The Regional Mobility and Accessibility Scenario Study

What if

the Washington region grew differently?

National Capital Region Transportation Planning Board
Metropolitan Washington Council of Governments

October 2006

What is the TPB?

Transportation planning at the regional level is coordinated in the Washington area by the National Capital Region Transportation Planning Board (TPB). The TPB is staffed by the Department of Transportation Planning of the Metropolitan Washington Council of Governments (COG).

Members of the TPB include representatives of the transportation agencies of the states of Maryland and Virginia, and the District of Columbia, local governments, the Washington Metropolitan Area Transit Authority, the Maryland and Virginia General Assemblies, and non-voting members from the Metropolitan Washington Airports Authority and federal agencies.

The TPB was created in 1965 by local and state governments in the Washington region to respond to a requirement of 1962 highway legislation for establishment of official Metropolitan Planning Organizations (MPOs). The TPB became associated with the Metropolitan Washington Council of Governments in 1966, serving as COG's transportation policy committee. In consultation with its technical committee, the TPB is responsible for directing the continuing transportation planning process carried on cooperatively by the states and local communities in the region.

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What we Know

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.

Congestion is bad. We know that and we have documented that it's getting worse. But I'm pleased to report that we know some other things too.

We know there are real actions we can take to make this situation better. The TPB's Regional Mobility and Accessibility Study has confirmed that we can make a positive impact on future transportation conditions 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.

This brochure is important because it marks the completion of Phase I of the Regional Mobility and Accessibility Study, which has analyzed five scenarios for the year 2030 that shift land use and add various networks of new transit. All five scenarios have positive impacts on congestion levels, reduce vehicle miles of travel and increase transit use. The next step in the study is an examination of whether we can influence future congestion with an expanded network of express toll lanes supported by high-quality bus service and complementary land use patterns.

The scenarios are identifying common-sense strategies that every local jurisdiction can use for dealing with tough problems. Of course, as a local elected official, I know something else: Implementing these strategies is tough. Funding for new transportation is tight. Affordable housing is an ongoing challenge. Legitimate concerns about land use densities are tricky to resolve.

But I am heartened that every jurisdiction in this region is already working hard on projects and policies that implement the common-sense strategies identified in our regional scenario study. At the TPB we want to provide support to make our local jurisdictions successful, and help to put each of our efforts into a regional context, in which good experiences can be shared and encouraged.

We are all facing similar issues in our communities and we must think regionally and act locally if we are going to solve our transportation and land use challenges. I look forward to working creatively on a variety of levels to implement solutions.

Michael Knapp
2006 Chairman, National Capital Region Transportation Planning Board

The Regional Mobility and Accessibility Scenario Study

The Transportation Planning Board launched the Regional Mobility and Accessibility Study in 2001 to examine the impacts of alternative transportation and land use scenarios. Phase I of the study, which is summarized in this brochure, has examined five scenarios that shift future jobs and households, and add extensive networks of new public transit facilities.

A comprehensive technical report on Phase I, which accompanies this brochure, is available in print or online at **www.mwcog.org**.

Looking at What if scenarios

The Washington region is growing at a rapid pace. By 2030, we will have added 1.2 million new jobs and more than 1.6 million new people, according to Council of Governments forecasts. This robust economic growth will support a continuing high standard of living, but it will also present fundamental challenges to our quality of life, including increased congestion on our roads, trains and buses.

What if we could wave a magic wand and ease our transportation and land-use problems? How would we shift the location of new jobs and households? What new transportation facilities would we build? What might alternative futures look like? The TPB is currently conducting a study to address these very questions.

Striving towards a Vision

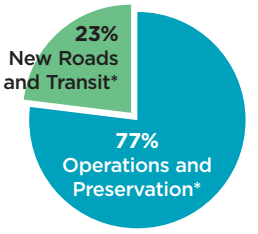
The roots of the region's Regional Mobility and Accessibility study can be traced to the "Vision," a policy framework adopted by the TPB in 1998 that calls for an efficient and accessible transportation system in the 21st century. The document's goals include increasing transit use and reducing per capita driving. The Vision also emphasizes "reasonable access at reasonable cost for everyone in the region" and promotes transportation linkages among a "healthy regional core and dynamic regional activity centers with a mix of jobs, housing and services." Ever since it was adopted, leaders have been asking what more the region can do to realize the Vision's goals.

The TPB's Constrained Long-Range Transportation Plan (CLRP), which contains road and transit projects expected to be completed with available revenues by the year 2030, has generally fallen short in achieving the goals of the Vision. Forecasts based on the CLRP as updated and amended in recent years indicate that per capita driving will increase and transit use will stagnate. Stop-and-go congestion on our highways will become pervasive. People will be driving longer distances because jobs and housing will be increasingly farther apart.

According to current forecasts, the road ahead isn't looking good...

Most Transportation Dollars Are Needed for Maintenance

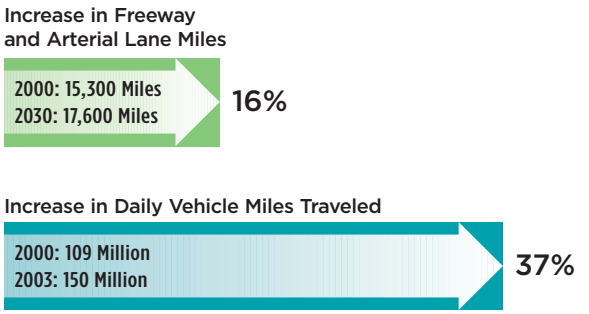
Little money is available for new transportation projects.



*Based on region's 2003 Constrained Long-Range Plan

The Highway System Won't Keep Pace

Forecast Trends 2000-2030



The TPB Vision calls for an increase in transit use, a reduction in driving, and better coordination between land use and transportation, with an emphasis on regional activity centers.

No one is satisfied with these forecasts, and indeed the explicit purpose of the CLRP is to ensure that we do not entertain an unrealistically rosy picture of the future. Mandated by federal laws and regulations, the CLRP provides a sobering picture of what the future will look like if current trends continue. In particular, federal law says the CLRP must be limited to projects for which funding is "reasonably anticipated to be available." If funding is not available—and increasingly the money just is not there—new projects must be left out of the CLRP.

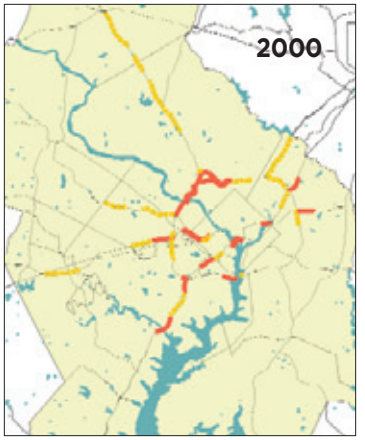
A few years ago, TPB leaders decided it was time to start looking outside the constraints of the CLRP and examine some bold changes—including major transportation projects and shifts in land use—that might move the region closer to implementing the Vision. What would happen, they asked, if we looked at scenarios that changed some of the assumptions about future trends? Would people use public transit more if we built more rail lines? Would commuters drive less if they lived closer to their jobs?

Most of the Beltway Will Be Stop and Go

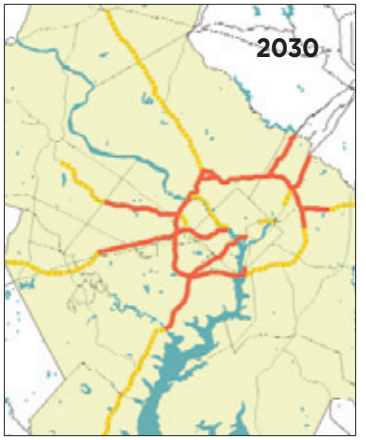
Evening Highway Congestion
2000 and 2030

Congested Flow
(average speed 30-50 mph)

Stop and Go Conditions
(average speed <30 mph)



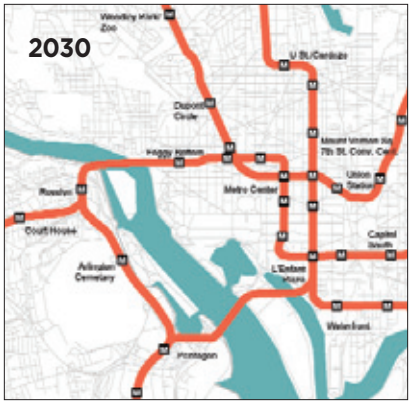
Based on Skycomp Report 2002



Based on the 2003 Constrained Long-Range Plan

Metro Platforms and Trains Will Be Packed

Morning Peak Hour Transit Congestion 2000 and 2030



Congested **Highly Congested**

Building the Scenarios

To answer central questions related to transportation and growth, the TPB launched its Regional Mobility and Accessibility Study in 2001. A joint technical working group comprised of transportation and land use planning staff from the region's jurisdictions and interested citizens is overseeing the study.

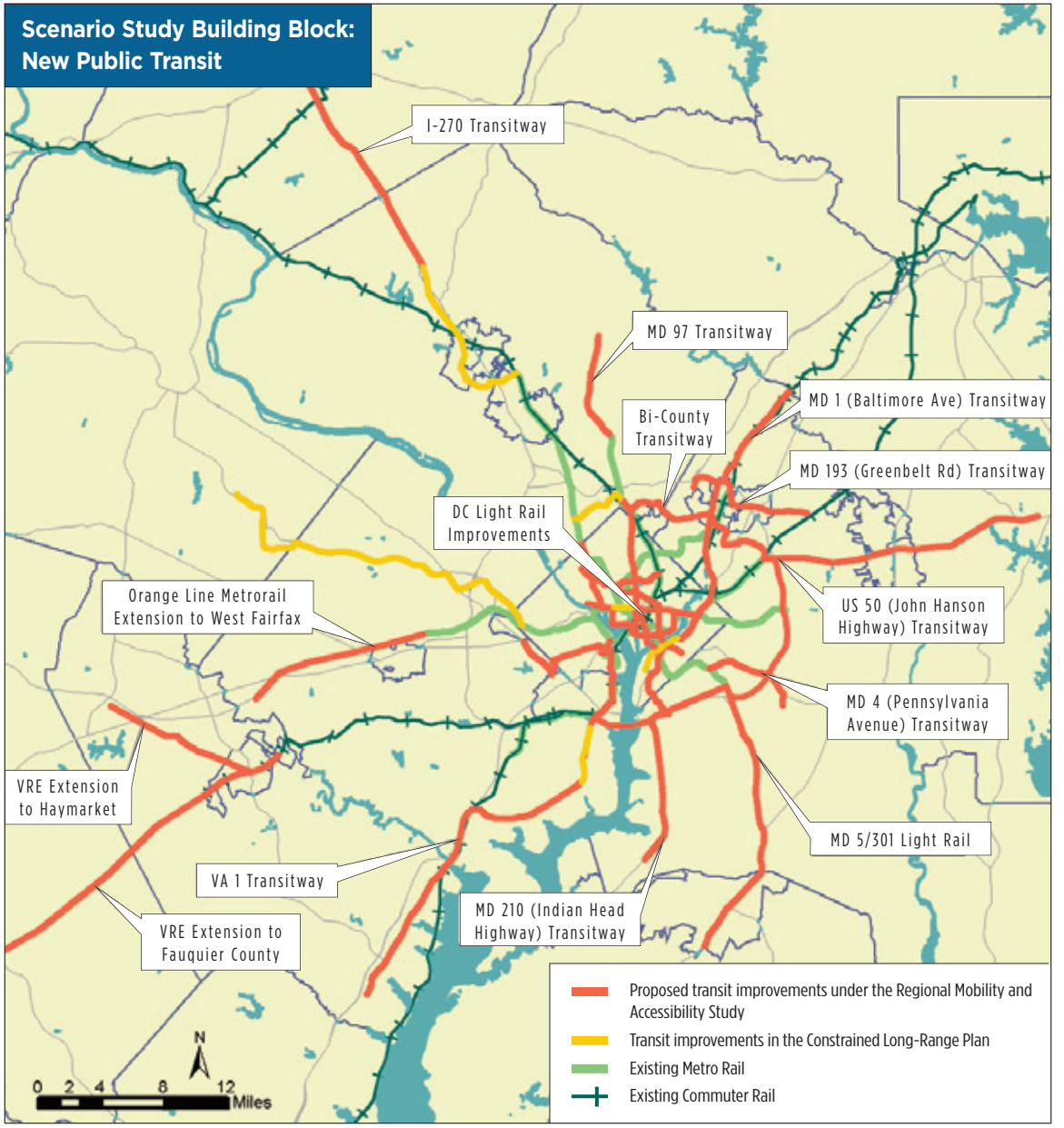
The region's official long-range transportation plan—the CLRP—formed the starting point for the scenario study. Before more dramatic scenarios were analyzed, the working group agreed to add some basic enhancements to the CLRP—mainly to public transit. The enhancements include basic projects and programs that everyone agrees are needed and should be implemented as soon as funding becomes available. The CLRP, plus the enhancements, formed the study's baseline.

To develop more extensive and ambitious scenarios, the study used different building blocks. For the land use shifts, the study has focused on regional activity centers. For the transportation components, the scenarios have looked at networks of potential public transit lines and express toll lanes.

Scenario Study Building Block: Regional Activity Centers/Clusters

Study Building Blocks

- **Activity centers and clusters:** The scenarios shift a significant amount of growth into "regional activity centers," which were designated in 2002 through a joint process at COG and the TPB. Activity centers, which are a key concept in the TPB Vision, are intended to have "a mix of jobs, housing and services in a walkable environment." The Vision also encourages strong transportation links of different modes among activity centers.



DALLAS AREA RAPID TRANSIT

- **New Public Transit:** A package of new public transit facilities beyond those already present in the 2030 baseline was identified for use in the study. These new rail and bus lines are all unfunded projects that are featured in various state and local plans. The transit networks reflect the large variety of projects that are being discussed in individual jurisdictions throughout the region—including D.C. light rail projects, the Bi-County Transitway (Purple Line) in Maryland, and VRE extensions in Virginia.

- **Variably Priced Lanes:** TPB staff is currently analyzing a network of proposed "variably priced lanes" on the Beltway and other major highways, supported by high quality bus services and complementary land use patterns.

  Variably priced lanes are defined as toll facilities on which price changes occur automatically, based on congestion levels or other factors. As traffic gets heavier, prices typically go up. Variable pricing has become possible in recent years because technologies now permit electronic toll collection and automatic price adjustment. High Occupancy/Toll (HOT) lanes are a form of variably priced lane that carpoolers typically use for free while others pay tolls. The region's long-range transportation plan already includes two variably priced facilities: HOT lanes on portions of the Beltway in Virginia and the Intercounty Connector in Maryland.

Developing the Scenarios

Using the building blocks on the previous pages as the key ingredients, the study working group developed different land-use and transportation scenarios based on key challenges related to the region's future growth. The study team asked, what are the problems we face every day, as individuals, as communities, and as a region?

Each scenario was initiated by a "what if" question, such as: What if more people who lived here worked here? What if there were more development on the eastern side of the region? What if more people lived and worked close to transit?

Based on such "what if" questions, five land use scenarios were developed:

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- **More Households** would increase the total number of households in the region.
- **Households In** would move households into inner jurisdictions.
- **Jobs Out** would shift jobs to outer jurisdictions.
- **Region Undivided** would provide for more jobs and housing on the region's eastern side.
- **Transit-Oriented Development** would put more jobs and households close to transit.

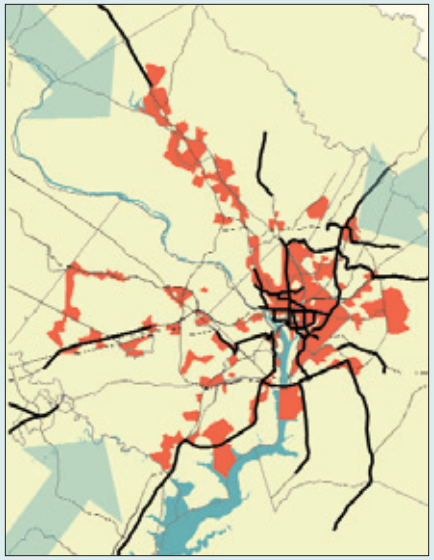
A network of new public transit lines, taken from the map on page 7, was tailored for each of the scenarios.

All five scenarios use different means to achieve the same objectives of bringing people and jobs closer together, and improving the transportation connections between them. The scenarios are not mutually exclusive; in many ways they are similar and complementary. All the scenarios, for example, try to focus more development around transit, not just the Transit-Oriented Development alternative. The final step in the study will be the creation of ***composite scenarios*** that emphasize common themes and combine positive features of a number of different alternatives.

Details about each scenario, including the land use shifts and the transit networks, are found on the following pages.

More Households Scenario

What if more people who work here lived here?



The Challenge:

New housing is not keeping up with job growth. Many commuters are living outside the immediate region—as far away as West Virginia and Pennsylvania.

The Scenario:

- Adds 216,000 new households beyond the number in current land use plans. The households would be added in or close to regional activity centers to balance forecast job growth (represented by red areas on the map).
- Adds an extensive transit network beyond what is currently assumed to be planned and funded: 30 miles of new Metrorail; 30 miles of new commuter rail; 218 miles of new light rail and bus rapid transit.

Analysis Results:

This scenario produces the largest impacts on congestion, vehicle miles of travel (a measure of how much we drive) and transit use. Even with a lot more people living in the region under "More Households," an average person in 2030 would drive 22 miles per day, compared to 24 miles per day if current trends continue— a decrease of two miles per day. What's more, the amount of total vehicle miles of travel on the region's roads would be less with "More Households" than under the study's 2030 baseline.

Jobs Out & Households In Scenarios

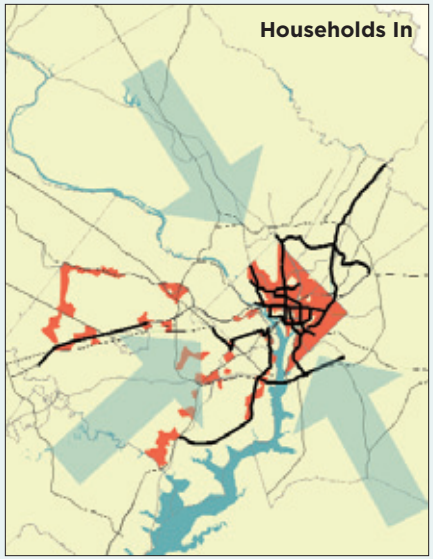
What if people lived closer to their jobs?

The Challenge:

The length of the average commute is growing as housing continues to boom in outer jurisdictions while jobs remain concentrated in the region's core and inner suburbs.

The Scenarios:

- "Jobs Out" shifts 82,000 new jobs (11% of forecast growth) to outer jurisdictions.
- "Households In" shifts 84,000 new households (23% of the forecast growth between 2010 and 2030) to inner jurisdictions.
- Transit networks (beyond what is currently assumed to be planned and funded) were tailored to both scenarios (thick lines on the maps).



Analysis Results:

Compared to the 2030 baseline, both scenarios would have positive impacts on trends in congestion and vehicle miles of travel. The "Jobs Out" scenario would cause a small decrease in regionwide transit use, compared to the 2030 baseline. Although transit use would increase in the outer suburbs, this would not be enough to offset the effects on overall transit use in the inner jurisdictions.

Region Undivided Scenario

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

The Challenge:

People on the eastern side of the region are commuting long distances to jobs in the west due to uneven development patterns.

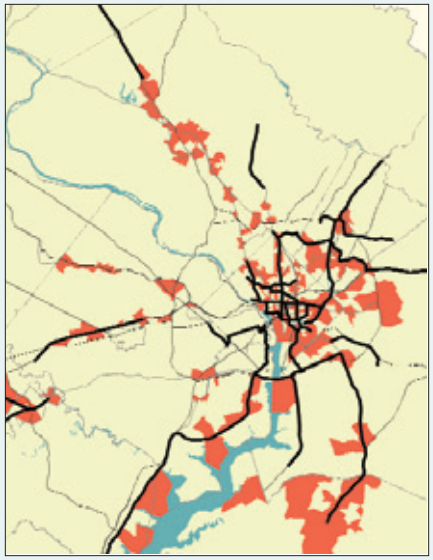
The Scenario:

- Shifts 57,000 new households (16% of forecast growth) and 114,000 new jobs (15% of forecast growth) from west to east (red areas on the map).
- Adds an extensive transit network (thick black lines on the map): 13 miles of new Metrorail; 180 miles of new light rail and bus rapid transit. These additional projects are beyond what is currently assumed to be planned and funded.

Analysis Results:

Encouraging more development and providing transit options on the eastern side of the region would improve travel conditions throughout the region, compared to the 2030 baseline.

Transit-Oriented Development Scenario



What if more people lived and worked closer to transit?

The Challenge:

70% of new jobs and 80% of new housing in the coming decades will not be located in "transit station areas" (half mile from rail, quarter mile from bus).

The Scenario:

- Locates 125,000 new households (35% of forecast growth) and 150,000 new jobs (19% of forecast growth) closer to transit stations—within a half-mile radius (represented by red areas on the map).
- Adds an extensive transit network (beyond those currently assumed to be planned and funded): 30 miles of new Metrorail; 30 miles of new commuter rail; 218 miles of new light rail and bus rapid transit.

DAN MALOUFF, BEYONDDC.COM

Analysis Results:

The "Transit-Oriented Development" scenario would produce positive regionwide results similar to the "Region Undivided" scenario. Compared to the 2030 baseline, driving and congestion would decrease and transit trips would increase.

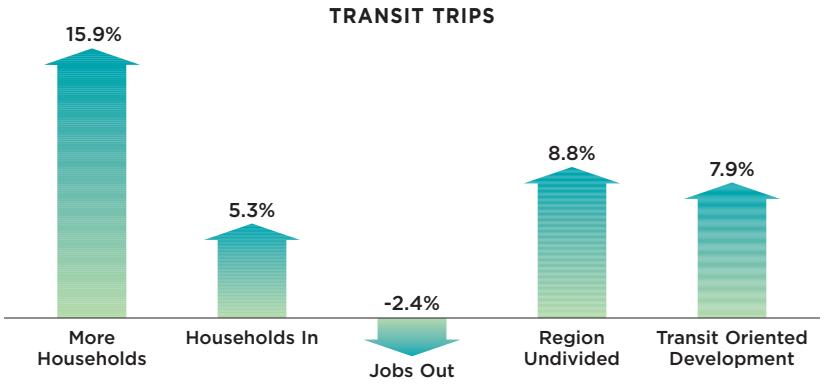
Looking at analysis Results

TPB staff has used a computer model to forecast travel patterns for the scenarios described on the earlier pages. This analysis has focused on key transportation effects of the various alternatives, including changes in congestion, transit use and vehicle miles of travel.

On these measures, the scenarios show positive results. When compared to the 2030 baseline, all five alternatives would slow the anticipated growth in congestion and driving, and in most cases, would increase transit use.

Evaluating the scenarios: How would future travel conditions change?

Transit use would increase*
Compared to baseline forecasts for 2030



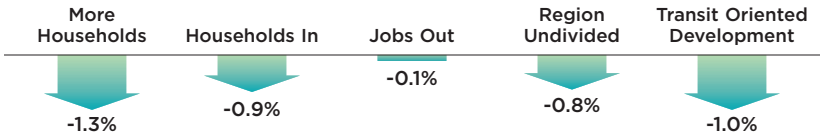
*Under the "Jobs Out" scenario transit trips would increase in outer suburban activity clusters.

When compared to the 2030 baseline, all five scenarios would slow the anticipated growth in congestion and driving, and in most cases, would increase transit use.

Even with a lot more people living in the region under the "More Households" scenario, the amount of total vehicle miles of travel on the region's road would be less with than under the study's 2030 baseline. What's more, under this scenario, an average person in 2030 would drive 22 miles per day, compared to 24 miles per day if current trends continue—a decrease of two miles per day.

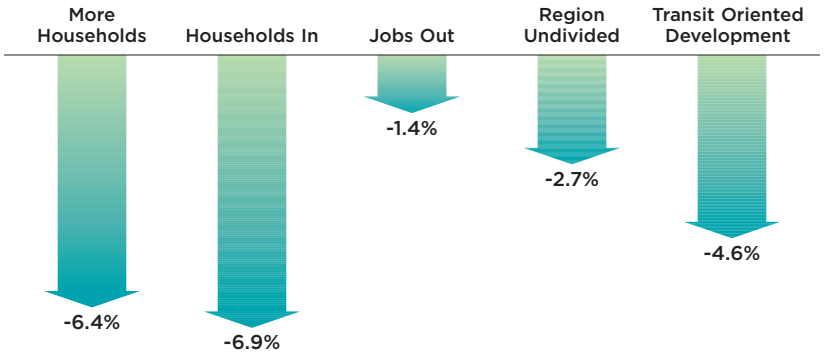
Driving would decrease
Compared to baseline forecasts for 2030

VEHICLE MILES TRAVELED



Congestion would decrease
Compared to baseline forecasts for 2030

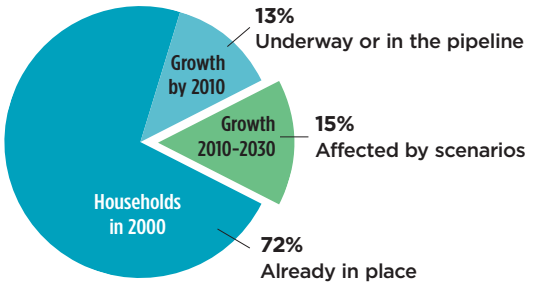
LANE MILES OF SEVERE AM PEAK PERIOD CONGESTION



Putting the Results into Context

- **Short-term impacts are modest.**
  Change takes a long time. The scenario study is looking at forecasted impacts in 2030—which is not very long from now. Most jobs and housing that will be in place in 2030 are already in place today. In fact, 72 percent of households assumed for 2030 were already in place in 2000. The study assumed that this existing development remained unchanged, and only shifted new houses and jobs—those created between 2010 and 2030. For households, that meant that only 15 percent of households in 2030 were in play for the study. The scenarios inevitably would have a bigger impact 40 or 50 years from now, but that more distant future would be too difficult to analyze.

2030 Households



- **Scenario impacts may be large locally but small regionally.**
  The scale of impact is not just a question of time. It's also a question of place. The regional scope of the analysis tends to dilute the impacts of the scenarios. Land-use changes could have profound effects on specific communities and neighborhoods. But those changes may be minimal when we analyze the entire region, which stretches from the Pennsylvania border to the lower reaches of the Potomac River.

Local impacts would be even bigger for many scenarios. For example, under the "Region Undivided" scenario, the area around Largo Town Center would have three times as many jobs and four times more housing. Transit commute trips to Largo would more than double, increasing the transit commute mode share from 9% to 15%.

From "What If" to How To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The Regional Mobility and Accessibility Study has been designed as a "what if" study, not a "how to" study. It intentionally did not look at questions regarding implementation, including political challenges and funding shortfalls.

But questions about implementation cannot be put aside for long. TPB members and staff have started to investigate how to integrate the study into the development of the TPB's Constrained Long-Range Transportation Plan (CLRP) and into planning efforts at the state and local levels.

"We need to think about how the study can feed back into planning decisions," said Michael Knapp, Montgomery County councilmember and 2006 TPB chairman. Some leaders maintain the study should be used to promote policy changes. When study results were presented in January 2006, Barry Miller of the D.C. Office of Planning said the analysis effectively can be used to support efforts to focus growth on the eastern side of the region. Jim Zook, planning director for Fairfax County, emphasized that the study highlights the "absolute need to invest more in transportation."

The analysis has already influenced policy-making. The "More Households" scenario, for example, underlined the need to increase the housing supply in the region—and the transportation benefits that might come when such an increase is concentrated in activity clusters. Using the land use assumptions of this scenario, the region's planning directors and COG's Metropolitan Development Policy Committee decided that the newest version (Round 7.0) of the region's Cooperative Land Use Forecasts should increase the number of households planned for 2030 by more than 120,000.

More public outreach is needed. In recent years, the TPB's Citizens Advisory Committee has conducted public forums on the scenario study, called "What if the Washington Region Grew Differently?" The discussions at these meetings often focused on real-world, "how to" concerns.

"Your scenarios include rail on the Wilson Bridge," said a forum participant in Oxon Hill. "How are we going to get that funded and built?"

"The study would increase densities, but what about all the localized traffic that those densities will generate?" asked a participant in a forum near Dulles.

"You're talking about more housing, but the real question is whether that housing will be *affordable*," said a citizen in Takoma Park.

The scenario study is designed to focus attention on such questions. TPB staff plan to continue outreach efforts to inform citizens throughout the region about the study and spur discussion of the issues it raises. It will be up to community leaders at the local, state and regional levels to determine how the analysis can be used in the real world of public decision making.

A dynamic regional Discussion

The TPB's study of land use and transportation scenarios will not produce a magic formula to solve congestion, but it will inform a growing public discussion on the direction and shape of future development.

Regional growth is a certainly a hot topic. A *Washington Post* series a few years ago laid out issues that the TPB's scenario study has been examining: the housing boom in outer suburbs, the jobs/housing imbalance, and the growing interest in higher density development.

"There is no question that the farm and its grain silo, barns and pastures, will soon give way to suburbia," wrote *Post* reporter Peter Whoriskey on August 10, 2004. "The only question is what kind of development should rise in its place." This question is being asked around family dinner tables and around the tables of local government.

Implementing the TPB Vision—including the goals of reducing per capita driving, increasing transit use and promoting regional activity centers—formed the context and motivation for the Regional Mobility and Accessibility Study. At the end of the day, regional leaders hope the results of the study will help steer the region closer to this vision.

The Regional Mobility and Accessibility Scenario Study

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