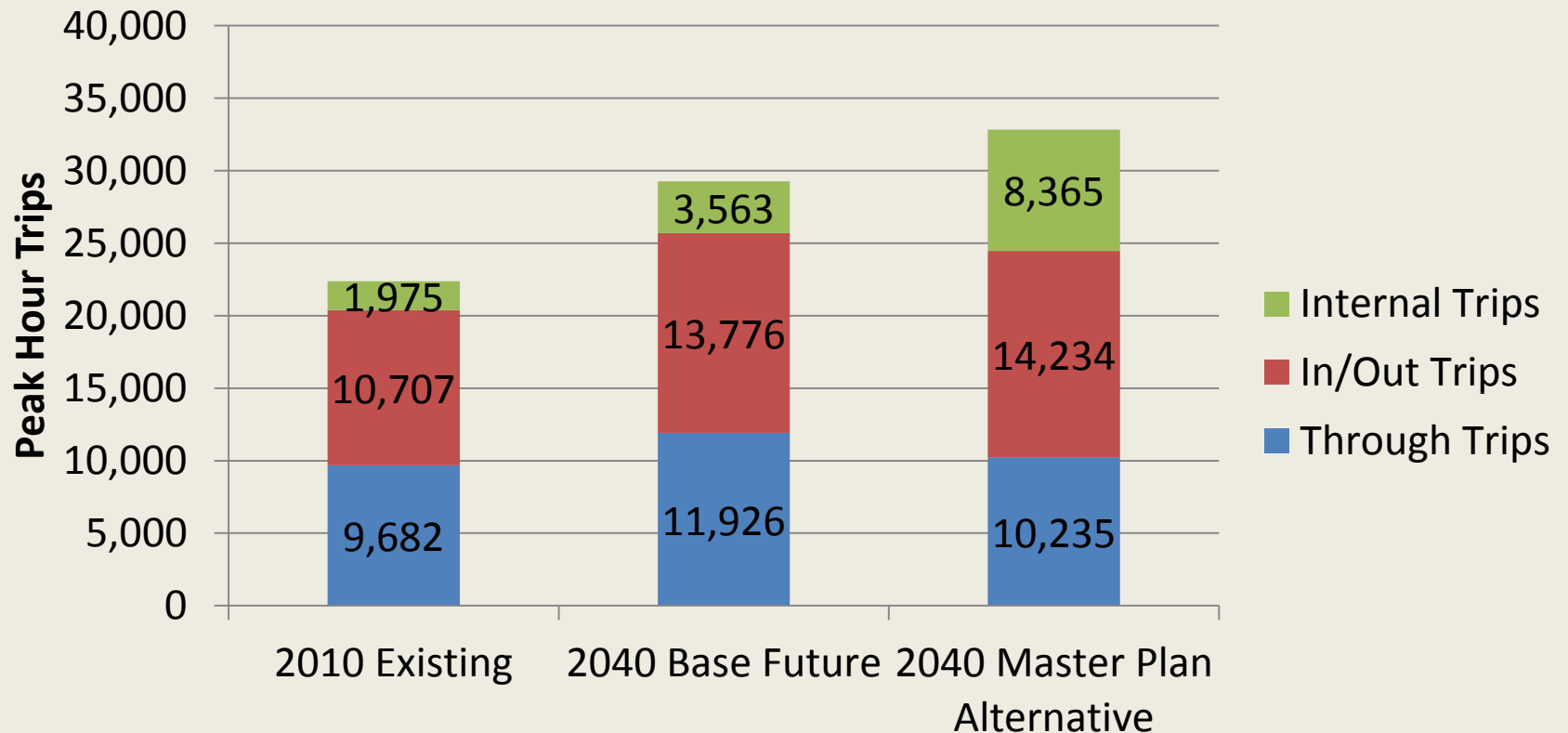
# AM Peak Hour Trips



- Reduction in “through trips”
- Increase in “in/out trips”
- Large increase in “internal trips”



# PM Peak Hour Trips



- Reduction in “through trips”
- Increase in “in/out trips”
- Large increase in “internal trips”

# Internal Trips as % of Total Trips

Scenario	AM Peak Hour	PM Peak Hour
2010 Existing Conditions	7%	9%
2040 Base Future Year	15%	12%
2040 Master Plan Alternative	25%	25%

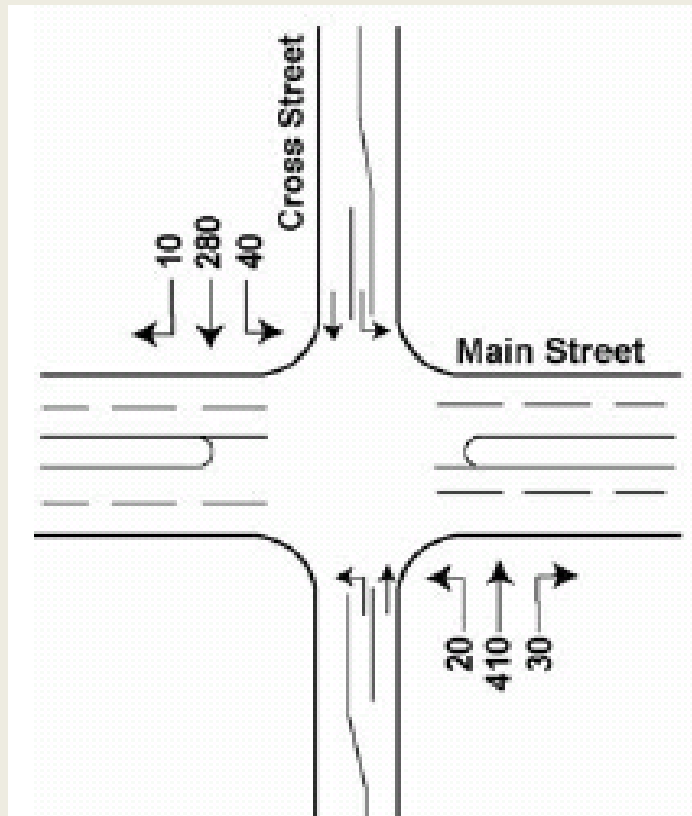
# Critical Lane Volume

- A “planning level” tool to assess overall intersection adequacy
- Does not assess individual lane capacity
- Does not consider signal timing

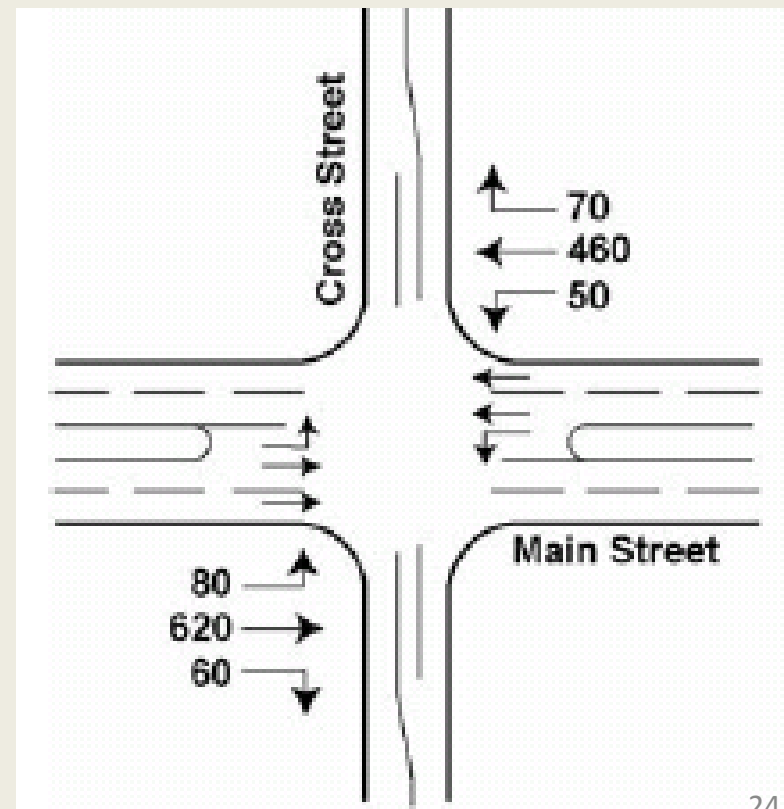
# Critical Lane Volume

*the maximum sum of conflicting movements that can be moved through the intersection*



## Northbound / Southbound



## Eastbound / Westbound



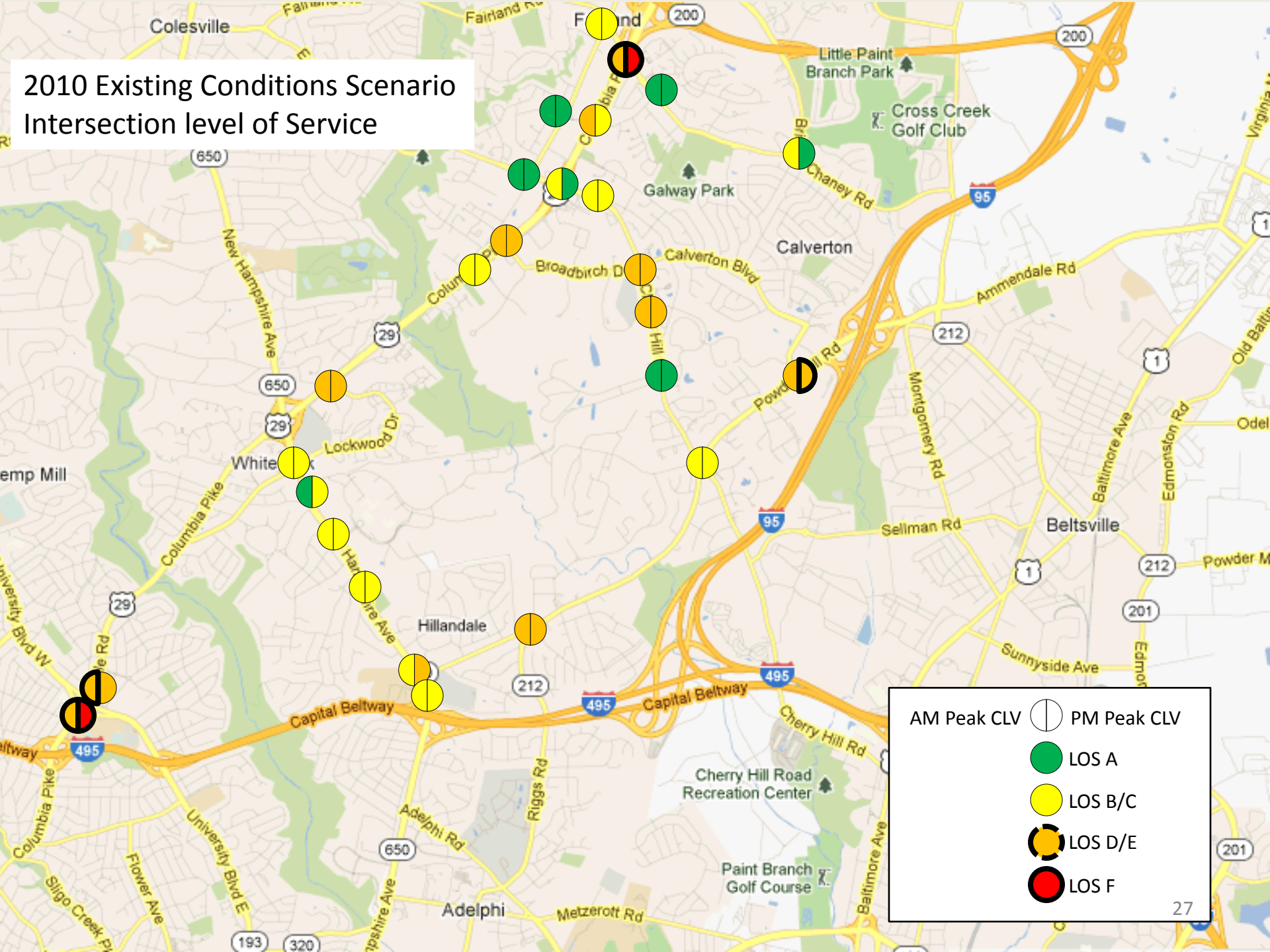
# Critical Lane Volume Evaluation

<u>LOS</u>	<u>Critical Lane Volume Range</u>			
A	0.00	-	0.60	
B/C	0.61	-	0.80	
D/E	0.81	-	1.00	 ← Standard for plan area: 0.92
F	1.00+			

# Critical Lane Volume Standards by Policy Area

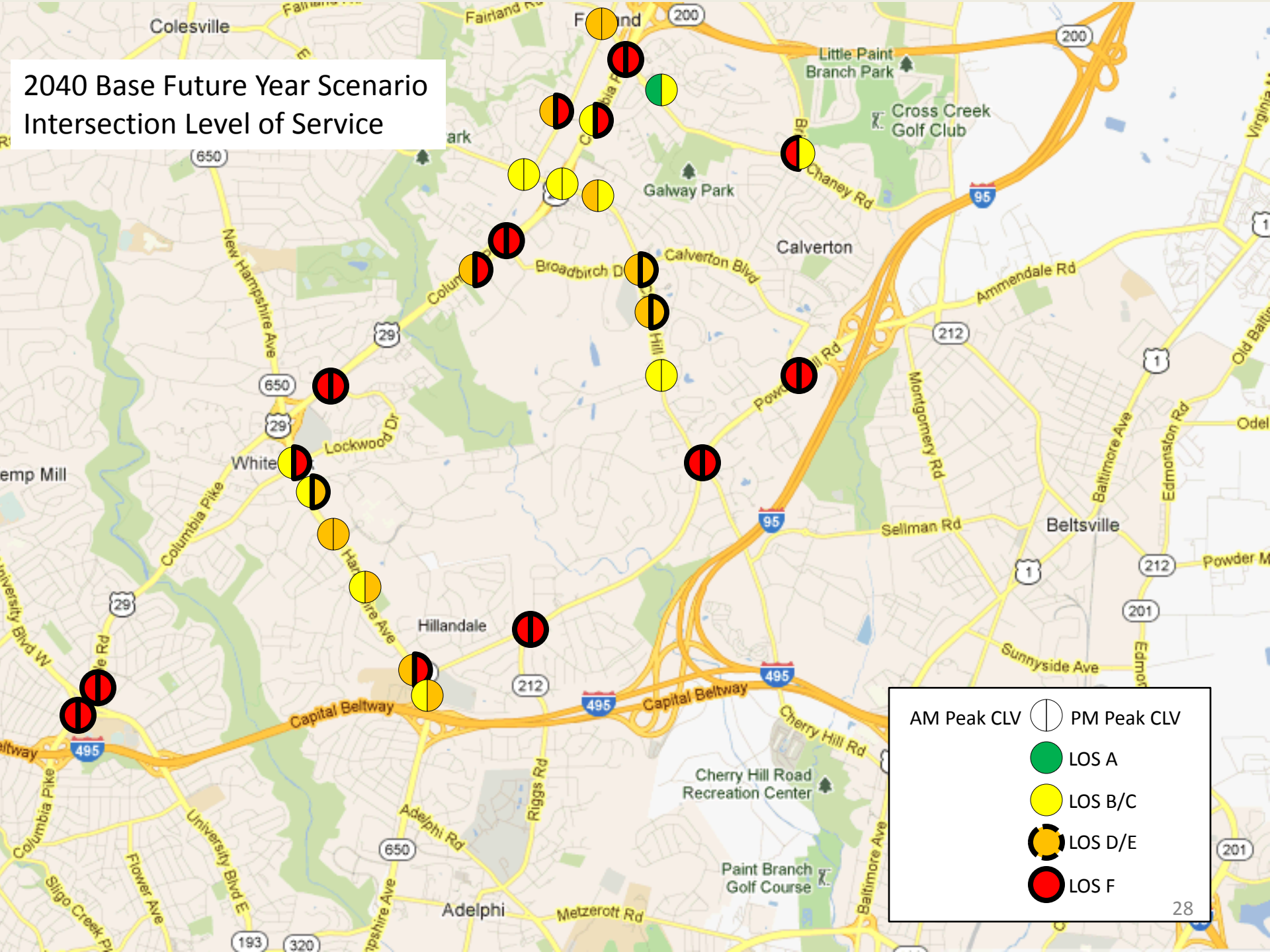
CLV Congestion Standards	Policy Area
1800	<i>Central Business Districts/Metro Station Locations:</i> Bethesda, Silver Spring, Friendship Heights, Wheaton, Glenmont, White Flint, Grosvenor, Shady Grove, Twinbrook, Rockville Town Center
1600	Bethesda/Chevy Chase, Silver Spring/Takoma Park, Kensington/Wheaton, Germantown Town Center
1550	North Bethesda
1500	Rockville City
<b>1475</b>	<b>Fairland/White Oak</b> , Aspen Hill, Derwood
1450	Cloverly, Olney, Potomac, North Potomac, R&D Village
1425	Clarksburg, Germantown West, Germantown East, Montgomery Village/Airpark, Gaithersburg City
1400	Damascus
1350	Rural East, Rural West

# 2010 Existing Conditions Scenario Intersection level of Service





# 2040 Base Future Year Scenario Intersection Level of Service



AM Peak CLV

PM Peak CLV

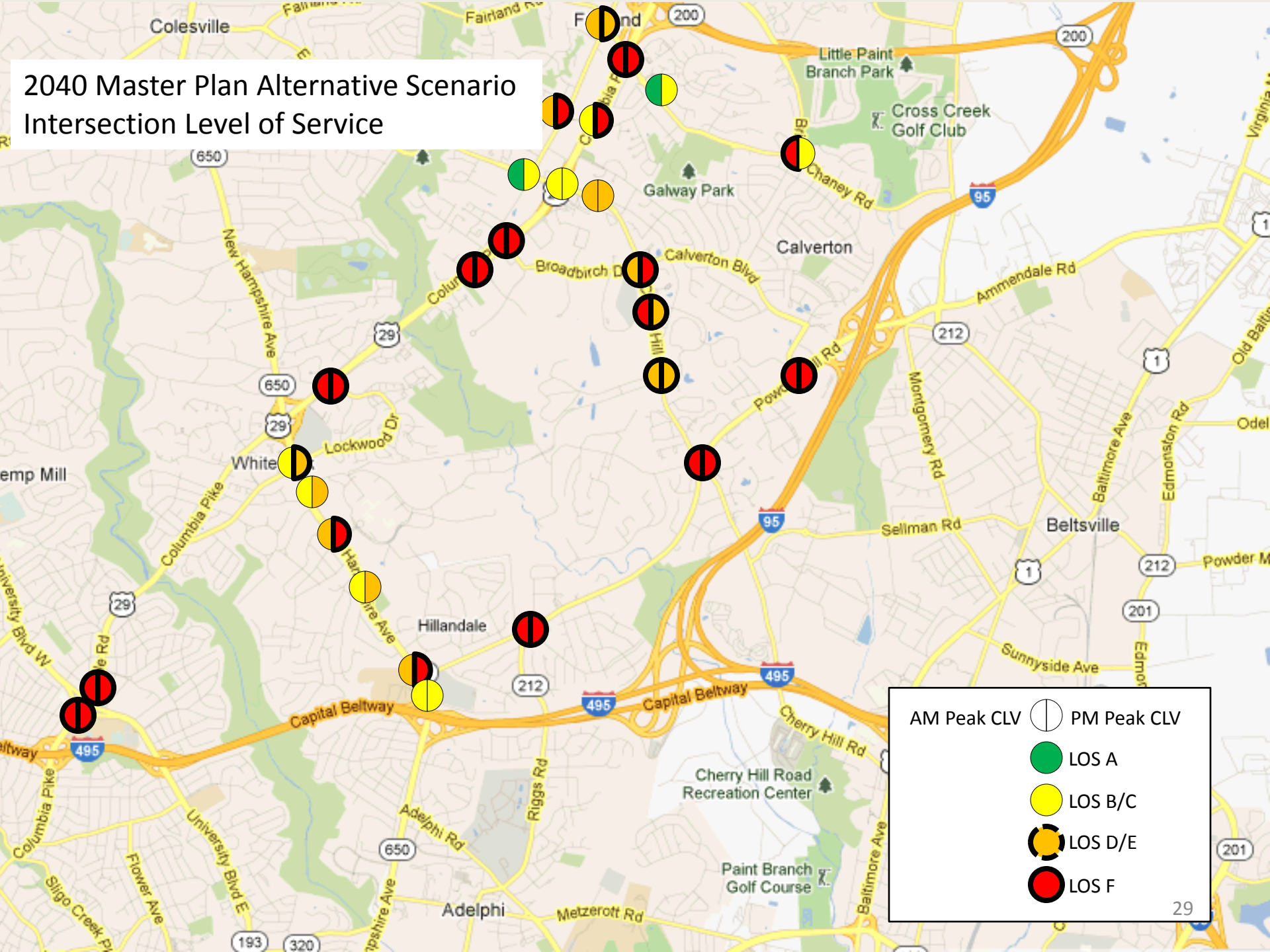
LOS A

LOS B/C

LOS D/E

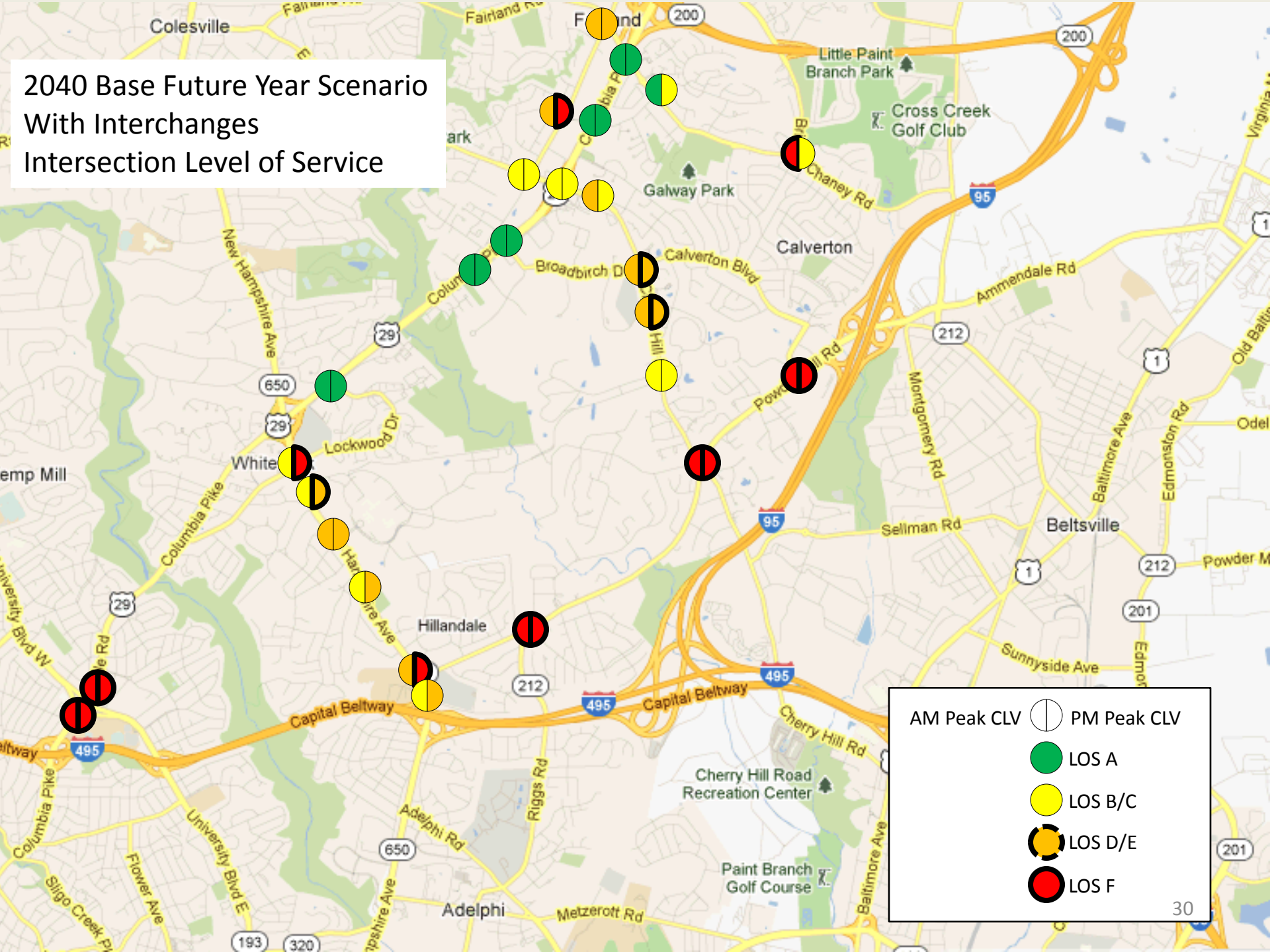
LOS F

# 2040 Master Plan Alternative Scenario Intersection Level of Service

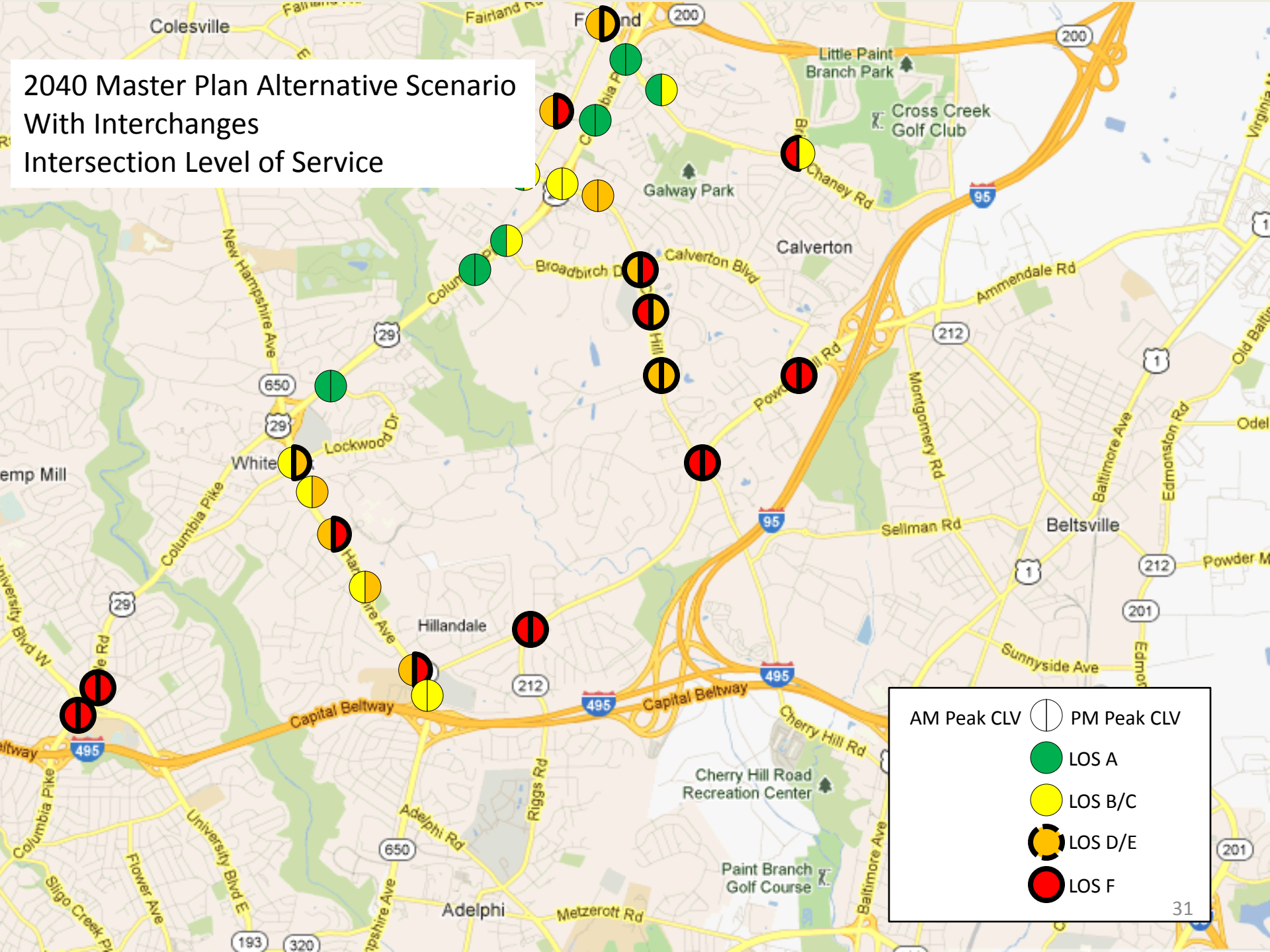




# 2040 Base Future Year Scenario With Interchanges Intersection Level of Service





# 2040 Master Plan Alternative Scenario With Interchanges Intersection Level of Service



AM Peak CLV  PM Peak CLV

 LOS A

 LOS B/C

 LOS D/E

 LOS F

# Questions?

