Memorandum

To: TPB Technical Committee

From: ICF Team and TPB Staff

Date: September 7, 2017

Re: Technical Assumptions and Analysis Methods for Long-Range Plan Task Force Study

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Following the acceptance of the Transportation Planning Board (TPB) of the ten (10) initiatives (projects, policies, and programs) recommended for analysis by the Long-Range Plan Task Force, the TPB staff and ICF Team have been working to define assumptions, analysis methods, and measures of effectiveness to be used to quantify the estimated effects of each initiative toward achieving the goals laid out in TPB and COG's regional policy documents.

This memo provides a summary of the analysis methods and key assumptions that are being used for each of the ten initiatives.

Analysis Methods

The technical analysis of the ten initiatives is being conducted using a sketch planning approach (simplified analysis techniques) recognizing the short time frame for the analysis and the conceptual nature of several of the initiatives (without details required for more in-depth, comprehensive analysis).

Given the wide array of different types of strategies that are being analyzed for the initiatives, including transportation capacity projects, land use strategies, demand management, and operational strategies, as well as policies related to pricing, no single sketch planning tool can be used to capture all of them. The technical analyses is being done by using a combination of: 1) input assumptions regarding land use, transportation system, and pricing changes; 2) application of components of COG's regional travel model and sketch planning tools; and 3) post-processing of travel-related metrics to estimate other performance outcomes (e.g., emissions, safety), as shown in the figure on the following page.

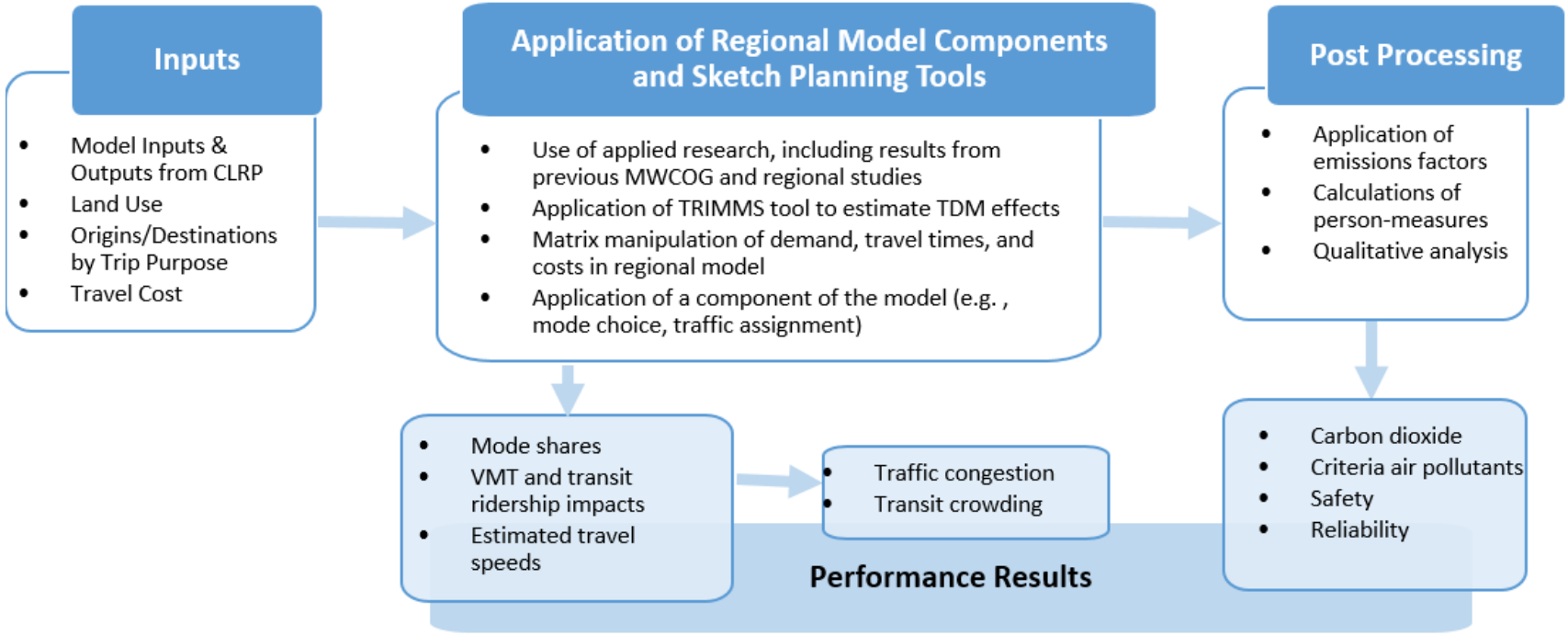


Figure 1: General Analysis Approach

The sketch planning approach include geographic information systems (GIS) analysis, spreadsheet analysis, and use of sketch planning tools, such as the Trip Reduction Impacts of Mobility Management Strategies (TRIMMS) tool to determine mode shifts for travel demand management (TDM) strategies. In addition, analysis using components of MWCOG's regional model are being conducted in order to capture the regional effects of strategies that make significant changes to land use and transportation infrastructure, particularly to support analysis of assignment of trips to the network in order to estimate impacts on traffic congestion.

Assumptions

For each of the ten initiatives, we have developed assumptions that are being used in the analysis. These assumptions are described on the following pages, and relate to land use, transportation infrastructure and services, and policies.

Initiative 1: Regional Express Travel Network

Express Toll Lanes - Regional network of express toll lanes on limited access highways; dynamic tolling is assumed on the express toll lanes with no toll for HOV-3.

Express Lane Facilities in Network

Facility	#HOT lanes*	Notes
I-95 (VA)	2-3^	Existing/in CLRP
I-395 (VA) to DC line	3^	Existing/in CLRP
I-66 outside Beltway (VA)	2	In CLRP
I-66 inside Beltway (VA)	2-3	In CLRP; converts existing HOV to HOT
MD-200 ICC	3	Toll road functions as HOT (free HOV-3)
I-495 Beltway (VA)	2	Largely existing/in CLRP; adds capacity from I-95 to Woodrow Wilson Bridge
American Legion Bridge	2	New capacity
I-495 Beltway, American Legion Bridge to I-270 (MD)	2	New capacity
I-495 Beltway, I-270 to Woodrow Wilson Bridge	1	New capacity
I-270, north of ICC (MD)	1	HOV converted to HOT lane
I-270, south of ICC (MD)	2	New capacity with 1 HOV lane converted to 2 HOT Lanes
I-95 (MD)	2	New capacity
US-50 (MD)	1	New lane from South Dakota Ave. to MD-410, conversion of HOV to HOT lane beyond
MD-4	1	New capacity
MD-5	1	New capacity
I-395 (DC)	1	New capacity
I-295 (DC)	1	New capacity
I-695 (DC)	1	New capacity
VA-267 Dulles Toll Road	1	New capacity east of VA-28
VA-28	2	New capacity with 1 HOV lane converted to 2 HOT Lanes

Each direction, unless otherwise noted.
^Reversible lanes

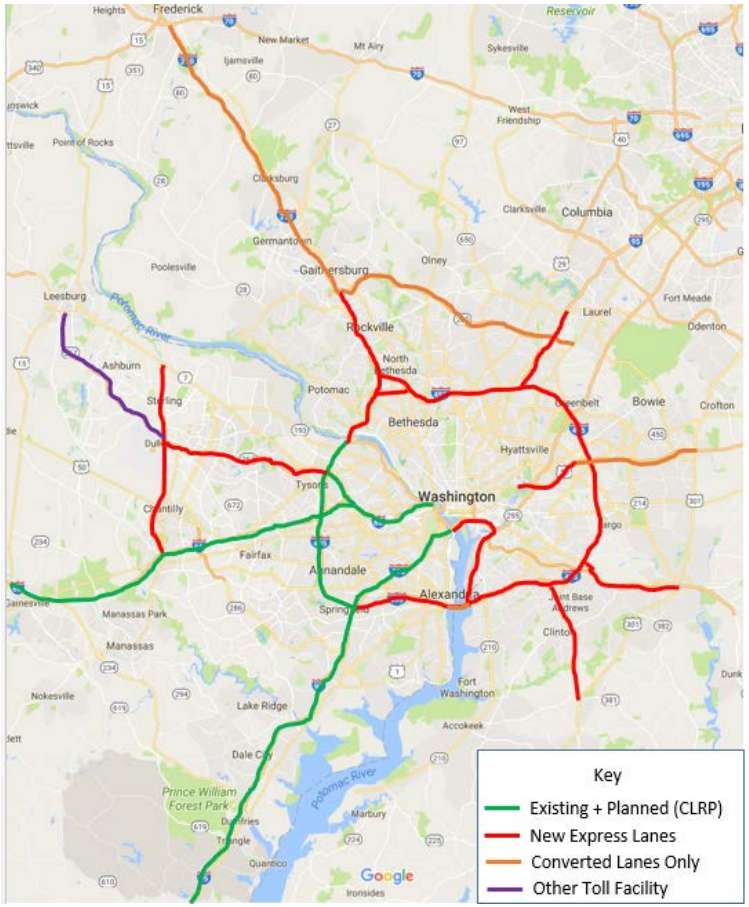


Figure 2. Express Lane Network

Express Bus Network - New express bus services on network (paid in part through tolls) will connect major Activity Centers. The express bus services will rely primarily on the express lanes. Analysis assumes headways of 10 minutes peak periods and 20 minutes off-peak periods.

No.	HOV/HOT Facilities	Origin, Destination, and Transfer Points
1	I-495 Beltway	I-270 (N. Bethesda), Georgia Ave., I-95, Greenbelt, US-50, Largo, MD-4, MD-5, National Harbor, Eisenhower Ave, I-395, I-66, Tysons, VA-267*
2	I-270	N. Frederick, Shady Grove/King Farm, I-495, DC core via Canal Rd.
3	ICC	King Farm, Shady Grove, Calverton/I-95, Muirkirk
4	I-95, I-495	West Laurel, Calverton/ICC, I-495/College Park, Silver Spring, DC Core via Georgia Ave.
5	US-50, New York Ave.	US301 (Bowie), I-495, DC Core via US-50/New York Ave.
6	MD-4, I-495	Wayson's Corner, I-495, MD 5, Anacostia (via Suitland Pkwy.), DC Core
7	MD-5	Waldorf, I-495, Anacostia (via Suitland Pkwy.), DC core.
8	I-295	National Harbor, Anacostia, DC Core.
9	I-95 S, I-395	Dale Blvd, Lorton, Springfield, I-495, DC Core.
10	I-66	Gainesville, VA-28, I-495, West Falls Church, Rosslyn, DC Core.
11	I-66, VA-28	Gainesville, VA-28, VA-267, Sterling, Leesburg.
12	Dulles Tollway	Dulles Airport, VA-28, Spring Hill, I-495,West Falls Church, Rosslyn, DC Core via I-66.

*For sketch analysis purposes, showing service around the entire Beltway, but individual bus routes might cover portions (e.g., Greenbelt-N. Bethesda; Largo-Eisenhower Ave.) Also, some "Beltway" routes might include connections to spurs (e.g., Dale Blvd. /I-95 toward Tysons via I-495).

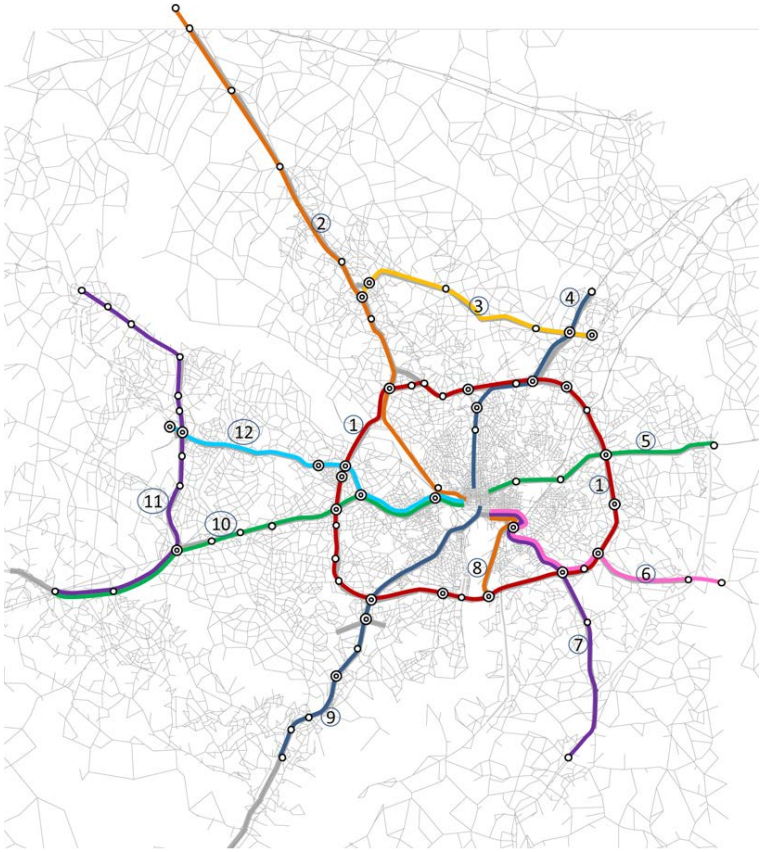


Figure 3. Express Bus Network

Land Use – 2040 CLRP Round 9.0 Cooperative land Use Forecasts are being used without any change

Analysis Approach – The express lanes and express buses is being coded in the 2040 CLRP network to assess mode choice and traffic assignment effects (using the 2040 CLRP person trip tables as inputs). Tolls are assumed on the newly coded facilities with no toll for HOV-3.

Initiative 2: Regional Roadway Congestion Hotspot Relief

HOT Spot Relief – Maximize available capacity using technological and operations management strategies at locations with top congestion hotpots in the region, and supplemental lane capacity in limited locations where potentially warranted. The hot spots selected were based upon the Congestion Management Process list of top bottlenecks plus selected spots from the 2040 CLRP where the forecast volume to capacity ratio was greater than 1.

	Location	Addressed In 2040 CLRP?
From Congestion Management Process Report	I-495 IL between VA-267 and I-270 Spur	X
	I-495 OL between I-95 and MD-193	
	I-66 EB at VA-267	X
	I-270 SPUR SB	
	I-95 SB at VA-123	X
	VA-28 SB between US-50 and I-66	X
	US-15 NB between VA-7 and N. King St.	
	I-495 OL between I-270 and MD-190	
	I-495 IL between MD-355 and MD-185	
	I-66 WB at Vaden Dr./Exit 62	X
	I-495 IL between I-95 and US-1	
	I-495 OL at Telegraph Rd.	X
	I-495 OL at MD-202/Landover Rd.	
	Constitution Ave WB between 12th St. and 17th St.	X
	New York Ave. WB between N. Capitol St. and I-395	X
	DC-295 NB at Pennsylvania Ave	X
	DC-295 SB at Benning Rd.	X
	I-395 NB between US-1 and GW Pkwy	X
	VA-123 between GW Pkwy and Canal Rd	
	Canal Rd NW between M St and Foxhall Rd	
	US 301 between Berry Rd and McKendree Rd	
	I 695 between Anacostia Fwy and M St	

Note: Locations addressed in the CLRP will not be analyzed as a part of this effort.

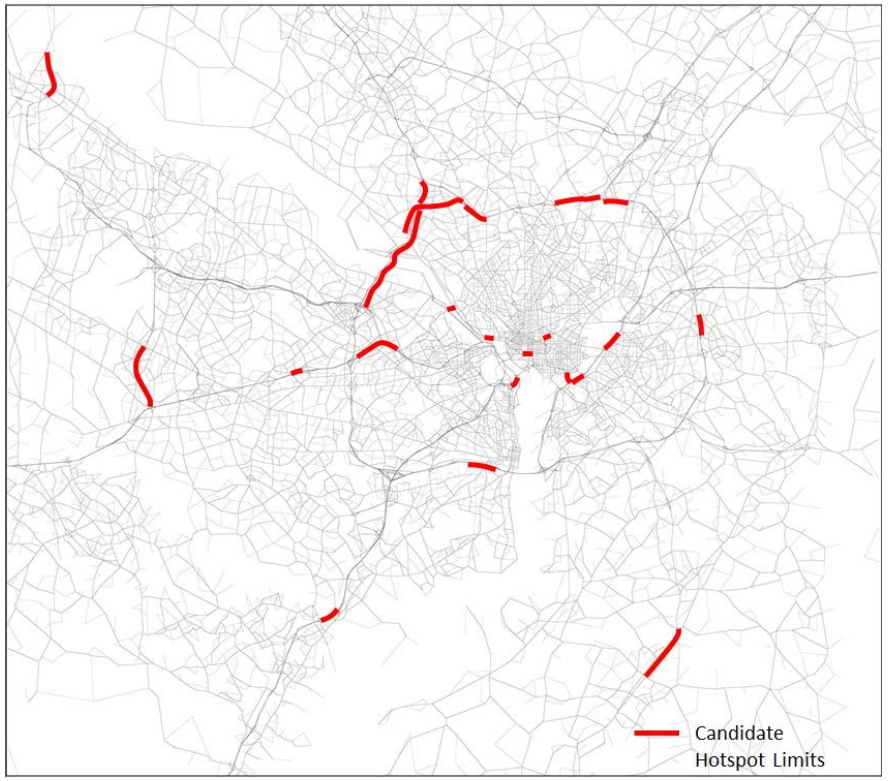


Figure 4. Targeted Hotspot Relief Locations (Source: Sabra Wang and Associates)

Reversible Lanes –Non-expressway segments with 3+ lanes and with high volume/capacity ratios in the peak direction and relatively low volume/capacity ratios in the off peak direction in the 2040 CLRP forecast were selected.

Facility	Limits		Divided	Undivided	2040 CLRP Total # Lanes
	A	B			
MD-355	MD-124	Montrose Pkwy			
Connecticut Ave	Georgia Ave	Knowles Ave	X		6
Connecticut Ave	I-495	Calvert St	in MD	in DC	6
Georgia Ave	Randolph Road	I-495	X		6
Georgia Ave	Colesville Road	Arkansas Ave		X	6
New Hampshire Ave	Eastern Ave NE	Metzerott Road	X		6
Rhode Island Ave	Eastern Ave NE	Logan Circle	X		6
New York Ave	South Dakota Ave	H Street	X		6
Bladensburg Road	South Dakota Ave	Benning Road	X		6
Benning Road	Bladensburg Road	Minnesota Ave	X		8
Pennsylvania Ave	Minnesota Ave	Independence Ave	X		8
Martin Luther King Jr Hw	Eastern Ave NE	Glen Dale Road	X		6
Central Ave	Harry Truman Drive	Hill Road	X		6
Crian Hwy	Smallwood Drive	Accokeek Road	X		6
US 1	Curtis Drive	Backlick Road	X		6
Minnieville Rd	Dale Blvd	Caton Hill Road	X		6
US-50	Watson Road	Sully Road	X		6

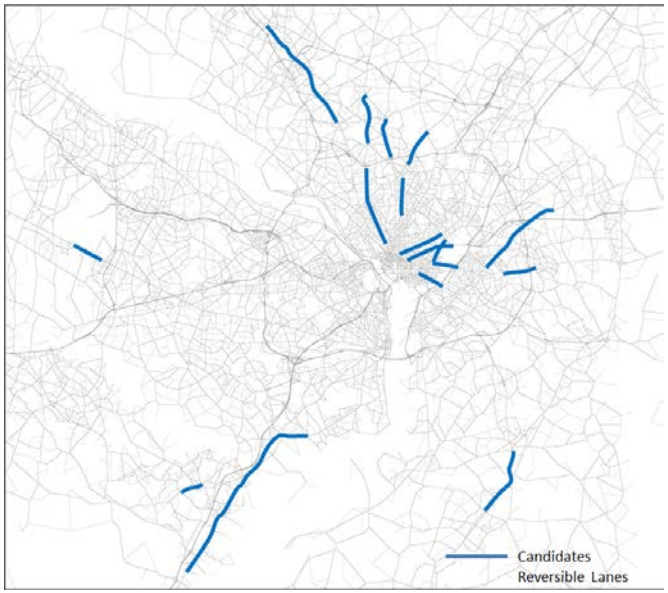


Figure 5. Candidate Facilities for Reversible Lanes (Source: Sabra Wang and Associates)

Demand-Responsive Services – for persons with limited mobility and general population.

Land Use – 2040 CLRP Round 9.0 Cooperative Land Use Forecasts are being used without any change.

Analysis Approach – Estimated benefits by application of the strategies described above are being coded in the regional model by increasing the effective capacities of the segments on the selected corridors. The increased capacity will reflect the cumulative operational improvements expected to accrue from the strategies applied, based on available literature/studies. A post mode choice assignment will then be carried out using the 2040 CLRP vehicle trip tables as inputs. Improvements to Demand Responsive Services for persons with disabilities are being explored and its potential impacts to targeted markets will be done with a separate off model data and analysis

Enhanced Incident Management, Active Traffic Management (ATM) & Integrated Corridor Management (ICM) – Increased effective capacity on selected major arterials, expressways, and parkways, including:

- I 495
- I 270
- ICC
- Baltimore Washington Parkway
- George Washington Parkway
- US 50, VA 7, MD-355, MD-210 and VA 28.

Initiative 3: Additional Northern Bridge Crossing /Corridor

New Northern Bridge Crossing – New toll road (about 14 miles long) between VA28/VA 7 junction and I 270/I-370 junction (MD-200/Intercounty Connector) across Potomac River, 3-lanes each direction (to connect with existing 3-lane per direction facilities). Parkway-style facility (similar to Intercounty Connector) with no interchanges between the above terminal points. The per-mile toll rates from MD-200 is assumed on the new toll road connection.

New Express Bus Service – New express bus services connecting activity centers along the corridor (Rockville-King Farm-Research Center-Shady Grove to/from Dulles Town Center, Route 28 Central/South, Innovation Center at 20 minute peak, 30 minute off-peak headways. Existing fare pricing is assumed for the new express bus service.

Land Use – 2040 CLRP Round 9.0 Cooperative land Use Forecasts were altered by assuming modest increase in households and jobs in areas with existing development areas within Montgomery and Loudoun Counties impacted by the new facility. About 8,900 households and 16,200 jobs (about 0.4% and 0.3% of TPB Planning Region totals, respectively) will be added to these areas with reduction in other parts of the planning area proportionate to anticipated growth in the CLRP Round 9.0 Cooperative Land Use Forecasts. The new households and jobs in the corridor will be added based on accessibility across the bridge using an initial model run, as below:

- 5% increase in households and employment in Traffic Analysis Zones (TAZs) with a 55-minute or less travel time between Loudoun and Montgomery County
- 3.5% increase in households and employment in TAZs with a 56- to 60-minute travel time between Loudoun and Montgomery County
- Proportional reductions in all other TAZs (approximately 0.3%) to maintain normalized regional totals

Approximately 60% of the job shift and 30% of the household shift are to activity centers in the corridor.

Analysis Approach – Add new 6-lane toll corridor and express bus service, along with modified land use, to the regional model; run the model analysis.

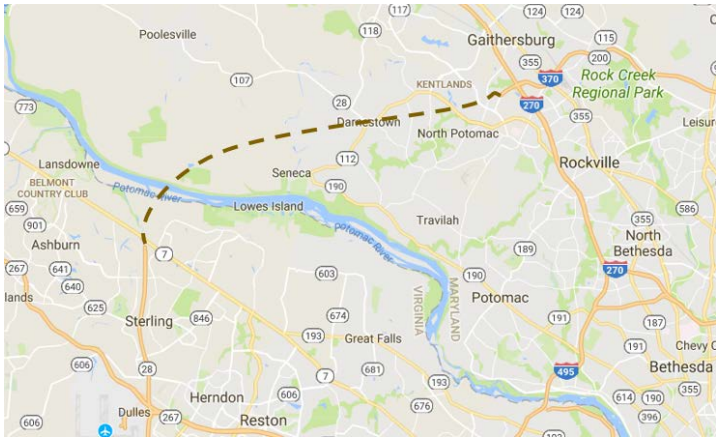


Figure 6. General Connection Points for New Corridor

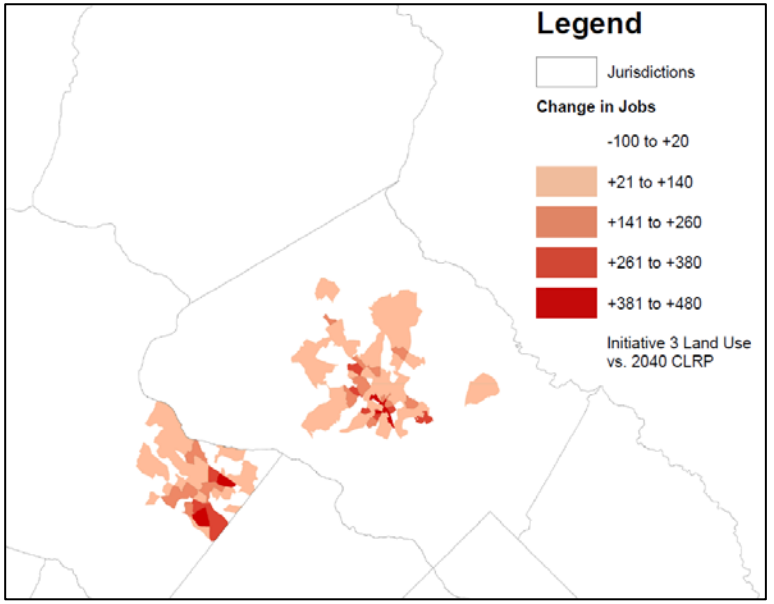


Figure 7. Location of Assumed Increase in Jobs in the Corridor (Source: Fehr & Peers)

Initiative 4: Regionwide Bus Rapid Transit and Transitways

Bus Rapid Transit/Transitway Networks – Additional bus rapid transit (BRT)/transitway networks in Montgomery County, Prince George's County, Northern Virginia (TransAction 2040), DC, and a transitway from Branch Ave to Waldorf. *These lines are in addition to those already in the CLRP, which include: DC streetcar (Union Station-Georgetown), Corridor Cities Transitway, Crystal City Transitway Northern Extension, US-1 BRT (Huntington Metro to Woodbridge), West End Transitway (Van Dorn Metro to Pentagon Metro), and Tiger Grant Bus Priority Improvements.*

DC:

- Georgia Ave/9th St (Takoma Park-Buzzard Pt)
- Waterfront- Capitol South Metro
- 16th St (Silver Spring-McPherson Sq)
- Minnesota Ave/11 St (E. Capitol St-Eastern Mkt),
- Nebraska/Military Rd/Missouri Ave/S. Dakota (Tenleytown-Michigan Park)
- U Street/ Florida Ave/ 8th Street (Woodley Park-Navy Yard)
- Wisconsin Ave (Tenleytown-Georgetown)
- N. Capitol (McMillan-Union Station)

Maryland:

- Georgia Avenue North / Georgia Avenue South
- MD-355 North / MD-355 South
- Randolph Road (US-29 to White Flint)
- New Hampshire Avenue
- North Bethesda Transitway (White Flint Metro - Montgomery Mall)
- University Blvd (Wheaton – Takoma/ Langley Transit Center)
- US-29 (Columbia-Silver Spring)
- Veirs Mill Rd (Rockville-Wheaton)
- US-1 (Arundel Mills-College Park)
- US-1 (Greenbelt-Konterra)
- MD-5 / US-301 (White Plains-Branch Ave)
- US-50 (Bowie-New Carrollton)
- University Blvd/Riggs Rd/MD-410/MD-201/MD-450 (Bladensburg-Takoma-Langley

Virginia:

- VA-28 (Manassas to Dulles Town Center)
- US-29 (Fair Oaks Mall to Rosslyn)
- US-50 (Dunn Loring Metro to Rosslyn)
- VA-236/US-50 (King Street Metro to Fair Oaks Mall)
- VA-7 (Spring Hill Metro to West End Transitway)
- Gallows Rd/Annandale Rd (Tysons - Annandale)
- Columbia Pike (Pentagon City - Annandale)

Multi-State:

- MD-4/Penn Ave (Upper Marlboro-Eastern Market),
- MD-210/S. Capitol SW (Byan's Rd-Navy Yard),
- MD-5/Nat'l Harbor/King Street Metro

Existing local bus/streetcar fare pricing is assumed for the new BRT/ Transitways.
Initiative also includes improved bicycle and pedestrian access.

Land Use – 2040 CLRP Round 9.0 Cooperative Land Use Forecasts were adjusted to have modest increase in employment and household densities in zones with new services, relocating employment and housing from outside activity centers within jurisdictions. Increase densities in TAZs with new BRT to 5 households/acre and 30 jobs/acre while maintaining the regional control totals

Analysis Approach – The new BRT/ Transitways with the stops are being coded in the MWCOG Model. The bicycle/pedestrian boarding mode shares to the BRT were altered in the MWCOG model to represent increased bike/ped accessibility to the BRT. A post distribution mode choice and assignment will be carried out using the person trip tables from the 2040 CLRP model.

Initiative 5: Regional Commuter Rail Enhancements

Improvements to MARC and VRE Commuter Rail Systems – Expand upon commuter rail enhancements already in CLRP (which includes 3 new stations on extended Haymarket branch of Manassas VRE line, and increase in MARC and VRE capacity, frequency, and additional reverse peak service).

Additional Improvements on top of CLRP:

Improvement	Notes
Upgrading all 60-min, peak-time headways in the CLRP to 30-min headways.	Applies to both MARC and VRE systems.
Upgrading all 30-min headways in the CLRP to 20-min headways.	Applies to both MARC and VRE systems.
Establishing off-peak service on all MARC and VRE lines, if not already in CLRP.	All off-peak service will run every 60 minutes.
Run-through services of the MARC Camden and Penn lines with VRE to extend to Alexandria.	These two lines have the most potential for run-through service
Improved bicycle and pedestrian connections and access improvements to rail stations	N/A

Note: Existing fare structures and pricing are assumed

Land Use – 2040 CLRP Round 9.0 Cooperative Land Use Forecasts are being without any change.

Approach – The increased services and run-through service into network is being coded to estimate potential ridership increase and mode shifts. A post distribution mode choice and assignment will be carried out using the person trips from the 2040 CLRP model. Utilize estimating ridership increased forecast figures from MARC and VRE to validate/adjust the results. The additional trips due to interlining will be incorporated into the VRE and MARC totals.

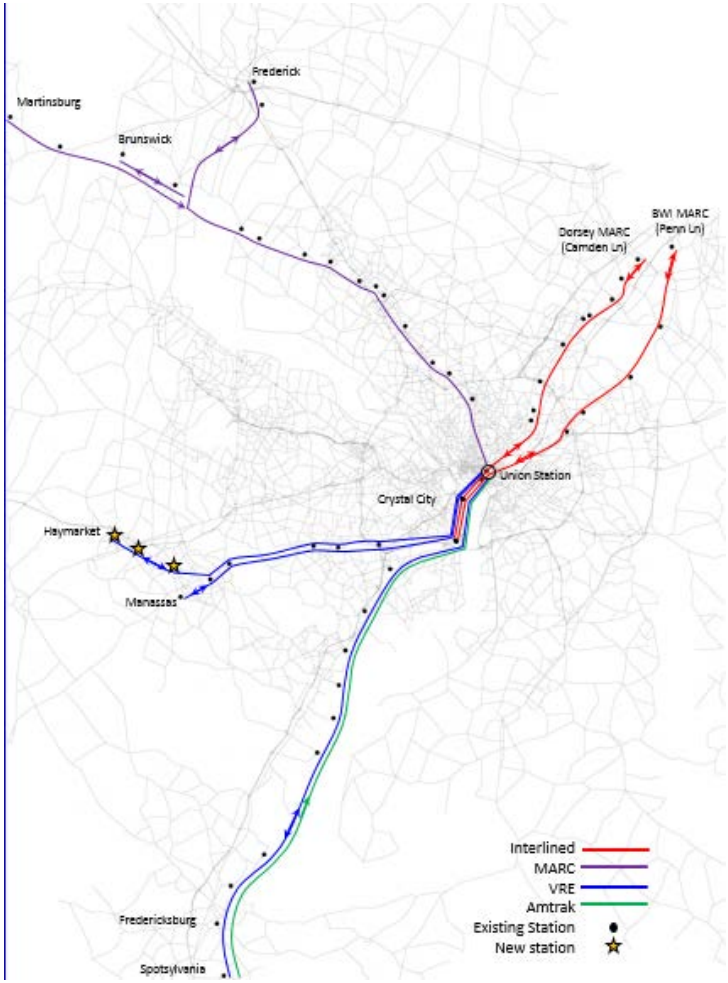


Figure 8. Commuter Rail System being Analyzed

Initiative 6: Metrorail Regional Core Capacity Improvements

Core Capacity Improvements – 100% 8-car trains, and additional stations and station improvements to increase core system capacity

Improvements to the Existing System

- 100% 8-car trains
- Metrorail station improvements at high-volume stations in system core
- Improved bicycle and pedestrian connections and access improvements to rail stations.

Additional Stations and Routes- In addition to the general core system improvements listed above, this initiative also expands the Metrorail system:

- Second Rosslyn station to reduce interlining and increase frequency
- New Metrorail core line to add capacity across Potomac River (New Rosslyn tunnel between Virginia and DC through Georgetown to Union Station toward Waterfront as loop, based on WMATA Momentum 2040).

Figure 9. Metrorail Core Capacity Improvements

Land Use – 2040 CLRP Round 9.0 Cooperative Land Use Forecasts will be used without any change.

Fares – Existing fare structures and pricing are assumed.

Analysis Approach – The new stations and new lines are being added to the MWCOG model network with a simplified approach. Core capacity constraint in the model were removed. Further, walking and automotive access are assumed at stations. A post distribution mode choice and assignment will be carried out using the person trips from the 2040 CLRP model.

Initiative 7: Transit Rail Extensions

Metrorail Extensions – Extensions to all existing Metro lines (except Silver), plus Purple Line Light Rail extensions. Improved bicycle and pedestrian connections and access improvements to rail stations.

Metrorail / Light Rail Line	Proposed Extension
Orange Line	Extend West-bound rails beyond Vienna-Fairfax to Centreville
Blue Line	Extend South-bound rails beyond Franconia-Springfield to Potomac Mills
Yellow Line	Extend South-bound rails beyond Huntington to Hybla Valley
Red Line	Extend Northwest-bound rails beyond Shady Grove to Germantown
Green Line	Extend North-bound rails beyond Greenbelt to South Laurel
	Add new South-bound light rail from Branch Ave to Waldorf
Purple Line Light Rail	Extend West-bound rails beyond Bethesda to Tysons (running north toward Montgomery Mall then along Beltway)
	Extend East-bound rails beyond New Carrollton to Eisenhower Avenue (with stops at Branch Avenue and National Harbor)

Note: Existing fare pricing for transit rail will be used for the extended lines with a cap on the maximum fare

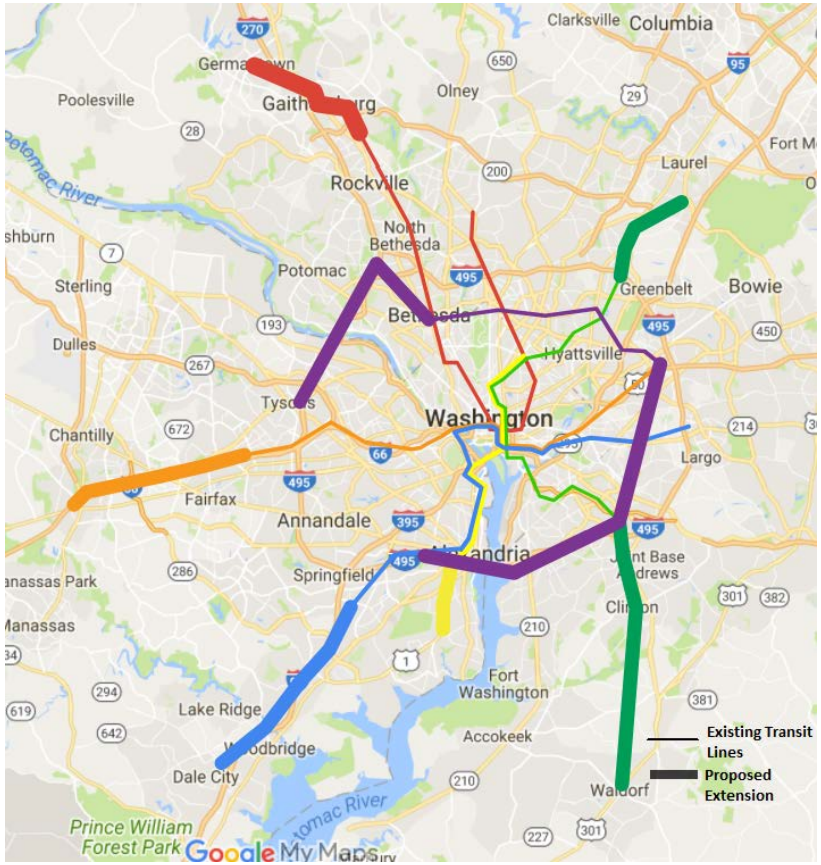


Figure 8. Existing Metrorail and Proposed Rail Extensions

Land Use Assumptions

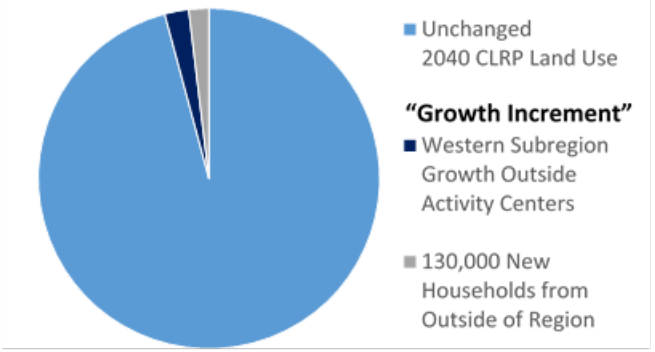
Assume some shift of land use to Activity Centers in these corridors.

- Increase densities in TAZs with new LRT to 7 households/acre and 45 jobs/acre
- Increase densities in TAZs with new Metrorail to 15 households/acre and 90 jobs/acre
- Maintain regional control totals, shift within jurisdictions

Analysis Approach – The new extended lines and new stations are being added to the transit network of the MWCOG model. Auto access and walk access were added to the new stations. A post distribution mode choice and assignment will be carried out using the person trips from the 2040 CLRP model.

Initiative 8: Optimize Regional Land-Use Balance

Land Use Assumptions – Job/Housing balance is optimized in the region by increasing the increment of future employment growth in the eastern portion of the region and reducing this increment of future growth in the western portion of region. (Note that the eastern subregion includes the eastern portions of the City of Alexandria, Arlington County, Fairfax County, Prince William County, the District of Columbia, and Montgomery County, in addition to Charles County and most of Prince George's County). Additionally, more housing is added to the region (130,000 households) to reduce the need for daily long-distance "in-commuters" living beyond the region's outer boundaries. Jobs and housing in this optimization process are reallocated to underutilized rail stations and Activity Centers with high capacity transit. Only the increment of growth between 2025 and 2040 outside of Activity Centers ("Growth Increment"; 2.3% of 2040 CLRP total) is reallocated in this Initiative.



The increment of land use growth between 2025 and 2040 ("growth increment") in the Round 9.0 Cooperative Forecast is adjusted in the following way:

1. Including the 130,000 additional households from outside the region, the regional job/household ratio in 2040 is 1.54 (including corresponding adjustments in external travel in the region).
2. The job and household growth increment is allocated between the eastern and western subregions such that both subregions reach a job/household ratio of 1.54.
3. Within each subregion, the job and household growth increment is allocated to individual jurisdictions in an iterative process with the goal of each jurisdiction approaching the regional job/household ratio of 1.54. The allocated growth increment for each jurisdiction is assigned to Transportation Analysis Zones (TAZs) to favor Activity Centers with high-capacity transit (underutilized rail stations).

Jurisdiction	2040 CLRP			Initiative 8 Land Use		
	Households	Jobs	Ratio	Households	Jobs	Ratio
Alexandria	92,898	142,735	1.54	92,898	142,735	1.54
Arlington	131,149	267,641	2.04	165,427	266,422	1.61
Charles	83,426	58,762	0.70	83,426	71,019	0.85
District of Columbia	396,233	1,011,806	2.55	485,486	1,007,702	2.08
Fairfax	530,118	908,430	1.71	578,515	903,797	1.56
Fauquier	10,806	25,296	2.34	13,140	20,961	1.60
Frederick	126,539	133,934	1.06	113,522	127,507	1.12
Loudoun	167,588	273,910	1.63	162,387	249,798	1.54
Montgomery	450,922	653,917	1.45	438,110	644,989	1.47
Prince George's	370,023	393,336	1.06	370,011	453,943	1.23
Prince William	209,020	280,546	1.34	195,800	261,440	1.34
Eastern Subregion	**1,054,764**	**1,604,039**	**1.52**	**1,107,094**	**1,702,578**	**1.54**
Western Subregion	**1,513,958**	**2,546,274**	**1.68**	**1,591,628**	**2,447,735**	**1.54**
TPB Planning Region Total	**2,568,722**	**4,150,313**	**1.62**	**2,698,722**	**4,150,313**	**1.54**

Analysis Approach – Run model analysis with modified land use and unmodified 2040 CLRP transportation network. Adjust external travel to reflect reduced regional in-flow associated with 130,000 households moved from outside the region.

Initiative 9: Transit Fare Policy Changes

Reduced Off-Peak Fares – Metrorail fares were reduced for off-peak direction during peak period and on underutilized segments. Fares were set to the non-peak rates for the off-peak direction, even during peak travel times.

Reduced Fares for Low-Income Residents – Metrorail fares for low-income residents were reduced to zero. The low-income group is assumed to be the lowest income quartile from the MWCOG model.

2040 CLRP network will be assumed for this Initiative.

Land Use – 2040 CLRP Round 9.0 Cooperative Forecasts were used without any change.

Analysis Approach – Low-income trips fares were reduced to zero in the model, and non-peak fares will be used for peak trips in the off-peak direction. A post distribution mode choice and assignment will be carried out using the person trips from the 2040 CLRP model. An alternative comparison is to use transit price elasticities to estimate change in off-peak ridership and literature to estimate change low-income ridership, and incorporate into network assignment.

Initiative 10: Amplified Employer-based Travel Demand Management

Expansion of Existing and Planned TDM Programs – This initiative assumes significant expansion beyond current TDM programs in the region, and includes new policies to expand them further at a regional scale. Policies that were included in this initiative are listed below:

- Expanded employer-based transit/vanpool benefits
  - Transit/vanpool subsidies averaging $50 per month are provided by 80% of employers
- Increase in priced parking in major activity centers.
  - 90% of parking for work-trips in activity centers is priced, with parking costs assumed to range from $4/day minimum (could reflect employer-provided parking cash out).
- Substantial increase in telework and flexible schedule adoption
  - 20% telework share (from current 10% share; this equates to an average of about 2 days per week [40% telework] for “office” employees, given overall share of office workers). Teleworkers come proportionately from other modes (drive alone, carpool, transit, etc.)

2040 CLRP network is assumed for this Initiative.

Land Use – 2040 CLRP Round 9.0 Cooperative Land Use Forecasts is used without any change.

Analysis Approach – Use sketch planning analysis (TRIMMS, spreadsheet tools) to estimate mode shifts; apply to network assignment.