

TPB SCENARIO STUDY

Progress on “CLRP Aspirations” & “What Would it Take?” Scenarios

Monica Bansal and Michael Eichler
Department of Transportation Planning

Presentation to the TPB Scenario Study
Task Force

September 17, 2008

The Two New Scenarios

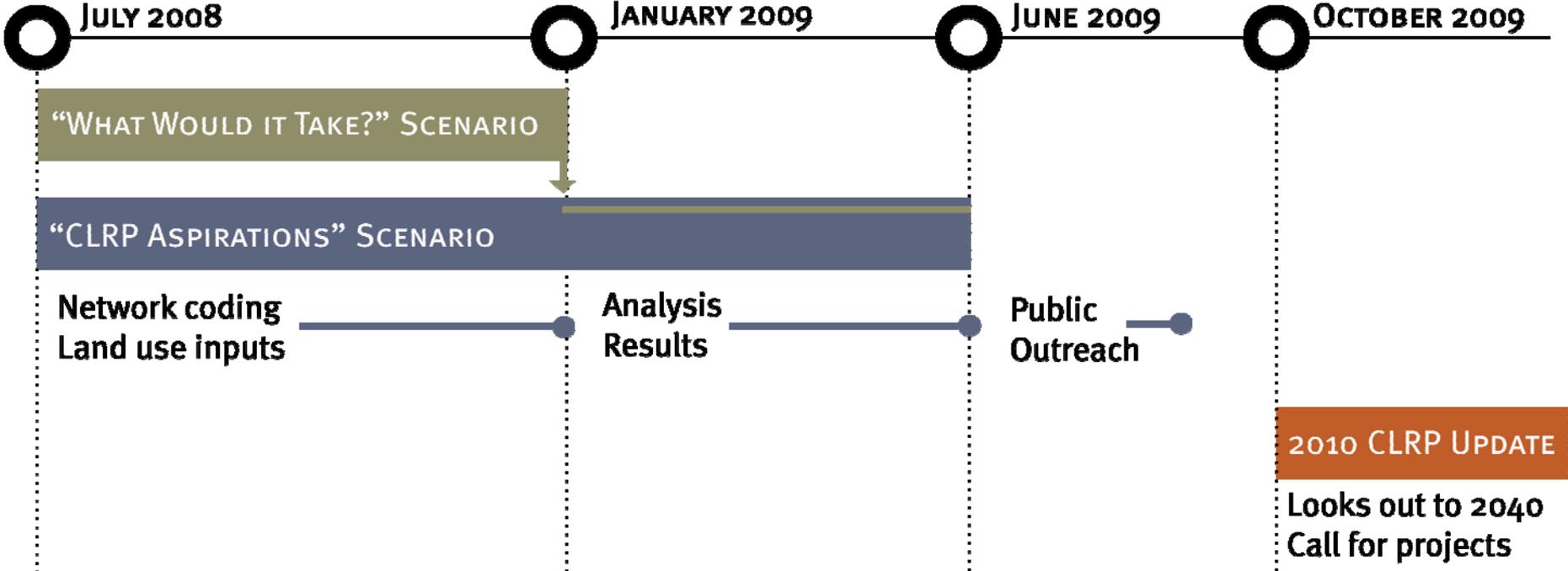
CLRP Aspirations

Draws on past scenarios (5 transportation/land use scenarios and 2 value pricing scenarios) to provide an ambitious yet attainable vision of land use and transportation for the 2010 CLRP update.

What Would it Take?

Starts with CO₂ goals (80% below 2005 levels in 2050 and 20% reduction by 2020) and assesses what scales and combinations of interventions will be necessary to achieve the goal.

Study Timeline



Developing the Scenarios

CLRP Aspirations

1. Transportation Component
2. Land Use Component

WWIT

3. Evaluation of WWIT Strategies

Developing the CLRP Aspirations Scenario

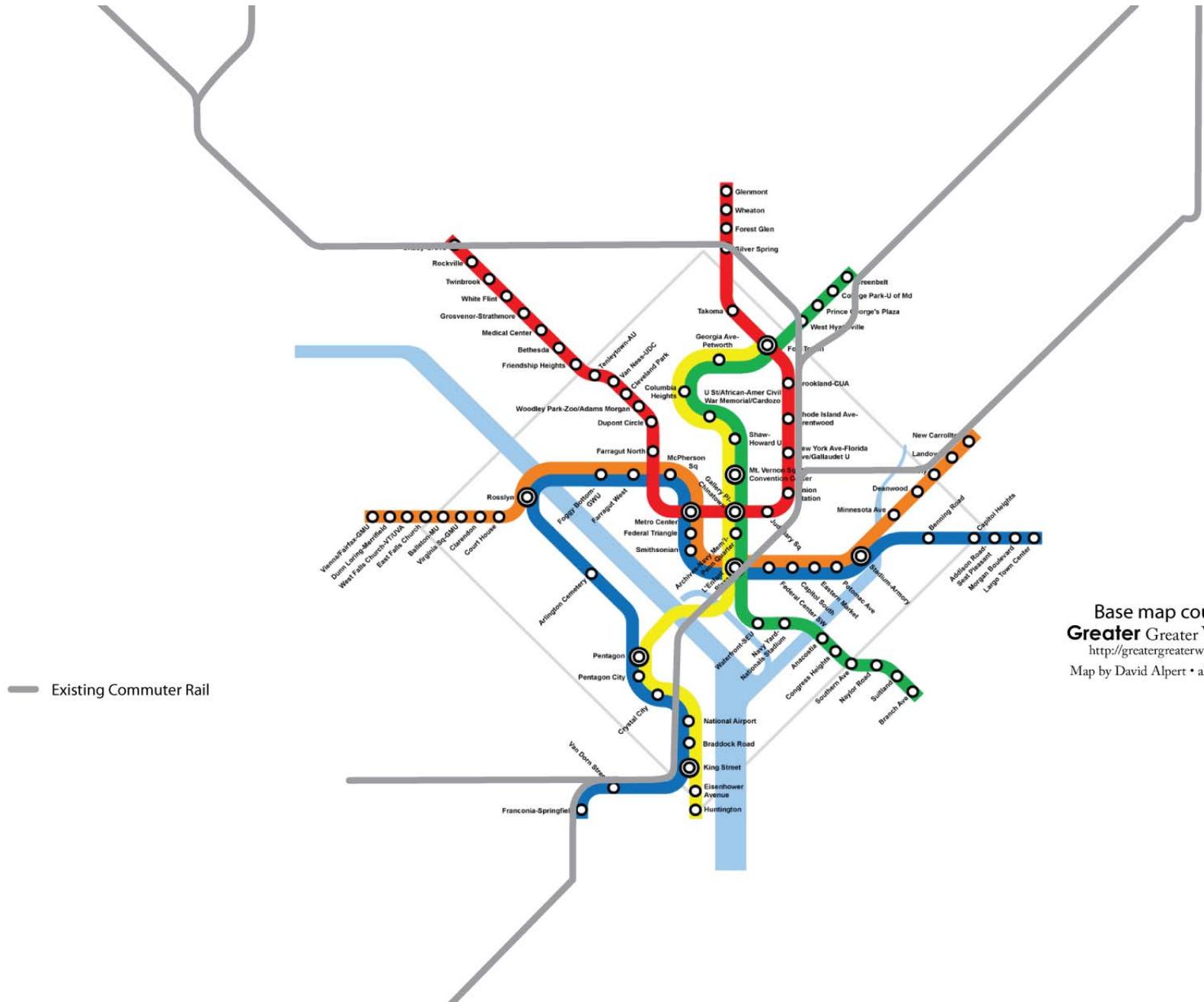
4 principles of RMAS

1. **Bring people closer to their jobs**, thereby reducing their commuting distance
2. **Create a balance between the number of workers and jobs** available in the region
3. **Land use shifts should push the boundaries** of current zoning and comprehensive plan restrictions, while insuring that changes remain feasible
4. Land use changes should be **supported by high quality transportation infrastructure.**

CLRP Aspirations

The Transportation Component

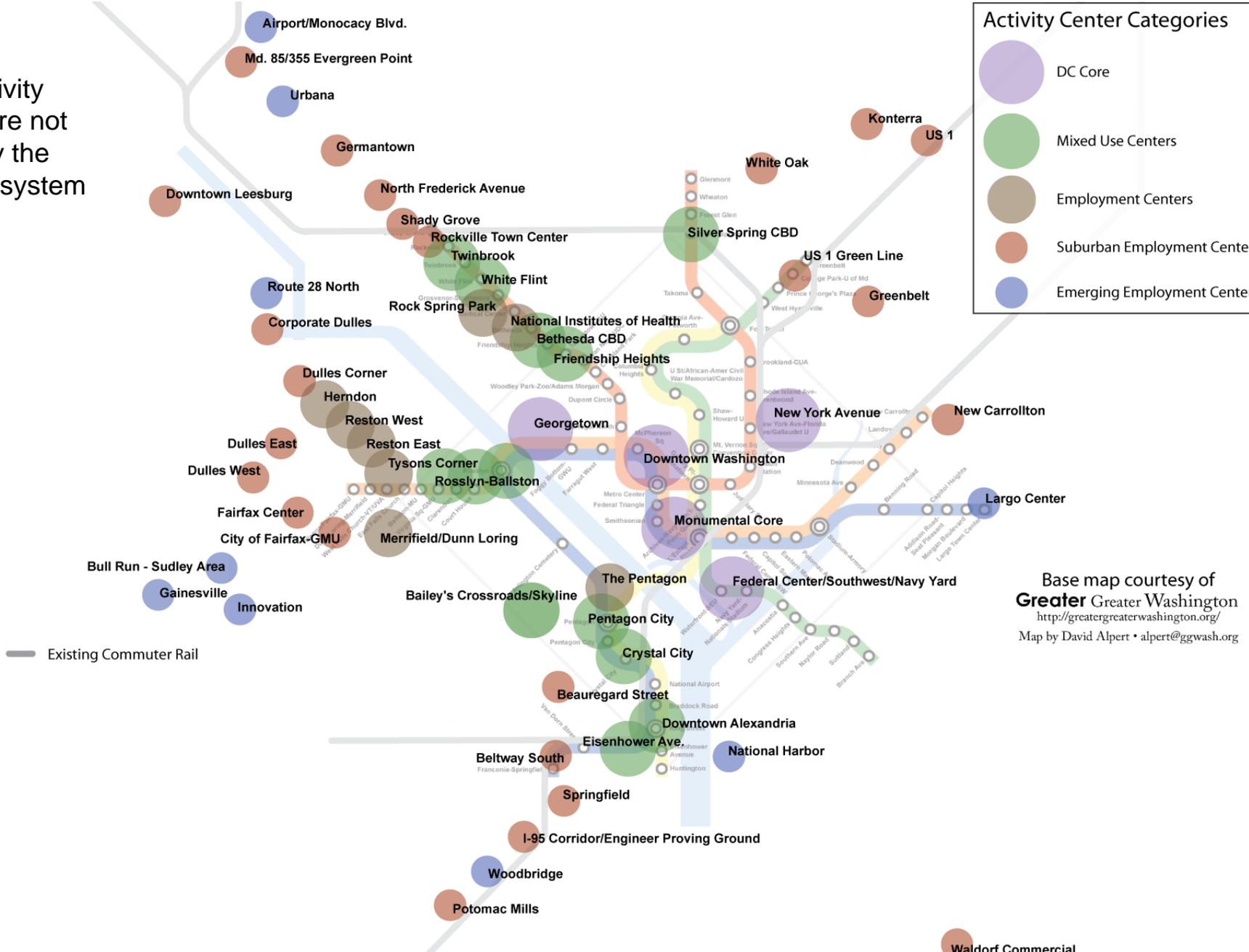
Existing Metrorail and Commuter Rail



Base map courtesy of
Greater Greater Washington
<http://greatergreaterwashington.org/>
Map by David Alpert • alpert@ggwash.org

Regional Activity Centers

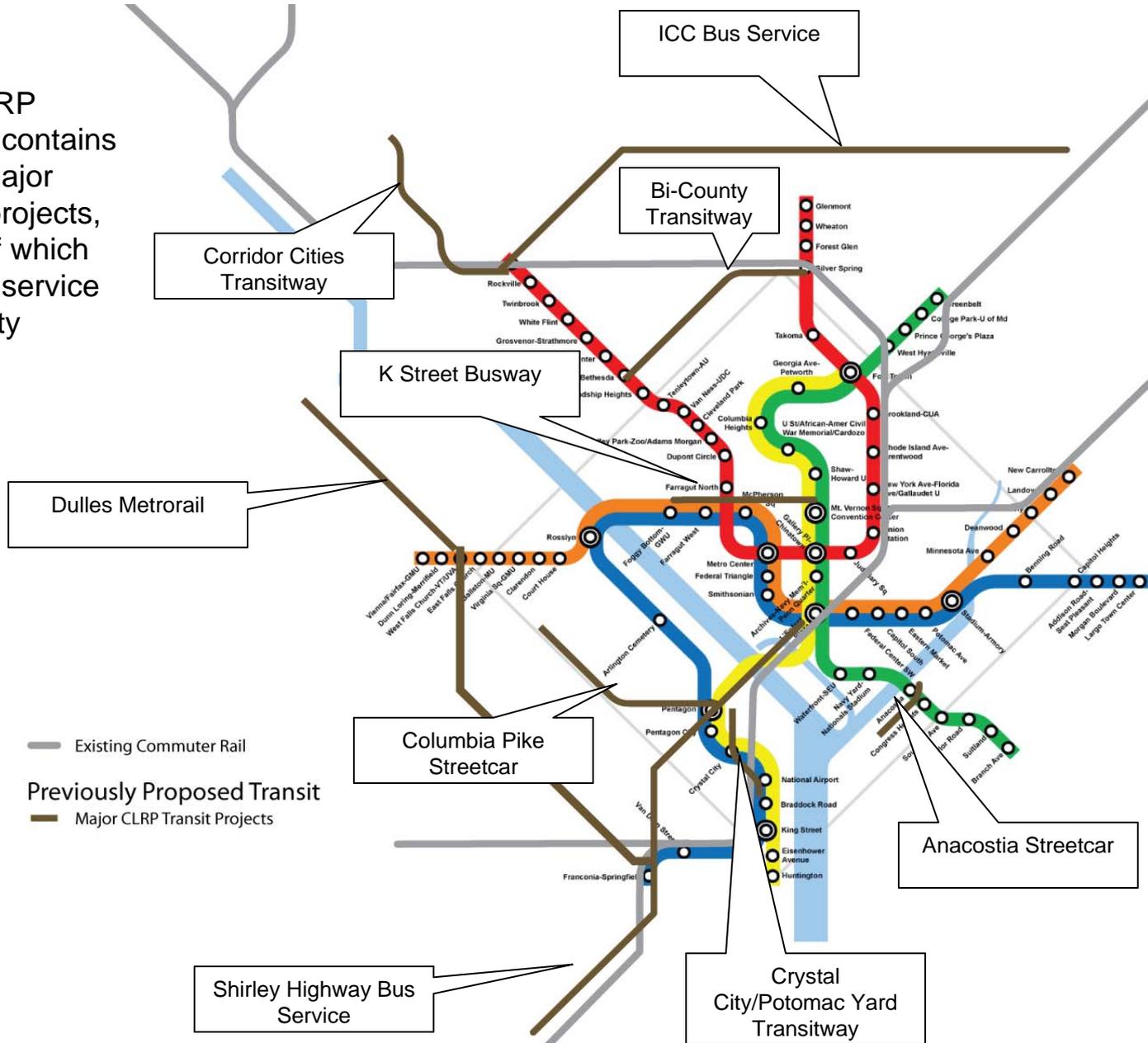
Many activity centers are not served by the Metrorail system



Base map courtesy of Greater Washington
<http://greatergreaterwashington.org/>
 Map by David Alpert • alpert@ggwash.org

CLRP Major Transit Projects

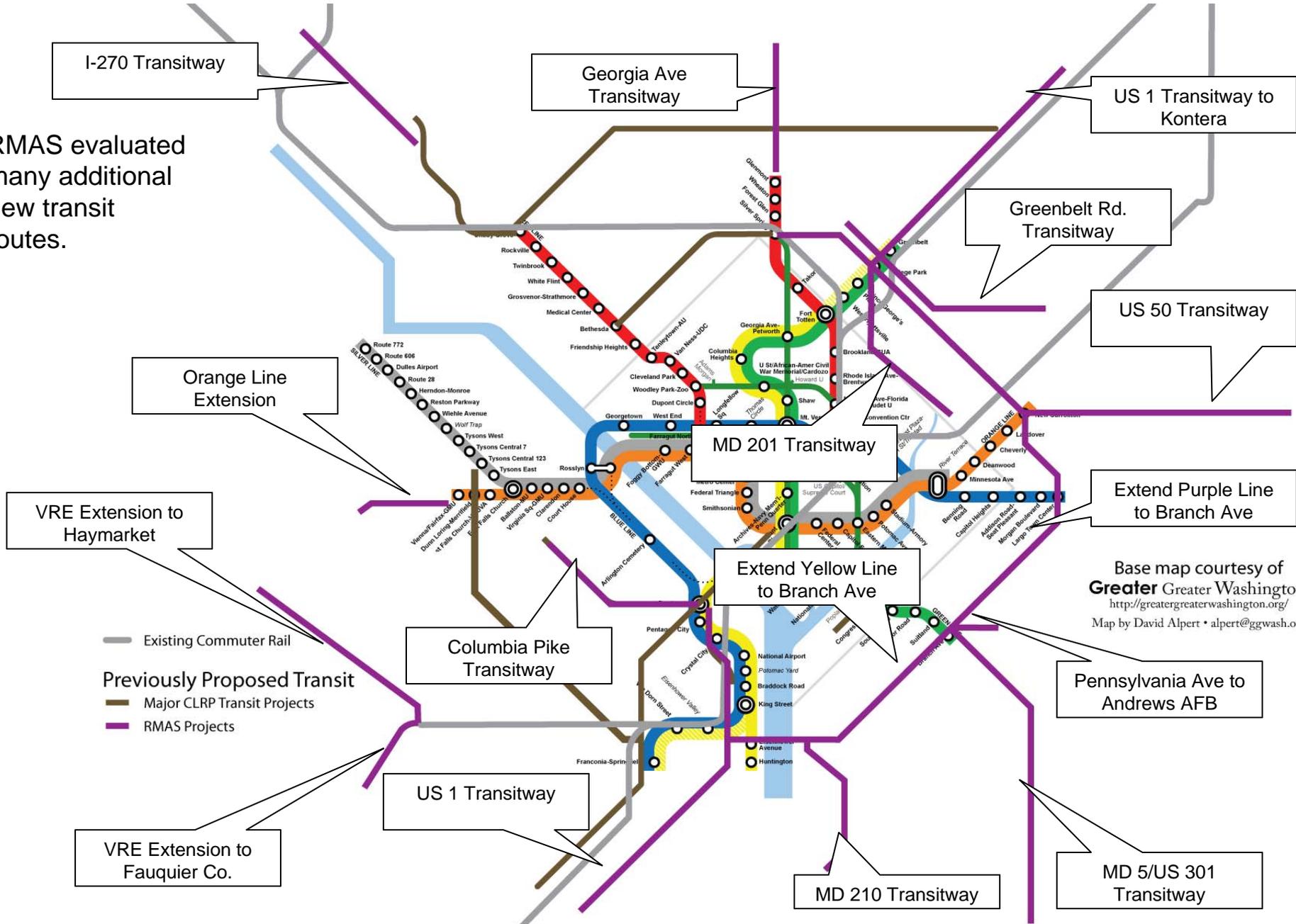
The CLRP already contains many major transit projects, many of which provide service to activity centers.



Base map courtesy of Greater Greater Washington
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RMAS Transit Projects

RMAS evaluated many additional new transit routes.



Base map courtesy of Greater Greater Washington
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Other studied major transit projects

County and sub-regional plans include even more transit.

Metrorail, Dunn Loring to Bethesda

North Bethesda Transitway

Route 28 LRT

Existing Commuter Rail

Previously Proposed Transit

Major CLRP Transit Projects

RMAS Projects

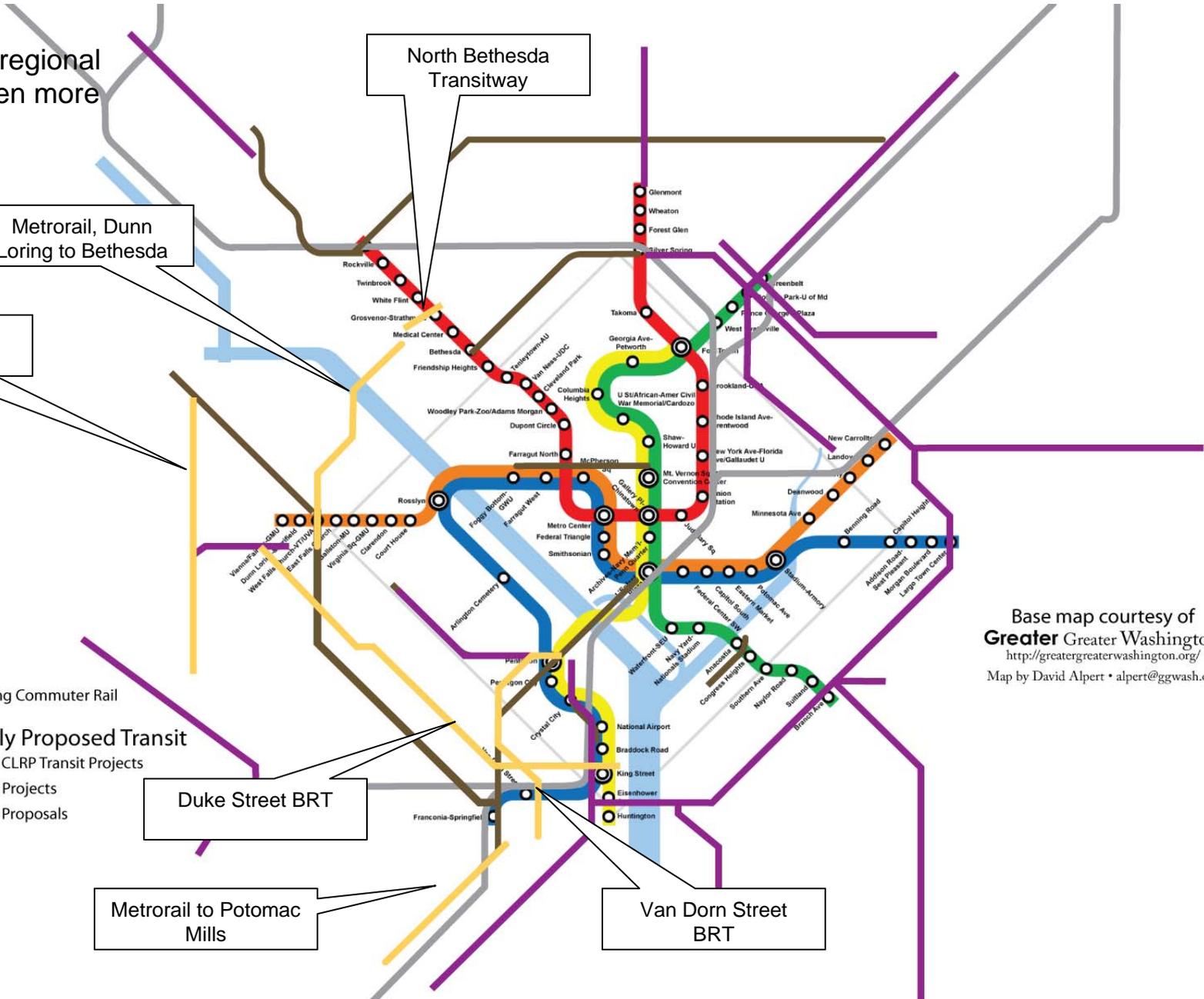
Other Proposals

Duke Street BRT

Metrorail to Potomac Mills

Van Dorn Street BRT

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DC rail projects: WMATA and DCAA

WMATA core capacity studies state need for a new river crossing from a new Rosslyn station into Georgetown, where a new Blue line would run along M St.

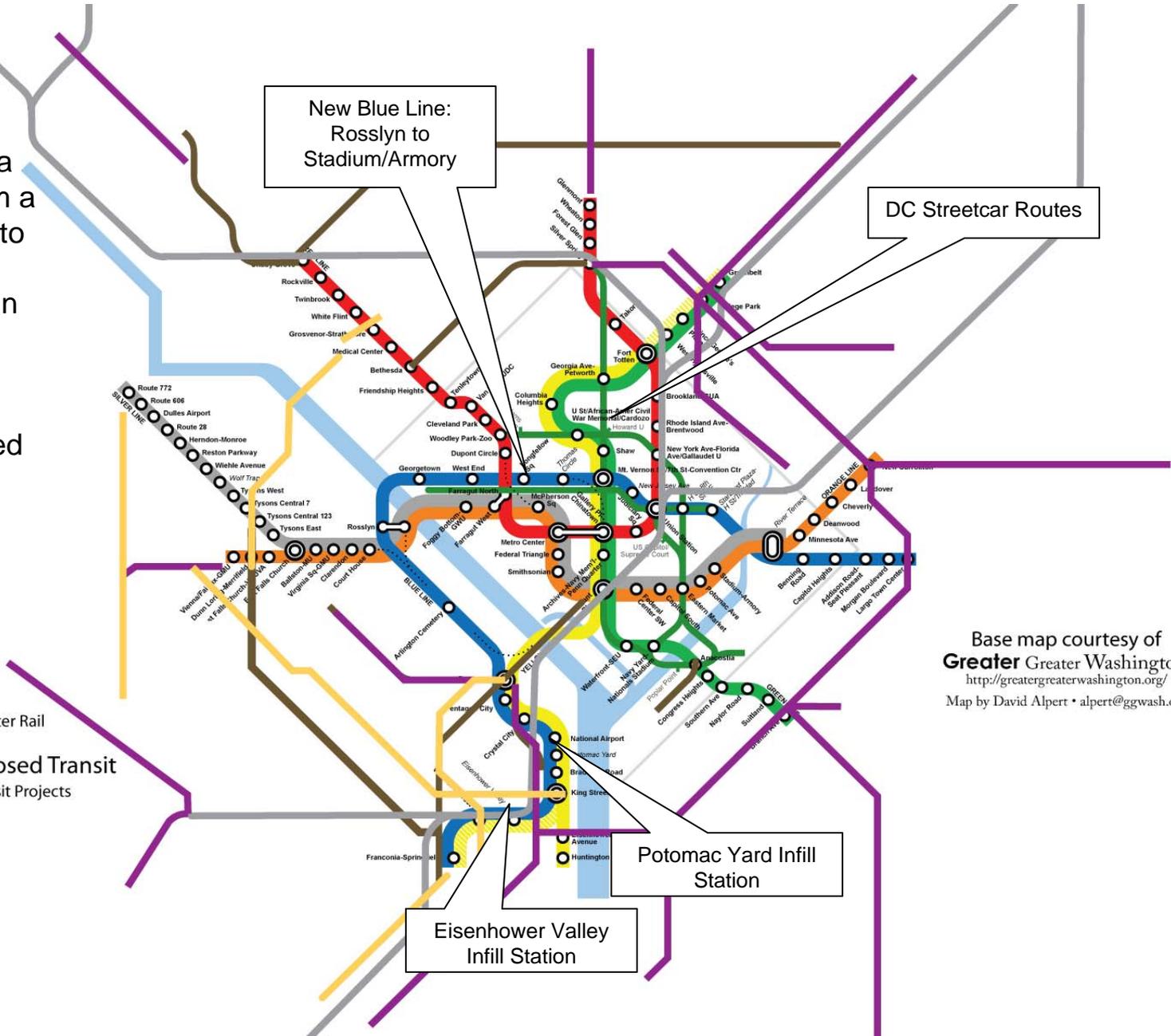
The DC alternatives analysis study proposed three major streetcar routes in DC

Two infill stations are being considered in Alexandria

Existing Commuter Rail

Previously Proposed Transit

- Major CLRP Transit Projects
- RMAS Projects
- Other Proposals



New Blue Line:
Rosslyn to
Stadium/Armory

DC Streetcar Routes

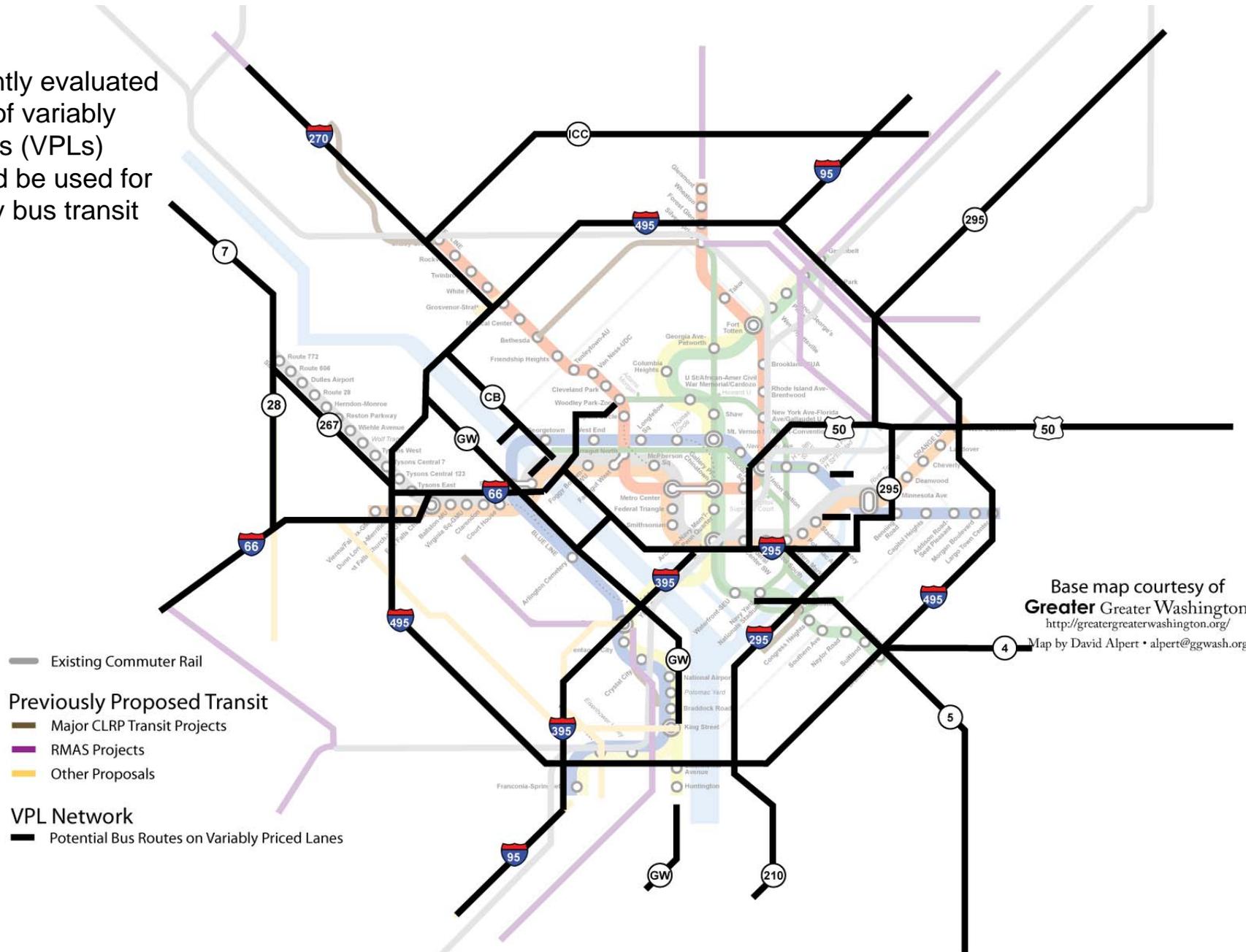
Eisenhower Valley
Infill Station

Potomac Yard Infill
Station

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Studied Network of Variably Priced Lanes (VPLs)

TPB Recently evaluated a network of variably priced lanes (VPLs) which could be used for high-quality bus transit service.



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Map by David Alpert • alpert@ggwash.org

Studied Network of Variably Priced Lanes with Activity Centers

The studied VPLs provide nearly all of the currently planned high quality



Interaction With Regional Studies

The studied variably priced lanes network can inform other studies throughout the region, including:

- West Side Mobility Study (I-270 and Legion Bridge)
- MD Capital Beltway Study
- South Side Mobility Study (Including Wilson Bridge)
- I-66 Corridor Study

Existing Commuter Rail

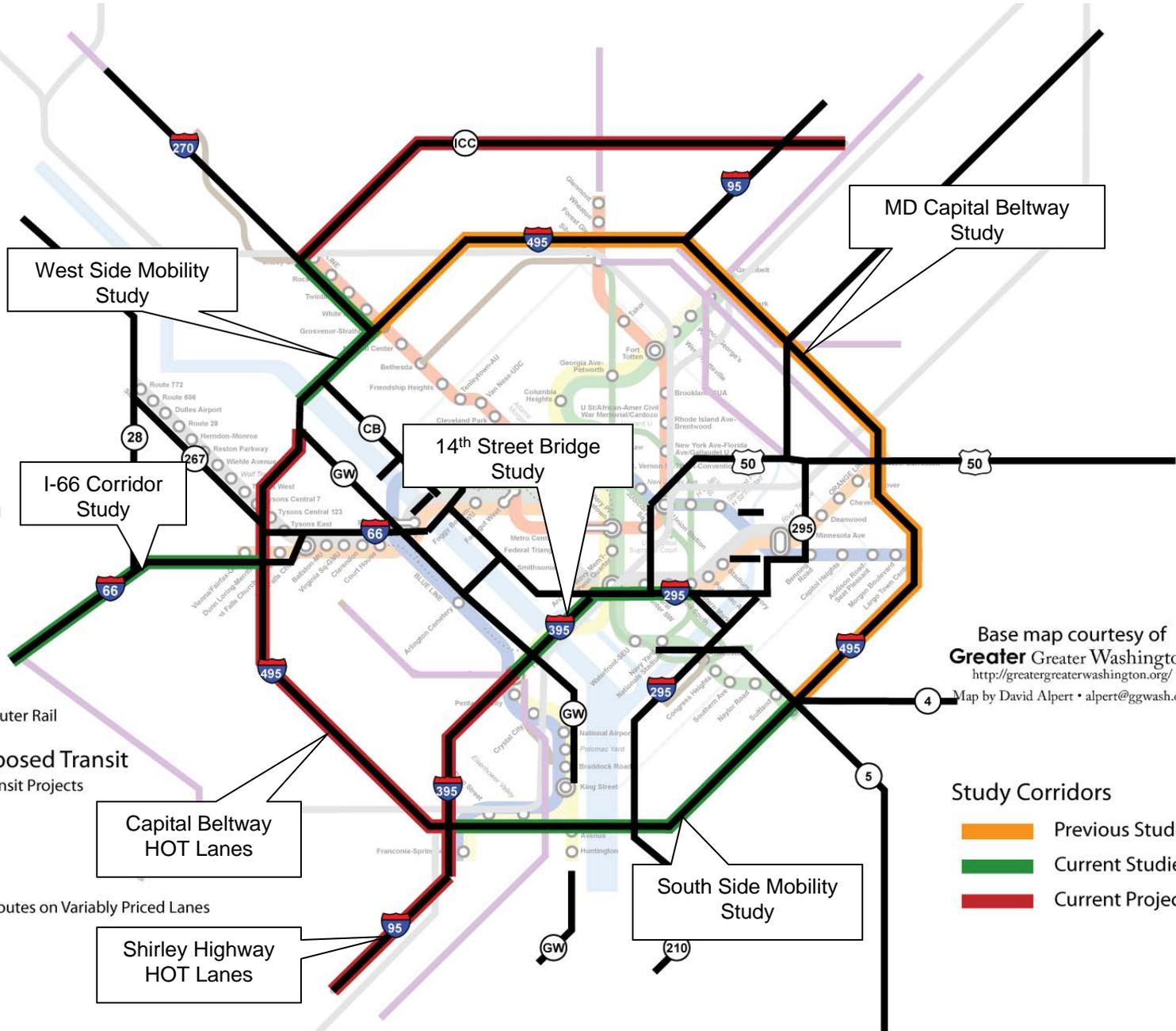
Previously Proposed Transit

Major CLRP Transit Projects

RMAS Projects

VPL Network

Potential Bus Routes on Variably Priced Lanes



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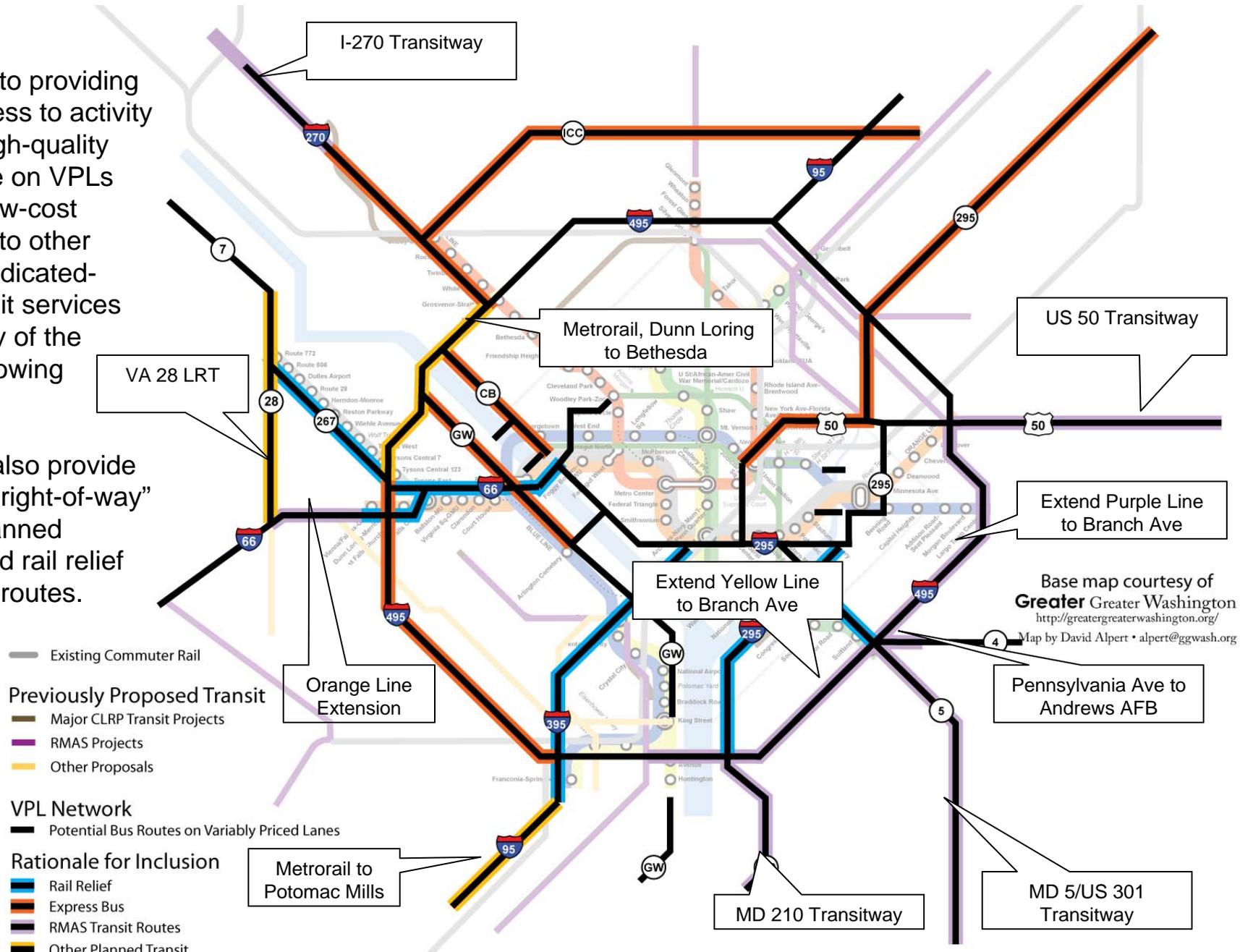
Study Corridors

- Previous Studies
- Current Studies
- Current Projects

Additional Rationale for Bus Service on Variably Priced Lanes

In addition to providing transit access to activity centers, high-quality bus service on VPLs can be a low-cost alternative to other planned dedicated-ROW transit services along many of the region's growing corridors.

VPLs can also provide "dedicated right-of-way" to other planned express and rail relief routes bus routes.

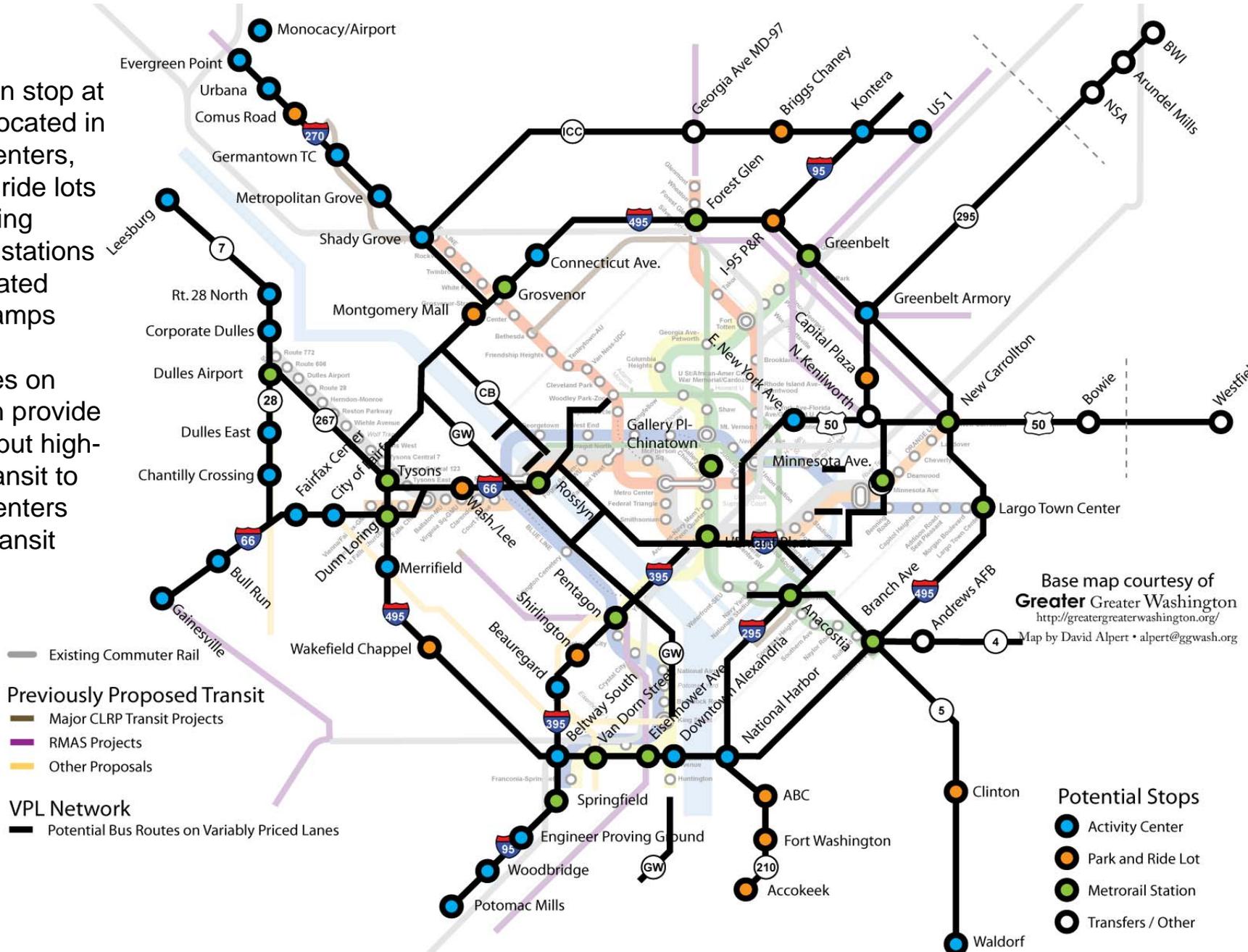


Base map courtesy of Greater Greater Washington
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Potential Bus Station Locations

Buses can stop at stations located in activity centers, park and ride lots and existing Metrorail stations via dedicated access ramps

Bus routes on VPLs can provide low-cost but high-quality transit to activity centers without transit service.



- Existing Commuter Rail
- Previously Proposed Transit
 - Major CLRP Transit Projects
 - RMAS Projects
 - Other Proposals
- VPL Network
 - Potential Bus Routes on Variably Priced Lanes

Base map courtesy of Greater Greater Washington
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- Potential Stops
- Activity Center
 - Park and Ride Lot
 - Metrorail Station
 - Transfers / Other

Comments Received

Airport/Monocacy Blvd.

Include WMATA Priority Corridors

Service to the City of Frederick

New/updated activity centers

Connections through downtown

Circulation within activity centers

Previously Proposed Transit

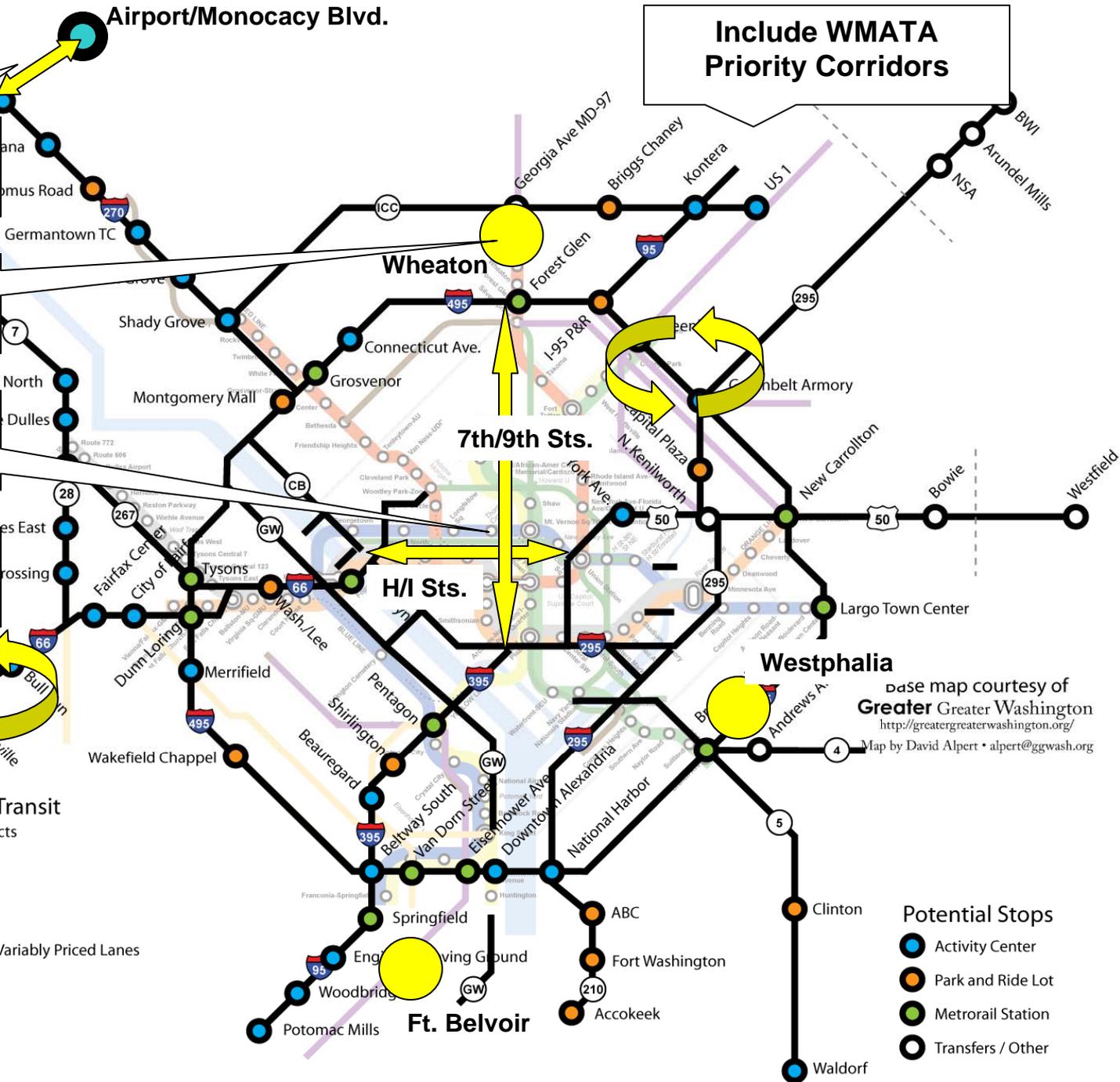
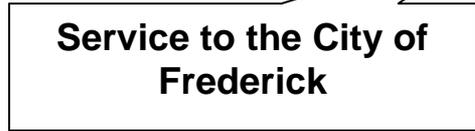
- Major CLRP Transit Projects
- RMAS Projects
- Other Proposals

VPL Network

- Potential Bus Routes on Variably Priced Lanes

Potential Stops

- Activity Center
- Park and Ride Lot
- Metrorail Station
- Transfers / Other



base map courtesy of
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Bus Service on Variably Priced Lanes

- Previous pricing study evaluated regular and express bus service operating on the variably priced lanes
- CLRP Aspirations Scenario to include BRT-like bus stations and technologies at high-demand locations



The Shirlington Transit Station, currently under construction in Arlington, VA.

Questions for Consideration

In addition to the BRT network, what other projects should be included in the scenario?

Should the BRT network provide downtown distributor service, or simply feed Metrorail?

How would downtown distribution work?

- Dedicated bus lanes or mixed use roads?

Next Steps

Solicit further feedback from the Task Force
and Regional Bus Subcommittee

Incorporate comments

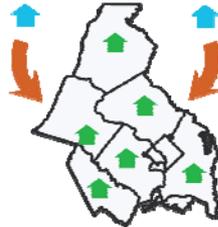
Code network and begin analysis

The Land Use Component

RMAS Assumptions: Shifts in projected growth, 2010-2030

1. More Households

+ 216,000 households to the core and inner suburbs



2. Households In

↔ 84,000 households from the outer suburbs to the core and inner suburbs



3. Jobs Out

↔ 82,000 jobs from the core and inner suburbs to the outer suburbs



4. Region Undivided

↔ 114,000 jobs and 57,000 households from the west to the east

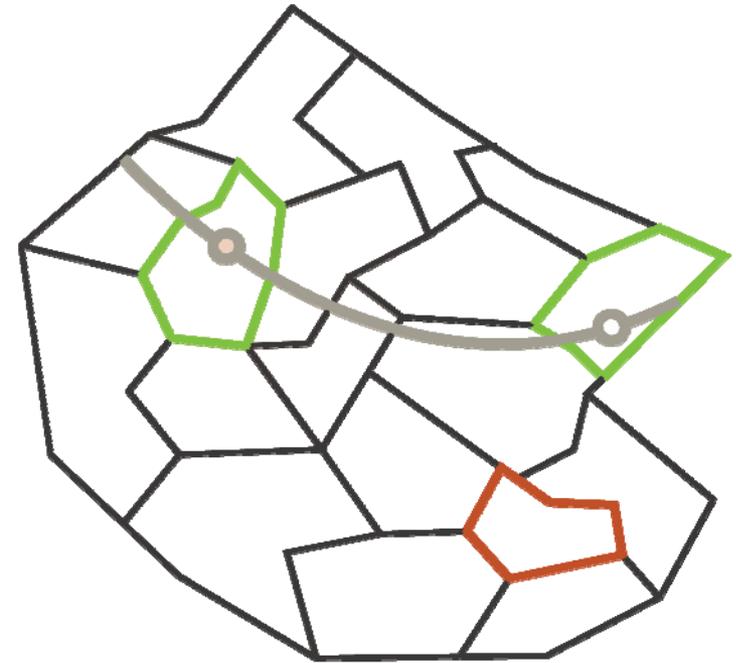


5. TOD

↔ 150,000 jobs and 125,000 households concentrated around transit stations



Where do shifts come from and go to?

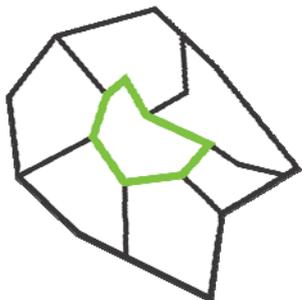


- Receiving Zones
- Donor Zones
- Transit Station
- Activity Center

Household Shifts

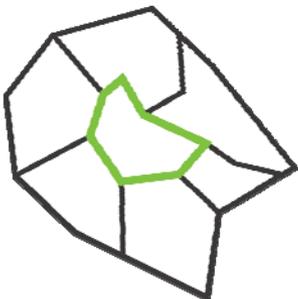
Receiving Zones

HOUSEHOLDS
IN



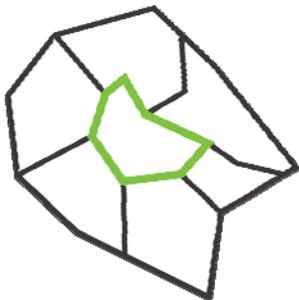
+ 151

MORE
HOUSEHOLDS



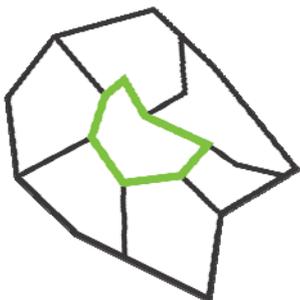
+ 213

TOD



+ 576

REGION
UNDIVIDED

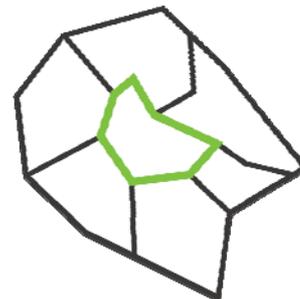


+ 93

Employment Shifts

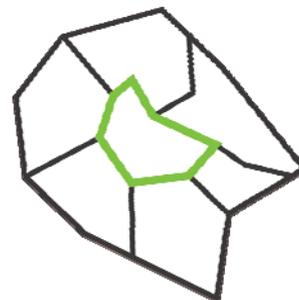
Receiving Zones

TOD



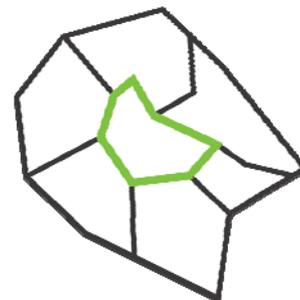
+ 14

REGION
UNDIVIDED



+ 1077

JOBS OUT



- 2296

Adjusting RMAS Assumptions with the New Forecast

Round 6.4

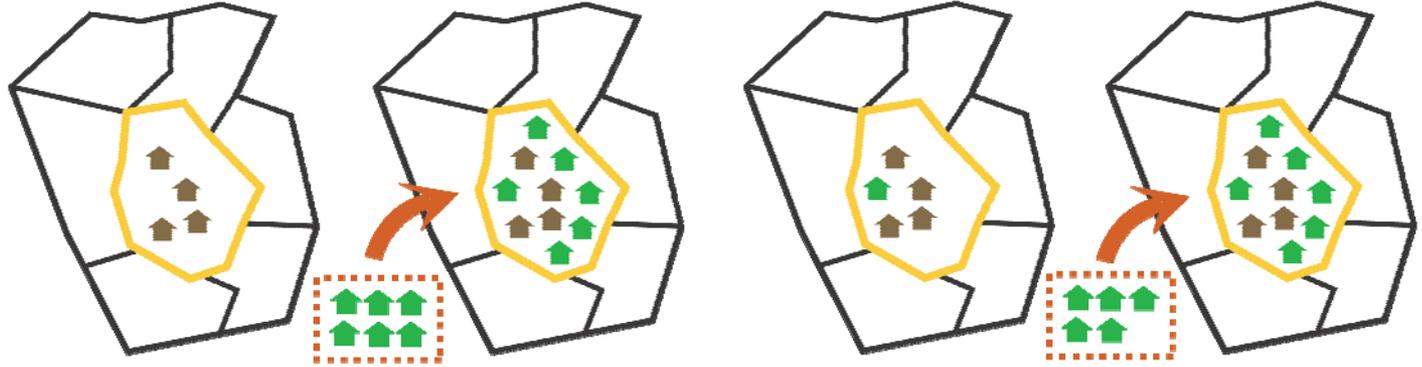
RMAS Scenario

Round 7.1

New Scenario

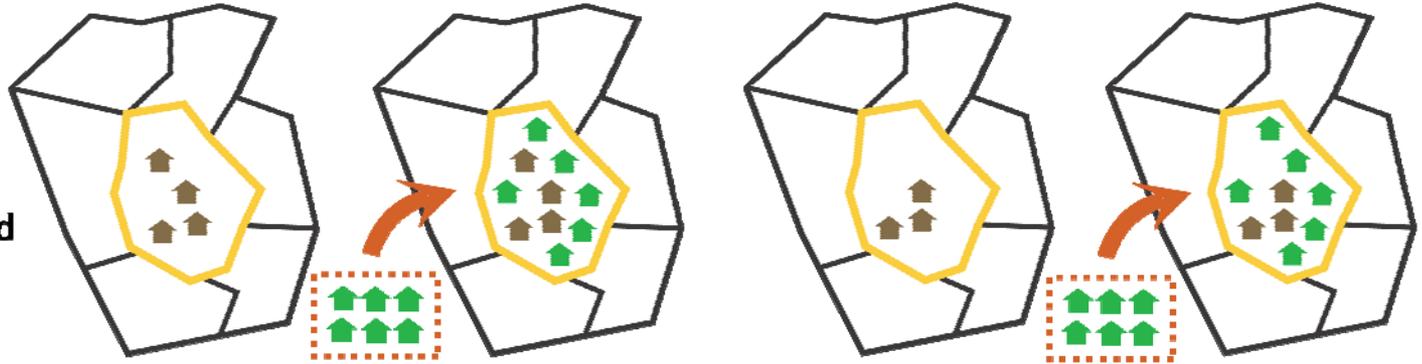
Example 1

Round 7.1 assumed some, but not all of the growth added from RMAS scenarios



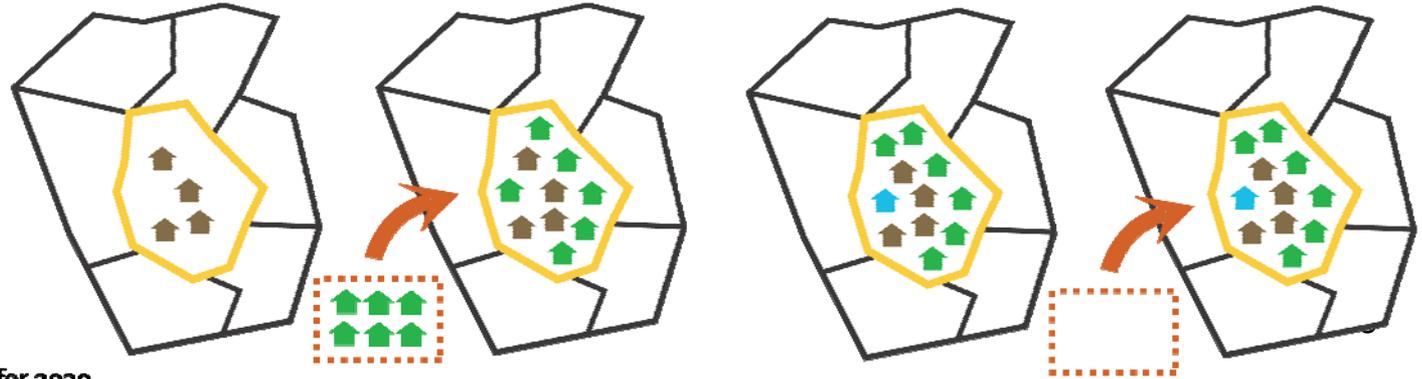
Example 2

Round 7.1 assumed lower growth from 2010-2030 than Round 6.4 had previously



Example 3

Round 7.1 assumed more than the growth added from RMAS scenarios



🏠 = 100 households projected for 2030

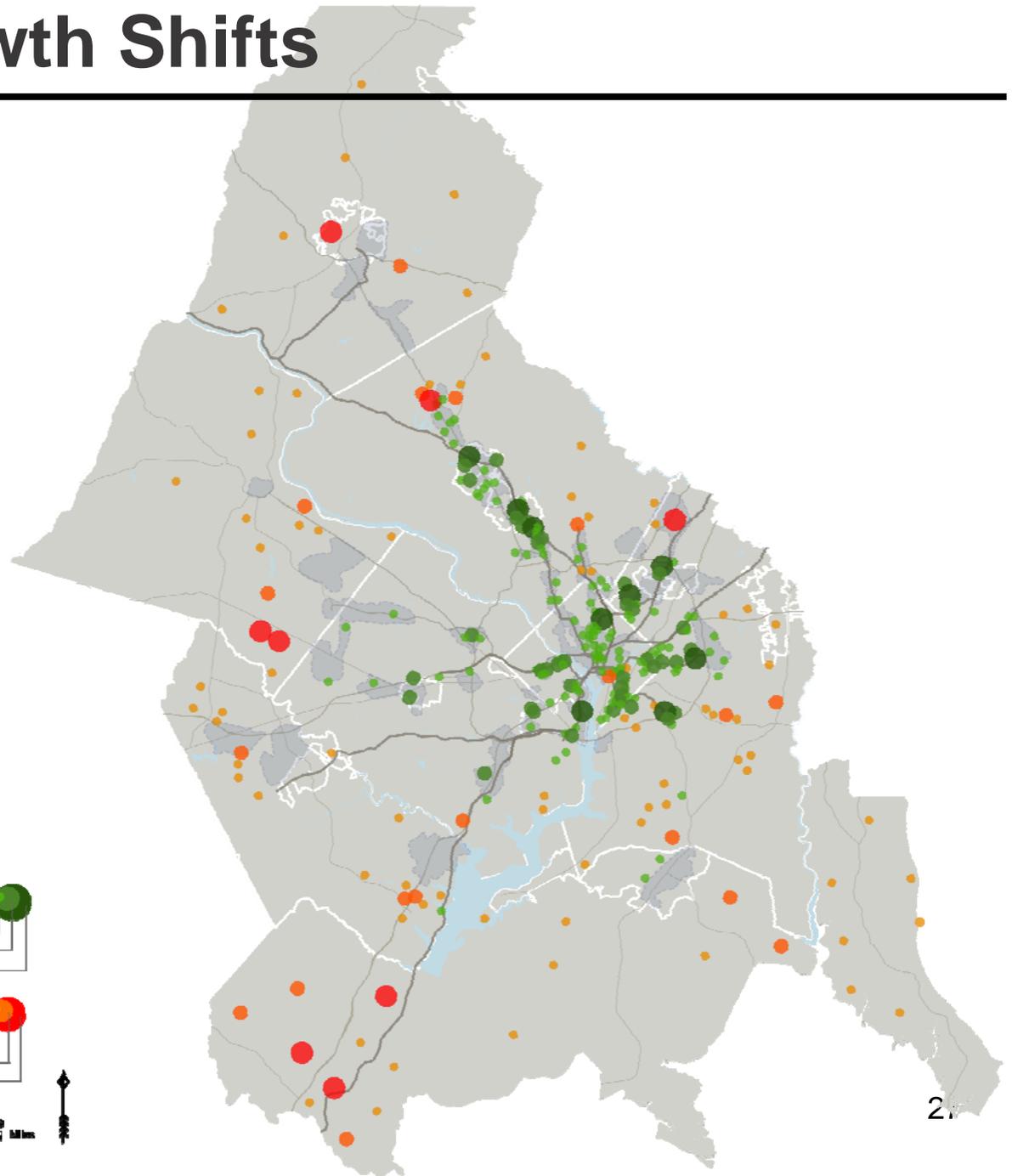
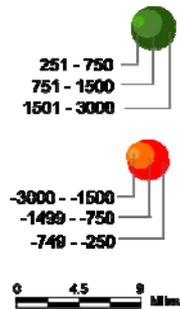
Household Growth Shifts

Shifts are in growth forecast during 2010-2030.

No current jobs or population are shifted

HOUSEHOLDS

Activity Cluster



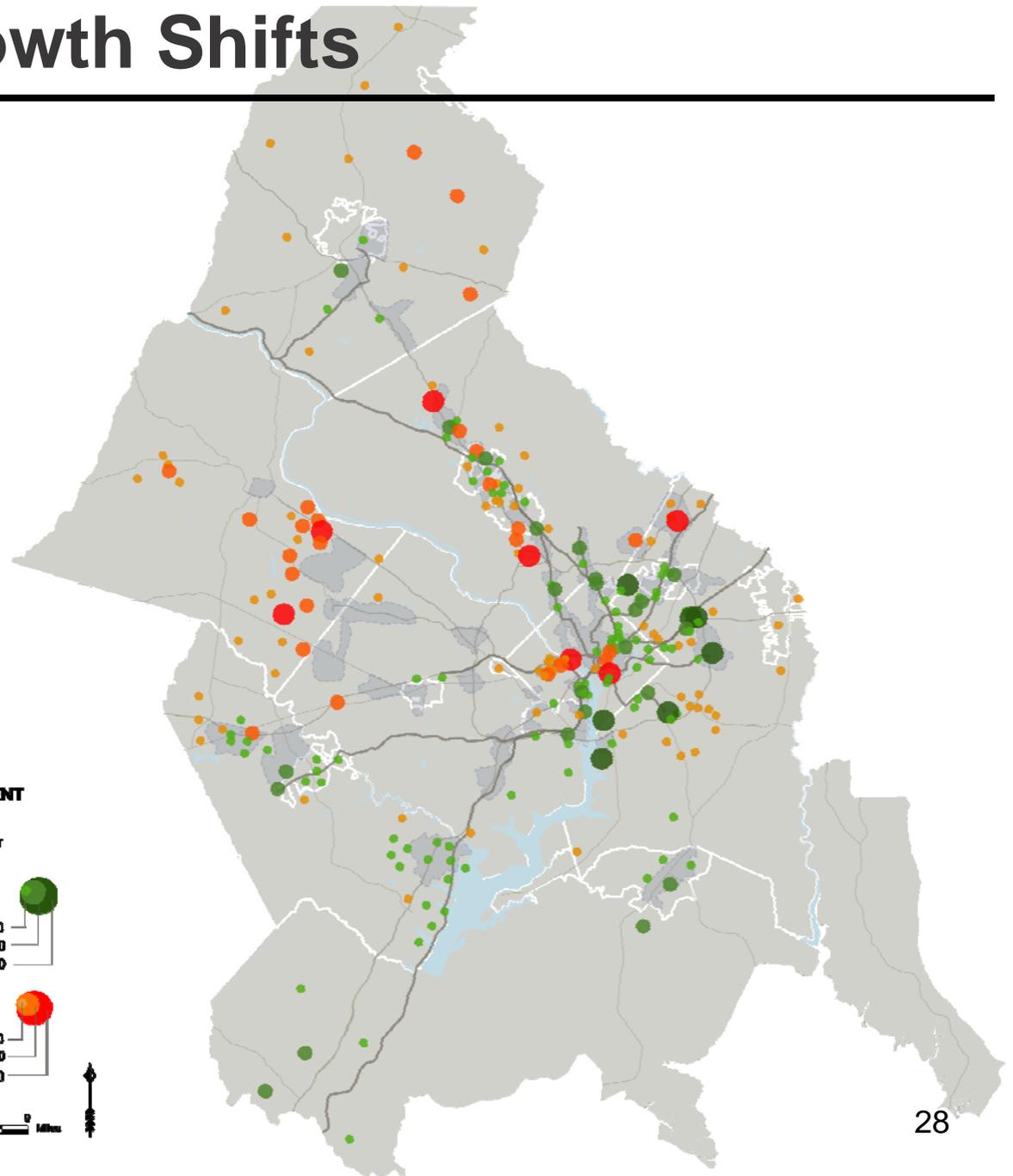
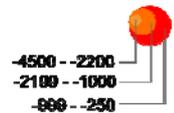
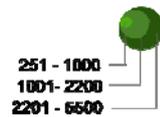
Employment Growth Shifts

Shifts are in growth forecast during 2010-2030.

No current jobs or population are shifted

EMPLOYMENT

Activity Cluster



Comments Received/Next Steps

RMAS assumptions are **outdated**

New growth estimates

New activity centers

Should all RMAS scenarios be included?

Are the shifts aggressive enough?

What Would It Take

Developing and Analyzing the Scenario

Setting up the WWIT Scenario

Goal: **To reduce CO2 emissions** by 10%, 20% and 80% below 2005 levels in 2012, 2020 and 2050 respectively

3 categories of strategies to reduce mobile CO2 emissions

Fuel Efficiency

Beyond CAFE standards
[currently 35 mpg by 2020]

Fuel Carbon Intensity

Alternative fuels
(biofuels, hydrogen, electricity)

Vehicle technology
(hybrid engine technology)

Travel Efficiency

Reduce VMT through changes in land use, travel behavior, prices

Reduce congestion

Improve operational efficiency

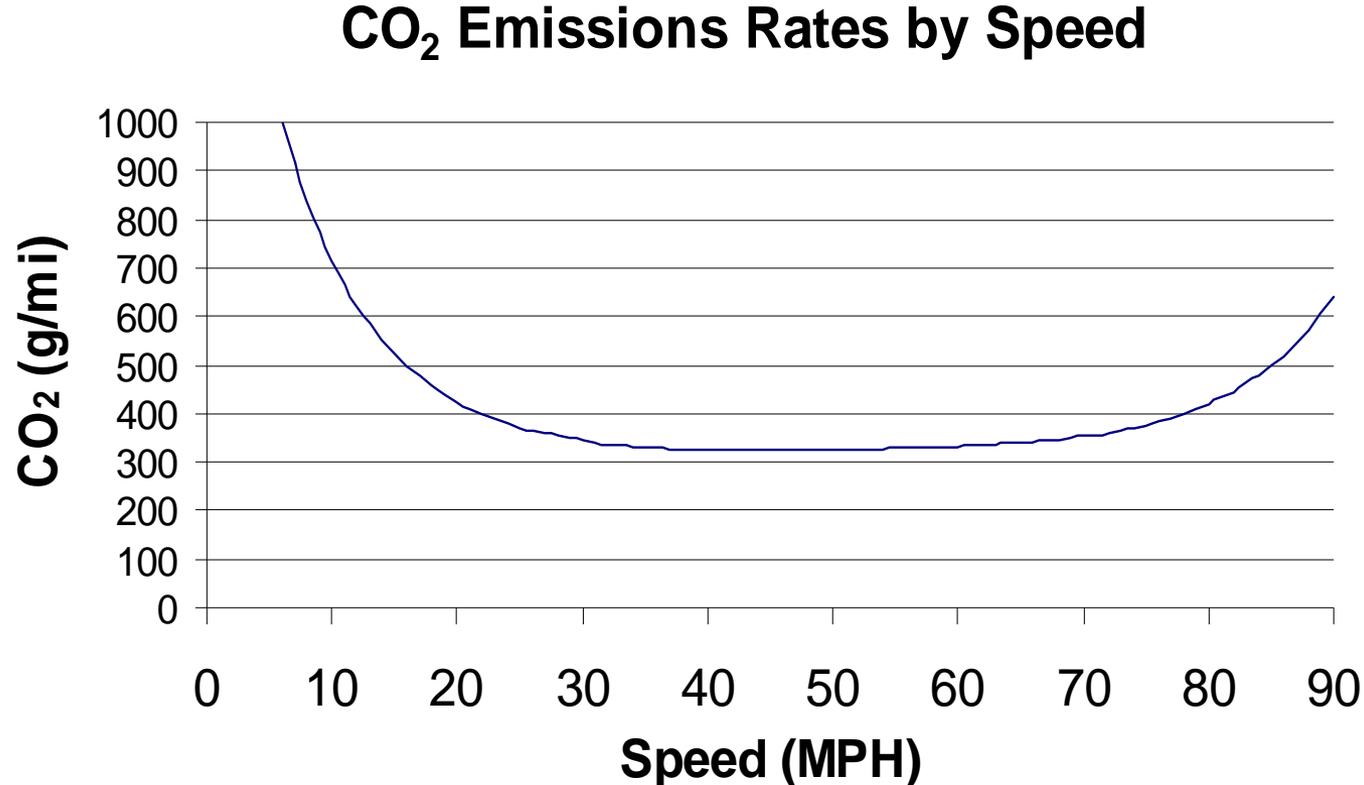
Analyzing the WWIT Scenario

3 categories of analysis for each strategy

- 1. Effectiveness**
- 2. Cost-effectiveness**
- 3. Timeframe for Implementation**

Effectiveness

What can we accomplish by reducing congestion?



Source: University of California, Riverside

Cost-effectiveness

How can we begin to prioritize strategies?

Initial analysis of cost-effectiveness of Transportation Emissions Reduction Measures (\$ per ton of CO₂ reduced)

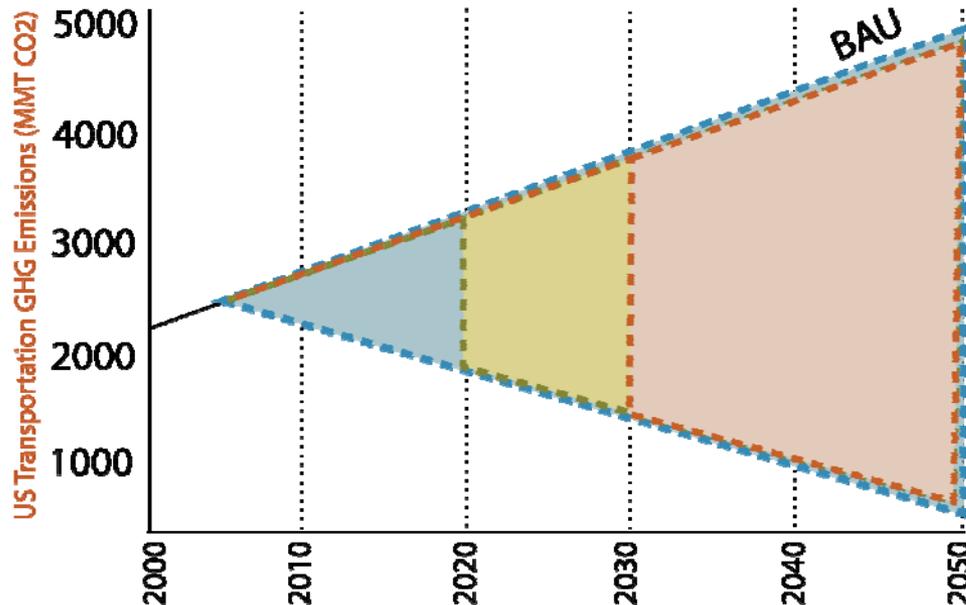
(TIP Projects)

Number	Category Description	CO ₂ Cost Effectiveness Range *
1	Access Improvements to Transit/ HOV	\$100 to \$400
2	Bicycle / Pedestrian projects	\$50 to \$100
3	Transit Service improvements	\$100 to \$800
4	Rideshare Assistance Programs	\$30 to \$300
5	Park & Ride Lots (Transit and HOV)	\$100 to \$500
6	Telecommute Programs	\$10 to \$40
7	Signal Optimization	\$30 to \$50
8	Bus Replacement Programs	\$525 to \$775

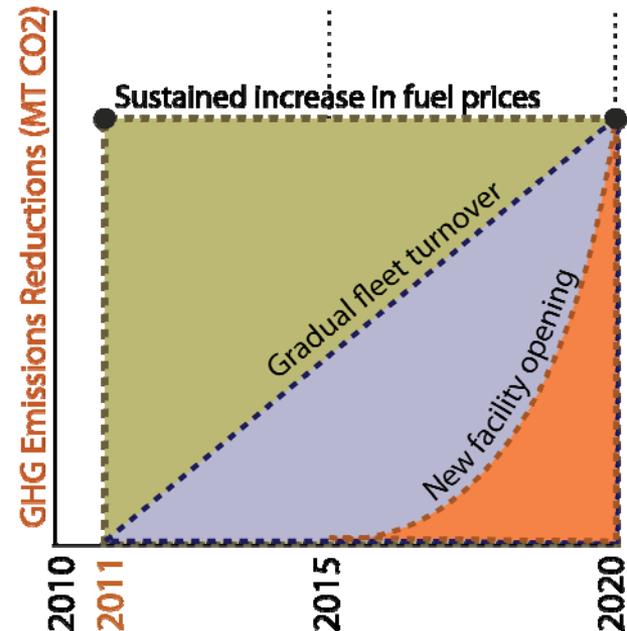
Timeframe for Implementation

Early action is essential to meet the goals

Transportation Sector Emissions



Example Reductions for Measures

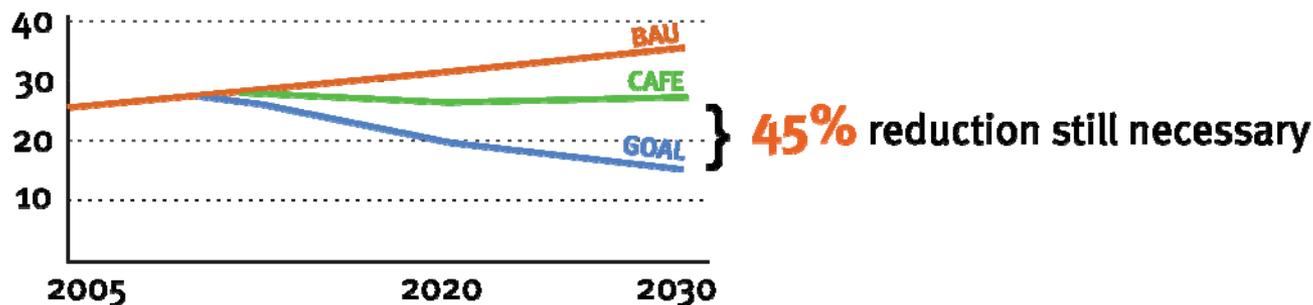


If we begin reducing in 2020 or 2030 rather than steadily reducing now, we will not reduce the same level of cumulative emissions as may be needed.

Alternative 1

Fuel Efficiency

35 mpg



Travel Efficiency

VMT

↓ 46.3%



Transit

↑ 645% (transit = 58% of all 2030 trips)

OR

Behavior Change: Vehicle Trips

↓ 36% (all discretionary trips cut/chained)



Transit

↑ 65% (transit = 23% of all 2030 trips)

OR

Behavior Change: Vehicle Trips

↓ 10% (30% of discretionary trips cut/chained)



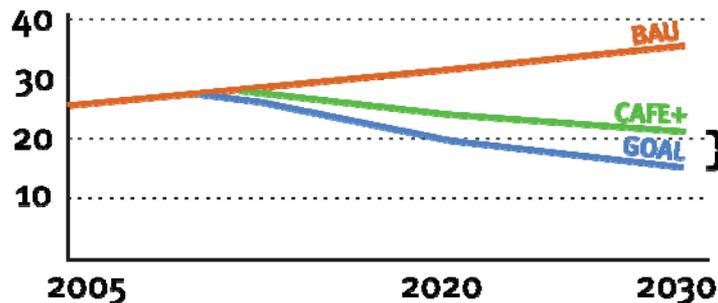
Transit

↑ 471% (transit = 36% of all 2030 trips)

Alternative 2

Fuel Efficiency

55 mpg



28% reduction still necessary

Travel Efficiency

VMT

↓ 22.9%



Transit

↑ 268% (transit = 27% of all 2030 trips)

OR

Behavior Change: Vehicle Trips

↓ 13% (36.5% of discretionary trips cut/chained)



Transit

↑ 0% (transit = 7% of all 2030 trips)

OR

Behavior Change: Vehicle Trips

↓ 10% (30% of discretionary trips cut/chained)



Transit

↑ 95% (transit = 16% of all 2030 trips)

Connecting the Two Scenarios

Comprehensive cost-benefit analysis to compare **alternatives** [including transit, highway, and “nonstructural” approaches—such as congestion pricing, parking policies and technology based investments]

Benefits include mobility, congestion management, economic development

Seek a **mix of investments** (from *both scenarios*) most likely to deliver maximum net economic value