National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board
TPB Long-Range Plan Task Force

FROM: Kanti Srikanth, TPB Staff Director
Michael Grant, ICF

SUBJECT: Update on Long-Range Plan Task Force Activities

DATE: November 9, 2017

This memo provides:

- Background on the Long-Range Plan Task Force
- Recent activities: performance measures selected and process determined for task force to make recommendations to TPB, as called for in the resolution establishing the task force
- Meeting expectations for the November 15 meetings of the Transportation Planning Board and the Long-Range Plan Task Force
- Next steps in the process

Summary Of Remaining Activities

Meeting Date	Focus of Meeting
November 15 - TPB 12:00–2:00 P.M.	Receive presentation of draft results of the analysis.
November 15 – Task Force 2:15–4:00 P.M.	Discuss findings and takeaways from the draft results of the analysis.
November 29 – Task Force (**IF NEEDED**) 12:00–2:00 P.M.	Additional meeting of the task force, if needed, to further discuss the findings and takeaways of the analysis.
December 6 – Task Force 2:00–4:00 P.M.	Select a set of improvement initiatives from amongst the ten initiatives analyzed to recommend the TPB endorse, as called for in resolution establishing the task force.
December 20 – TPB 12:00–2:00 P.M.	Receive task force's recommendation. Discuss and act on proposed resolution endorsing selected initiatives for future concerted effort by TPB.

BACKGROUND

At its July 19 meeting the TPB approved a set of ten initiatives for further analysis as recommended by the Long-Range Plan Task Force (see Attachment A). The initiatives consist of projects, programs and policies that go above and beyond what is contained in the currently adopted 2040 Constrained Long-Range Plan. TPB staff and consultants have been analyzing the initiatives at a sketch planning level to evaluate how they could help address the regional challenges identified by task force members (goals for the Long-Range Plan Task Force and regional challenges the task force aims to

address can be found in Attachment B). Assumptions for sketch planning analysis as well as the methods for analysis were shared with the task force and the full TPB, and can be seen in Attachment C. The task force also helped determine which performance measures will be used as part of the analysis.

RECENT ACTIVITIES: PERFORMANCE MEASURES SELECTED AND PROCESS DETERMINED FOR TASK FORCE TO MAKE RECOMMENDATIONS TO TPB

At its meeting on October 18 the task force was briefed on the final list of performance measures that will be used to present the results of the technical analysis (Attachment D). The task force also discussed "a process by which to select improvement initiatives from amongst the ten analyzed to recommend the TPB endorse for future concerted TPB action." Staff recommended a process which is described in detail in Attachment E. The task force discussed the proposed process, and came to general agreement that this process would be followed.

To briefly summarize this process: members will consider the analysis results as represented by how well each initiative addresses the 14 challenges to help them determine which of the ten initiatives they would support recommending to the TPB for its endorsement. Additionally, members will consider other factors not encompassed by the challenges and performance measures, listed in the memo in Attachment E. Members can choose any number of the ten initiatives to recommend to the TPB and would be asked to indicate their priority for each initiative. The task force will first select initiatives that were supported by at least two thirds of the members to forward to the TPB. Members will have an opportunity to consider other initiatives that fell short of the two thirds support but were rated as high priority by those who supported them. The task force may choose to take a second vote on the final set of initiatives to recommend to the TPB. In this way, the task force will arrive at a set of initiatives to recommend to the TPB for its endorsement. This process is expected to take place at the December 6 meeting of the task force.

The task force also discussed what endorsement by the TPB would mean, as well as what future concerted action by TPB would mean. The concepts put forward for the task force are summarized in Attachment E. One main theme of this discussion acknowledged that the TPB cannot and will not attempt to force member jurisdictions or agencies to adopt projects, programs or policies – but that the TPB can and should be leaders in setting goals and aiming high to improve the performance of the regional transportation system. Members of the task force encouraged the TPB to play a strong role in encouraging regional focus and cooperation on the initiatives.

EXPECTATIONS FOR NOVEMBER 15 TRANSPORTATION PLANNING BOARD MEETING

At its November 15 meeting, the TPB will be briefed on the draft results of the technical analysis of the ten initiatives. The draft results are anticipated to become available shortly before the November 15 meeting. The presentation of the draft results will focus on how each initiative performed relative to the currently adopted Constrained Long-Range Plan (CLRP) in terms of addressing the regional challenges identified by the task force. In advance of the meeting, members are encouraged to review the documents attached to this memo in order to become reacquainted with the initiatives and the activities of the task force up until now.

Members of the TPB will have the opportunity to ask clarifying questions to staff and consultants regarding their comprehension of the draft results. A more detailed discussion will take place at the subsequent meeting of the Long-Range Plan Task Force.

EXPECTATIONS FOR NOVEMBER 15 LONG-RANGE PLAN TASK FORCE MEETING

Because all members of the task force will have been present for the presentation of the draft results at the preceding TPB meeting, the task force meeting will be fully devoted to discussion amongst the task force members. This will be an opportunity for the task force members to take a deeper dive into the results, asking questions of staff and consultants and discussing the results amongst themselves. The discussion may explore topics such as the magnitude of the results versus expectations, the relative magnitudes of impacts between initiatives against the CLRP, major influencing factors of the results, plus more. At this meeting the task force will determine whether they would like to hold an additional meeting on November 29 to continue discussing the results of the analysis and to continue forming their recommendation to TPB.

NEXT STEPS

If needed, the task force will meet on November 29. The last scheduled meeting of the task force will take place on December 6, at which time the task force will execute the process as explained in Attachment E in order to select the initiatives to recommend to the TPB for endorsement at its meeting on the December 20.

LIST OF ATTACHMENTS

Attachment A: Ten initiatives for analysis

Attachment B: Goals for the Long-Range Plan Task Force and regional challenges the task force aims to address

Attachment C: The ten initiatives being analyzed, and the assumptions and methods used for sketch planning analysis

Attachment D: Performance measures including qualitative and quantitative (measures of effectiveness)

Attachment E: Process by which the LRPTF will make recommendation to TPB

ATTACHMENT A

IMPROVEMENT INITIATIVES ACCEPTED BY THE TPB FOR FURTHER TPB ANALYSIS

The 10 projects, policies, and programs ("initiatives") listed below were accepted by the TPB as recommended by the TPB's Long-Range Plan Task Force for further analysis "to determine if they make significantly better progress towards achieving the goals laid out in TPB and COG's regional governing documents." Initiatives are defined as mega-projects, mega-programs, or mega-policies of a regional scale that involve multiple components.

INITIATIVE	COMPONENTS
Multimodal Initiatives	
1. Regional Express Travel Network	• Express toll lanes network (free to HOV and transit) with added lanes where feasible on existing limited access highways (including remaining portion of the Capital Beltway, I-270, Dulles Toll Road, U.S. 50); includes expanded American Legion Bridge. • New express bus services on network (paid in part through tolls) connecting major Activity Centers.
2. Regional Congestion Hotspot Relief Program	• Application of technology and enhanced system operations strategies, such as ramp metering, active traffic management, and integrated corridor management (including transit signal priority and enhanced multimodal travel information), plus targeted capacity enhancements where feasible to address top regional congestion hotspots and adjoining connections. • Improved roadway design (such as treatments of turning movements) and reversible lanes on major roadways, as appropriate (to be identified based on strong directional flows). • Expanded regional incident management where appropriate. • Technological integration of demand-responsive services for persons with disabilities and others with limited mobility to create efficiencies of scale and improve mobility of traditionally underserved populations.
3. Additional Northern Bridge Crossing / Corridor	• New northern bridge crossing of Potomac River, as a multimodal corridor. • New express bus services connecting existing Activity Centers in this multimodal corridor.
Transit Initiatives	
4. Regionwide High-Capacity Transitways (such as Bus Rapid Transit)	• High-capacity transit networks (such as bus rapid transit (BRT)) in Montgomery County, Prince George's County, Northern Virginia (TransAction 2040), DC (moveDC), and transitway from Branch Ave to Waldorf, specifications according to jurisdiction plans. • Improved bicycle and pedestrian connections and access improvements to transit stations.

INITIATIVE	COMPONENTS
5. Regional Commuter Rail Enhancements	• VRE System Plan 2040 and MARC Growth and Investment Plan (including run-thru and two-way service on selected lines, increased frequency and hours of service). • Long Bridge corridor improvements including at least 4 tracks and bicycle-pedestrian facilities. • Improved bicycle and pedestrian connections and access improvements to rail stations.
6. Metrorail Regional Core Capacity Improvements	• 100% 8-car trains • Metrorail station improvements at high-volume stations in system core. • 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. • Improved bicycle and pedestrian connections and access improvements to rail stations.
7. Transit Rail Extensions	• Metrorail extensions to Centreville/Gainesville, Hybla Valley/Potomac Mills. • Can consider an extension(s) in MD, such as to National Harbor or north of Shady Grove (to be defined later). • Purple line extension to Tysons (west) and Eisenhower Avenue (east). • Improved bicycle and pedestrian connections and access improvements to rail stations.
Policy-Focused Initiatives	
8. Optimize Regional Land-Use Balance	• Optimize jobs/housing balance regionwide. • Increase jobs and housing around underutilized rail stations and Activity Centers with high-capacity transit. • Build more housing in the region to match employment (about 130,000 more households).
9. Transit Fare Policy Changes	• Reduced price Metrorail fare for off-peak direction during peak period and on underutilized segments. • Free transit for low-income residents.
10. Amplified Travel Demand Management for Commute Trips	New policies (e.g., employer trip reduction requirements) and programs (e.g., financial incentives) implemented at the local and regional scale to significantly reduce single-occupancy vehicle commute trip making, including: • Employer-based parking cash-out • Expanded employer-based transit/vanpool benefits • Expanded telework and flexible schedule adoption • Substantial increase in priced commuter parking in major Activity Centers.

National Capital Region
Transportation Planning Board

GOALS FOR LONG-RANGE PLAN TASK FORCE ACTIVITIES

- Provide a comprehensive range of transportation options to promote a strong regional economy and address regional congestion, accessibility, and mobility
- Provide reasonable access at reasonable cost to everyone
- Develop and maintain an interconnected system, including a healthy regional core and dynamic activity centers with a mix of jobs, housing and services in a walkable environment
- Prioritize state of good repair: Give priority to asset management, performance, maintenance and safety of all modes and facilities
- Use the best available technology to maximize system effectiveness
- Plan and develop a system that enhances and protects natural environmental quality, cultural and historic resources and communities
- Achieve better inter-jurisdictional coordination of transportation and land use planning
- Achieve enhanced funding for regional and local priorities that cannot be met with current/forecast funding sources
- Support inter-regional and international travel and commerce

---

CHALLENGES LONG-RANGE PLAN TASK FORCE SEEKS TO ADDRESS

- **Roadway Congestion:** The region's roadways are among the most congested in the nation, making it harder for people and goods to reliably get where they need to go.
- **Transit Crowding:** The transit system currently experiences crowding during peak hours and lacks the capacity to support future population and job growth without reducing ridership.
- **Inadequate Bus Service:** Existing bus service is too limited in its capacity, coverage, frequency, and reliability, making transit a less viable option, especially for people with disabilities and limited incomes.

- **Unsafe Walking and Biking:** Too few people have access to safe pedestrian and bicycle infrastructure or live in areas where walking and bicycling are not practical options for reaching nearby destinations.

- **Development Around Metrorail:** Too many Metrorail stations, especially on the eastern side of the region, are surrounded by undeveloped or underdeveloped land, limiting the number of people who can live or work close to transit and leaving unused capacity in reverse-commute directions on several lines.

- **Housing and Job Location:** Most housing, especially affordable housing, and many of the region's jobs are located in areas outside of Activity Centers where transit, bicycling, and walking are not safe and viable options.

- **Metrorail Repair Needs:** Deferred Metrorail maintenance over the years has led to unreliability, delays, and safety concerns today, as well as higher maintenance costs.

- **Roadway Repair Needs:** Older bridges and roads are deteriorating and in need of major rehabilitation to ensure safe, reliable, and comfortable travel for cars, trucks, and buses.

- **Incidents and Safety:** Major accidents and weather disruptions on roadways and transit systems cause severe delays and inconvenience. Reducing injuries and fatalities for all users of the transportation system must be prioritized, with particular focus on protecting vulnerable users.

- **Pedestrian and Bicyclist Safety:** The number of bicycle and pedestrian fatalities each year is holding steady even as the number of vehicle fatalities has declined steadily.

- **Environmental Quality:** Increasing amounts of vehicle travel resulting from population and job growth could threaten the quality of our region's air and water.

- **Open Space Development:** Wildlife habitat, farmland, and other open spaces are threatened by construction of new transportation facilities and residential and commercial development.

- **Bottlenecks:** Bottlenecks on the highway and rail systems cause delays in inter-regional travel for both freight and passengers, hurting the region's economic competitiveness.

- **Travel Time Reliability:** Travel times to and from the region's airports are becoming less reliable for people and goods movement.

Memorandum

To: Long-Range Plan Task Force

From: ICF Team and TPB Staff

Date: September 14, 2017

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

---

Following Transportation Planning Board's (TPB) acceptance 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.

The ten initiatives focus on projects, policies, and programs that go above and beyond what is contained in the current 2040 CLRP. An interactive map available at https://gis.mwcog.org/webmaps/tpb/clrp/2016clrp/ shows both highway and transit projects included in 2040 CLRP up to the 2016 amendment. The ICF team and TPB staff utilized the specific language on the initiatives approved by the TPB, together with analyses from the previous "all build" and aspirations scenarios, and supporting information to develop assumptions for each initiative that expand upon the 2040 CLRP as the baseline for analysis. While the assumptions associated with these ten initiatives build upon previously identified concepts, they are not constrained by local plans and projects. The assumptions are generally aggressive and broad in scope, reflecting the desire to explore concepts that could have a demonstrated regional impact on system performance.

While the initiatives have been defined with some specific parameters for analysis purposes; it is important to note that the analysis is being conducted at a sketch planning level to provide order-of-magnitude and generalized assessments of impacts across various performance criteria. The analysis will not assess the specifics of individual project components and, because of the sketch-level analysis, changes in detailed assumptions will not dramatically alter the regional results. The results will provide information on the potential effects of these regional initiatives and inform selection of initiatives that are worth further study, which would explore more detailed analysis of project, program, and policy details.

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.

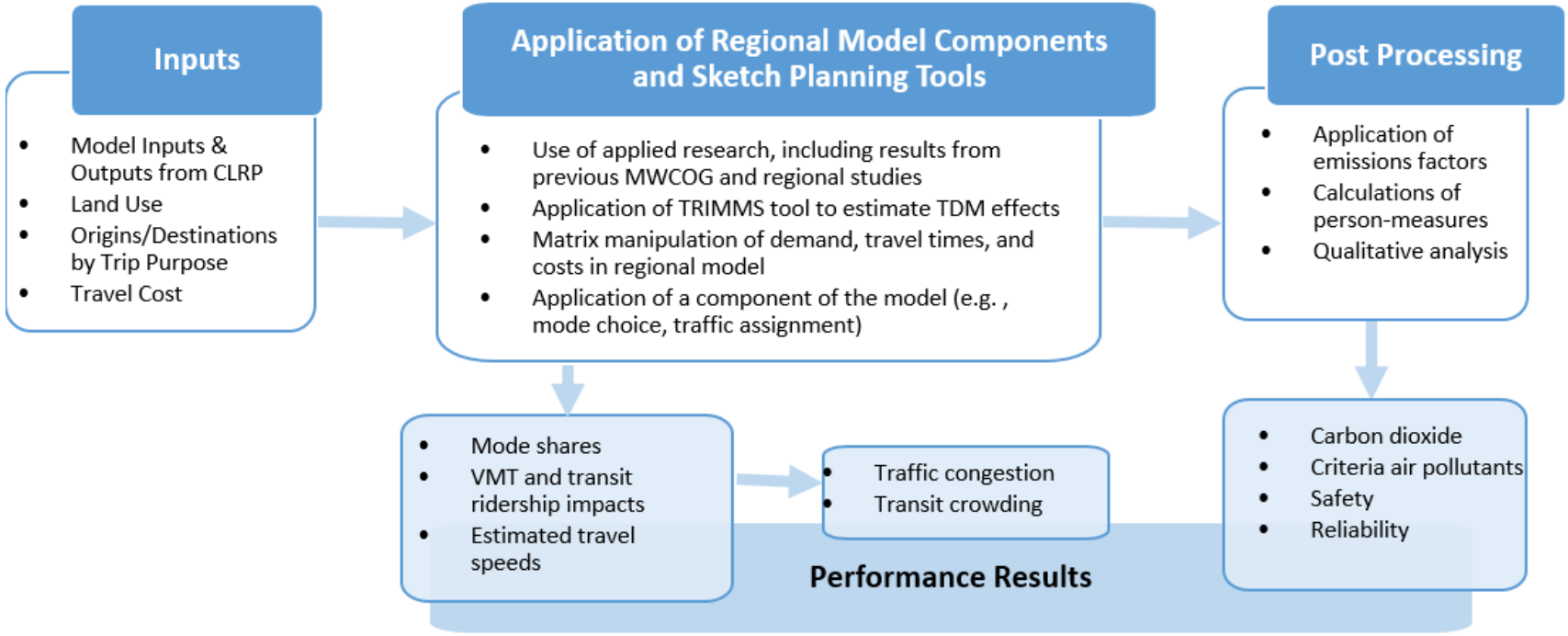


Figure 1: General Analysis Approach

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. The assumptions are guided and constrained by the descriptions that the task force approved and the TPB accepted, which we provide below for your reference. The following pages summarize the related assumptions related to land use, transportation infrastructure and services, and policies all of which build off upon the 2040 CLRP as the foundation.

Initiative	***Components***
1. Regional Express Travel Network	• Express toll lanes network (free to HOV and transit) with added lanes where feasible on existing limited access highways (including remaining portion of the Capital Beltway, I-270, Dulles Toll Road, U.S. 50); includes expanded American Legion Bridge. • New express bus services on network (paid in part through tolls) connecting major Activity Centers.
2. Regional Congestion Hotspot Relief Program	• Application of technology and enhanced system operations strategies, such as ramp metering, active traffic management, and integrated corridor management (including transit signal priority and enhanced multimodal travel information), plus targeted capacity enhancements where feasible to address top regional congestion hotspots and adjoining connections. • Improved roadway design (such as treatments of turning movements) and reversible lanes on major roadways, as appropriate (to be identified based on strong directional flows). • Expanded regional incident management where appropriate. • Technological integration of demand-responsive services for persons with disabilities and others with limited mobility to create efficiencies of scale and improve mobility of traditionally underserved populations.
3. Additional Northern Bridge Crossing / Corridor	• New northern bridge crossing of Potomac River, as a multimodal corridor. • New express bus services connecting Activity Centers in this new multimodal corridor.
4. Regionwide Bus Rapid Transit and Transitways	• Bus rapid transit (BRT)/transitway networks in Montgomery County, Prince George's County, Northern Virginia (TransAction 2040), DC, and transitway from Branch Ave to Waldorf, specifications according to jurisdiction plans. • Additional DC streetcar line (north-south) as complement to network. • Improved bicycle and pedestrian connections and access improvements to transit stations.

Initiative	*Components*
5. Regional Commuter Rail Enhancements	• VRE System Plan 2040 and MARC Growth and Investment Plan (including run-thru and two-way service on selected lines, increased frequency and hours of service). • Long Bridge corridor improvements including at least 4 tracks and bicycle-pedestrian facilities. • Improved bicycle and pedestrian connections and access improvements to rail stations.
6. Metrorail Regional Core Capacity Improvements	• 100% 8-car trains • Metrorail station improvements at high-volume stations in system core. • 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. • Improved bicycle and pedestrian connections and access improvements to rail stations.
7. Transit Rail Extensions	• Metrorail extensions to Centreville/Gainesville, Hybla Valley/Potomac Mills. • Can consider an extension(s) in MD, such as to National Harbor or north of Shady Grove (to be defined later). • Purple line extension to Tysons (west) and Eisenhower Avenue (east). • Improved bicycle and pedestrian connections and access improvements to rail stations.
8. Optimize Regional Land-Use Balance	• Optimize jobs/housing balance regionwide. • Increase jobs and housing around underutilized rail stations and Activity Centers with high-capacity transit. • Build more housing in the region to match employment (about 130,000 more households).
9. Transit Fare Policy Changes	• Reduced price Metrorail fare for off-peak direction during peak period and on underutilized segments. • Free transit for low-income residents.
10. Amplified Travel Demand Management for Commute Trips	New policies (e.g., employer trip reduction requirements) and programs (e.g., financial incentives) implemented at the local and regional scale to significantly reduce single-occupancy vehicle commute trip making, including: • Employer-based parking cash-out • Expanded employer-based transit/vanpool benefits • Expanded telework and flexible schedule adoption • Substantial increase in priced commuter parking in major Activity Centers.

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 the Network

Facility	#HOT lanes*	Notes
I-95 (VA)	2-3^	*Existing/in 2040 CLRP*
I-395 (VA) to DC line	3^	*Existing/in 2040 CLRP*
I-66 outside Beltway (VA)	2	*In 2040 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

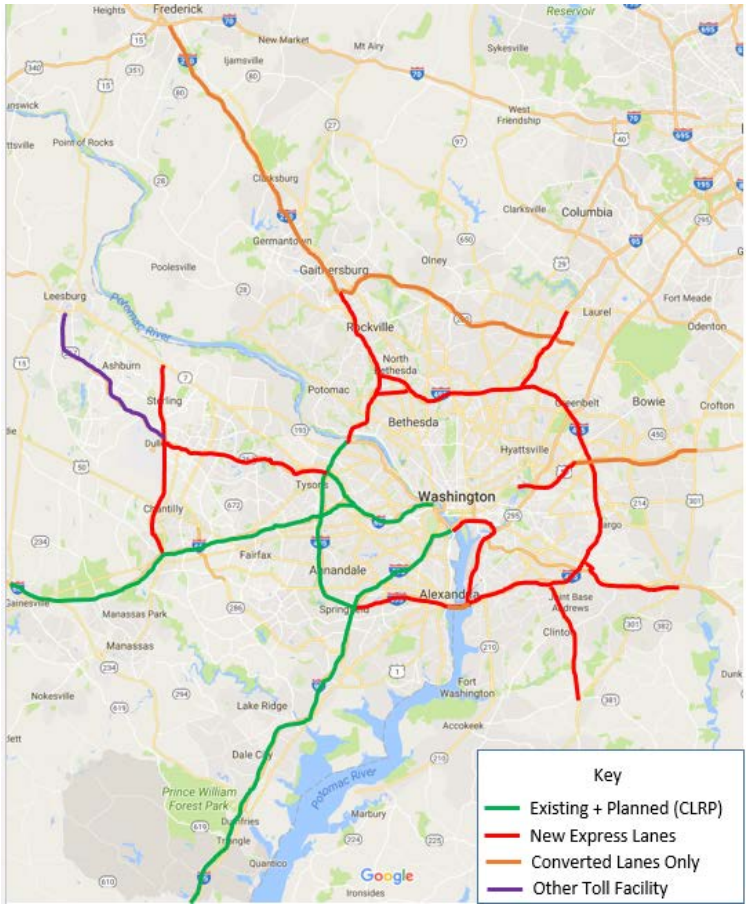


Figure 2. Express Lane Network

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).

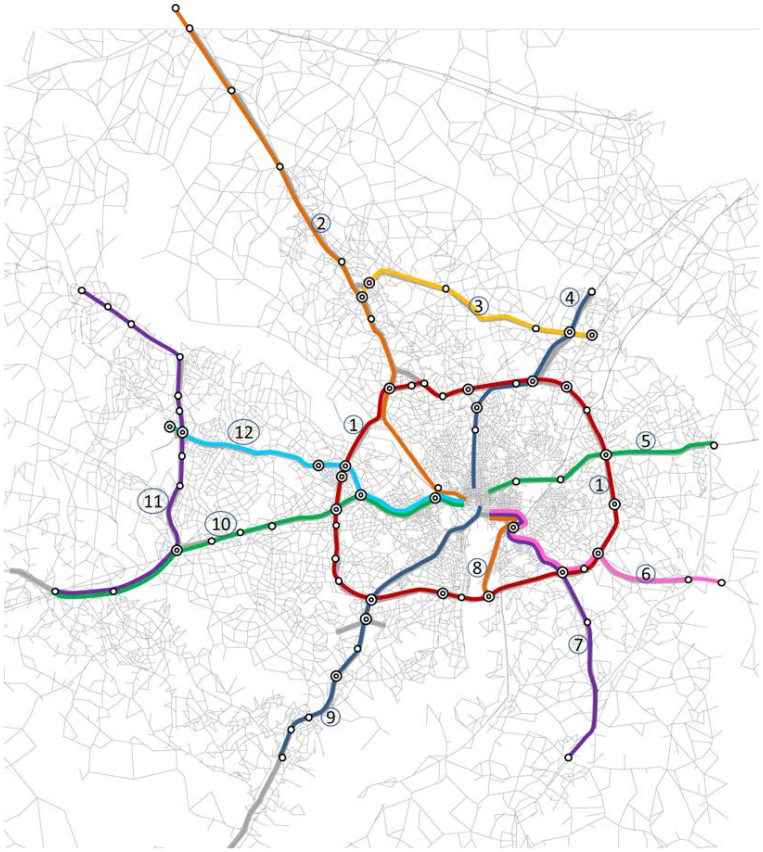


Figure 3. Express Bus Network

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

Hotspot 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 hotspots 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.

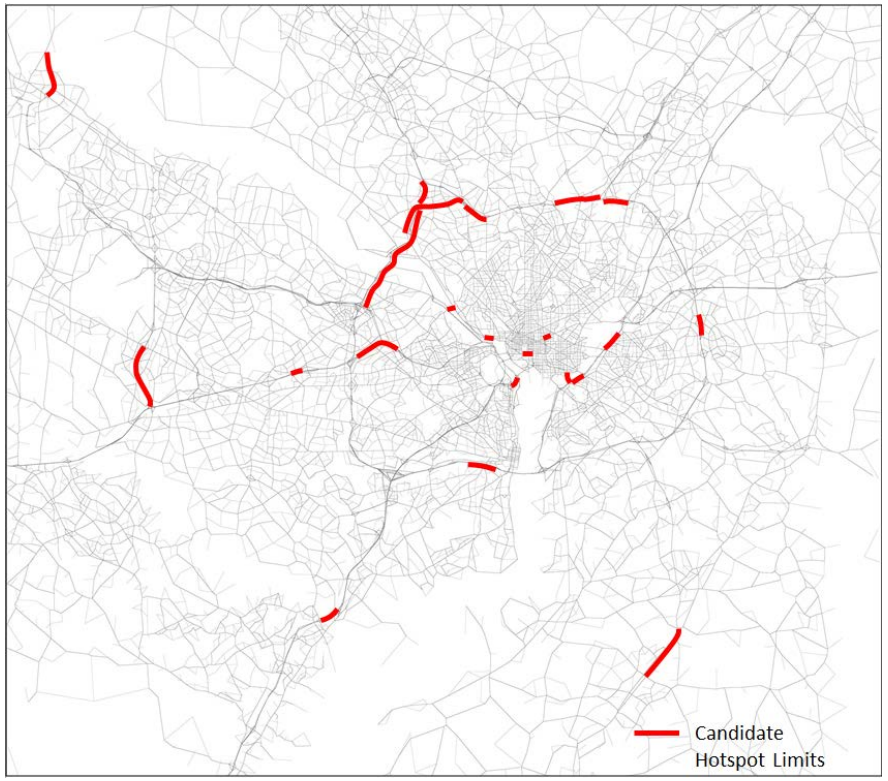


Figure 4. Targeted Hotspot Relief Locations (Source: Sabra Wang and Associates)

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

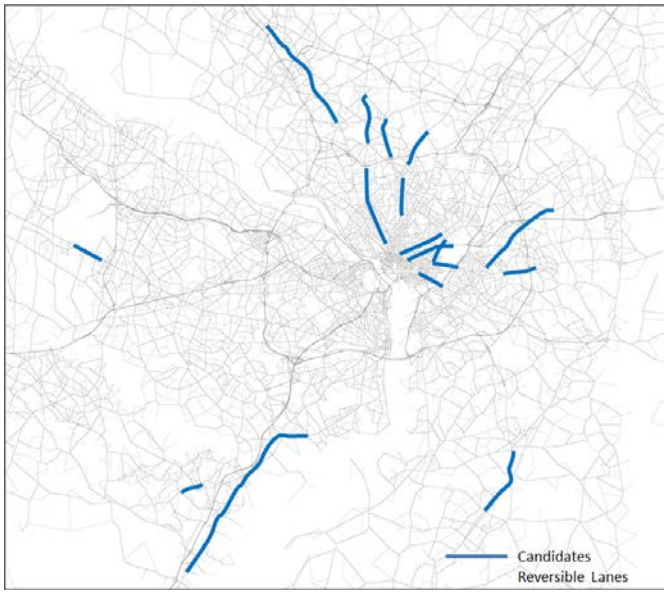


Figure 5. Candidate Facilities for Reversible Lanes (Source: Sabra Wang and Associates)

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.

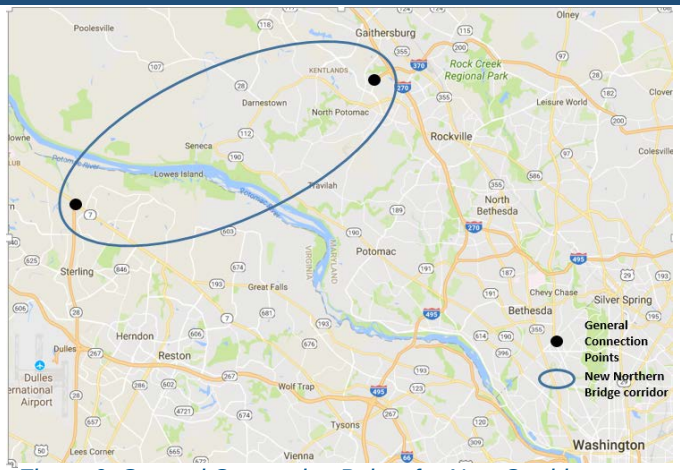


Figure 6. General Connection Points for New Corridor

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.

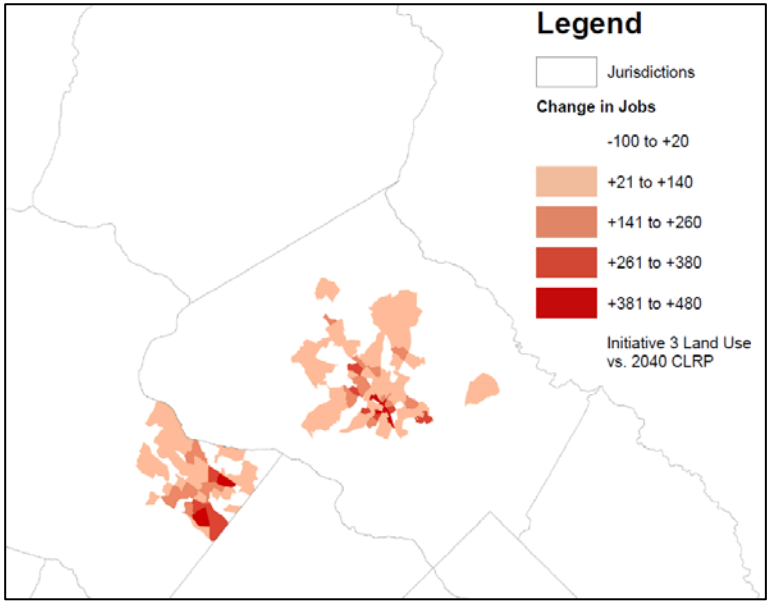


Figure 7. Location of Assumed Increase in Jobs in the Corridor (Source: Fehr & Peers)

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.

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 2040 CLRP (which includes an increase in MARC and VRE capacity, frequency, and additional reverse peak service, as well as 3 new stations on an extended Haymarket branch of the Manassas VRE line (Although this extension is not planned to be included in the updated CLRP, it is part of the 2040 CLRP that is forming the base for this analysis).

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.

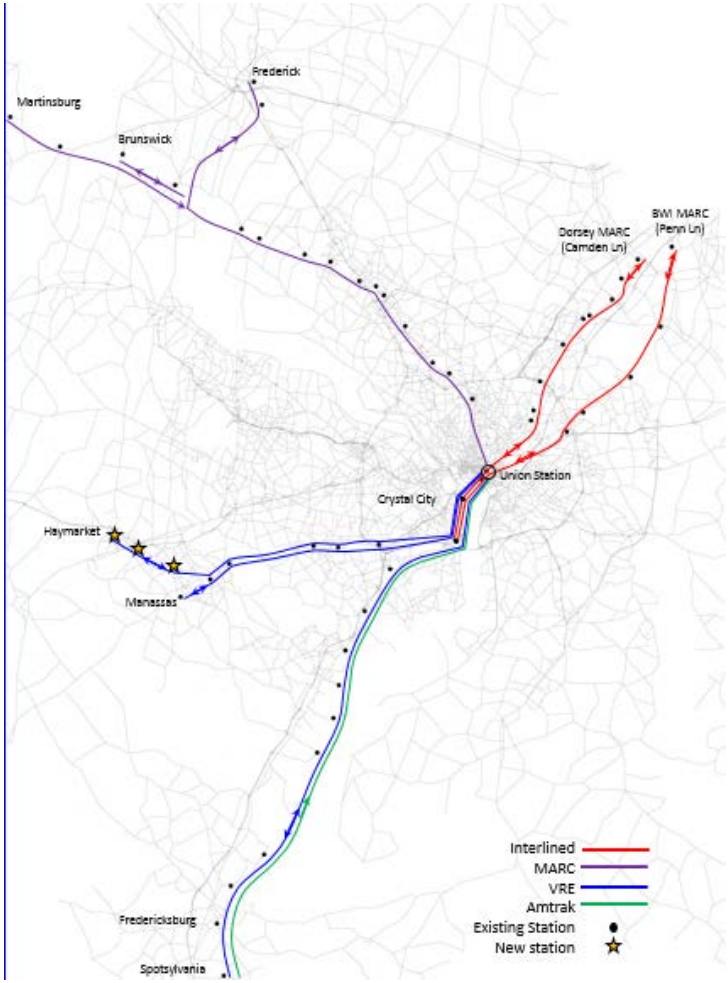


Figure 8. Commuter Rail System being Analyzed

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

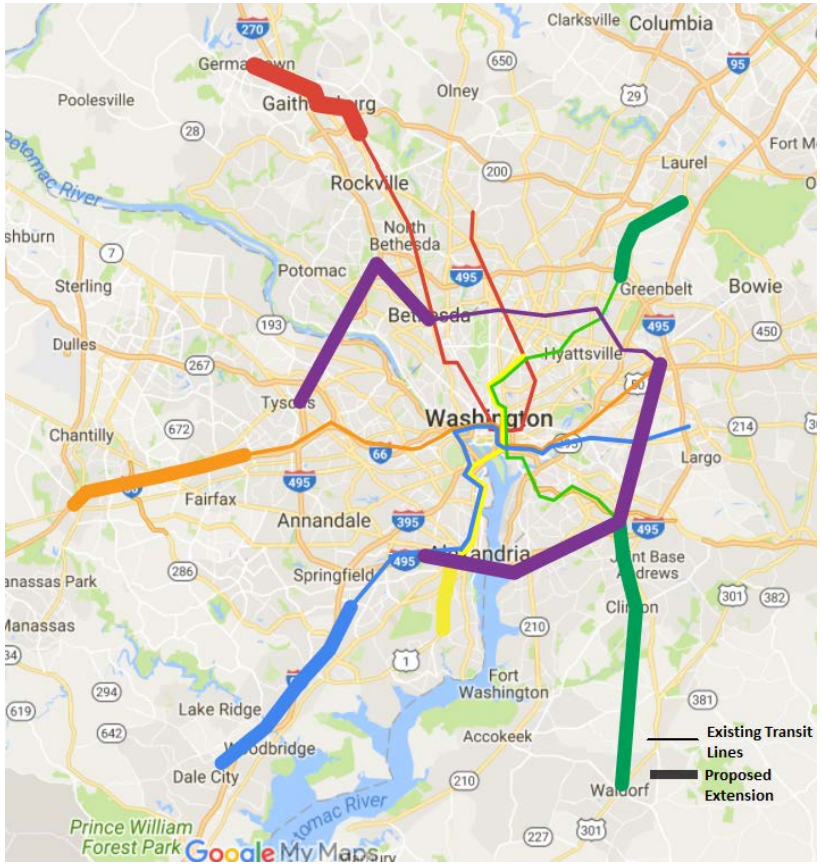


Figure 8. Existing Metrorail and Proposed Rail Extensions

Land Use Assumptions

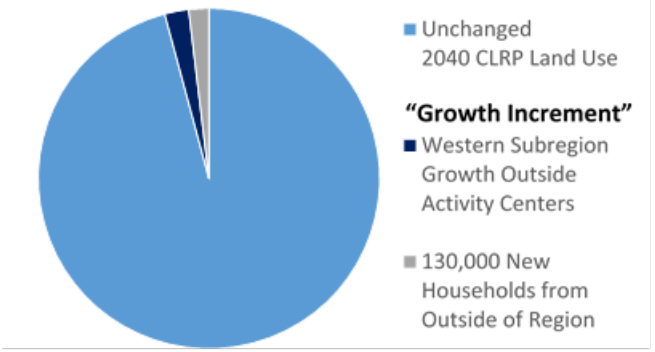
Assume some shift of land use to Activity Centers in these corridors.

- 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 – The focus of this initiative is to achieve better jobs-housing balance in the region. This initiative encourages development near and around underutilized premium transit stations. A better jobs/housing ratio is achieved 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.

Memorandum

To: TPB Long-Range Plan Task Force

From: ICF Team and TPB staff

Date: October 12, 2017

Re: Selected Measures of Effectiveness for Long-Range Plan Task Force Study

---

This memo includes revisions and updates to the recommended MOEs in response to feedback received at the task force's September meeting. In instances where the input could not be addressed as part of the MOE, the memo describes how we plan to respond to the suggestion.

Desired MOE Characteristics

It is useful to recall the characteristics of the MOEs that are being sought on several desired outcomes:

1. The MOEs should address the regional goals and challenges that the task force hopes these initiatives will address, which articulate the specifics of the task force's dissatisfaction with the anticipated long-term performance of the transportation system in the CLRP.
2. The same MOEs will be reported for each initiative and will be reported at the regional level, and no MOEs will be reported at a jurisdictional or sub-regional level.
3. The MOEs should reflect best practices in measuring what matters to the public and transportation system performance outcomes.
4. The number of MOEs should be manageable (ideally no more than about 12-16) to facilitate comparisons and clearly communicate the most important issues to the region. The number of MOEs currently shown may be more than is appropriate for final reporting, and the ICF team seeks the task force's input on whether to prioritize or eliminate any.
5. For some MOEs, it may be more meaningful to present the final results as a percentage change from the CLRP rather than reporting raw numbers.
6. Finally, the MOEs must be assessable within the context of the rapid sketch planning-level analysis being conducted. Quantifiable measures that would take significant

time to develop or calculate cannot be used in the context of this study timeframe, and qualitative ratings will be used where quantified figures cannot be developed.

MOEs Selected For Use

The table below lists the selected MOEs which reflect regional goals and challenges, as well as best practices. They also represent what can be generated under the sketch planning framework and schedule adopted for the analysis. As discussed during the task force's September meeting, a combination of quantitative and qualitative assessments of the MOEs will be provided to compare how each initiative performs relative to the others. Additionally, details on how each MOE is calculated will be discussed in the final report.

Measures of Effectiveness
1. Travel time (average travel time per trip for each mode)
2. Traditional congestion (vehicle hours of delay)
3. Accessibility by transit (% change in # of jobs accessible within 45 min transit commute)
4. Accessibility by auto (% change in # of jobs accessible within 45 min car commute)
5. Mode share for work trips (non-single occupant vehicle, transit)
6. Daily vehicle miles traveled (VMT) or VMT per capita
7. Rail transit crowding (qualitative)
8. Transit options for households (share of households in high capacity transit zones)
9. Transit options for employment (share of jobs in high capacity transit zones)
10. Reliable trips (share of trips on reliable modes – express lanes, BRT and transit)
11. Access/reliability to interregional hubs (major airports and Union Station, qualitative)
12. Mobile/on-road emissions (VOC, NOx, and CO2)
13. Water quality/habitat (qualitative)
14. Open space development (qualitative)
15. Safe walking and biking options (qualitative)
16. Metrorail repair needs (qualitative)
17. Roadway repair needs (qualitative)

The following section summarizes the response to specific questions/suggestions received during the task force's September 18, 2017 meeting.

- Travel times: The analysis will focus on work purpose trips on a typical weekday. The report will describe how each MOE is being measured.

- Reliable trips: This measure is a surrogate for a more direct measurement of travel reliability that is not possible with sketch planning tools. The measure will represent the proportion of typical weekday work trips that will be made on a relatively reliable mode of travel such as transit on a dedicated travelway or vehicles using express toll facilities.

- Mode share: This measure will provide the share of a typical weekday work trips as single occupant vehicles, rideshare (carpool/vanpool) and transit (bus and rail).

- Airport reliability/access: This was proposed as an experimental measure intended to represent reliable intercity travel into and out of the region's airports. Reliable access to airports is explicitly identified as one of the challenges the region faces. As discussed during the September meeting, the team acknowledges that Union Station would be another key facility that facilitates intercity travel. The team believes that this measure could more aptly be titled Access/reliability to interregional hubs and include the major airports and Union Station. After considering the options for developing a quantitative assessment for this measure, the team has concluded that analytical options available will not be viable within the project timeframe. Instead, we will present a qualitative assessment of how each initiative would change access and reliability to the airports and Union Station.

- Rail transit crowding: At the last task force meeting, it was noted that increasing transit ridership is one of the priorities of the TPB, in addition to reducing transit crowding. Therefore, reducing transit crowding should not come at the expense of transit ridership but through enhancements to transit capacity in areas facing crowded conditions. After further examination of analytical options for developing a quantitative estimate of crowding within transit vehicles (particularly Metrorail) the team has concluded that it will not be viable within the project timeframe to develop a quantitative measure of transit crowding impacts for all ten of the initiatives. Instead, the team will present a qualitative assessment of how each initiative will affect rail transit crowding.

- Transit options: These measures will capture the improvement in access to high-capacity transit by households and by jobs. For this analysis, high-capacity transit will include Metrorail. Commuter rail, BRT and Light rail, as is standard in COG's other studies. The list of MOEs distributed to the task force during its September meeting had erroneously referred to high-capacity transit as "high-quality" transit, and this has been corrected.

- Right-of-way needs: Given the conceptual nature of the various infrastructure improvement initiatives and the lack of specific alignment and engineering information, we will not have specific enough information to produce estimates of right-of-way needs and potential community and environmental impacts as a performance measure. In recognition of the importance of these issues, however,

right-of-way needs and associated community/environmental impacts is proposed as one of the additional factors to be considered (in addition to costs and other feasibility factors) as the task force and the Board evaluates which of the initiatives the TPB may wish to endorse for future concerted action (see memo on process recommendations). For that evaluation, we will provide a general statement as to whether or not each initiative will require additional right of way.

- User costs: At the September task force meeting, several members expressed an interest in understanding how each initiative might affect user's transportation costs and transportation affordability. Although the sketch-level of this analysis will not allow us to quantitatively assess the changes in user costs as a performance measure, user costs is proposed as one of the additional factors to be considered as the task force and the Board evaluates the initiatives to endorse for future concerted action (see memo on process recommendations). We will provide a qualitative assessment of whether each initiative might tend to increase or decrease users' transportation costs.

Memorandum

To: Long-Range Plan Task Force

From: ICF Team and TPB Staff

Date: October 12, 2017

Re: Potential Processes for LRPTF and TPB to Select Among Initiatives and Factors to Consider

---

Resolution R16-2017, which established the Long-Range Plan Task Force, charges the task force to "develop a process by which the TPB will later endorse a final selection from among these [ten initiatives] for future concerted TPB action." In its October 18th meeting, the task force will discuss and finalize the process by which it will select initiatives from among the ten analyzed to recommend for TPB's endorsement. After completion of the sketch planning analysis of the initiatives, the task force will use this process in its December 6th meeting to select the initiatives to put forward for endorsement by the TPB. Both the process used and the recommendations will be presented to the TPB at its December 20th meeting for action.

This memo contains three components:

1. Definition of the intended outcomes of this process;
2. Factors to consider in selecting among initiatives; and
3. A recommended process for selecting initiatives.

Outcomes of this Process

While the TPB will determine what its endorsement means, we anticipate that it would mean that the concepts represented by the endorsed initiatives have the potential to improve the performance of the region's transportation system beyond what is anticipated by its current long-range transportation plan and deserve to be comprehensively examined for implementation. We believe that the endorsement would allow including the concepts represented by these improvement initiatives in the aspirational element of the 2018 update of the TPB's long-range plan, *Visualize 2045*.

While the TPB will determine what constitutes future concerted action, we believe that at a minimum it would involve a commitment by all TPB member jurisdictions and agencies to collaborate and undertake a further examination of the concepts represented by the endorsed initiatives to identify short- and long-term implementation actions. The intent of

such an effort is that these actions are pursued with the goal of ultimately including them in future updates to the region's long-range transportation plan.

Factors to Consider in Selecting Among Initiatives

Each task force member and the task force body as a whole will consider many factors as they compare and evaluate the initiatives. We anticipate that the members will use the measures of effectiveness (MOEs), which relate to each of the region's identified challenges, as important factors for comparing how each initiative performs relative to the others. In addition, other factors not captured in the MOEs will also be important considerations. The technical analysis will not be providing any quantitative estimates for these other factors. Staff will provide some qualitative information, where possible and as noted below, that could inform the members' consideration of the initiatives worthy of TPB's endorsement.

Measures of Effectiveness

As noted earlier, MOEs that are being analyzed (listed below) include both quantitative and qualitative measures and will reflect the regional goals and challenges.

Measures of Effectiveness
1. Travel time (average travel time per trip for each mode)
2. Traditional congestion (vehicle hours of delay)
3. Accessibility by transit (% change in # of jobs accessible within 45 min transit commute)
4. Accessibility by auto (% change in # of jobs accessible within 45 min car commute)
5. Mode share for work trips (non-single occupant vehicle, transit)
6. Daily vehicle miles traveled (VMT) or VMT per capita
7. Rail transit crowding (qualitative)
8. Transit options for households (share of households in high capacity transit zones)
9. Transit options for employment (share of jobs in high capacity transit zones)
10. Reliable trips (share of trips on reliable modes – express lanes, BRT and transit)
11. Access/reliability to interregional hubs (major airports and Union Station, qualitative)
12. Mobile/on-road emissions (VOC, NOx, and CO2)
13. Water quality/habitat (qualitative)
14. Open space development (qualitative)
15. Safe walking and biking options (qualitative)
16. Metrorail repair needs (qualitative)
17. Roadway repair needs (qualitative)

Other Factors beyond the MOEs

In addition to the MOEs, several other factors that members may wish to consider are identified below:

- *Costs of Implementation*. Public sector costs for implementing the initiatives – including potential capital and on-going operating costs – may be an important factor to consider in relation to the ability of the region to advance the initiative. The ICF team/TPB staff will provide qualitative (high-medium-low) estimates for comparing the rough order of magnitude of implementation costs. More detailed cost estimates would depend on project details that are more specific than are available at this time, including phasing, alignment, and right of way costs.
- *Affordability and User Costs*. Some of the initiatives will reduce users' transportation costs (e.g., transit fare reductions) while others will increase some costs or create options (e.g., toll roads) that might be unaffordable for low and moderate income households. In addition, congestion relief and shifts to transit can reduce vehicle operating costs. While these costs are difficult to compare and will not be quantified, the team will identify what aspects of each initiative might tend to increase or decrease users' transportation costs.
- *East-West Divide and Equitable Distribution of Benefits.* Only one initiative explicitly addresses the East-West divide, but some may appear to benefit one portion of the region over the other. Although this will not be assessed quantitatively, this may be a factor for some members to consider.
- *Right-of-Way and Community and Other Environmental Impacts*. Due to the coarse representation upon which these initiatives are being studied – which, for example, do not define specific alignments – the project team is unable to estimate detailed right-of-way costs and potential threats to environmentally sensitive areas. However, some initiatives will require new right-of-way, which may cause displacements of homes or businesses, create community impacts (e.g., noise, barrier effects), or affect environmentally sensitive areas. These and other considerations would need to be explored more in later stages, but these can be important considerations. To assist with their consideration, the team will identify whether each initiative will or will not require the acquisition of new right of way.
- *Placemaking*. In addition to effects on transportation system performance, the initiatives differ in terms of likely effectiveness in supporting transit-oriented development, mixed use development, and placemaking. To assist with this consideration, the team can identify likely positive or neutral/negative impacts.
- *Public Support and Implementation Feasibility*. Each of the members represents different constituents with different priorities. The members may want to consider whether the projects will receive support or staunch opposition from any of the jurisdictions that the project would need support from to be implementable. They may also want to consider the likelihood of passing any required supporting legislation or policies.

Relationship of Initiatives

In addition to the impacts of initiatives and other factors identified above, it may be valuable for the members to consider the relationship of initiatives to each other. For instance, some initiatives may have *synergistic effects* – meaning that some initiatives (particularly those focused on policies and programs) can help to support and enhance the effectiveness of others. In contrast, some initiatives may have *antagonistic effects* or *overlap* in ways such that implementing multiple initiatives would not generate greater benefits. For instance, this may be the case for rail and express bus services, which may serve the same or similar markets, and so combining an additional major transit service on the same corridor may tend to take ridership from the other.

Within the constraints of this effort, the team will not be able to analyze initiatives in combination, but could potentially provide a qualitative assessment of those that are mutually supportive and those that are not as part of the discussion deliberation.

Recommended Process for Selecting Initiatives

There are multiple processes available by which the task force could select from among the 10 initiatives, and for the TPB to endorse a final selection. The process below is recommended as a workable solution to come to consensus within the constraints of the time-frame of this effort.

Rules, Guidelines, and Definitions

Before finalizing the process, it will be useful for the task force to agree upon some rules, guidelines, and definitions so that the members have a common understanding. Specifically:

- **Endorsing a concept (not all individual components) –** It will be important for the TPB to keep in mind that endorsement of any of the initiatives does not mean endorsing every individual component of that initiative (for instance, it would not necessarily mean endorsement of each individual transitway facility, rail extension, or express lane facility within an initiative concept) or specific alignments. It would mean that the members believe the broad initiative concept (e.g., regional transitway expansion, a regional express lane network, etc.) is worthy of additional exploration and regional efforts to advance the concepts through further detailed project studies, program development, or policy initiatives. The meaning of TPB's endorsement would not be a mandate from the TPB for its member jurisdictions to alter their own plans, programs, or policies or to design, fund, and implement these initiatives without further study.
- **Meaning of "future concerted TPB action"** – The task force should have a common view of what endorsement for future concerted TPB action means. For instance, we recommend that endorsement means that that the TPB finds the concepts/ideas in the endorsed improvement initiatives hold promise to make significantly better progress towards achieving the goals laid out in TPB and COG's governing documents and the TPB urges its member jurisdictions to commit to undertaking a more thorough and detailed examination of these improvement concepts/ideas.

- **What constitutes sufficient support for initiatives to recommend to the TPB –** As part of developing a process to select improvement initiatives to recommend, the task force should determine what constitutes sufficient support for inclusion in the set to be recommended to the TPB. For instance, it will be important to consider whether majority support of the task force is sufficient to recommend an initiative or whether a higher standard of "consensus" is desired. (Should a majority that supports an initiative hold sway even if there is opposition, or should the goal be consensus among all members in the value of advancing an initiative?) We recommend that a higher standard than simple majority be used to ensure a reasonable degree of consensus on priority projects, programs, and policies for future action. Consequently, a 2/3 minimum threshold for support is proposed.
- **How many of the ten initiatives should the TPB endorse –** It will be valuable for the task force to consider how many initiatives to recommend, recognizing that including all ten or nearly all ten would make it challenging for the region to focus on priority projects, programs, and policies for future concerted action. That said, we do not recommend that the task force set a specific limit to the number of initiatives to move forward for TPB endorsement. Using a threshold, such as minimum 2/3 support, will likely limit the number of initiatives that result from this process, and we believe that the task force should have flexibility to advance those initiatives that the task force consensus believes should be endorsed.

Task Force Process for Selection

One option for selecting initiatives would involve the task force developing a single quantitative system where each MOE, along with other evaluation factors, would be weighted and scored, and then use that system as a means of prioritizing the initiatives. Although we considered this option, we believe that developing a common weighting system would be challenging for members with disparate interests develop. There likely would be a lot of difficulty and considerable time involved in determining and agreeing upon the weights associated with each factor and the score to assign to each measure based on the combination of qualitative and quantitative assessments.

Therefore, we recommend a simpler process building on a straw poll, in which members use their own judgment to consider each of the factors discussed above. This process would involve the following steps:

1. The task force will begin with a straw poll in which each member votes for the initiatives he/she wishes to advance. Each member would not be limited to voting for a specific number of initiatives, but could choose to support as many as he/she believes would be valuable to advance (from zero to all ten).
2. As part of the voting for initiatives, the members would assign a priority to each initiative based on their assessment of the MOEs and other factors. For instance, a member who votes to advance initiatives 10, 9 and 4 would mark which of the three initiatives would be his/her first, second and third priority. This supplemental information will be used later when determining the degree of support for the initiative to be part of the package recommended to the TPB. Voting would occur by putting numbered votes in "buckets" for each initiative, rather than a "hands up" or

visible recorded vote for each member.

3. The TPB staff will tabulate the votes to determine: a) the overall level of support to advance each initiative and identify how many of them reach a 2/3 votes threshold. Additionally, TPB staff will develop an overall score for each initiative which will be calculated by assigning 10 points for 1st priority, 9 points for 2nd priority, etc. This overall score totals will not be used as a threshold but simply to provide supplemental information for how members have prioritized the initiatives.
4. The task force will then engage in a discussion to debate the pros and cons of the various initiatives, starting with the set that reached the 2/3 threshold to determine whether all of these should be advanced, should it be whittled down, or if there may be others to add. Significant time will be provided for discussion, in which there can be a robust exchange of ideas on the perspectives and priorities of members.
5. Members can then make a motion to remove initiatives from those passing the 2/3 threshold or adding initiatives from those that did not pass the 2/3 threshold. These motions will be debated and discussed in order to come to agreement on a final set that is moved forward to the TPB as the task force's consensus recommendation.
6. The task force then may choose to hold a second round of voting to support the final list of initiatives recommended for TPB endorsement as a way to formalize the results (this could also offer an opportunity for a member to abstain or be on record against the consensus, if that is desired).

TPB Process for Endorsement

We recommend that a resolution be drafted for the TPB to endorse the consensus set of initiatives recommended by the task force. Discussion on the resolution can reflect the various considerations brought forth by the task force, as well as other perspectives that may wish to be addressed by the TPB members. The TPB's voting process will govern its action on this resolution including providing members of the Board an opportunity to make changes to the recommended set of initiatives that the full body will vote on.