The TPB Scenario Study:
Impetus, Purpose, and Current Scenarios

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RMAS Scenario Study

Began in 2001 with
5 transportation/land use scenarios

Conclusion

"*We can make a positive impact by locating housing and jobs closer together, approving development closer to transit stations, and expanding our network of public transit lines to support regional activity centers.*"
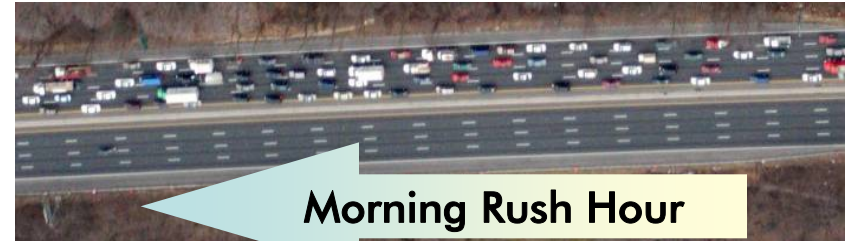
-Michael Knapp, Montgomery County

Why RMAS?

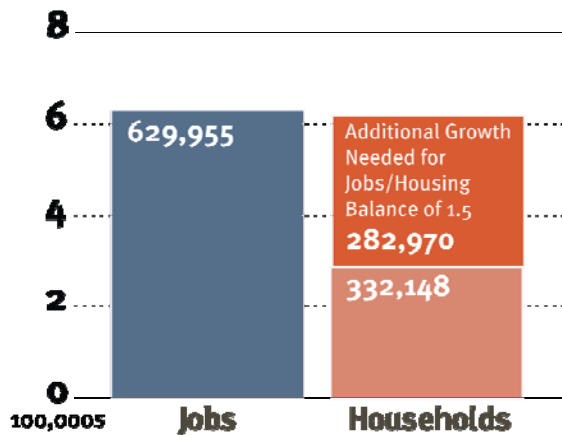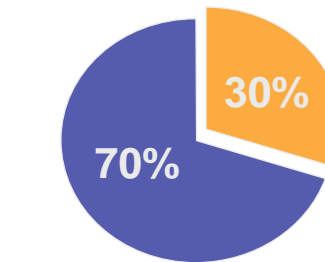## Workers are living farther away from their jobs

How Far Is Too Far?

Developer Plans 4,300 Homes 100 Miles From D.C.

East-West divide

Morning Rush Hour

4 Issues

Job growth is outpacing household growth

Growth between 2015-2030

- 629,955 — Jobs
- Additional Growth Needed for Jobs/Housing Balance of 1.5: 282,970
- 332,148 — Households

Most growth will be located outside transit station areas

Employment Growth
2010-2030

70% / 30%

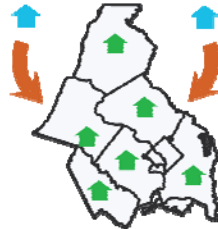**Household Growth**
2010-2030

80% / 20%
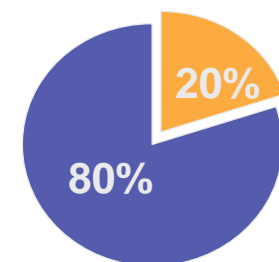
Outside Transit Station Areas   Inside Transit Station Areas

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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**
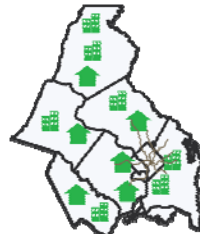
4. Region Undivided

↔ **114,000 jobs and 57,000 households from the west to the east**
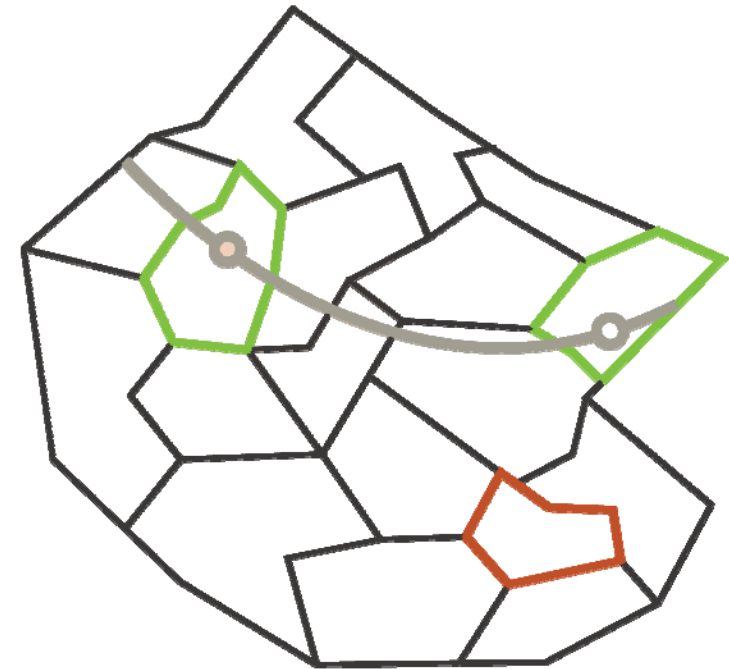
5. TOD

↔ **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

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Large Local Impacts

Limited applicability (only 4% of growth moved), but…

Strategies are very **effective, where applied.**

Example: Local Impacts for "Households In" Scenario for
5,200 Households Shifted from **Gainesville to U Street/Shaw Area**

Travel Mode	Change in Travel by Shifted Households	Total Percent Change
SOV Trips	**-5,500**	**-79%**
HOV2+ Trips	**-900**	**-100%**
Transit Trips	**4,000**	**1333%**
Walk/Bike Trips	**2,500**	**1250%**
Household VMT	**-223,900**	**-84%**

The Current Study

Two new scenarios:

What Would it Take?

Starts with COG regional CO_2 goals and assesses what scales and combinations of interventions will be necessary to achieve the goal for the transportation sector.

CLRP Aspirations

Draws on past studies and public outreach to provide an ambitious yet attainable vision of land use and transportation for the 2010 CLRP update and to eventually serve as an unconstrained long range plan.

Climate Change Efforts

The TPB is currently:

1. Developing baseline GHG projections for transportation through 2030

2. Analyzing a "What Would It Take?" Scenario for GHG reduction, including fuel efficiency, alternative fuels, travel efficiency

3. Seeking GHG reduction strategies that could be included in the region's transportation plans and programs

4. Using goals set in COG Climate Change Report of November 2008

    -   Return to 2005 levels by 2012

    -   20% below 2005 levels by 2020

    -   80% below 2005 levels by 2050

The WWIT Scenario

Analyze three categories of strategies to reduce mobile CO_2 emissions for effectiveness, cost-effectiveness, and implementation timeframe

Assess combinations of strategies from these three categories:

Fuel Efficiency	Fuel Carbon Intensity	Travel Efficiency
Beyond CAFE standards [currently 35 mpg by 2020]	Alternative fuels (biofuels, hydrogen, electricity)	Reduce VMT through changes in land use, travel behavior, prices Reduce congestion Improve operational efficiency

How can we change travel efficiency?

Land Use

**Analyze possible aggressive land use shifts
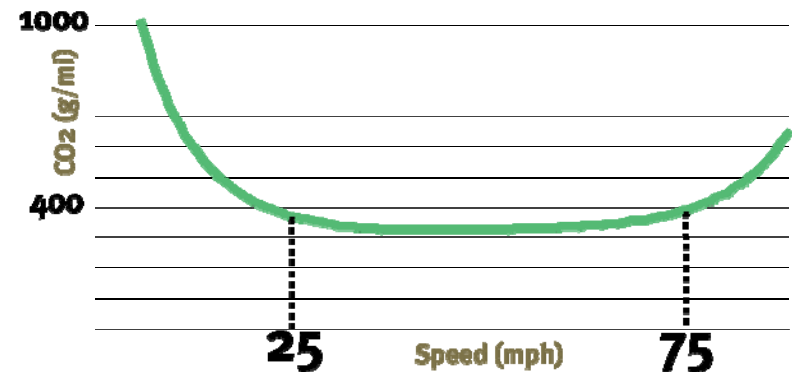CLRP Aspirations Land Use Component** } **VMT Reductions**

Increase Transit Capacity

CLRP Aspirations Transportation Component   **VMT Reductions/Mode Shift**

Reducing Congestion

Traffic and Roadway Improvements

CO2 Emissions Rates by Speed

Pricing Policies

Parking Study effect of increased parking costs   **VMT Reductions**
Congestion TPB Value Pricing Study   **Increase very low speeds**
Gas/VMT tax Study effect of increased fuel prices   **VMT Reductions**

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Combination #1: Assumes no change in current energy policy

To achieve 40% reduction in mobile CO_2 emissions below 2005 levels by 2030

Fuel Efficiency

Beyond CAFE standards (currently 35 mpg by 2020 for LDVs)

Fuel Carbon Intensity

Alternative fuels (biofuels, hydrogen, electricity)

Travel Efficiency

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

Reduce congestion

Improve operational efficiency

Fuel Efficiency
35 mpg
by 2020

annual million tons CO_2

BAU

10.5% reduction [in cumulative emissions]

CAFE 35 by 2020 (A)

18.2% reduction still needed

COG Goals

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Travel Efficiency

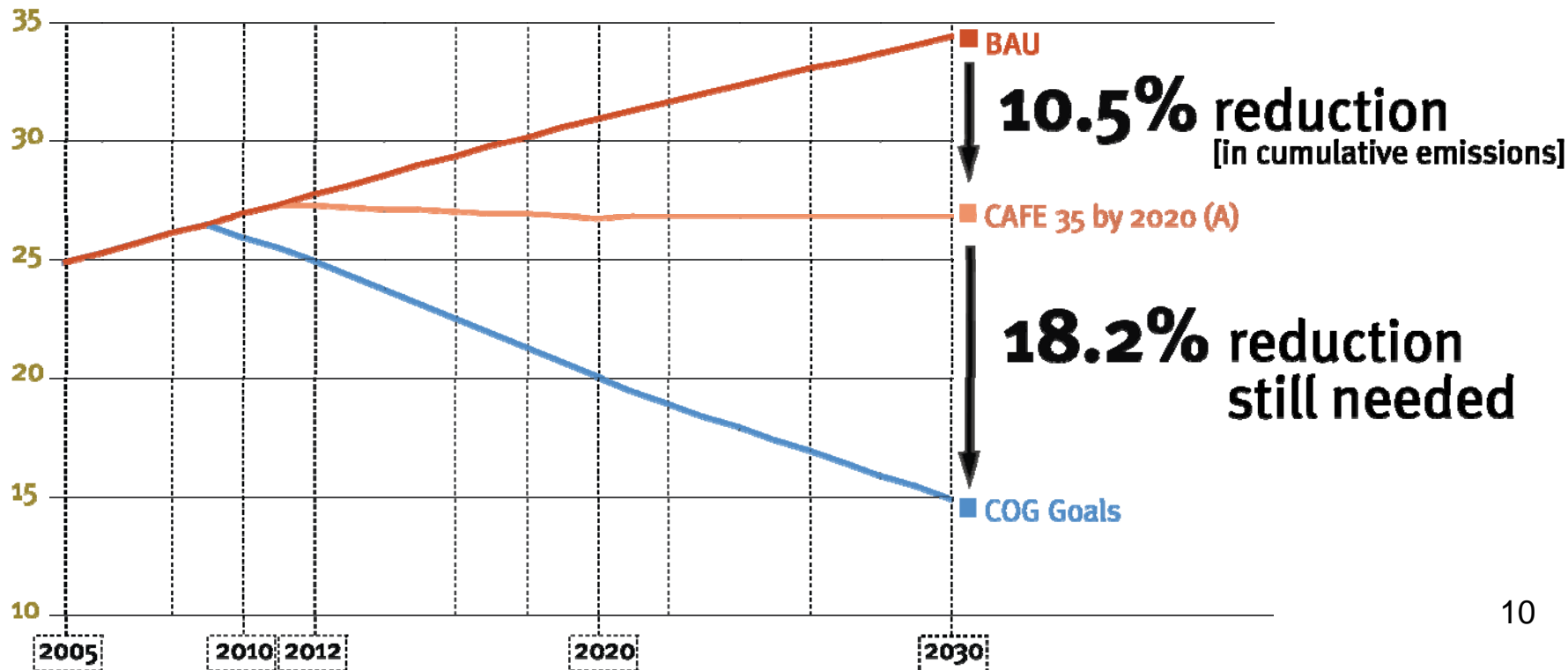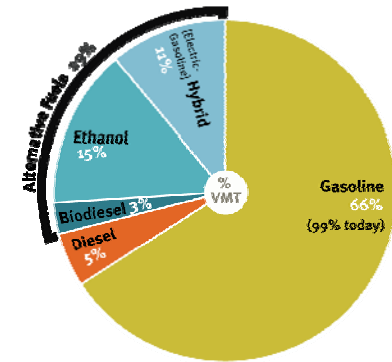Reduce VMT through changes in land use, travel behavior, prices

Reduce congestion

Improve operational efficiency

Alternative Fuels

2030

Source: US DOE, EIA, Annual Energy Outlook (AEO) 2008

Alternative fuels 34%

Electric/Gasoline Hybrid 11%

Ethanol 15%

Biodiesel 3%

Diesel 5%

% VMT

Gasoline 66% (99% today)

annual million tons CO2

- BAU
- CAFE 35 by 2020 (A)
- A + DOE AEO 2008 (B)
- COG Goals

16% reduction*

12.7% reduction still needed

2005 2010 2012 2020 2030

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*in cumulative emissions

Combination #1: Assumes no change in current energy policy

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Fuel Efficiency

Beyond CAFE standards [currently 35 mpg by 2020 for LDVs]

Fuel Carbon Intensity

Alternative fuels (biofuels, hydrogen, electricity)

Travel Efficiency

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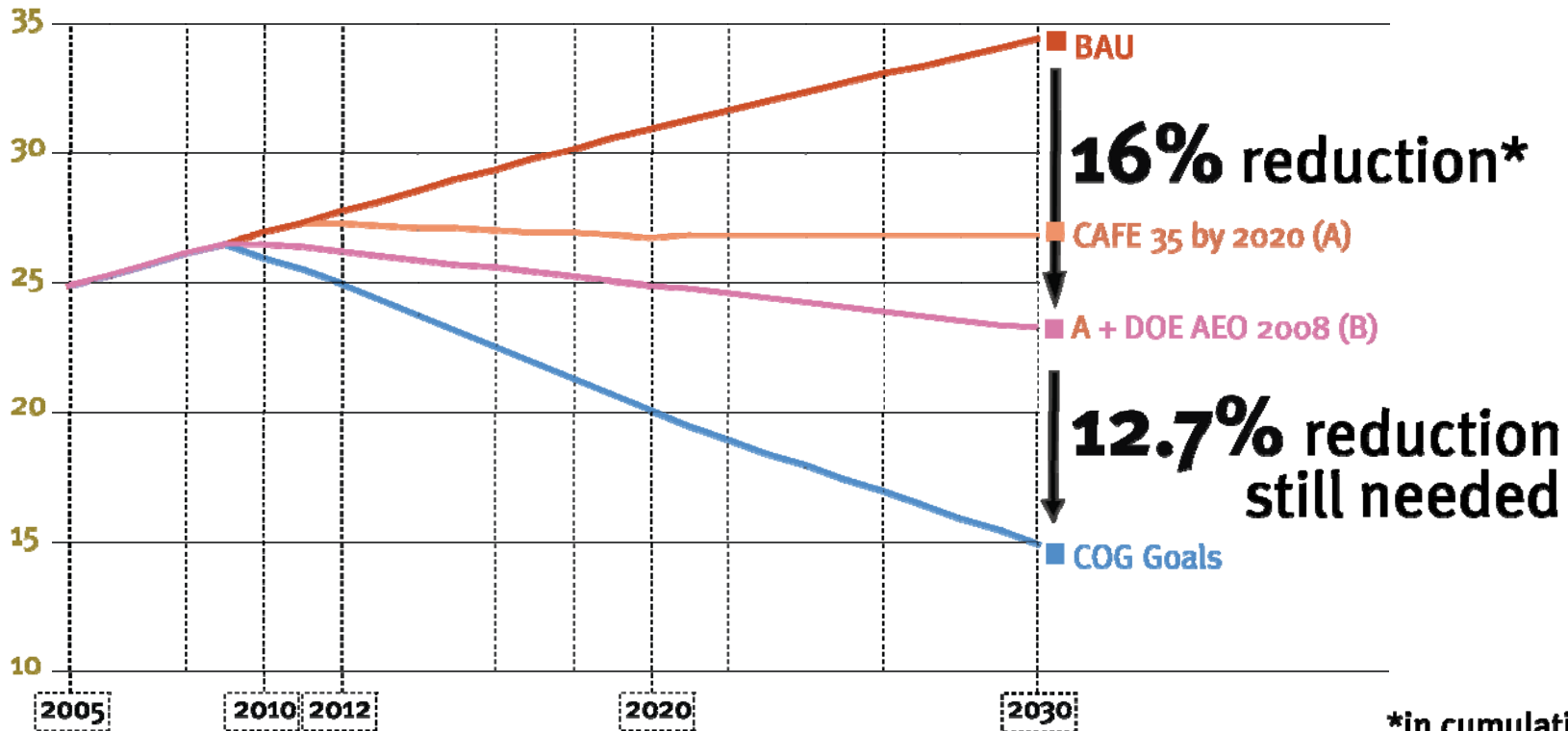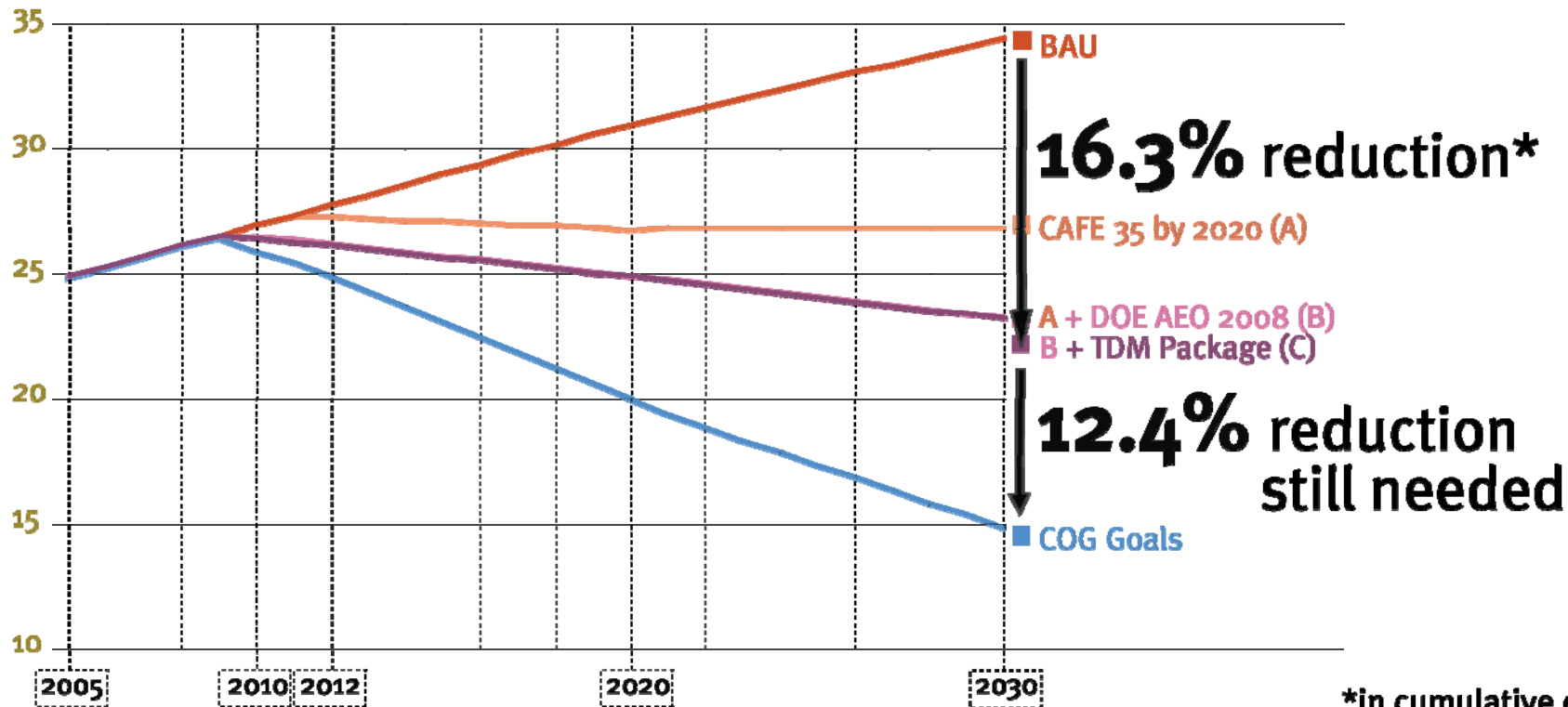
Reduce congestion

Improve operational efficiency

Travel Efficiency

TDM Package

1. Maryland and Virginia Telework
2. Guaranteed Ride Home
3. Employer Outreach
4. Employer Outreach - Bike
5. Ridesharing

Applies to Light Duty Vehicles only

annual million tons CO2

- BAU
- **16.3% reduction***
- CAFE 35 by 2020 (A)
- A + DOE AEO 2008 (B)
- B + TDM Package (C)
- **12.4% reduction still needed**
- COG Goals

2005 | 2010 | 2012 | 2020 | 2030

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*in cumulative emissions

The Current Study

Two new scenarios:

What Would it Take?

Starts with COG regional CO_2 goals and assesses what scales and combinations of interventions will be necessary to achieve the goal for the transportation sector.

CLRP Aspirations

Draws on past studies and public outreach to provide an ambitious yet attainable vision of land use and transportation for the 2010 CLRP update and to eventually serve as an unconstrained long range plan.

The Starting Point for the CLRP Aspirations Scenario

Goals

1. The TPB Vision

"Economically strong regional activity centers with a mix of jobs, housing, services, and recreation in a walkable environment"
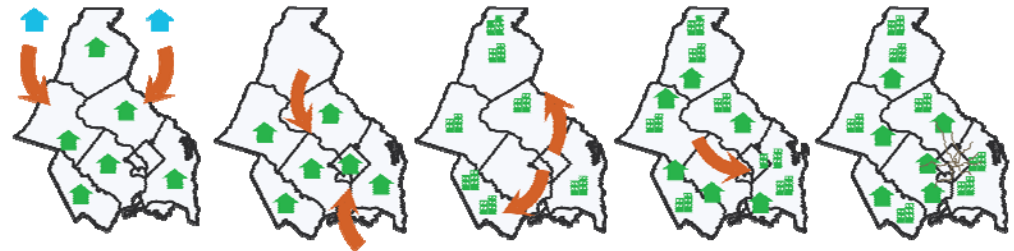
"A web of multi-modal transportation connections which provide convenient access"
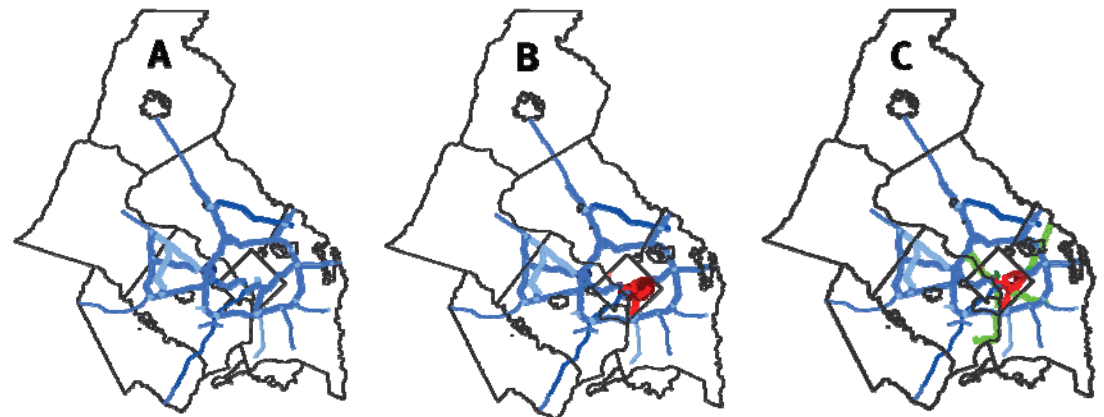
"A user-friendly, seamless system"

"Reduction of per capita VMT"

What Ifs

2. RMAS: Moving Jobs and Housing Closer Together

3. TPB Value Pricing Study: Pricing is politically possible and can provide capacity and revenue for transit


Moving Forward from What Ifs to How To--Achieving the TPB Vision

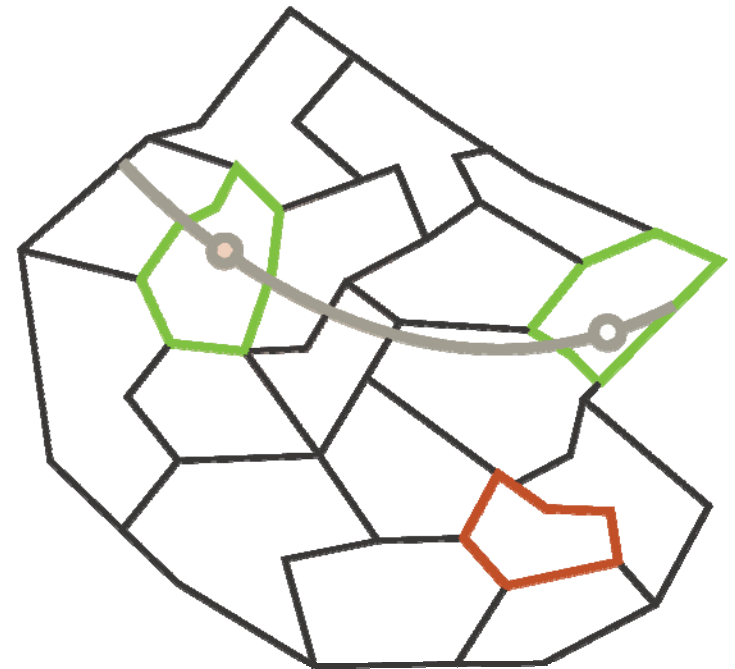# Achieving Regional Goals through a Land Use Strategy

"Economically strong regional activity centers with a mix of jobs, housing, services, and recreation in a walkable environment"

"Reduction of per capita VMT"

New Growth is not Projected to be Concentrated in Regional Activity Centers

Households   2015-2030   **Employment**
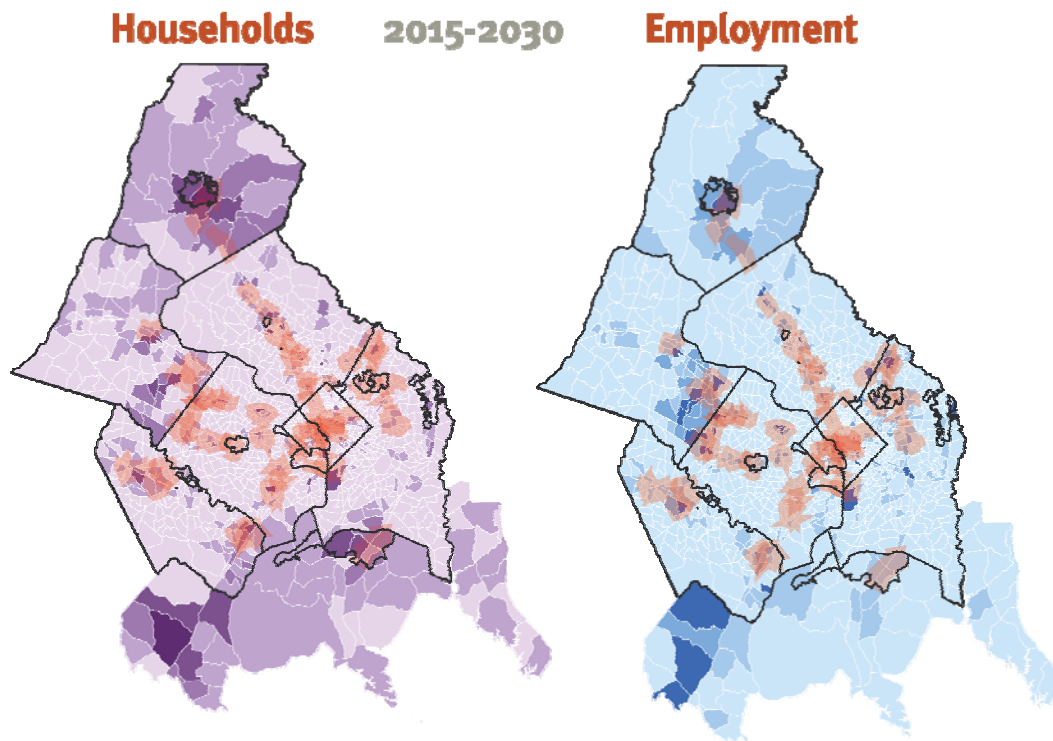
Strategic Land Use Growth Shifts

○ Receiving Zones
○ Donor Zones
◉ Transit Station
Activity Center

Goals and "Rules" for Land Use Shifts

Transit Supportive Density

Bus	60 minute headway	4-5 du/acre
	30 minute headway	7 du/acre
	10 minute headway	15 du/acre
Light Rail	5 minute peak headway	9 du/acre
Rapid Transit	5 minute (or less) peak headway	12 du/acre
Commuter Rail	20 trains/day	1-2 du/acre

Source: " A Toolbox for Alleviating Traffic Congestion" ITE 1989

Walkable Density

Use Regional Models

Rosslyn-Ballston Corridor	20+ du/acre
Old Town Alexandria	7-10 du/acre

Mixed Use

Jobs/Housing balance (at different geographic scales)

Region	1.6 jobs/household
Jurisdiction	Round 7.2 jurisdictional totals
Activity Center	Varies by typology

Move Only New Growth

Shifts from **2015-2030**
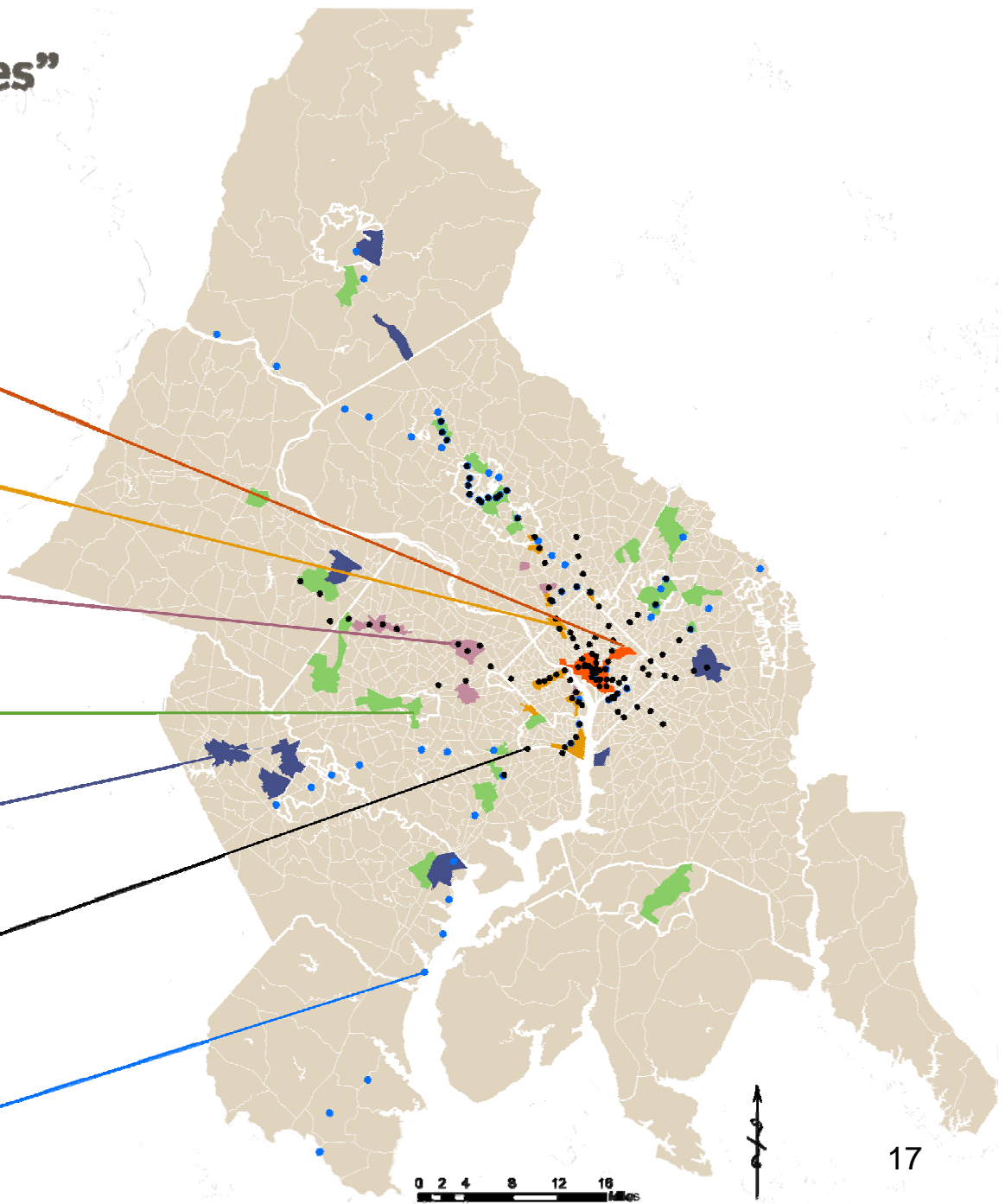
Existing Character and Planned Development

Varying Goals

for density and jobs/housing ratios based on current/planned conditions

7 Types of "Receiving Zones"
(Goals for 2030)

1. **DC Core**
  20 du/acre
  3 jobs/household

2. **Mixed Use Center**
  10 du/acre
  2 jobs/household

3. **Employment Center**
  8 du/acre
  2 jobs/household

4. **Suburban Employment Center**
  6 du/acre
  2 jobs/household

5. **Emerging Employment Center**
  3 du/acre
  1.6 jobs/household

6. **Metrorail or Transitway Station**
  (not in Activity Center)
  7 du/acre
  1.6 jobs/household

7. **Commuter Rail Station**
  (not in Activity Center)
 **3** du/acre 1/2 mile around station
  1.6 jobs/household

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Existing System

Activity Center Categories

- DC Core
- Mixed Use Centers
- Employment Centers
- Suburban Emp. Centers
- Emerging Emp. Centers
- Requested Activity Centers

Ft. Detrick
Airport/Monocacy Blvd.
Md. 85/355 Evergreen Point
Urbana
Germantown
Downtown Leesburg
North Frederick Avenue
Shady Grove
Rockville Town Center
Twinbrook
White Flint
Rock Spring Park
Route 28 North
National Institutes of Health
Bethesda CBD
Corporate Dulles
Friendship Heights
Dulles Corner
Herndon
Reston West
Dulles East
Reston East
Dulles West
Tysons Corner
Fairfax Center
Rosslyn-Ballston
City of Fairfax-GMU
Merrifield/Dunn Loring
Gainesville
Bull Run - Sudley Area
Innovation
Bailey's Crossroads/Skyline
The Pentagon
Pentagon City
Crystal City
Beauregard Street
Downtown Alexandria
Eisenhower Ave.
Beltway South
National Harbor
Springfield
I-95 Corridor/Engineer Proving Ground
Potomac Mills
Ft. Belvoir
Woodbridge
Waldorf Commercial

Konterra
US 1
Wheaton
White Oak
Silver Spring CBD
US 1 Green Line
Greenbelt
Georgetown
New York Avenue
New Carrollton
Downtown Washington
Largo Center
Monumental Core
Federal Center/Southwest/Navy Yard
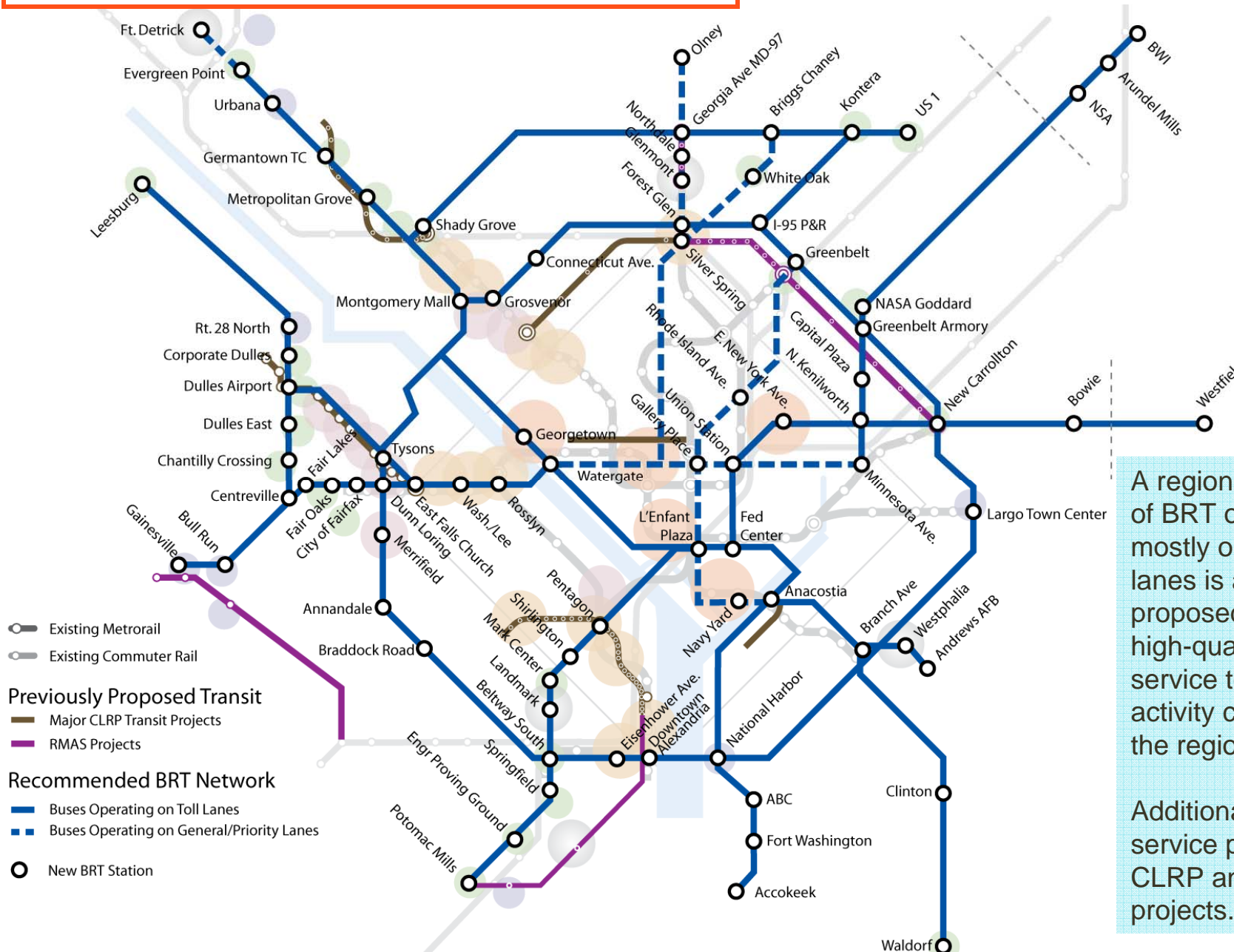Westphalia

Existing Metrorail
Existing Commuter Rail

Existing system of activity centers and high quality transit shows mis-match. Many transit stations without activity and many activity centers without high-quality transit.

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Supportive Transit Network
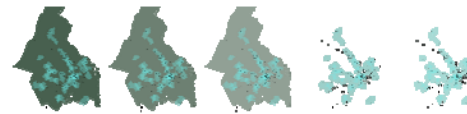
A regional network of BRT operating mostly on the priced lanes is also proposed to provide high-quality transit service to nearly all activity centers in the region.

Additional transit service provided by CLRP and RMAS projects.

Rail-like BRT Service

BRT stations will provide many features to decrease boarding time:

- All-door, level boarding
- Off-board payment
- Room for 60' articulated multi-door buses

The Shirlington Transit Station in Arlington, VA.

TPB Scenario Study

The American Recovery and Reinvestment Act provides a **real regional opportunity**

Although almost $50 billion in highway and transit transportation funding is mostly formula funding…

$1.5 billion in *competitive* discretionary grants for *capital projects*

What can we propose that would benefit the entire region and compete for these funds?

Proposed BRT Network for 2012
Draft for Discussion, March 24, 2009

Arterial corridors recommended for evaluation in a Phase 1 BRT network eligible for stimulus funding.
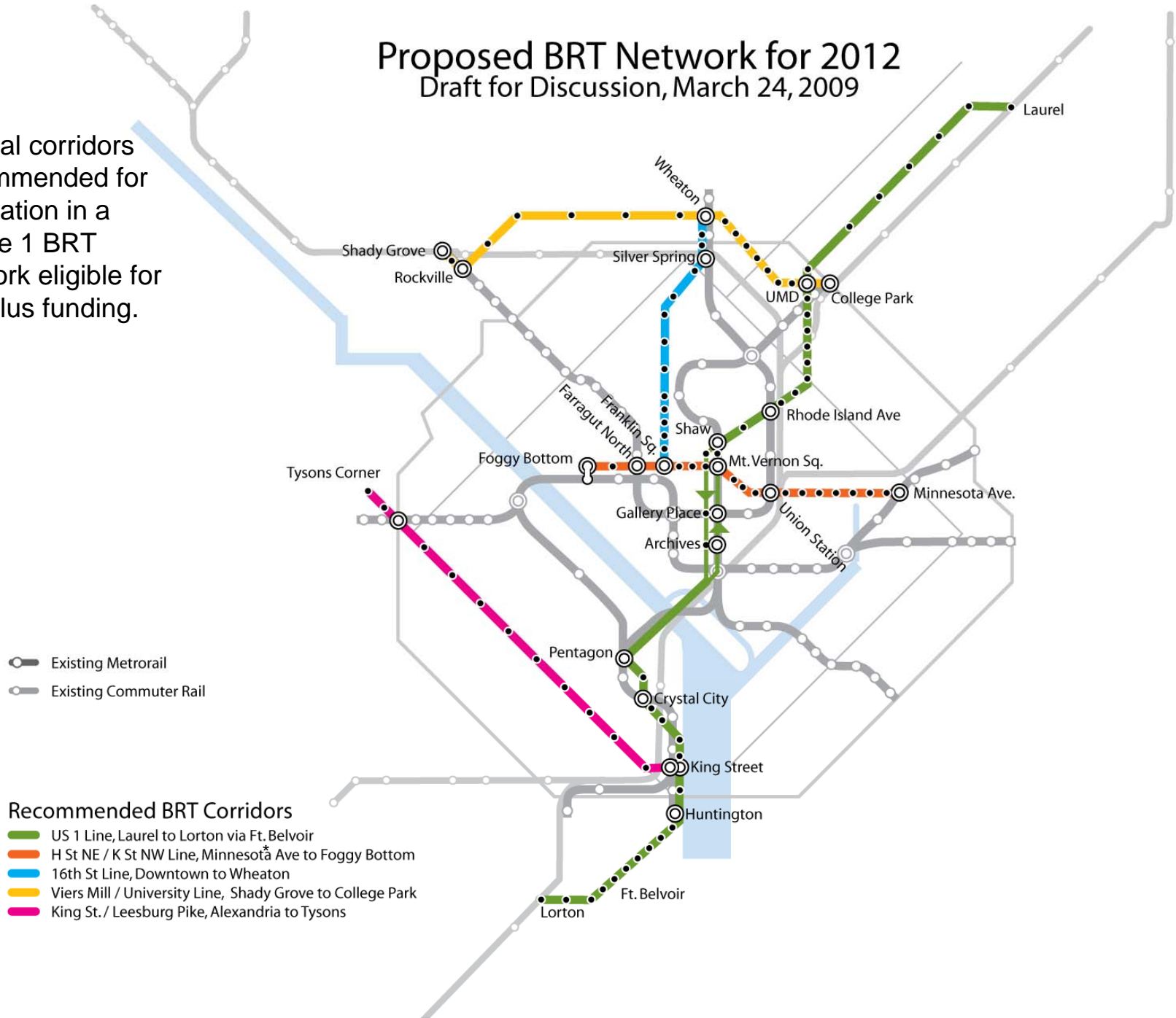
Existing Metrorail
Existing Commuter Rail

Recommended BRT Corridors
US 1 Line, Laurel to Lorton via Ft. Belvoir
H St NE / K St NW Line, Minnesota Ave to Foggy Bottom
16th St Line, Downtown to Wheaton
Viers Mill / University Line, Shady Grove to College Park
King St. / Leesburg Pike, Alexandria to Tysons

Full Regional BRT Network for 2030

BRT recommendations made here can be the first steps towards the regional high-quality BRT system currently being studied by the TPB Scenario Study.

Existing Metrorail

Existing Commuter Rail

Recommended BRT Corridors

— US 1 Line, Laurel to Lorton via Ft. Belvoir
— H St NE / K St NW Line, Minnesota Ave to Foggy Bottom
— 16th St Line, Downtown to Wheaton
— Viers Mill / University Line, Shady Grove to College Park
— Duke St / Little River Tpk, Old Town to City of Fairfax

Scenario Study BRT Network

— — Buses Operating on Toll Lanes
■ ■ Buses Operating on General/Priority Lanes