



Briefing: White Oak Science Gateway Master Plan

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Completed: 05/24/12

Description

The Planning Department staff has been working with the White Oak Science Gateway Citizens Advisory Committee (CAC), appointed by the Planning Board in March 2011, on the White Oak Science Gateway Master Plan. The CAC includes representatives from residential communities as well as business and property owners. All CAC meetings are open to the public and there is an opportunity at every meeting for the general audience to participate.

Ten CAC meetings and two community forums were held between April 2011-May 2012. In addition, Planning staff attends local citizens association meetings and presents information on the Master Plan, as requested.

At a CAC meeting held on November 15, 2011, break-out groups discussed the future possibilities of the commercial centers, focusing on White Oak, Hillandale, and the North White Oak/Cherry Hill Road area. At a CAC meeting held on April 24, 2012, staff presented illustrative concepts of these major centers as well as an overview of the density being considered for these areas for traffic modeling purposes. Staff also provided a primer on Master Plan staging, using the staging plans of the Great Seneca Science Corridor Master Plan and White Flint Sector Plan as examples. In addition, a brief update on the Countywide Transit Corridors Functional Master Plan was provided.

With input from stakeholders, staff prepared a future development scenario and has completed a preliminary analysis of the potential traffic impacts on the local road network. A summary of these results was presented to the CAC at a meeting held on May 22, 2012.

Summary

The Board will be briefed on the preliminary results of the traffic modeling analysis performed in support of the White Oak Science Gateway Master Plan. These results are summarized in a PowerPoint presentation (attached) that will be presented to the Board at its May 31, 2012 meeting.

Attachment

1. White Oak Science Gateway Master Plan Preliminary Transportation Analysis PowerPoint Presentation

EG/MD/NS/kr

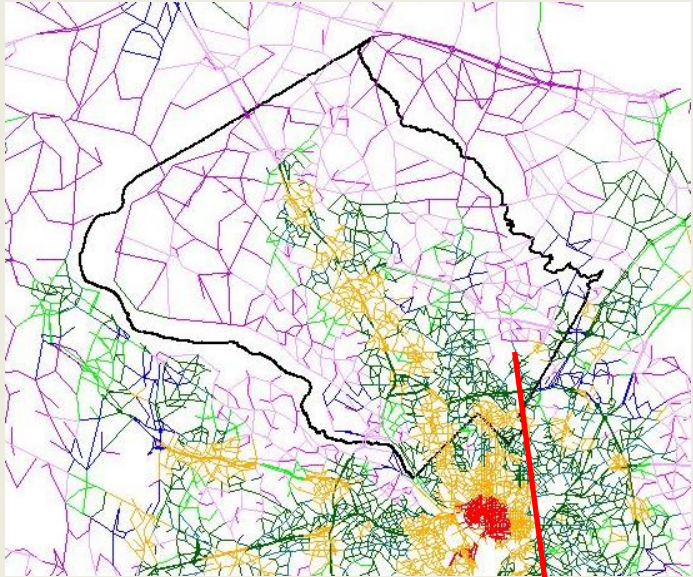
White Oak Science Gateway (WOSG) Master Plan Preliminary Transportation Analysis

Presentation to the White Oak Science Gateway CAC

May 22, 2012

Transportation Modeling Process Overview

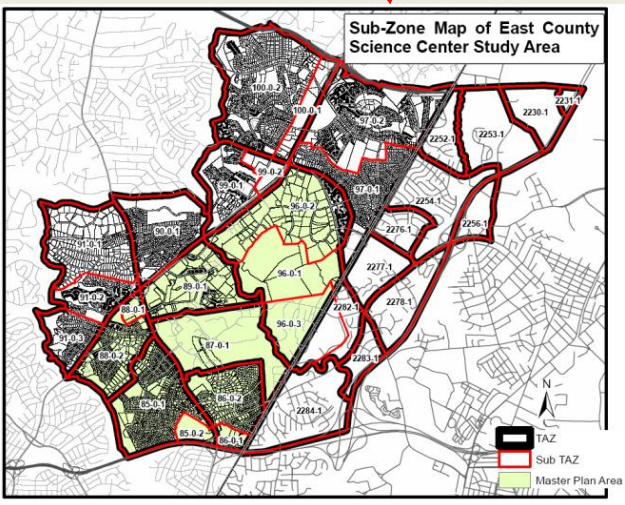
Regional Model/Local Model Relationship



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 Area Model

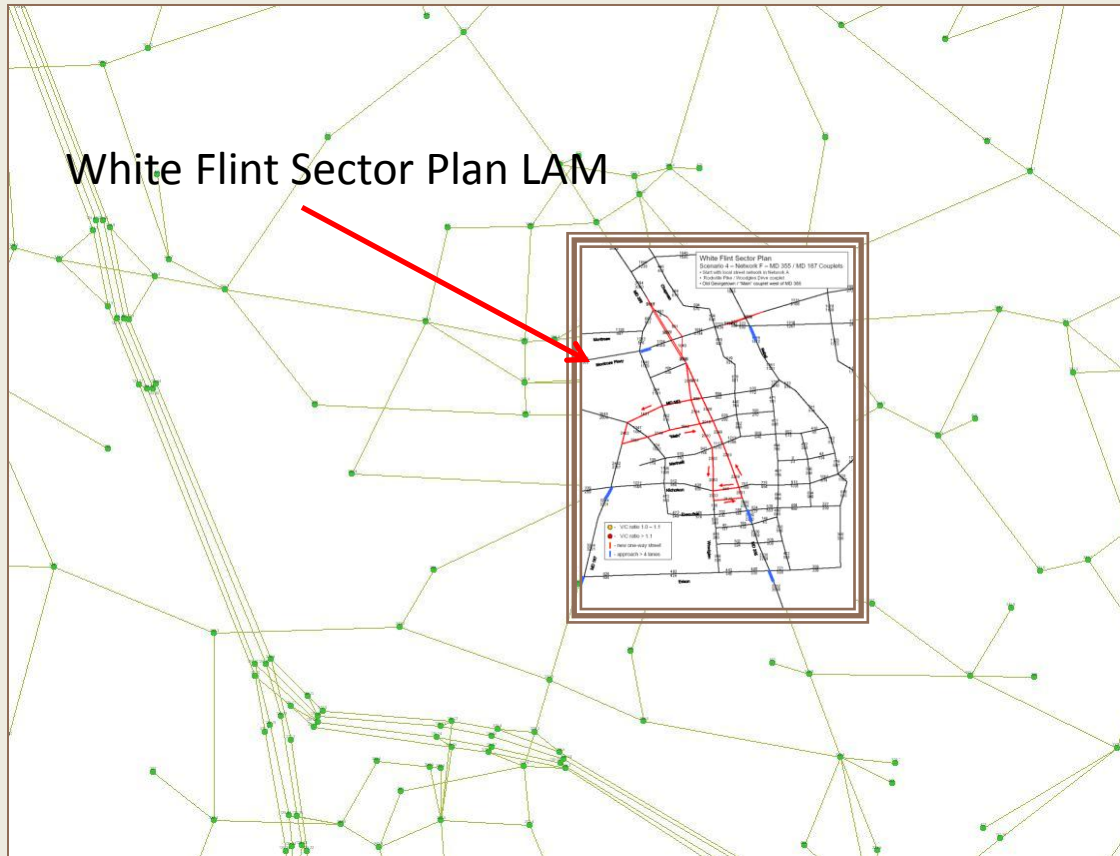


Integrated

Local Model

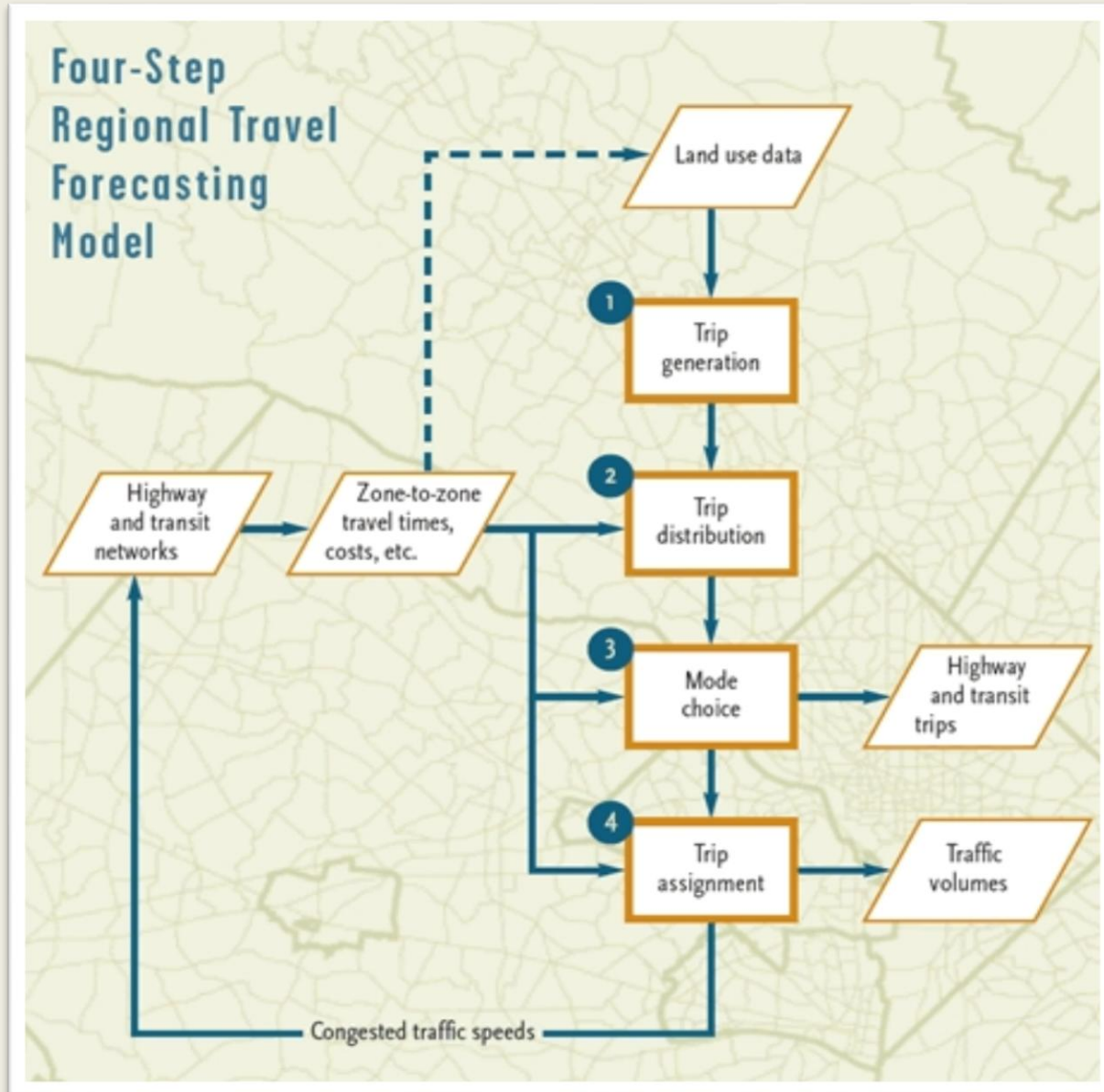
- More Detailed/Fine Grain Analysis
- Output – Critical Lane Volumes (CLVs) for intersections (including “Four Corners” @ US 29/MD 193)
- Compare with established policy area standard (1475 CLV in this case)
- Regional model “feeds” though trips into Local Area Model

Relationship Between Regional and Local Models



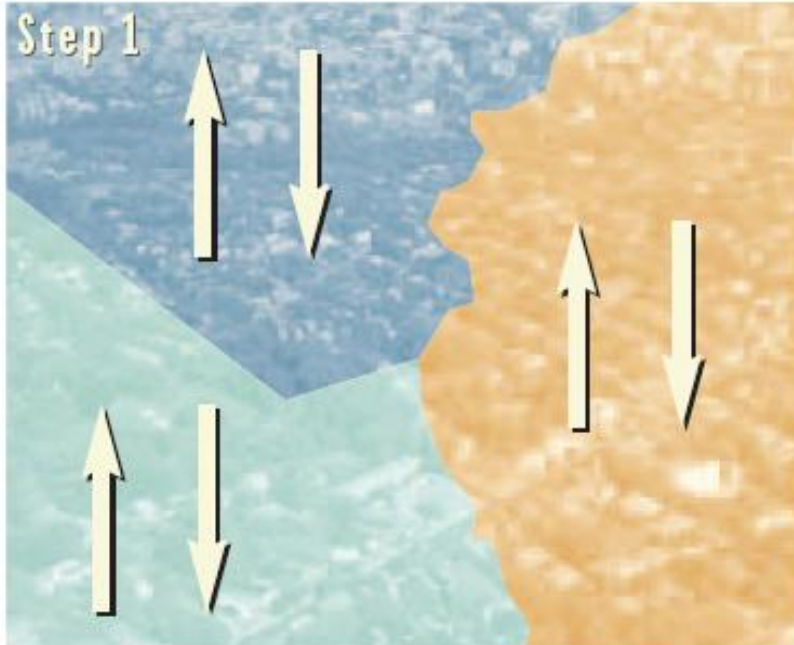
- Regional and local models work in tandem
- Local model tool is pragmatic for Plan area where local planning/zoning recommendations will be made
- Process works for master plan level decision making as in Germantown, Great Seneca Science Center and White Flint

Regional Model Framework

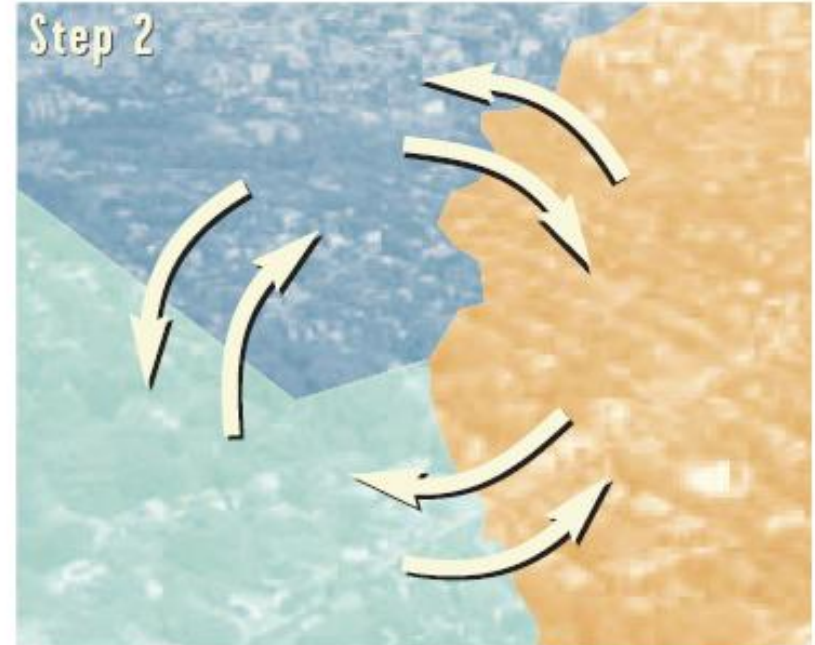


Regional Model Framework

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



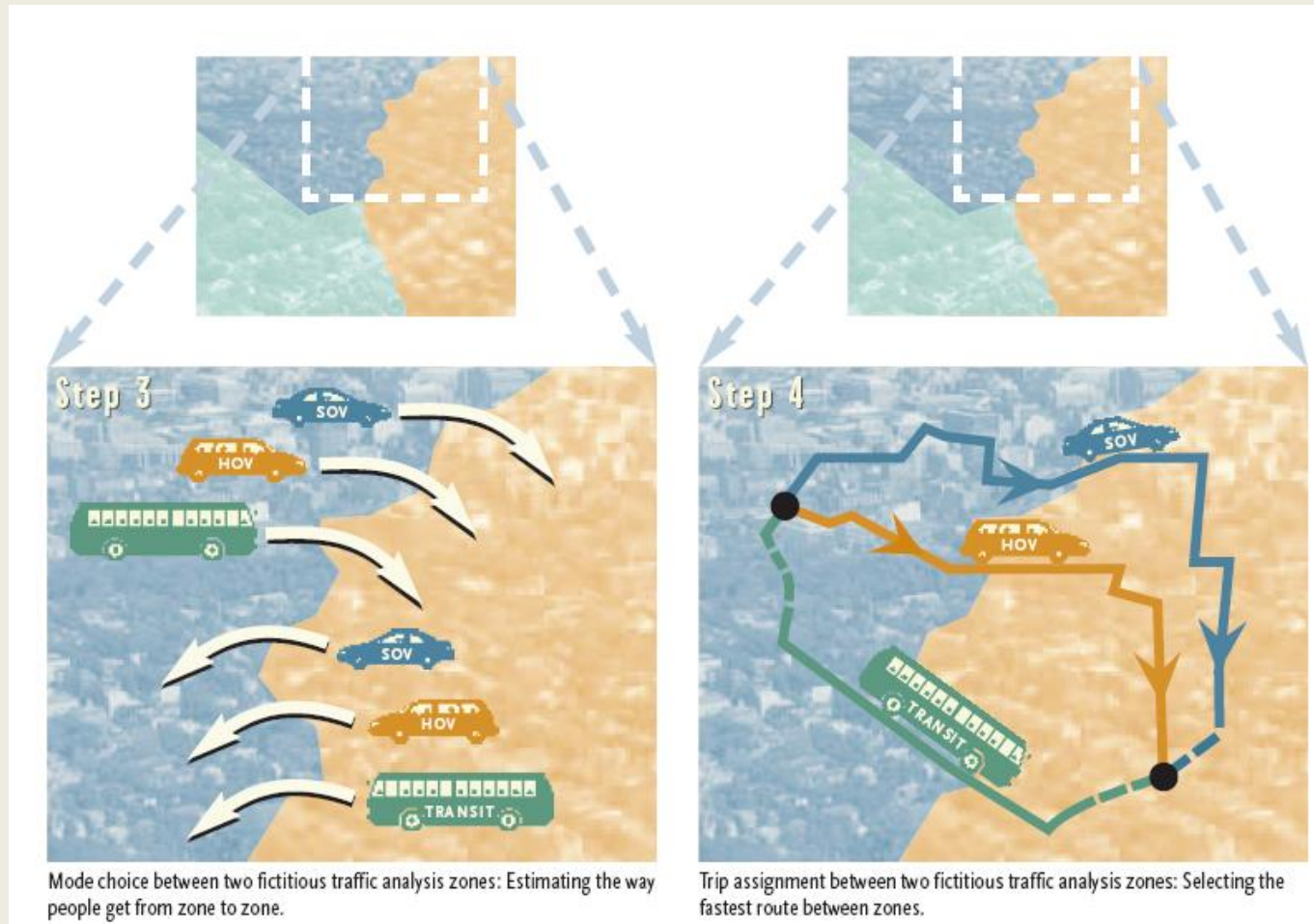
Step 1
Trip generation in three fictitious traffic analysis zones: This step estimates the number of trips produced by and attracted to each zone.



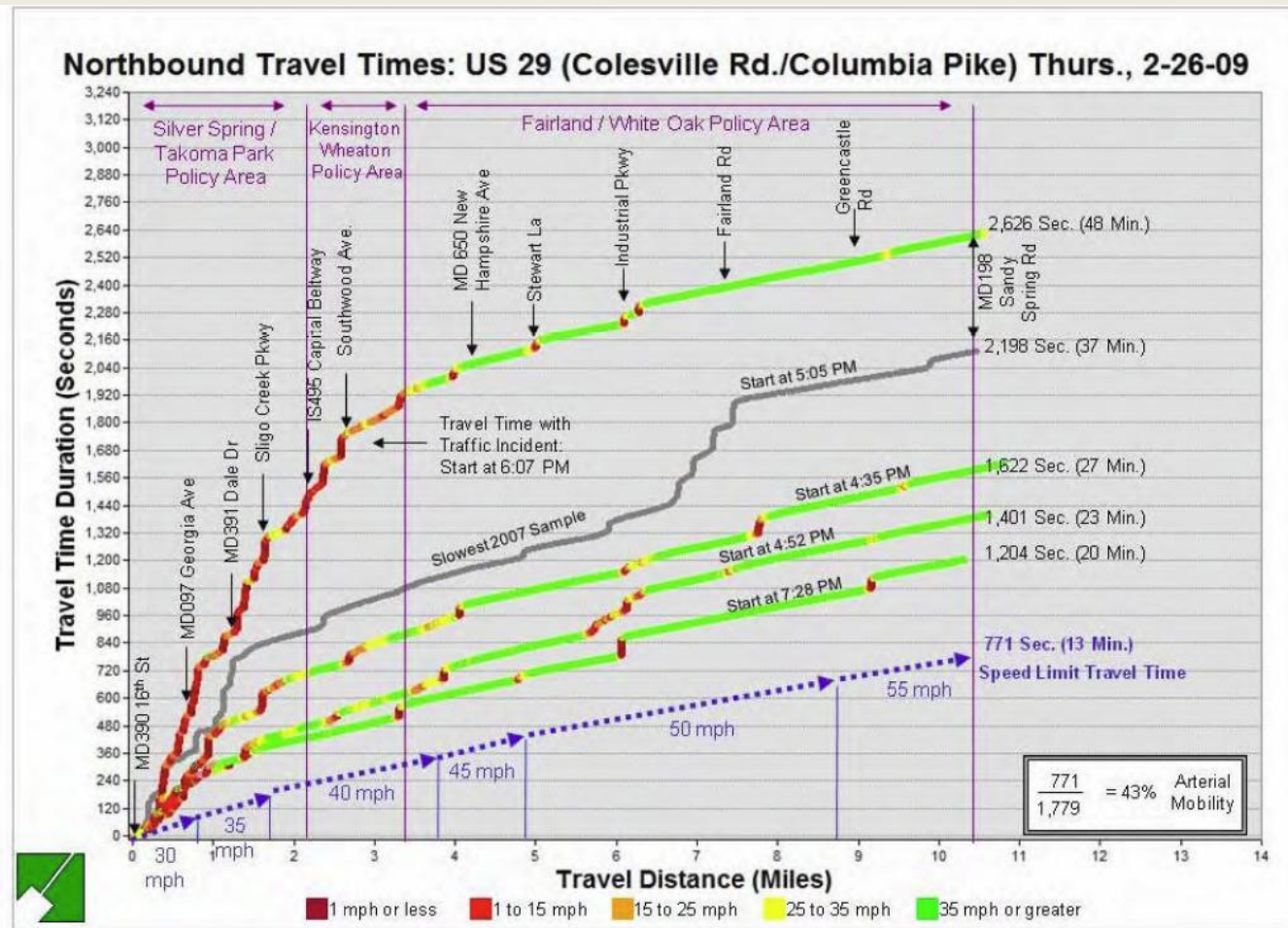
Step 2
Trip distribution among three fictitious zones: This step estimates how many trips are going from zone to zone.

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

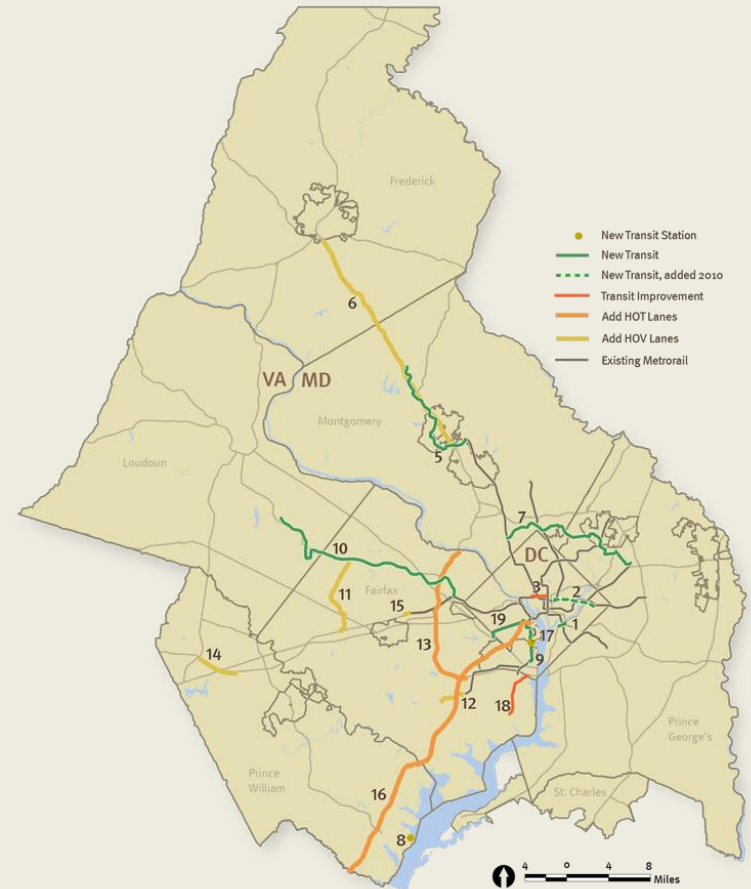
- Problems are generally at failing intersections
- Definition of future relative arterial mobility can be determined with the regional model

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

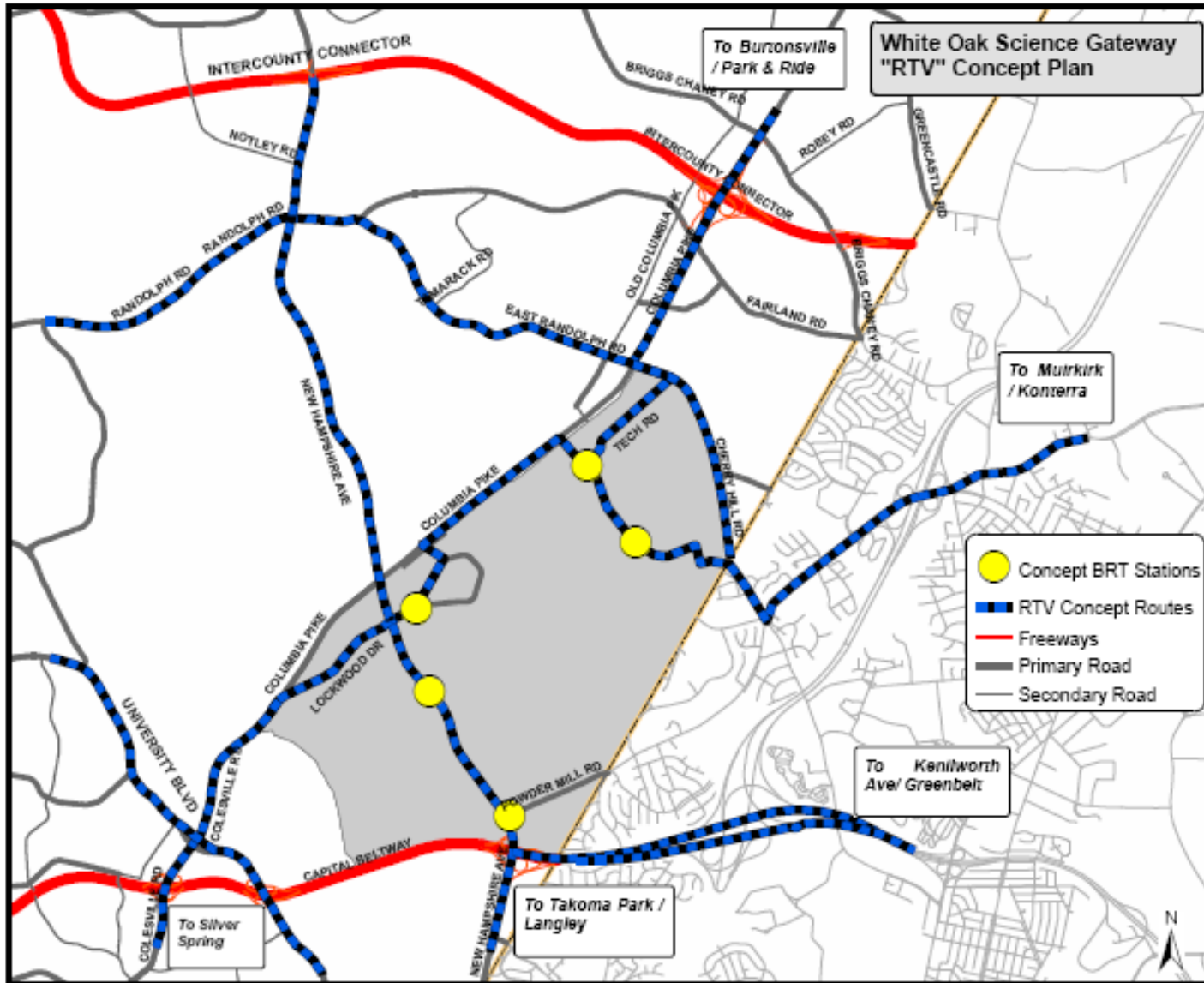
Highways



Transit



WOSG Area Bus Rapid Transit (BRT) Network



- Five Stations
- Connections to:
 - Silver Spring
 - Burtonsville P&R
 - Takoma/Langley
 - Greenbelt Metro
 - Murkirk MARC

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

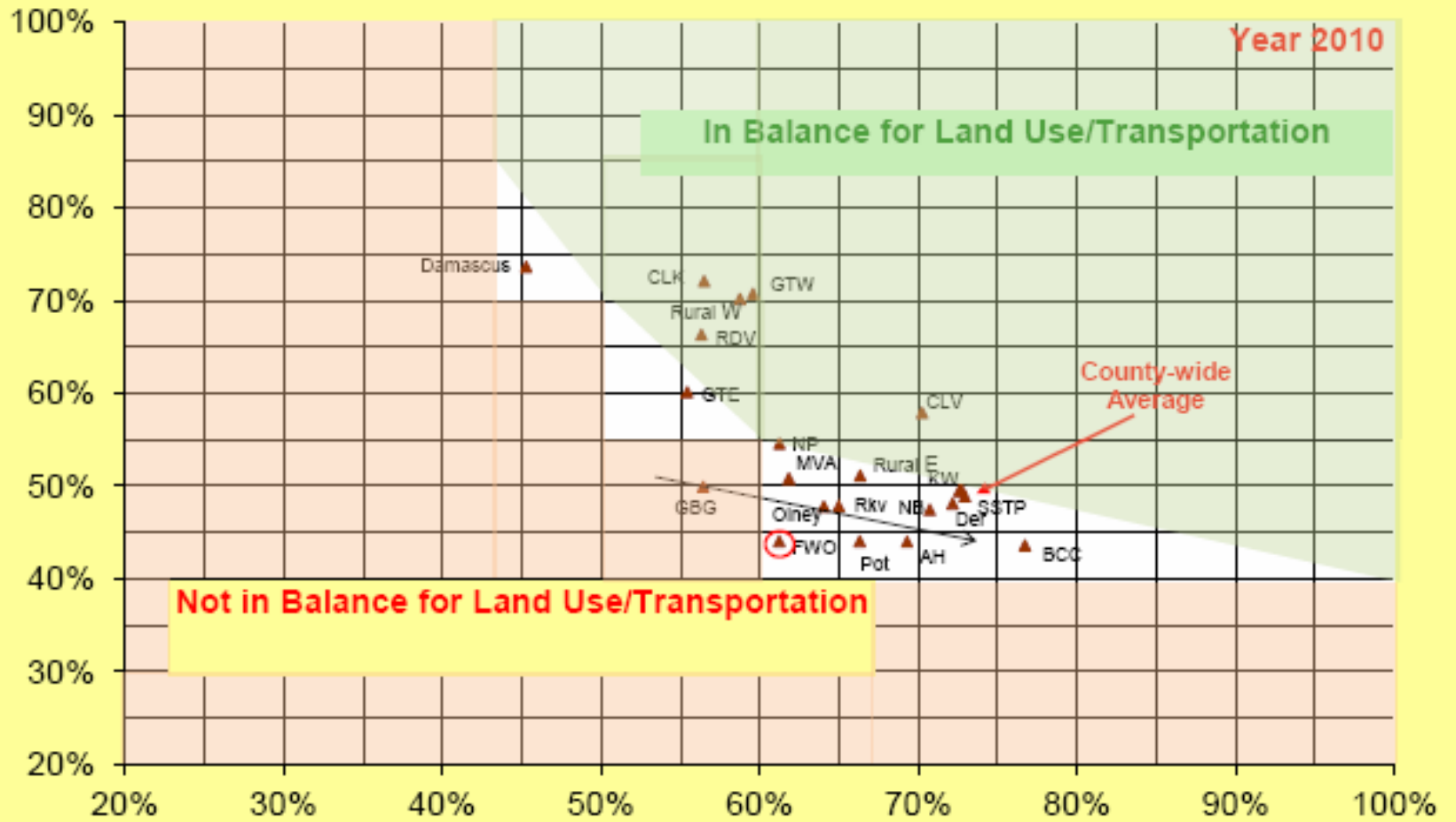
Development Scenario	Commercial (sq. ft.)	Single Family Dwellings	Multi-Family Dwellings	Total Dwelling Units
Existing Conditions (Built)	11,187,298	2,260	4,858	7,118
Base Future Year (2040 Rnd 8.0)	15,854,064	2,404	5,194	7,598
Master Plan Alternative Scenario	25,434,851	2,785	12,903	15,688

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)

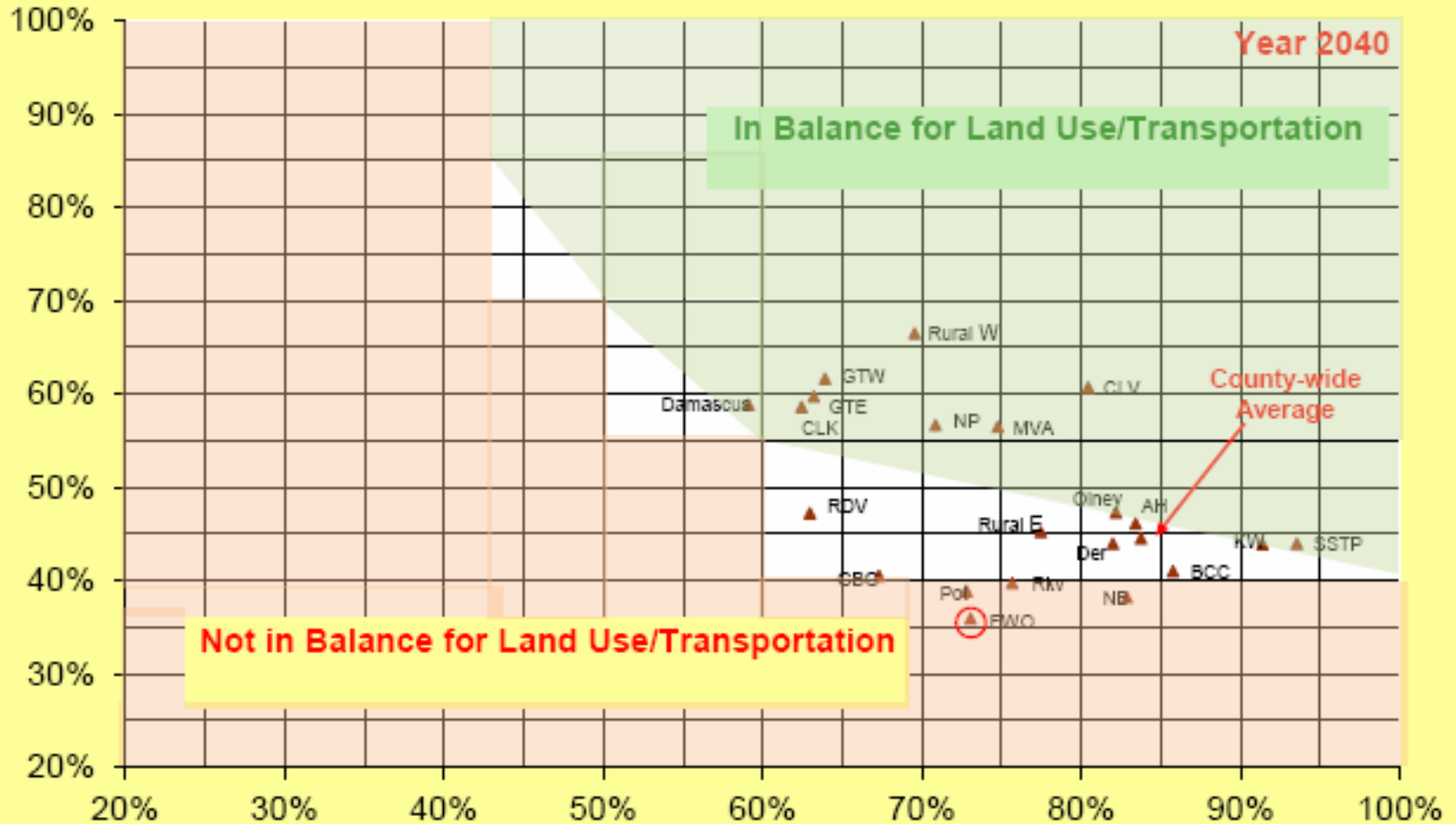


Relative Transit Mobility: (Overall Transit Speed Relative to Overall Speed Using Arterials)₃

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)

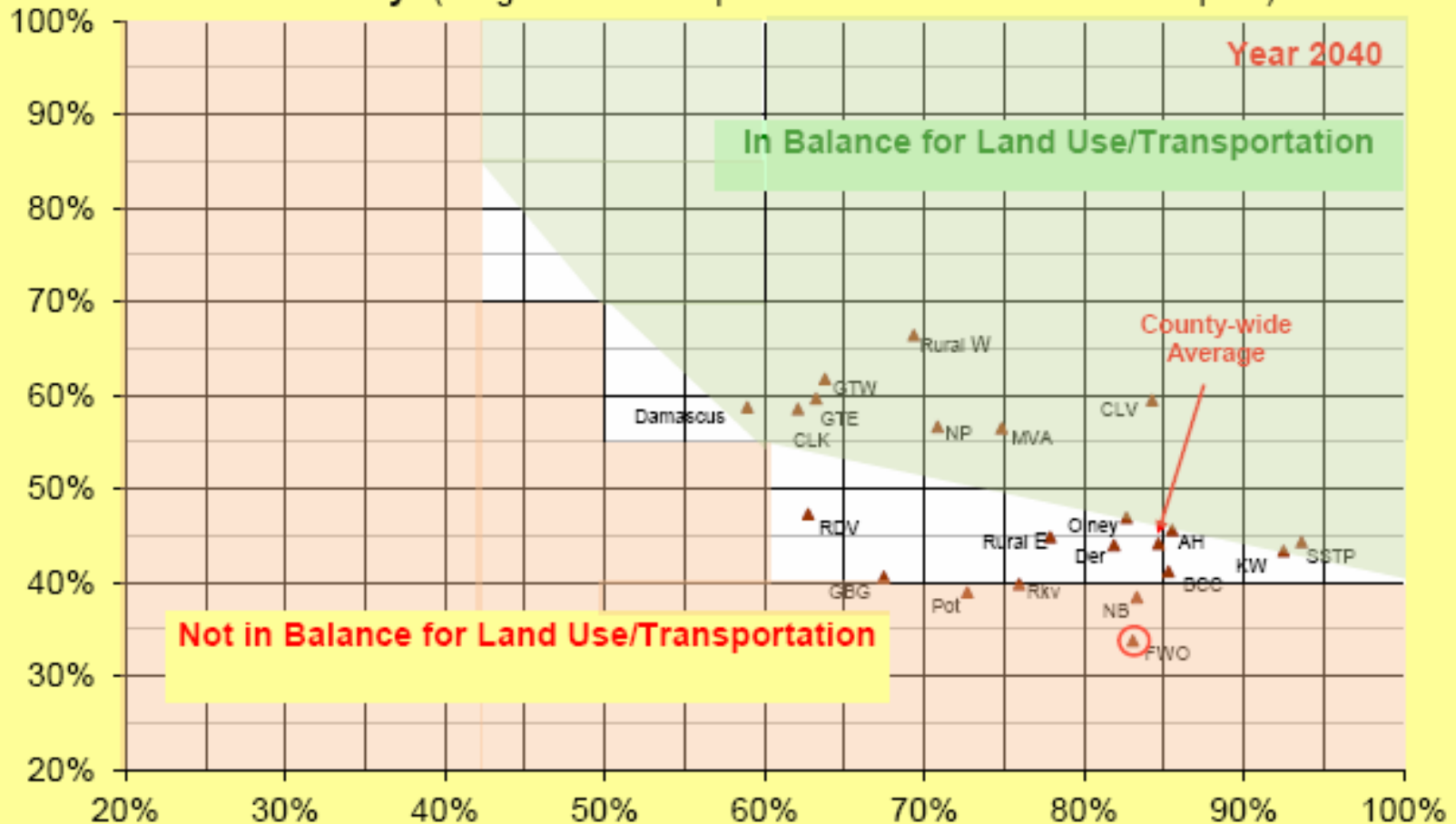


Relative Transit Mobility: (Overall Transit Speed Relative to Overall Speed Using Arterials)

WOSG Master Plan Alternative Scenario PAMR Analysis

Year 2040 PAMR Chart - WOSG Master Plan Alternative Scenario w/BRT

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



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

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

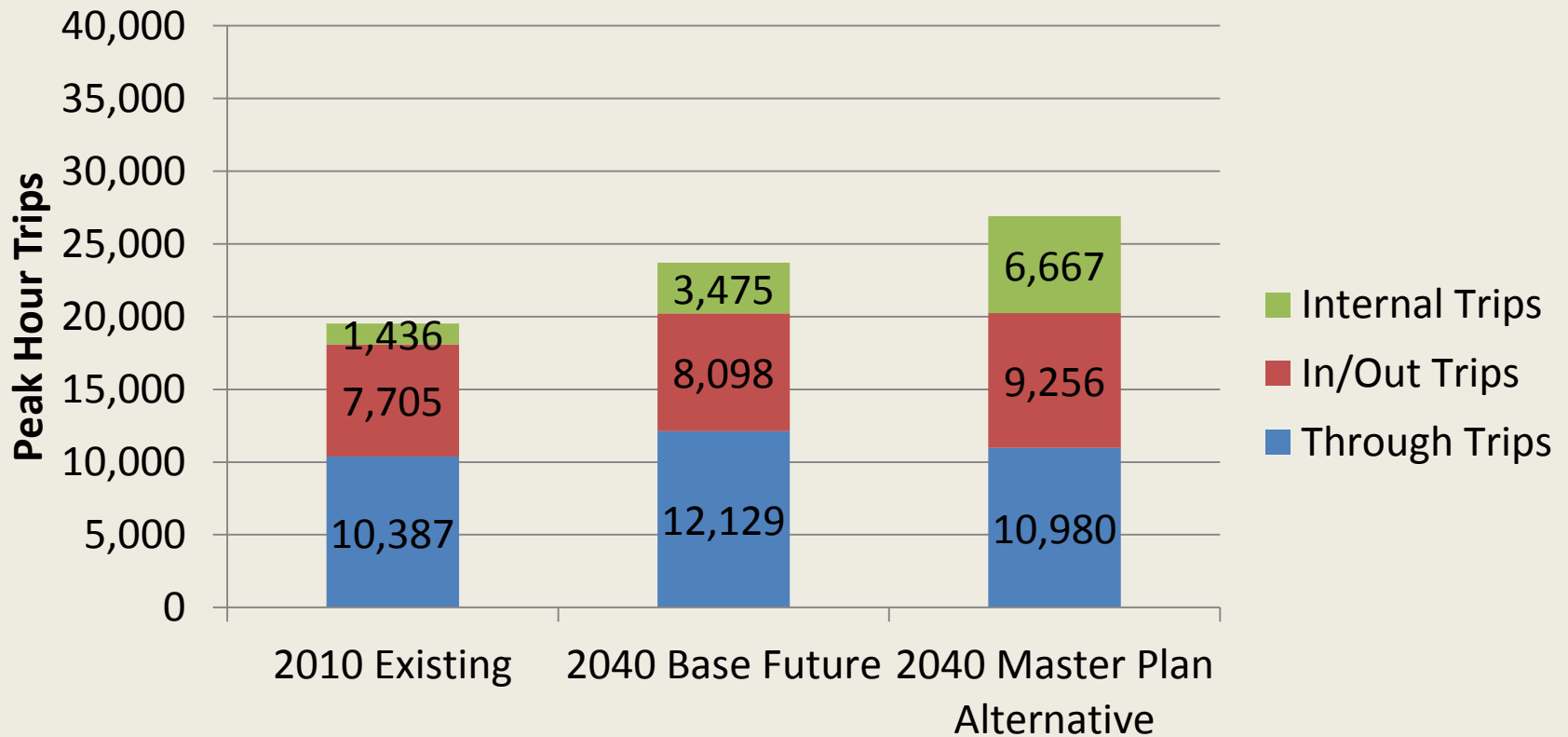
- Network for Master Plan Alternative Scenario
 - Three BRT routes
 - US 29
 - New Hampshire Ave
 - Randolph Rd
 - Old Columbia Pike bridge over Paint Branch
 - Planned interchanges
 - Fairland Rd / Musgrove Rd
 - Tech Rd / Industrial Pkwy
 - Stewart Ln
 - Briggs Chaney Rd
 - Blackburn Rd / Greencastle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

Assumptions

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

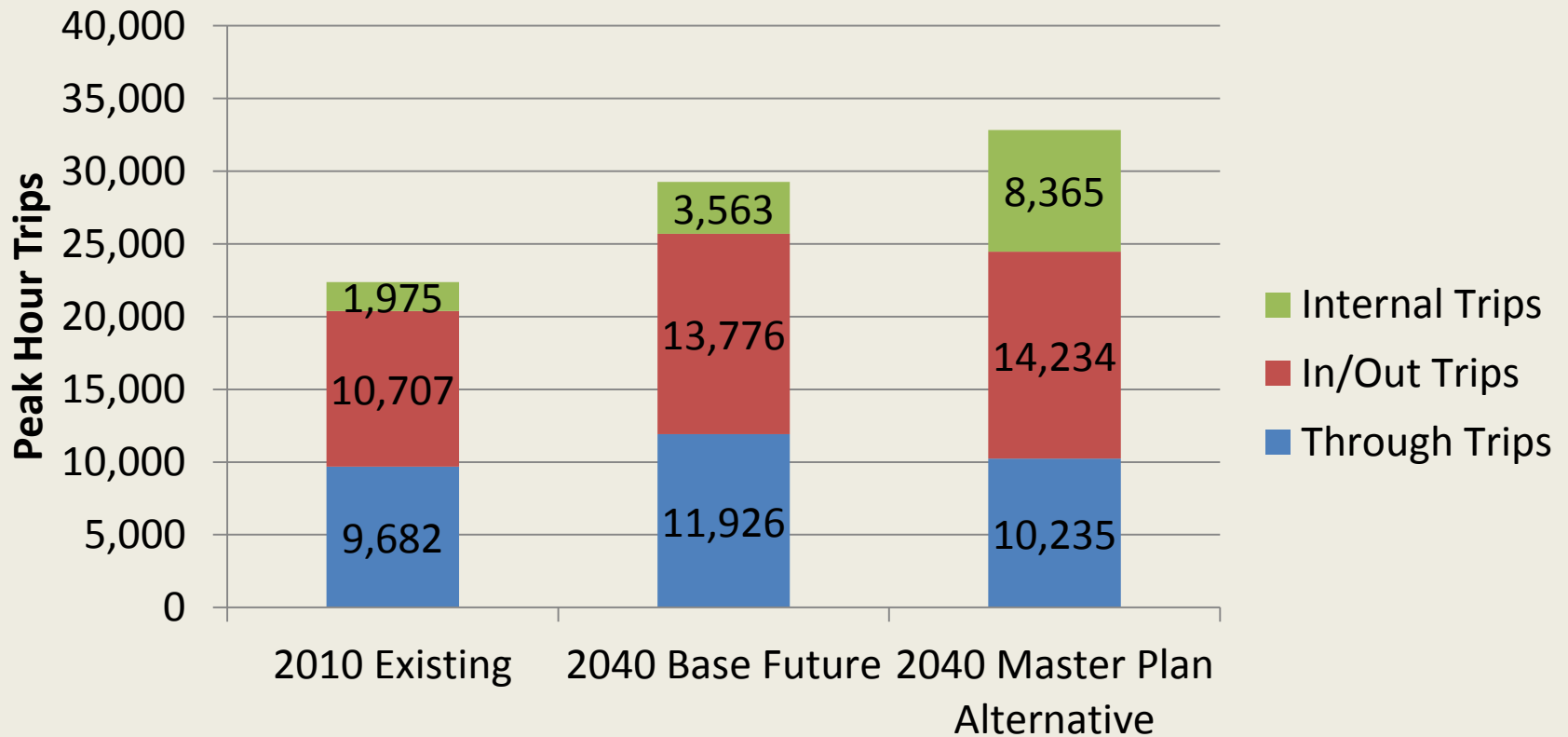
Land Use	AM Peak Hour	PM Peak Hour
Office	1.30	1.20
Retail	1.00	3.00
Industrial	1.00	1.00
Other	1.00	1.00

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%

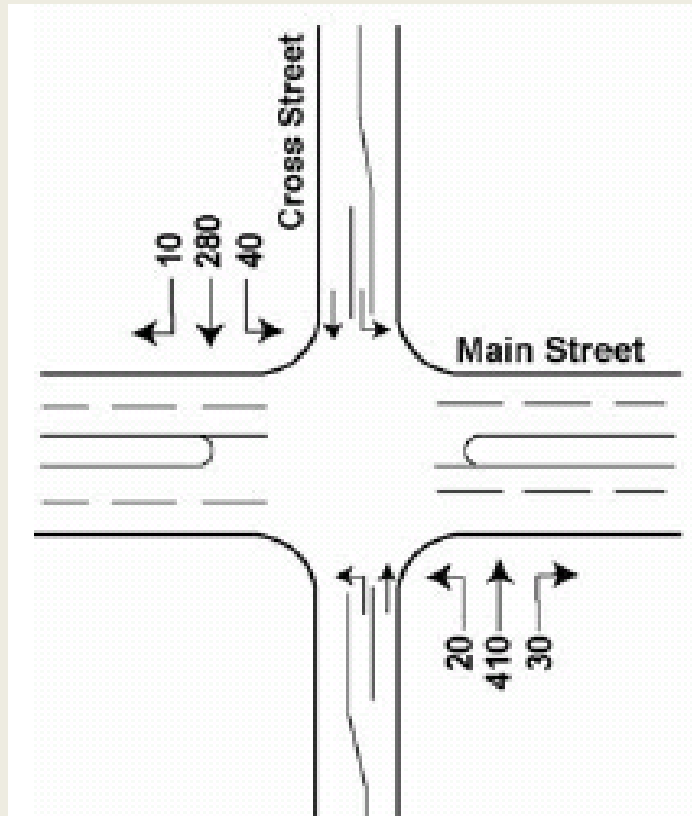
Critical Lane Volume

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

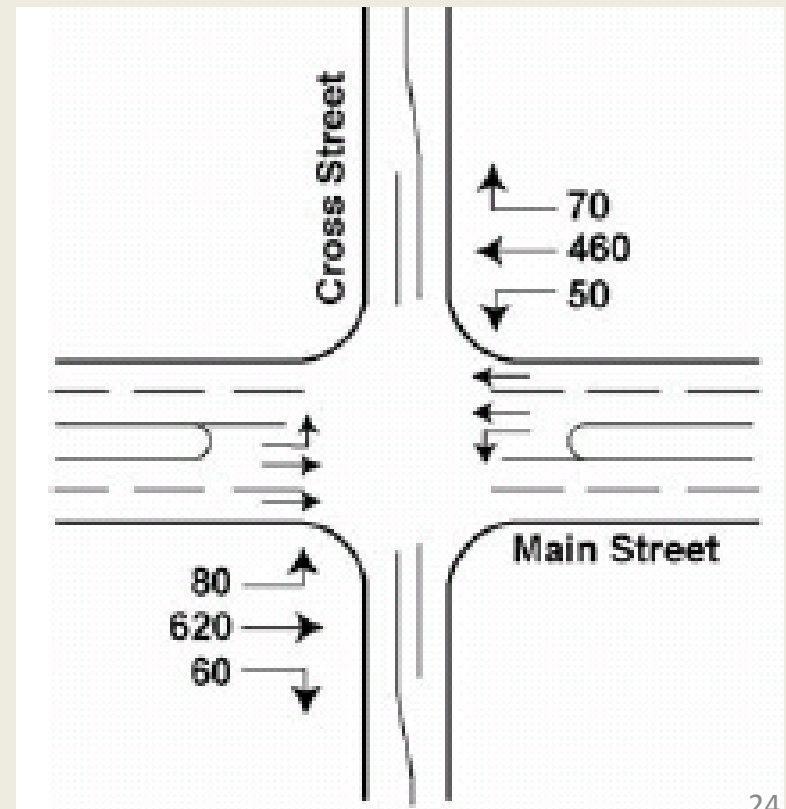
Critical Lane Volume

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





Northbound / Southbound



Eastbound / Westbound



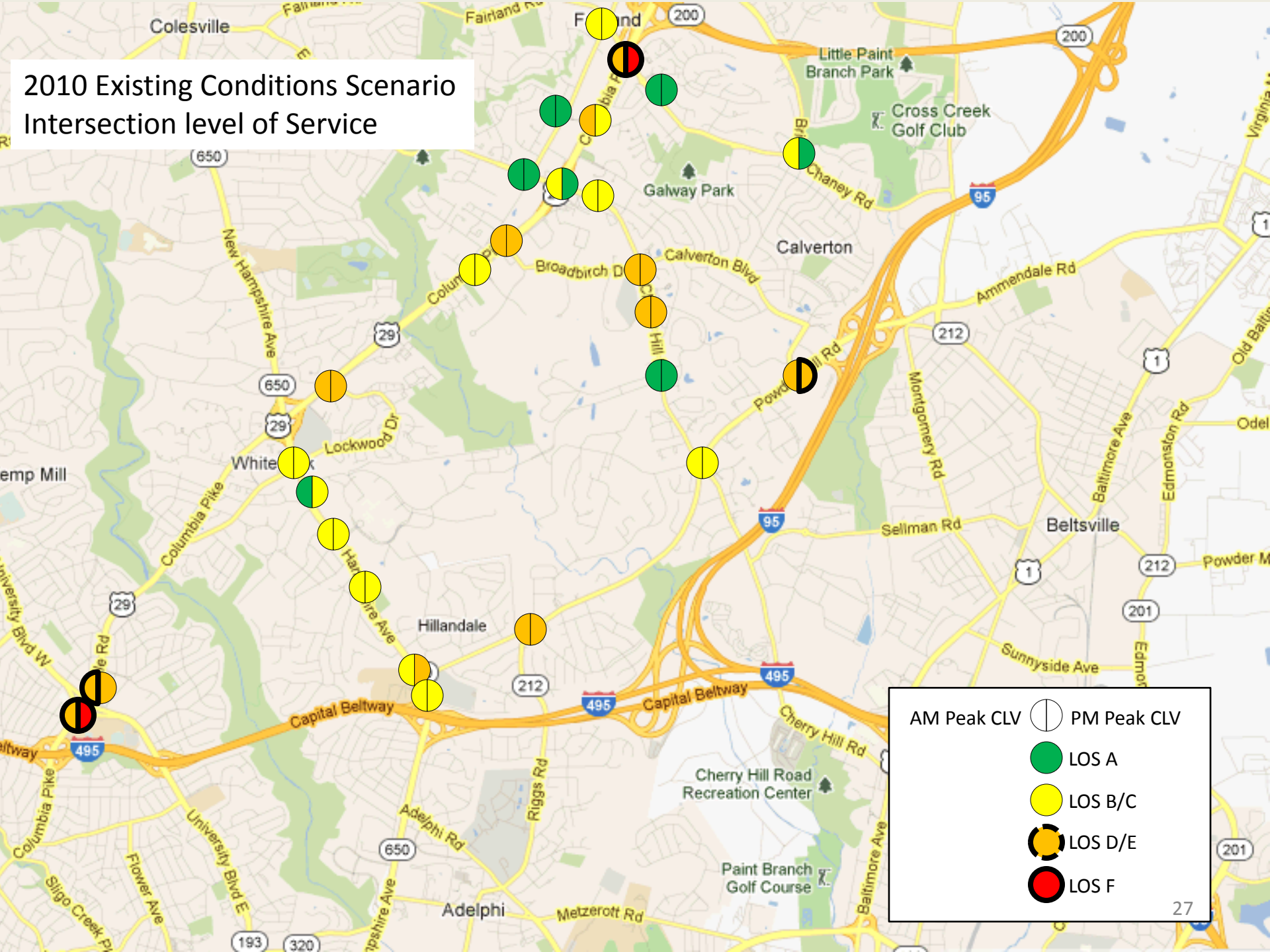
Critical Lane Volume Evaluation

<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
1475	Fairland/White Oak , 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

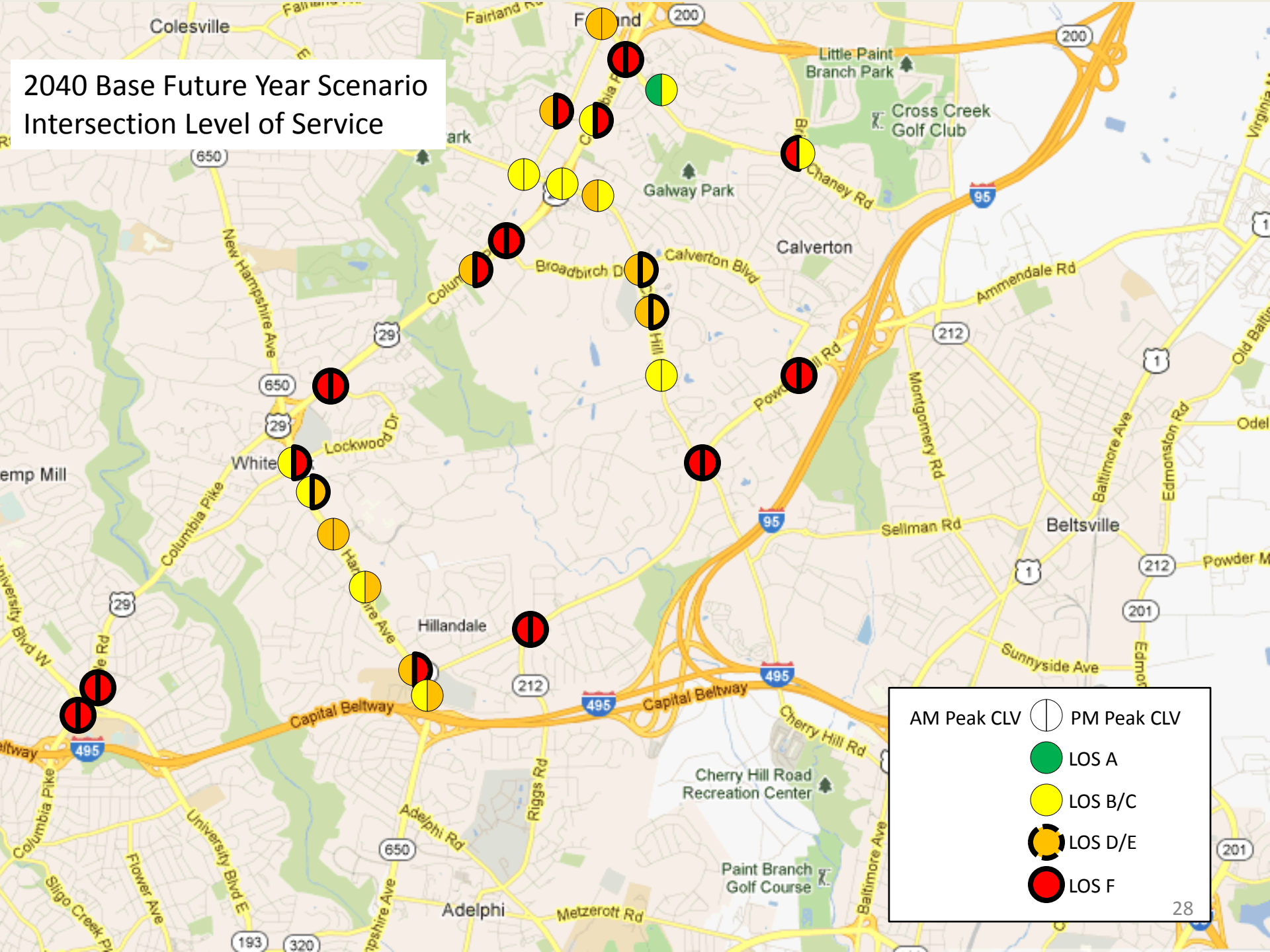
2010 Existing Conditions Scenario Intersection level of Service





AM Peak CLV PM Peak CLV


- LOS A
- LOS B/C
- LOS D/E
- LOS F


2040 Base Future Year Scenario Intersection Level of Service




AM Peak CLV  PM Peak CLV

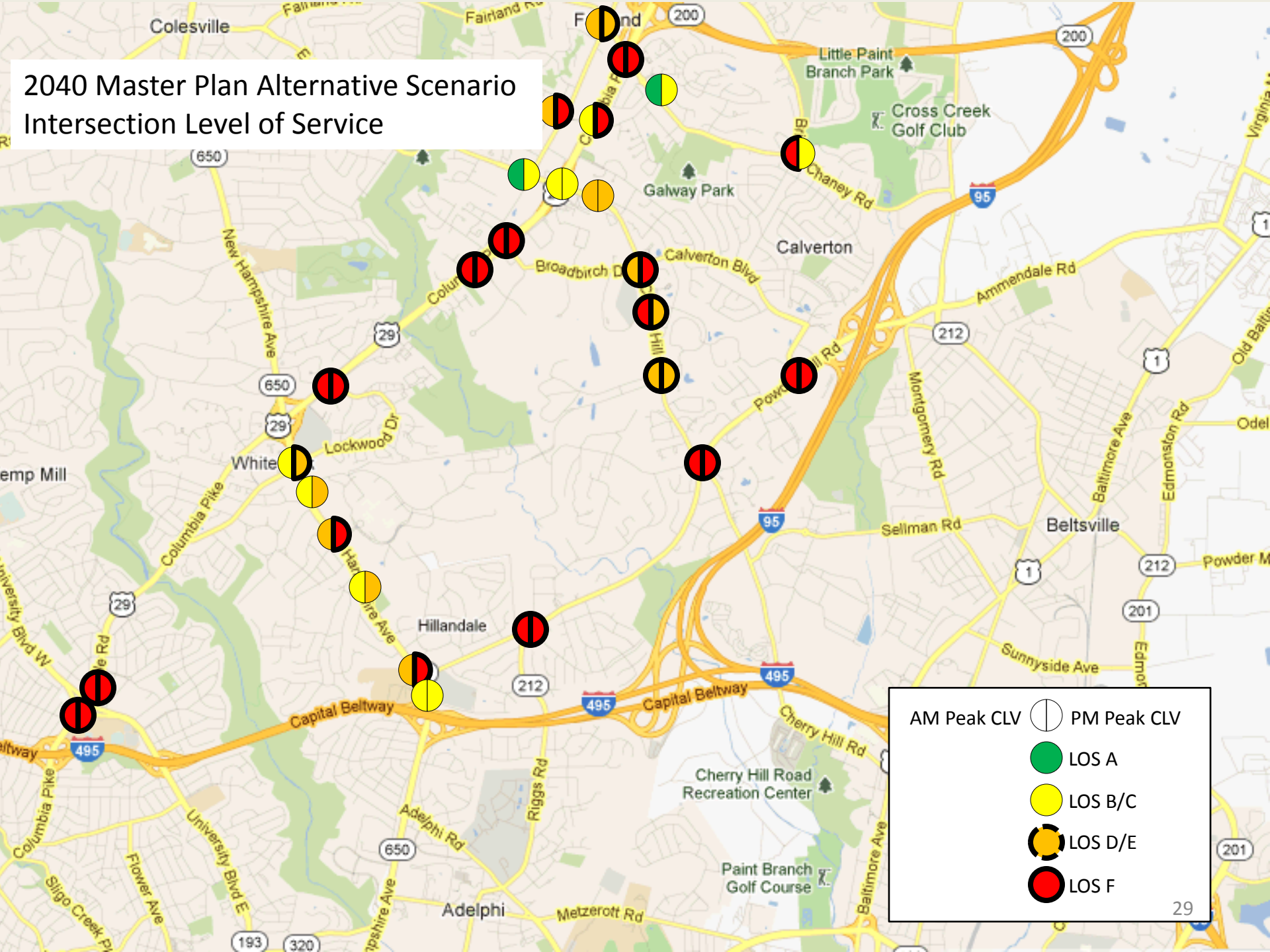
 LOS A

 LOS B/C

 LOS D/E

 LOS F

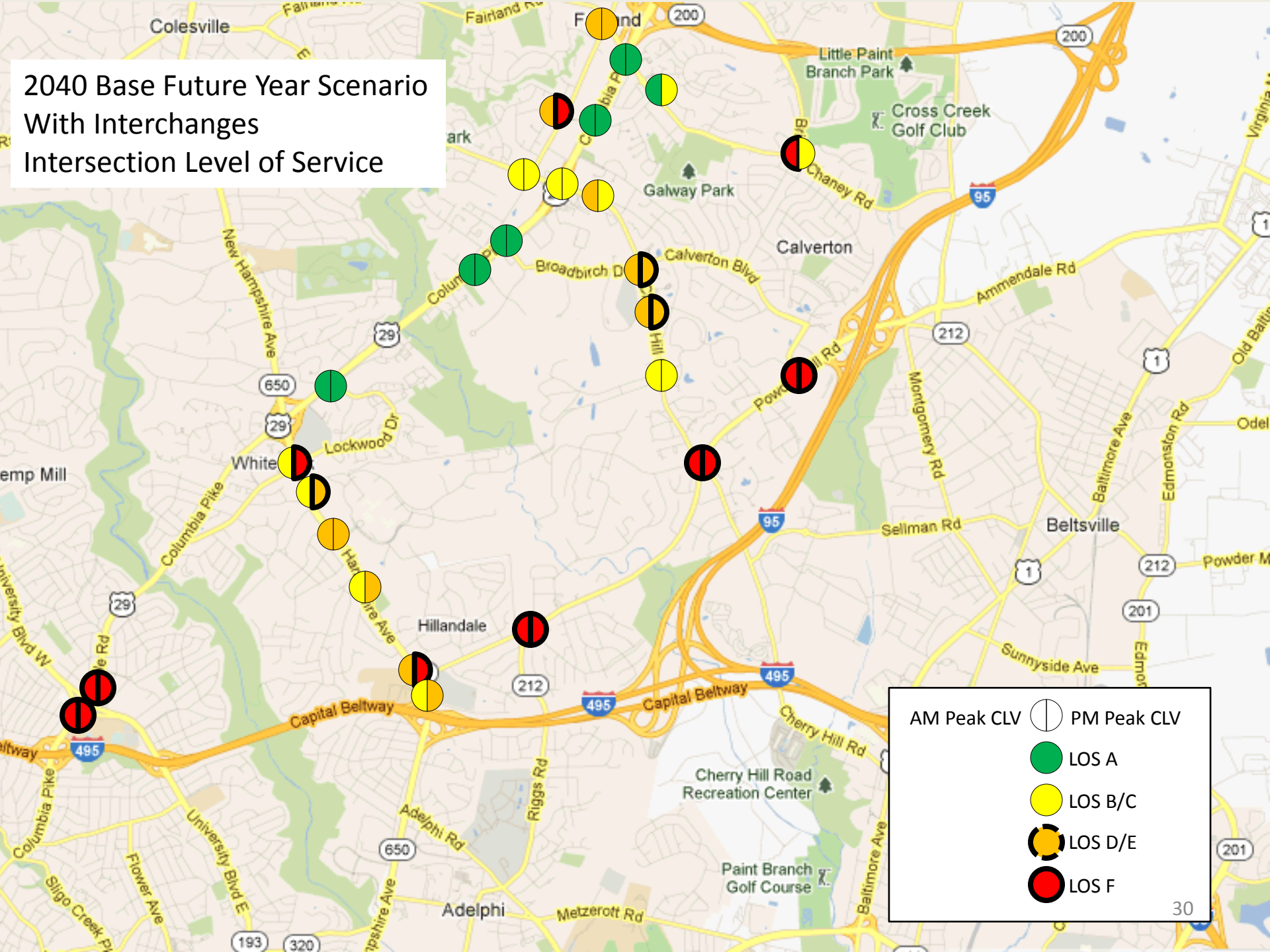
2040 Master Plan Alternative Scenario Intersection Level of Service



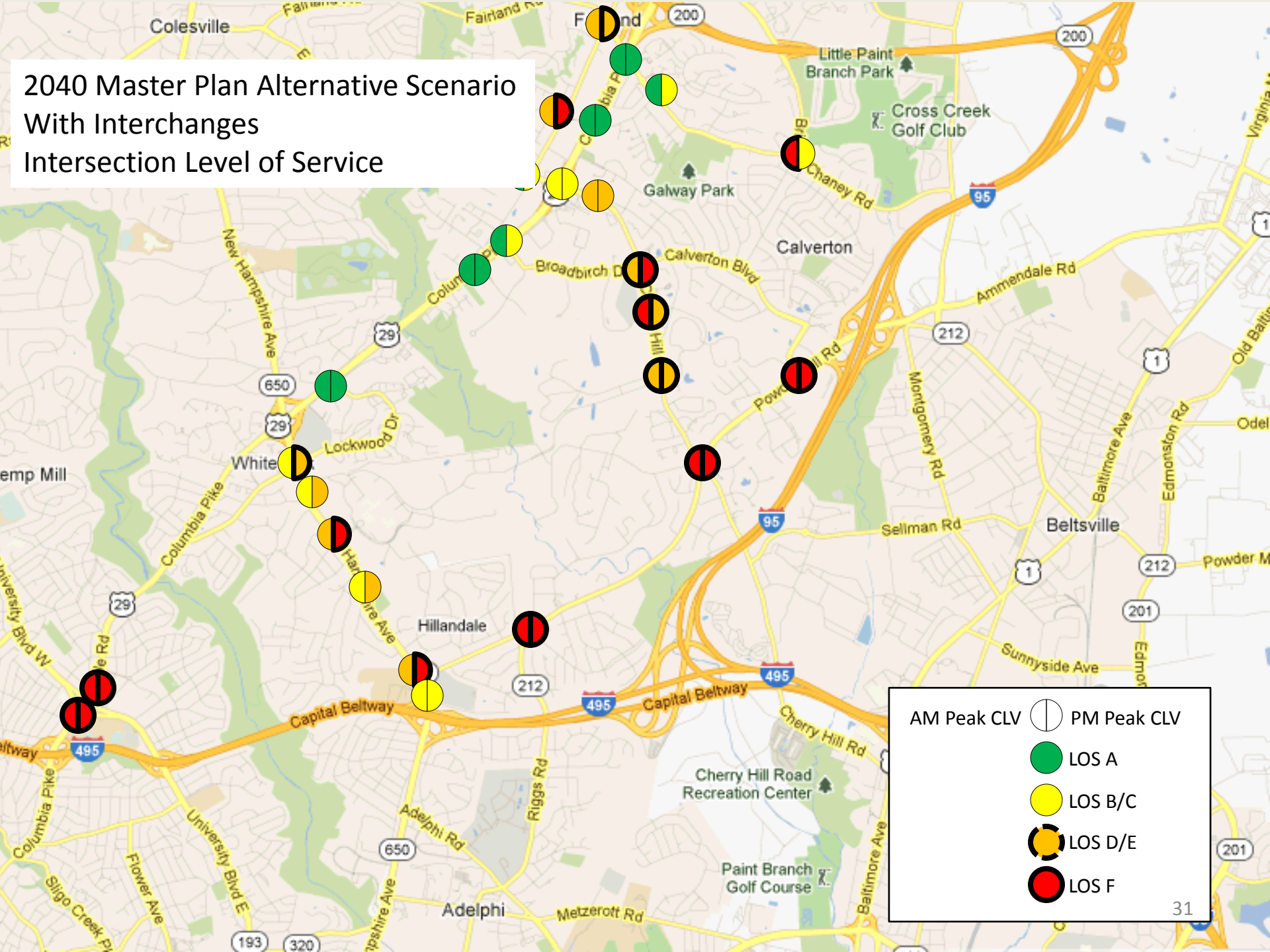
AM Peak CLV	PM Peak CLV



LOS A
LOS B/C
LOS D/E
LOS F


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?

