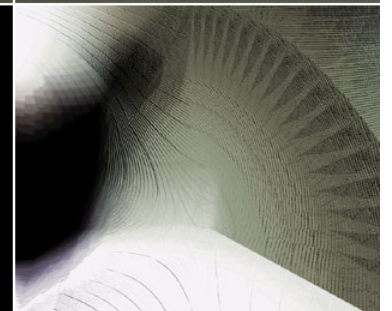


TPB Scenario Study Task Force:
Proposal for Development and Analysis of Two New Scenarios
February 20, 2008



Proposal for Two New Scenarios

- o At its January 16, 2008 meeting, the Scenario Study Task Force discussed a proposal to develop two new scenarios:
 - o “CLRP Aspirations” Scenario
 - o Adheres to traditional procedures of TPB conformity process, except financial constraint
 - o Looks at what could be done, within reason, if more resources were available
 - o “What Would It Take?” Scenario
 - o Starts from a set objective, such as a carbon dioxide emissions reduction goal, and examines how such a goal could be achieved through different combinations of implementation steps

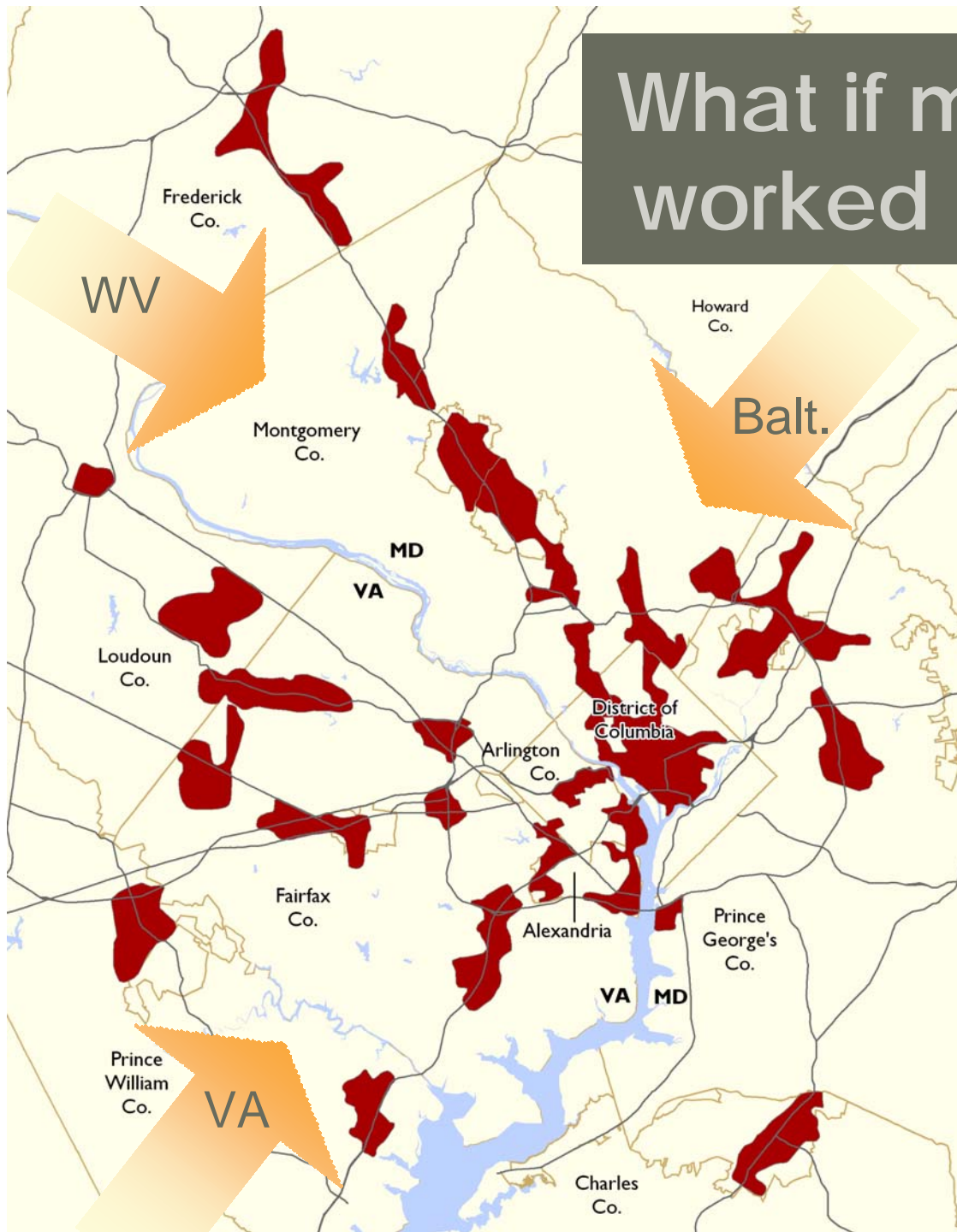
Developing the "CLRP Aspirations" Scenario

- o Scenario development to be completed by June 30, 2008
 - o Develop a scenario that represents realistic yet ambitious levels of transportation investment and accompanying land use changes
 - o Focus on fiscal and other implementation issues, including costs of potential transportation projects in relation to projected regional benefits
 - o Intent is to draw from the strategies explored in previously studied scenarios along with other possible strategies . . .

"Menu" of Existing Scenarios

- o "More Households" Scenario
- o "Households In" Scenario
- o "Jobs Out" Scenario
- o "Region Undivided" Scenario
- o "Transit-Oriented Development" Scenario
- o Three Variably Priced Lanes Scenarios with pricing applied to different combinations of new vs. existing lanes

What if more people who worked here lived here?



"More Households" Scenario

- o Increase household growth to balance forecast job growth
- o Locate households in regional "Activity Clusters"

Increase household growth by 200,000

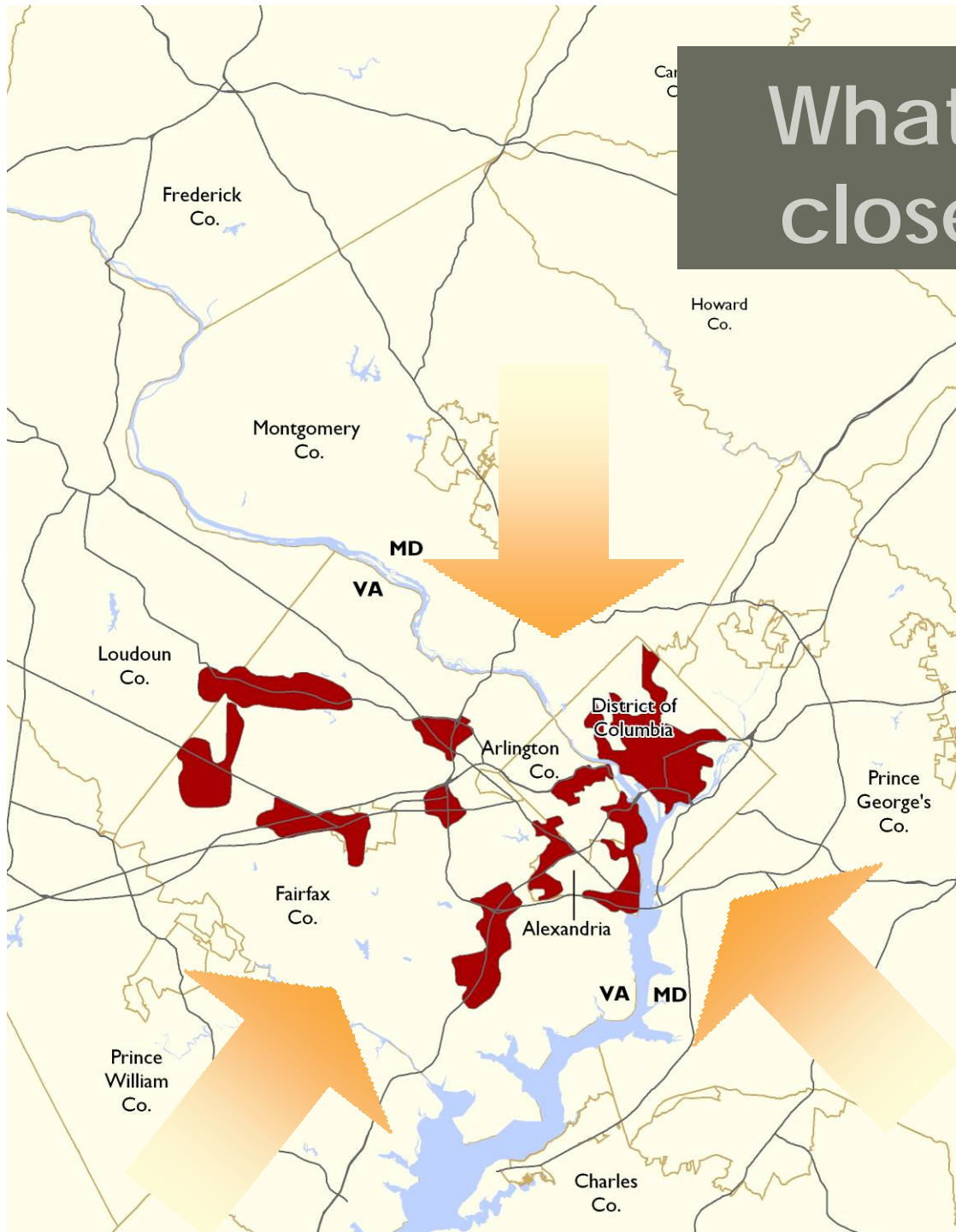
 Regional Activity Cluster

What if people lived closer to their jobs?

"Households In" Scenario

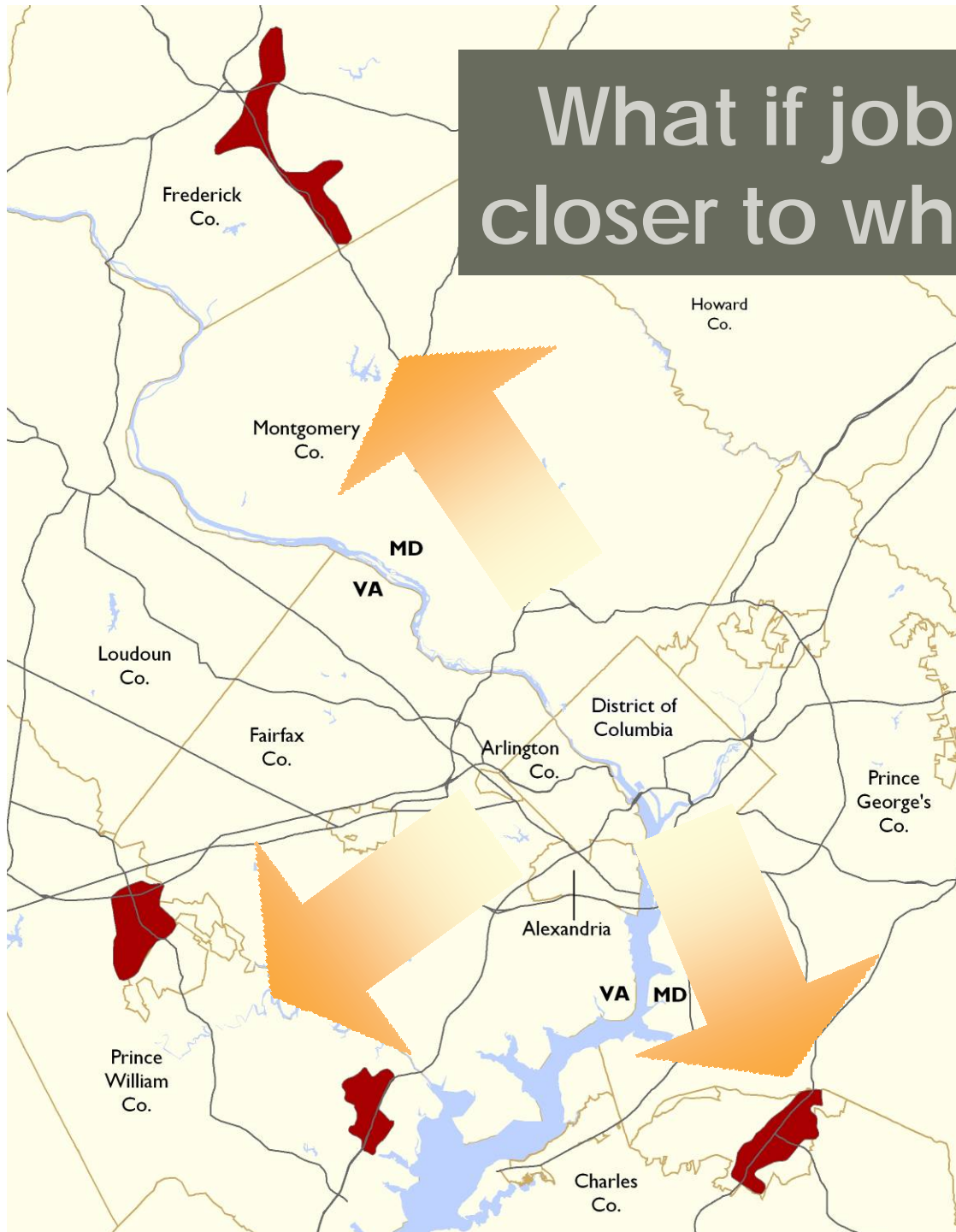
- o Shift household growth within the region from outer to inner jurisdictions (to get people closer to jobs)

Shift 84,000 households



Regional Activity Cluster

What if jobs were located closer to where people live?



"Jobs Out" Scenario

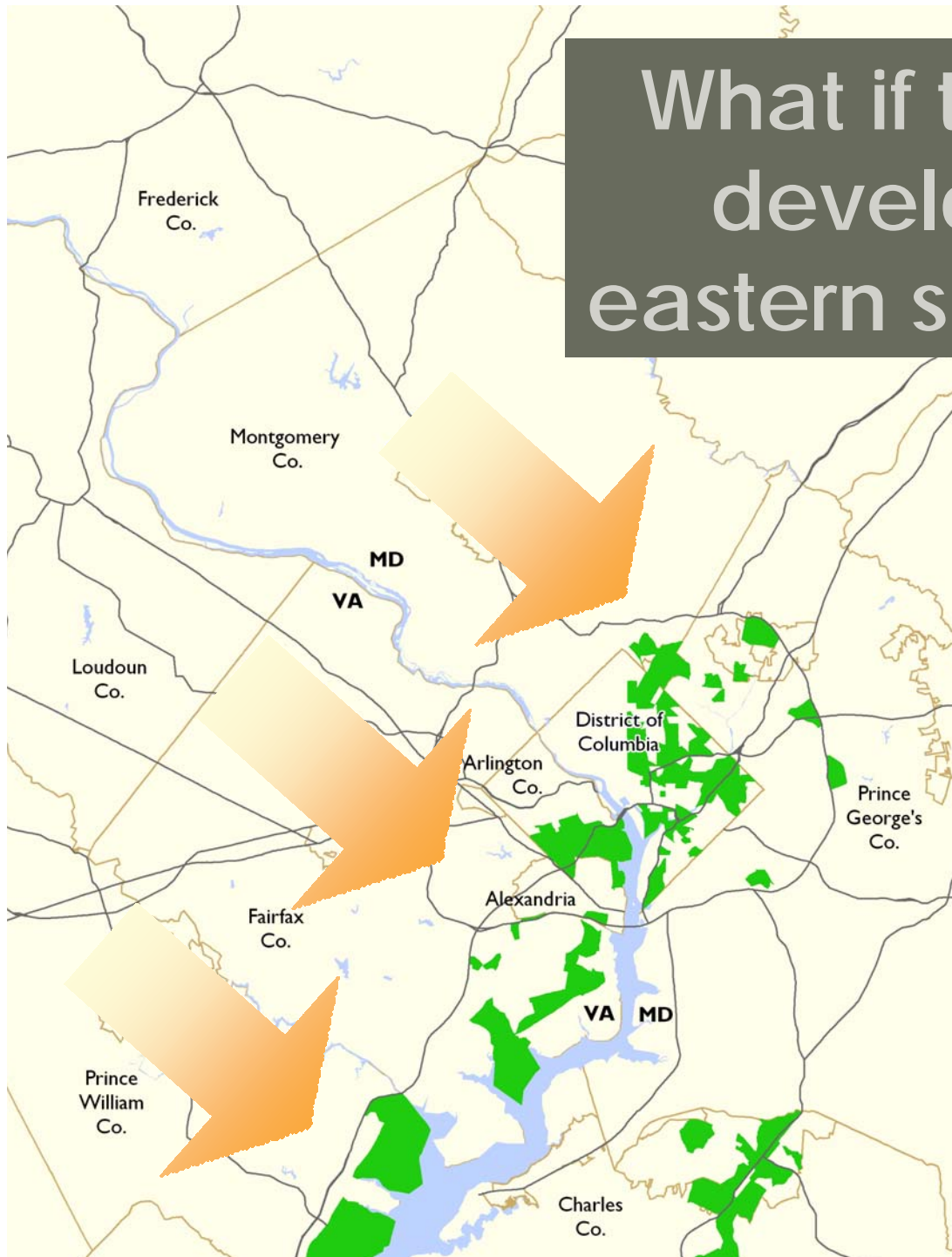
- o Shift job growth to outer jurisdictions (to get jobs closer to new housing)

Shift 82,000 jobs



Regional Activity Cluster

What if there were more development on the eastern side of the region?



"Region Undivided" Scenario

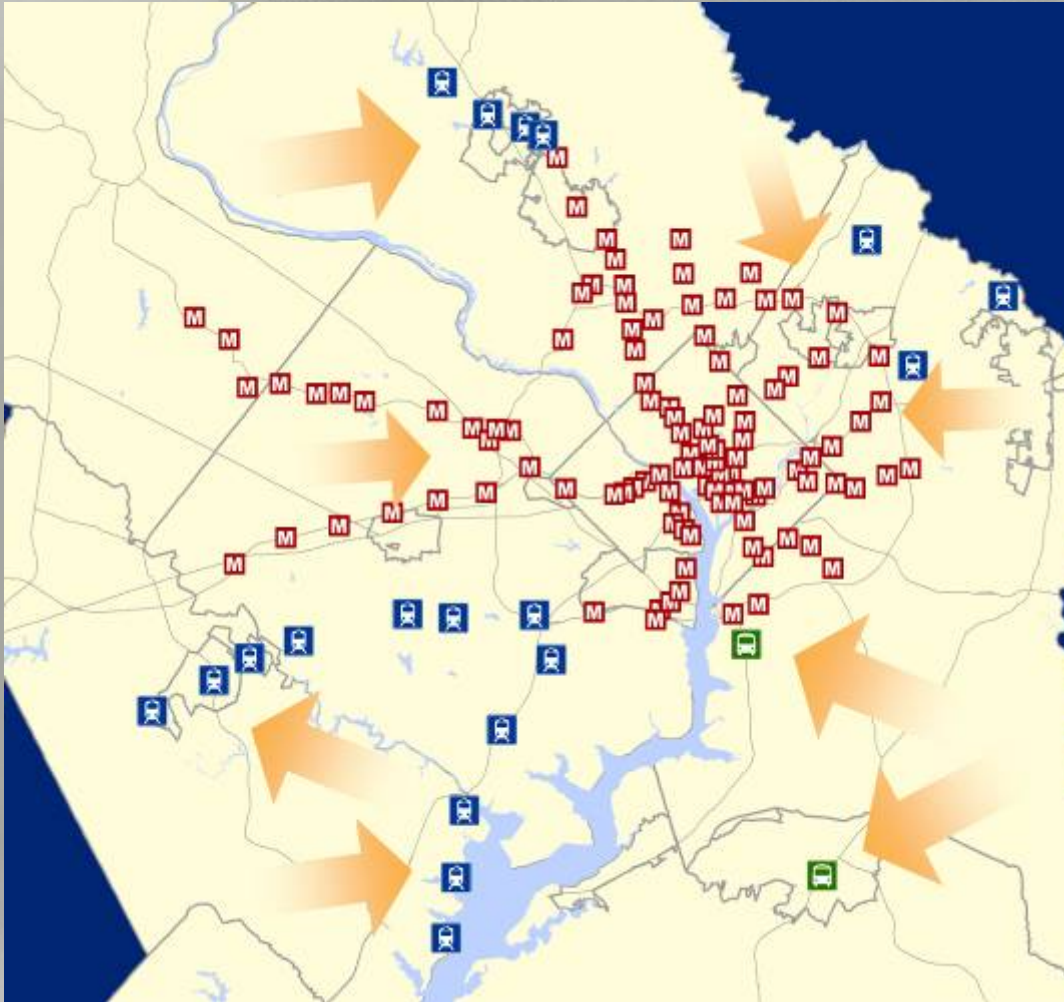
- o Shift job and household growth from West to East

Shift 57,000 households and 114,000 jobs



Areas Receiving Job Growth

What if people lived and worked closer to transit?



“Transit-Oriented Development” Scenario

- o Locate job and household growth around transit stations

Shift 125,000 households and 150,000 jobs

What if there were more transit facilities?

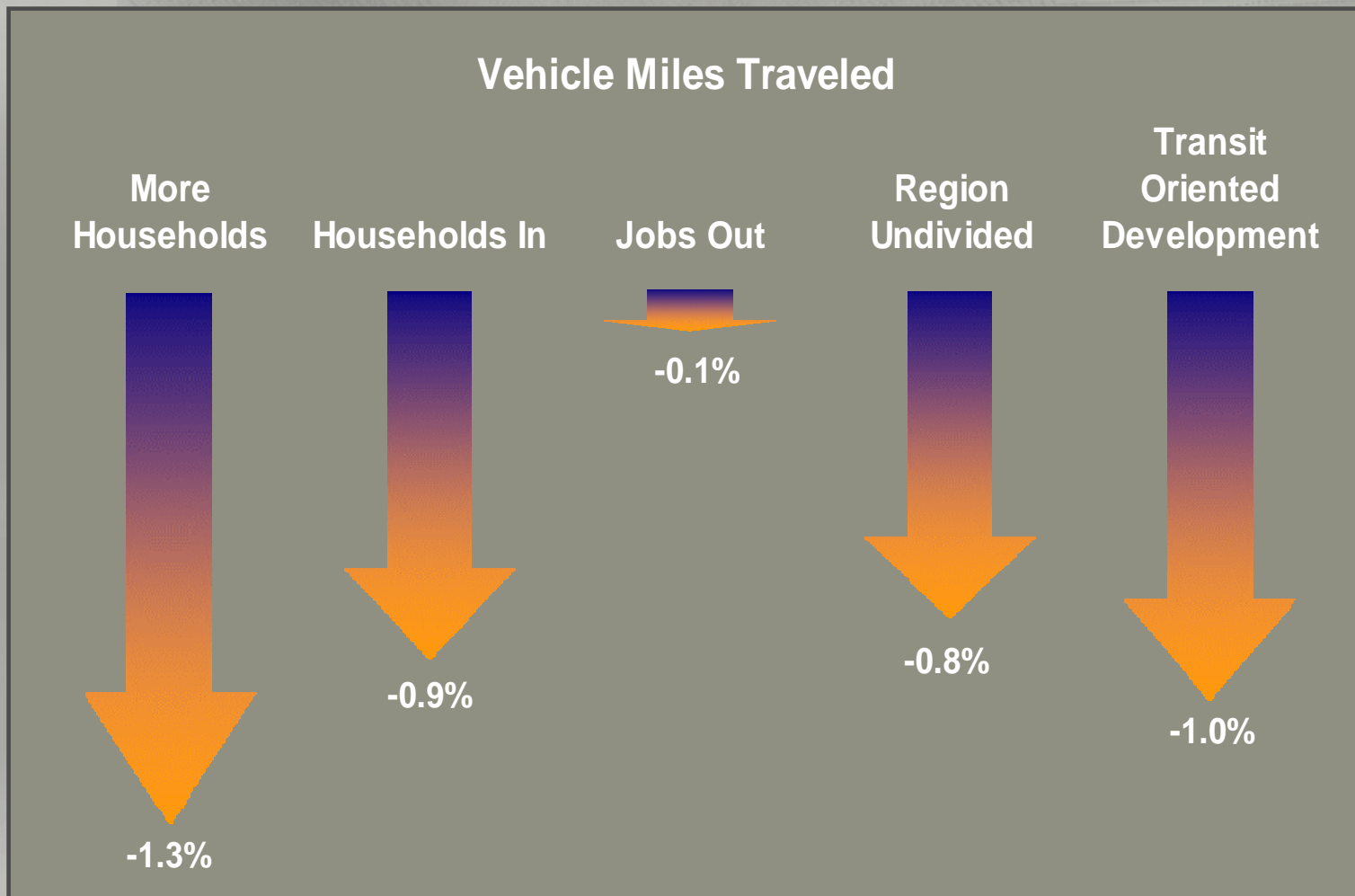


o Transit projects chosen to match each scenario

Existing Metrorail
Currently Planned Transit
Additional Transit in Scenario

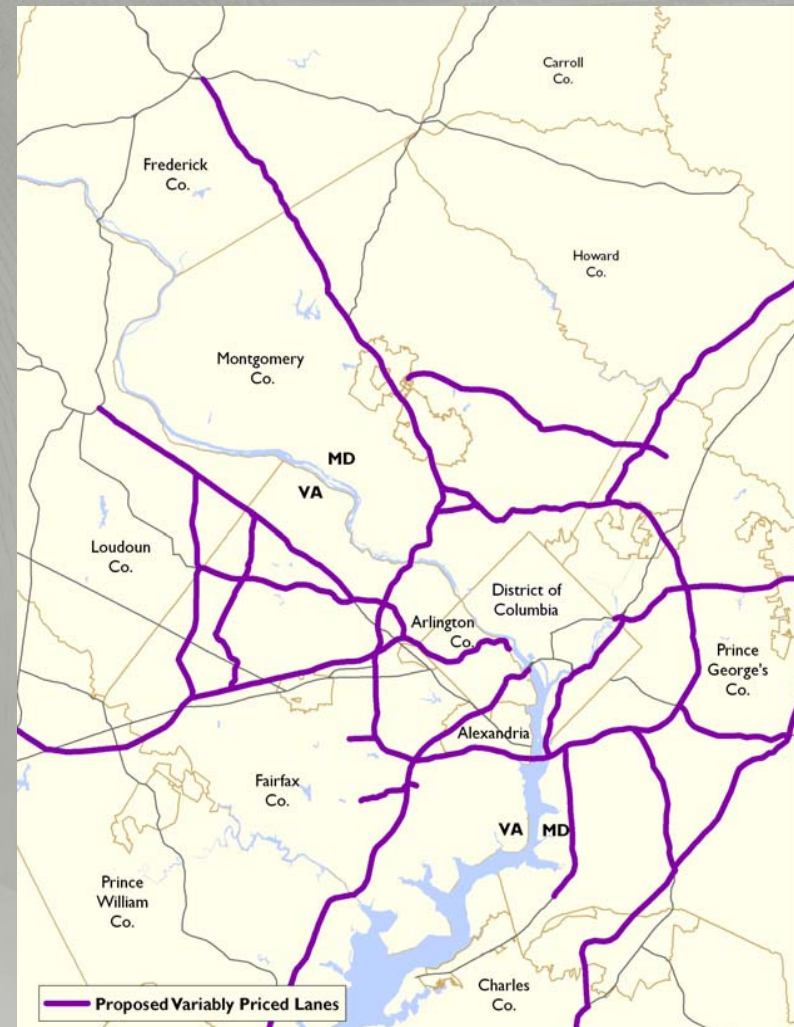
Impacts of These Existing Scenarios

Compared to baseline forecasts for 2030



Variably Priced Lanes Scenarios: *Starting Point*

- o All Freeways:
 - o Add 2 VPLs
- o Arterials outside Beltway:
 - o Add 1 VPL
- o Existing HOV lanes:
 - o Convert to VPLs
- o Direct access ramps at key interchanges
- o Incorporate existing transit service



Variably Priced Lanes Scenarios: *Options*

- o From Starting Point
 - o Pare back network where demand is low, as indicated by low toll rates
 - o Segments that have high toll rates in the peak direction only are changed to directional toll lanes
 - o Segments with low toll rates in both directions are removed from network
 - o Add variable pricing to existing DC bridges and other facilities
 - o Apply tolls to existing capacity on parkways:
 - o Baltimore-Washington, George Washington, Rock Creek, Clara Barton, and Suitland Parkways
 - o Create a bus transit network operating on the network of VPLs; enhance bus speeds/frequencies

Other Sources of Ideas

- o CAC Recommendations on the Scenario Study
 - o Apply pricing predominantly to existing lanes
 - o More “drilling down” to analyze local impacts
- o Other TPB Committees
 - o Regional Bus Subcommittee, for example
- o Public feedback on original scenarios
 - o Scenario needs to directly address two sources of public skepticism:
 - o Ability to keep up with infrastructure needs given available funding
 - o Ability to implement concentrated development without negative local-level impacts

Prioritizing Scenario Ideas

- o Mine the original scenarios for information about projects and strategies with the most “bang for the buck”
 - o Sensitivity analysis at regional and local scales
- o Drill-down analysis already completed indicates that the original scenarios can have a large impact on predicted travel behavior in small areas where concentrated land use and transit accommodation converge

“Drilling Down” to Determine Local Impacts

Travel Impacts of “Households In” Scenario for 5,200 Households Shifted from Gainesville to Tysons Corner

Travel Mode	Change in Travel by Shifted Households	Total Percent Change
SOV Trips	-2,400	-34%
HOV2+ Trips	-800	-89%
Transit Trips	1,600	533%
Walk/Bike Trips	2,400	1200%
Household VMT	-180,500	-62%

“Drilling Down” (continued)

Travel Impacts of “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%

"Drilling Down" (continued)

Regional Travel Impacts of "Households In" Scenario

	All Sending Areas	All Receiving Areas	No Change Areas	Total Region
2030 CLRP+ Base				
Land Area (Sq. Mi.)	2,120	83	1,763	3,966
Households	608,500	381,500	2,022,400	3,012,400
Household VMT	28,811,000	6,456,700	52,301,600	87,569,300
Households In Scenario				
Households	524,200	465,800	2,022,400	3,012,400
Household VMT	24,561,200	8,392,600	52,878,200	85,832,000
Change from 2030 CLRP+ Base				
Households	-84,300	+84,300	0	0
Household VMT	-4,249,800	+1,935,900	+576,600	-1,737,300
% Change from 2030 CLRP+ Base				
Households	-14%	+22%	0%	2.8% shifted
Household VMT	-15%	+30%	+1%	-2%

Prioritizing Scenario Ideas (continued)

- o Sensitivity analyses designed to assess the effect of adding or subtracting particular projects or land use shifts
- o Additional performance measures such as accessibility, environmental indicators
- o Use recent regional resource mapping work by TPB staff through the CLRP environmental consultation process
 - o GIS data with locations of regionally significant historic and environmental resources

Developing the “What Would It Take?” Scenario

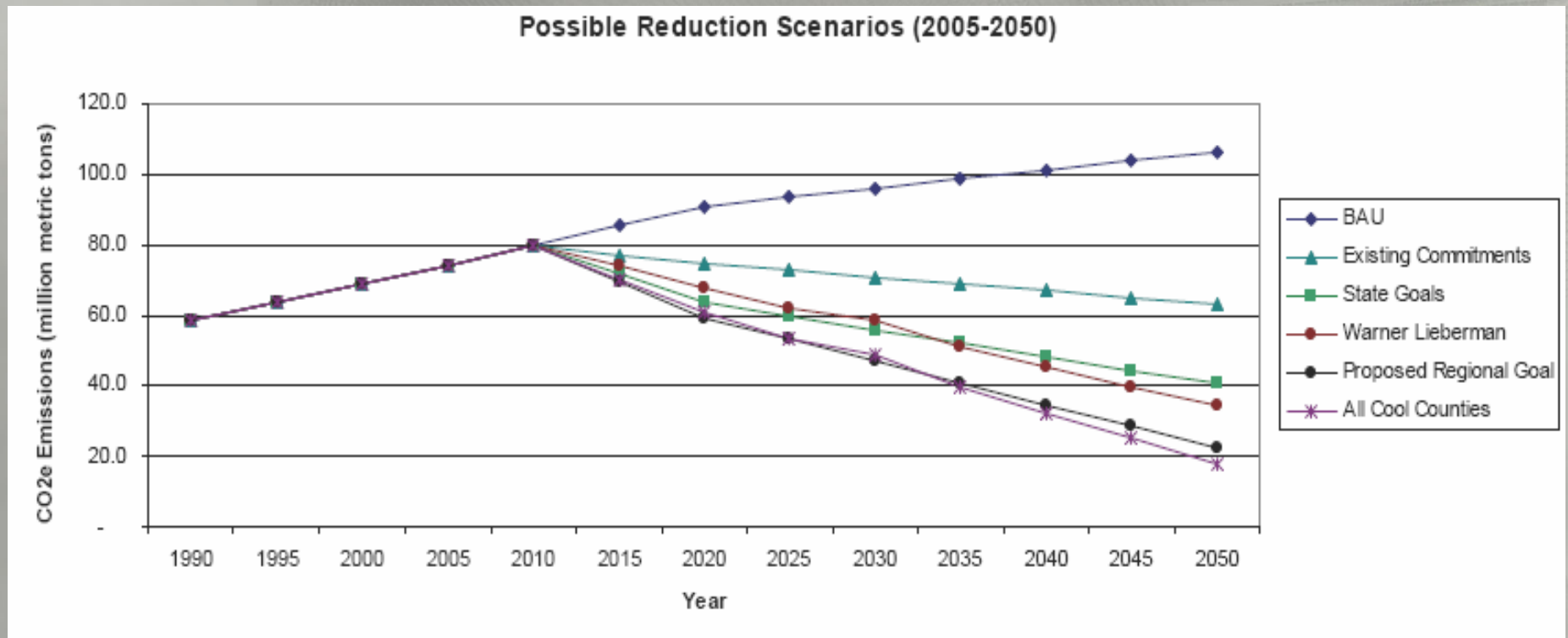
- o Goal-oriented scenario exercise
 - o Flexible enough to accommodate strategies and assumptions beyond those used to date
- o Begin with one or more performance objectives and determine the scale and mixture(s) of interventions that might achieve those objectives
- o Designed to facilitate regional dialogue about the steps necessary to reach regional goals

What Goals or Objectives should be Explored?

- o Original scenarios focused on transportation indicators
 - o Average daily VMT
 - o Peak-period congestion
 - o Modal share
 - o Also included some job accessibility and air quality measures (not CO₂)
- o A CO₂ emissions reduction goal makes sense for several reasons
 - o Recent attention to climate change and transportation role (~30% of regional CO₂ emissions)
 - o Opportunity to incorporate work of the COG Climate Change Steering Committee
 - o Proposed a goal of 20% reduction from 2005 CO₂ emissions levels by 2020, and 70% reduction by 2050 (consistent with Warner-Lieberman bill)

CO₂ Emissions Trend and Possible Goals

The proposed regional benchmark in 2030 would be ~37% reduction from 2005 levels



Source: Presentation by Joan Rohlfs, MWCOG/DEP to the COG Climate Change Steering Committee, January 23, 2008

CO₂ Emissions and CAFE Standards

CO₂ Emissions from Cars, Trucks, and Buses
All figures are Annual Tons of CO₂ Emissions (in Millions) in the
8-hour Ozone Non-Attainment Area

	2005	2020	2030
Baseline Emissions	24.89	31.02	34.45
% Change from 2005 levels	---	24.6%	38.4%
Emissions With CAFE Reductions (35 mpg by 2020)	24.89	26.83	26.91
% Change from 2005 levels	---	7.8%	8.1%
CCSC Proposed Regional Goal	24.89	19.91	15.75
% Change from 2005 levels	---	-20.0%	-36.7%
Emissions Reductions to 55 mpg by 2020	24.89	23.63	20.86
% Change from 2005 levels	---	-5.1%	-16.2%

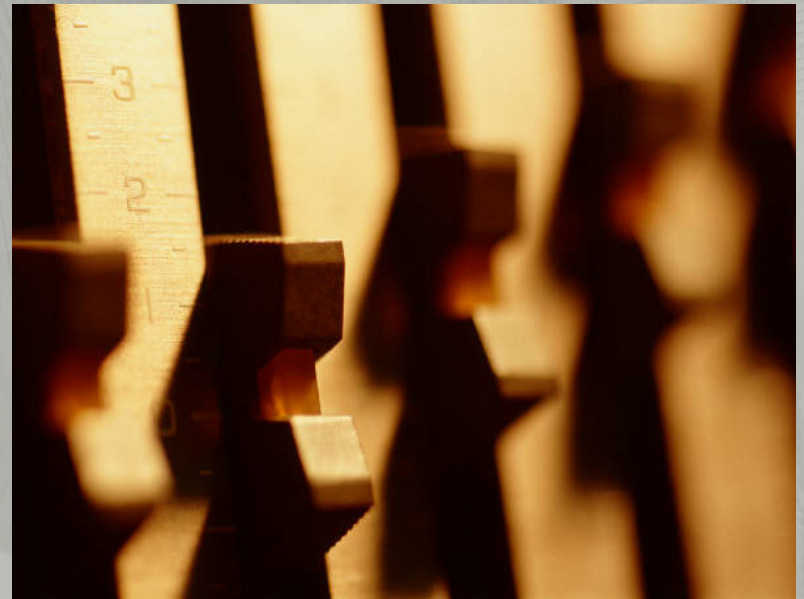
- o Achieving proposed regional goal will require much more than CAFE
 - o Plus, CAFE standards apply only to light-duty vehicles, which account for ~80% of regional CO₂ emissions

What Possible Interventions should be Studied?

- o Fuel efficiency of vehicle fleet
 - o Scenario could postulate imposition of a more austere standard
- o Emissions characteristics of the vehicle fleet
 - o Scenario could look at the effects on CO₂ emissions of increasing shares of alternative-fuel vehicles
- o Regional Vehicle Miles Traveled (VMT)
 - o Scenario could assume changes in average trip numbers and lengths due to various forces, including land use shifts exceeding those reflected in the other scenarios
- o Additional changes in travel behavior in the region
 - o Scenario could assume shifts in aggregate travel behavior, such as increases in carpooling, transit, bicycling, and walking due to increased environmental consciousness

“What Would It Take?” Scenario Products

- o The ability to treat various interventions and travel behavior assumptions as an array of “sliders”
 - o Use the travel demand model and/or other analysis tools to examine different combinations of changes in the variables, especially for financial, administrative, and technological feasibility
- o Rather than determining where growth might be located and what transportation projects could be implemented, the decisions are about what variables to include and what combinations to assess.



Summary

- o Staff proposes to proceed with the development of two new scenarios, a “CLRP Aspirations” Scenario and a “What Would It Take?” Scenario, as described above
- o Scenario development to be completed by June 30, 2008, with analysis to follow
- o Staff will look to the Scenario Study Task Force, the CAC, and other TPB committees for input on the particulars of both scenarios