

ITEM 12 – Information
February 21, 2018

Visualize 2045: Performance Based
Long Range Transportation Plan

Staff Recommendation: Briefing on Visualize 2045 and the transportation planning process through Performance Based Planning and Programming (PBPP).

Issues: None

Background: The transportation planning process involves setting goals and priorities, programming projects, and evaluating performance. The board will be briefed on a new focus of our process, which is to evaluate the progress of our plan and TIP through Performance Based Planning and Programming (PBPP). Later this year the board will need to approve targets for highway system performance, traffic congestion, CMAQ project emission reductions, and pavement and bridge asset conditions.

VISUALIZE 2045: PERFORMANCE BASED LONG RANGE TRANSPORTATION PLAN

Planning – Programming – Performance

Eric Randall, TPB Transportation Engineer

Transportation Planning Board
February 21, 2018

Agenda Item 12



Presentation Outline

- Project Planning and Implementation Process
 - Goals and Priorities
 - Performance Measures and Targets
 - Investment Plan – Projects and Programs
 - Evaluate and Report
- Visualize 2045 and Federal Performance Based Planning and Programming (PBPP)
 - PBPP Performance Areas
 - PBPP Calendar
 - Board Timeline
- Appendix: Federal PBPP Goals, Performance Measures, and Requirements

Enhanced Regional Transportation Project Planning and Implementation Process



Goals and Priorities

- Federal planning factors
- Regional goals and priorities – TPB policy documents
 - TPB Vision, Regional Transportation Priorities Plan (RTPP), and Endorsed Improvement Initiatives (Aspirational Elements)
- Jurisdictional goals and priorities – Various policy documents
 - Ex. Northern Virginia – TransAction, Suburban Maryland – Traffic Relief Plan, District of Columbia – MoveDC, WMATA – Momentum

Performance Measures and Targets

- Federal – New requirement for DOTs and MPOs (PBPP)
- Regional – TPB Long Range Plan Performance Assessment
- Jurisdictional – including use of quantitative measures and rankings for prioritization
 - VDOT – SMARTSCALE
 - NVTA – HB 599, NVTA Project Selection Criteria
 - Virginia DRPT – Capital Program Prioritization
 - WMATA – Capital and Operating Budget process
 - Maryland – Jurisdictional Priority Letters, Chapter 30
- ❖ The TPB Technical Committee received briefings throughout 2017 on the latest developments in prioritization planning

Investment Plan – Projects and Programs

- State, Regional and Local plans using Federal, State, Regional, Local funds
 - Six Year Plans, Capital Improvement Programs, Annual allocations, etc.
 - Varying approval authorities – Legislative body (General Assembly/Council), Executive (Department /Agency), Regional Authority, Governing Board Entity
 - With or Without quantitative rating process
- Regional Plan – Transportation Improvement Program (TIP)
 - Reflects State/Regional/Local investment plans
 - Assessed for fiscal constraint and air quality conformity

Evaluate - Report: Performance Targets

- The federal PBPP process includes requirements for MPOs to report on performance
 - Visualize 2045 will include a System Performance Report describing current performance and progress toward achieving targets for each performance area
 - The FY2019-2024 TIP will include an assessment of the projects and programs funded against performance targets
 - The MPO CMAQ Performance Plan will address how regional projects funded under the CMAQ Program affect the CMAQ performance measures
- The State DOTs have similar reporting requirements and will be submitting their reports to FHWA/FTA for review

Visualize 2045 and Federal PBPP

- A paradigm shift in funding decisions:
 - Investment decisions based on outcomes rather than program eligibility alone
 - Establish performance targets for desired outcomes
 - Data-driven approach for selecting and prioritizing projects for funding
 - Develop investment plan to achieve performance targets
- Monitoring performance outcomes:
 - Collect performance data
 - Assess changes to determine progress towards performance targets
 - Inform investment plan to make appropriate for future funding decisions
- The new federal PBPP process must be reflected in Visualize 2045 and the TIP
 - Improve investment decision-making
 - Improve return on investments and resource allocation
 - Improve system performance
 - Increase accountability and transparency

PBPP Performance Areas

The federal PBPP rules have five main areas of performance planning for which the TPB must set targets and program projects accordingly:

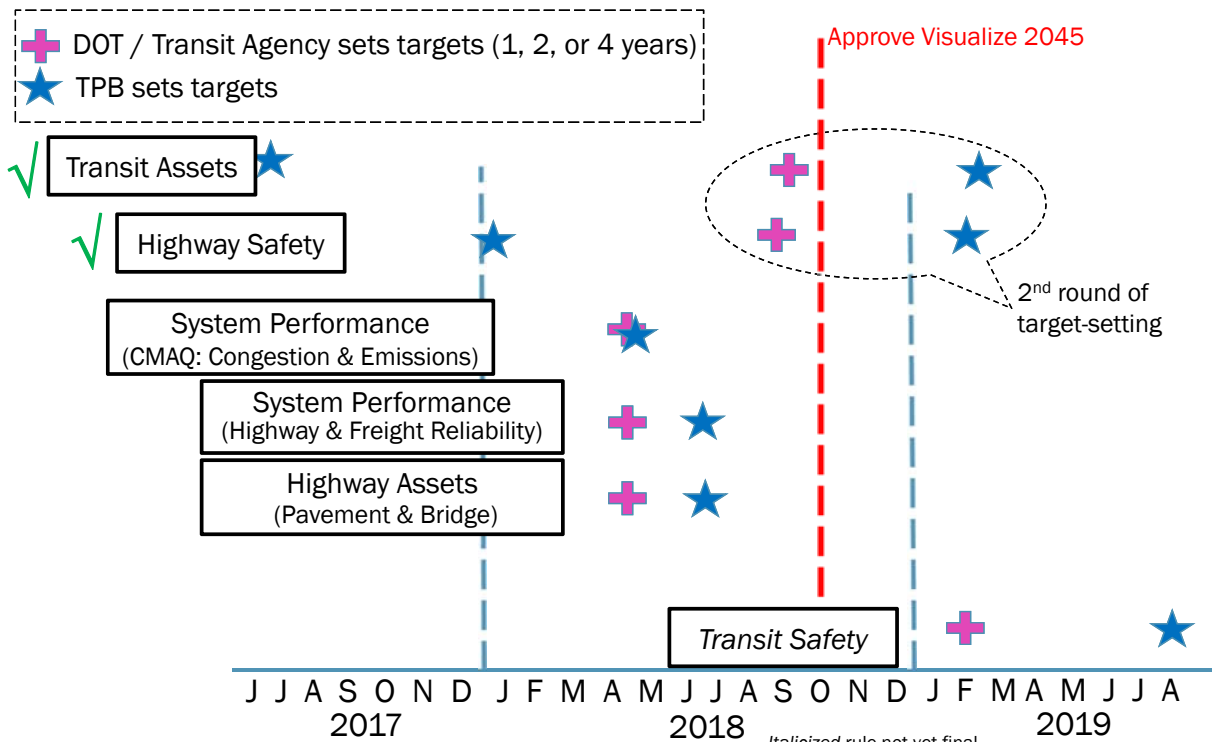
- Transit Assets
- Highway Safety
- System Performance (Highway, Freight, CMAQ Program)
- Highway Assets
- Transit Safety

Additional slides to the presentation include more detailed information:

- Formal definition of the federal PBPP process
- Federally-defined goal areas
- Details on target-setting and deadlines
- Documentation of agency roles and responsibilities

Staff recommends board members review these materials to help your understanding in upcoming months as targets are brought for your consideration and approval

PBPP Calendar: 2017-2019



Board Timeline for Federal PBPP

Completed PBPP actions:

- June 2017 – approved Transit Asset Management (TAM) targets
- January 2018 – approved Highway Safety targets

Upcoming board activities:

- February 2018 – refresh board on overall PBPP requirements
 - April 2018 – brief on draft CMAQ Program targets (traffic congestion, mode share, emission reductions)
 - May 2018 – approve CMAQ Program targets
 - June 2018 – brief on draft Highway Asset (pavement and bridge condition) targets, highway System Performance (travel time reliability, freight reliability) targets
 - July 2018 – approve Highway Asset and highway System Performance targets
- ❖ All targets will be incorporated into Visualize 2045



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What is Performance-Based Planning and Programming (PBPP)?

- The PBPP process is a requirement for MPOs, States, and providers of public transportation originating in the federal surface transportation MAP-21 and FAST Acts.
- PBPP is the **application of performance management** within the planning and programming process **to achieve desired performance outcomes** for the multimodal transportation system. PBPP includes a range of activities and products:
 - Development of **long range transportation plans**
 - Federally-required plans and processes – such as Strategic Highway Safety Plans (SHSPs), Asset Management Plans, the Congestion Management Process (CMP), and Transit Agency Asset Management and Safety Plans
 - Programming documents, including State and metropolitan Transportation Improvement Programs (STIPs and **TIPs**)

Federally Prescribed Goals

	GOAL AREAS	NATIONAL GOALS
1	SAFETY	Achieve significant reduction in traffic fatalities and serious injuries on all public roads
2	INFRASTRUCTURE CONDITION	Maintain highway system in a state of good repair
3	CONGESTION REDUCTION	Achieve significant reduction in congestion on the National Highway System
4	SYSTEM RELIABILITY	Improve efficiency of surface transportation system
5	FREIGHT MOVEMENT AND ECONOMIC VITALITY	Improve Freight Network; Support regional economic development; Rural communities access to national and international markets
6	ENVIRONMENTAL SUSTAINABILITY	Enhanced transportation system performance while protecting and enhancing natural environment
7	REDUCED PROJECT DELIVERY DELAYS	Elimination of delays on project development and delivery

Federally Prescribed Performance Measures

GOAL AREAS	PERFORMANCE MEASURES
1 SAFETY	<ul style="list-style-type: none"> Highway - Traffic Fatalities and Serious Injuries Transit – Fatalities and Injuries; Derailments; Collisions; Fires; Evacuations for life safety
2 INFRASTRUCTURE (ASSET) CONDITION	<ul style="list-style-type: none"> Roadway – Pavements and Bridges Transit – Revenue vehicles, Non revenue equipment, Track infrastructure, and Facilities/Stations
3 CONGESTION REDUCTION	Delay per capita
4 SYSTEM RELIABILITY	<ul style="list-style-type: none"> Highway - Reliable Travel Times Highway - Peak Hour Travel Times Meets Expectations Transit – Major / Other Mechanical System Failures
5 FREIGHT MOVEMENT AND ECONOMIC VITALITY	<ul style="list-style-type: none"> Reliable Truck Travel Times Interstate System Mileage Uncongested
6 ENVIRONMENTAL SUSTAINABILITY	Criteria Pollutants Emissions Reduced

Highway Safety Performance Measures

Performance Measures

(1) Number of Fatalities
(5 year rolling average)

(2) Rate of Fatalities per 100 million VMT
(5 year rolling average)

(2) Number of Serious Injuries
(5 year rolling average)

(4) Rate of Serious Injuries per 100 million VMT
(5 year rolling average)

(5) Number of Non-Motorized Fatalities and Serious Injuries
(5 year rolling average)

- Implementing Agency (State DOTs) – set 2018 targets by August 31, 2017
- TPB – approved 2018 targets on January 17, 2018
- Annual requirement: TPB’s 2019 targets will need to be approved January 2019

System Performance: Highway and Freight

	Performance Measures
National Highway System	(1) Interstate Travel Time Reliability (TTR) - Percent of person-miles traveled on the Interstate System that are reliable
	(2) NHS (Non-Interstate) Travel Time Reliability (TTR) - Percent of person-miles traveled on the non-Interstate NHS that are reliable
	(3) Greenhouse Gas Emissions - Percent Change in Tailpipe CO2 Emissions on the NHS

	Performance Measures
Freight Movement	(4) Freight Reliability (TTTR) - Percent of the Interstate System Mileage providing for Reliable Truck Travel Times

- State DOTs – set Targets by May 20, 2018
 - GHG Emissions not until September 28, 2018
- TPB – set Targets by November 15, 2018 (GHG: March 27, 2019)

System Performance: CMAQ Program (Congestion Mitigation and Air Quality)

	Performance Measures
CMAQ Program: Traffic Congestion	(5) Peak Hour Excessive Delay – Annual hours of peak hour excessive delay per capita
	(6) Mode Share - Percent of non-SOV Travel on the NHS
CMAQ Program: Emissions Reduction	(7) Emission - CMAQ-funded projects on-road mobile source total emission reductions for each applicable criteria pollutant and precursor

- State DOTs – set Targets by May 20, 2018
- TPB (MPO) – also set Targets by May 20, 2018
 - Demonstrate State-MPO Coordination

Infrastructure (Asset) Condition - Pavement and Bridges

	Performance Measures
Pavement Condition	(1) Percentage of pavements on the Interstate System in Good condition
	(2) Percentage of pavements on the Interstate System in Poor condition
	(3) Percentage of pavements on the NHS (excl. Interstate System) in Good condition
	(4) Percentage of pavements on the NHS (excl. Interstate System) in Poor condition.
Bridge Condition	(5) Percentage of NHS Bridges Classified as in Good Condition
	(6) Percentage of NHS Bridges Classified as in Poor Condition

- Implementing Agency (State DOT, NHS Owners) – set Targets by May 20, 2018
- TPB (MPO) – set Targets by November 15, 2018

Transit Asset Performance Measures

	Performance Measure
Rolling stock (Age)	Percentage of revenue vehicles within a particular asset class that have met or exceeded useful life benchmark (ULB).
Equipment - (non-revenue) service vehicles (Age)	Percentage of vehicles that have met or exceeded their ULB.
Infrastructure-rail fixed-guideway track, signals, and systems (Condition)	The percentage of track segments, signal, and systems with performance restrictions.
Stations/ Facilities (Condition)	The percentage of facilities, within an asset class, rated below 3 on the TERM scale.

- Transit Providers – set initial targets by January 1, 2017
- TPB – approved initial targets in June 2017
- Periodic requirement – Transit providers to set new targets by October 31, 2018
- TPB will need to approve by April 2019

Transit Safety Performance Measures

	Performance Measures	Description
Fatalities	a) Customer b) Employee c) Public	Total number of reportable fatalities and rate per revenue vehicle mile by mode
Injuries	a) Customer b) Employee c) Public	Total number of reportable injuries and rate per revenue vehicle mile by mode
Safety Events	a) Derailments b) Collisions c) Fires d) Evacuations for life safety	Total number of reportable events and rate per total vehicle miles, by mode
System Reliability	a) Major Mechanical System Failures b) Other Mechanical System Failures	mean distance between failures by mode

- Implementing Agency (Transit Providers) – set Targets TBD
- TPB (MPO) – set Targets within 180 days following

PBPP Coordination – Document Roles & Responsibilities

- MPOs, NHS asset owners, and the providers of public transportation must **jointly agree upon and document in writing** the coordinated processes for:
 - Collection of performance data
 - Selection of performance targets for the metropolitan area
 - Reporting of metropolitan area targets
 - Reporting of actual system performance
- ❖ **TPB staff have proposed a Letter of Agreement between TPB and each of the involved jurisdictions and agencies**



MEMORANDUM

TO: Transportation Planning Board
FROM: Eric Randall, TPB Transportation Engineer
SUBJECT: Schedule of Board Activities for Federal Performance-Based Planning and Programming (PBPP) Target Review and Approval
DATE: February 15, 2018

This memorandum provides an update for the Transportation Planning Board on implementation of the federal performance-based planning and programming (PBPP) target-setting requirements under the federal surface transportation act (Fixing America's Surface Transportation Act-FAST).

PBPP AND THE BOARD

PBPP requirements oblige the TPB to set performance targets in seven specific topic areas using federally defined performance measures. These are outlined in Table 1. TPB staff is continuing collaboration with DDOT, MDOT, and VDOT, as well as with WMATA and other providers of public transportation, for each PBPP performance area. TPB staff is working with regional partners on formal documentation of PBPP responsibilities, which will be completed by the signing of Letters of Agreement (LOAs) with agencies and jurisdictions. See Table 2 for responsible parties. The following is the timeline of board actions and briefings on PBPP targets for the region:

Actions Completed:

- Transit Asset Management (TAM) targets – Approved, June 2017. Next update January 2019.
- Highway Safety targets – Approved, January 2018. Next update January 2019.

Upcoming Actions:

- Planning and PBPP LOAs – Approve **April 18, 2018**
- Congestion Mitigation and Air Quality (CMAQ) – Approve targets **May 16, 2018**
(Per Capita Peak Hour Excessive Delay; Percentage Non-SOV travel; Project emission reductions)
- Highway Asset (Pavement and Bridge condition) – Approve targets **July 18, 2018**
- Highway System Performance – Approve targets **July 18, 2018**
(Interstate and NHS Travel reliability and Interstate Freight travel reliability)

Upcoming Briefings:

- Overall PBPP requirements: target-setting and regional coordination - February 21, 2018
- Draft CMAQ targets- April 18, 2018
- Draft Highway Asset targets - June 20, 2018
- Draft Highway System Performance targets - June 20, 2018

TABLE 1: PERFORMANCE BASED PLANNING AND PROGRAMMING PERFORMANCE MEASURES

Table of entire list of Performance Measures

January 26, 2018

PBPP Areas	Agencies	DOTs / NHS Owners / Transit	
		Providers set Targets	MPO sets Targets
1. Planning Rules			
Agreement on sharing Data, selecting Targets, and Reporting Progress	DOTs, MPOs, Transit Providers	5/27/2018	5/27/2018
Date of conforming CLRP and TIP	MPOs	5/27/2018	5/27/2018
2. Highway Safety (5 measures)			
Number of Fatalities	DOTs, MPOs	8/31/2017	2/27/2018
Rate of Fatalities per 100 million VMT	DOTs, MPOs	8/31/2017	2/27/2018
Number of Serious Injuries	DOTs, MPOs	8/31/2017	2/27/2018
Rate of Serious Injuries per 100 million VMT	DOTs, MPOs	8/31/2017	2/27/2018
Number of Non-Motorized Fatalities and Serious Injuries	DOTs, MPOs	8/31/2017	2/27/2018
3. Highway Asset Condition (6 measures)			
<u>Interstate system</u> : Percentage of pavement in Good condition	DOTs, MPOs	5/20/2018	11/16/2018
<u>Interstate system</u> : Percentage of pavement in Poor condition	DOTs, MPOs	5/20/2018	11/16/2018
<u>NHS (non-Interstate)</u> : Percentage of pavement in Good condition	DOTs, MPOs, NHS Owners	5/20/2018	11/16/2018
<u>NHS (non-Interstate)</u> : Percentage of pavement in Poor condition	DOTs, MPOs, NHS Owners	5/20/2018	11/16/2018
<u>NHS</u> : Percentage of Bridges in Good Condition	DOTs, MPOs, NHS Owners	5/20/2018	11/16/2018
<u>NHS</u> : Percentage of Bridges in Poor Condition	DOTs, MPOs, NHS Owners	5/20/2018	11/16/2018
4. System Performance Measures: Highway (3 measures)			
<u>Interstate system</u> : Percentage of Person-Miles Traveled that are Reliable	DOTs, MPOs	5/20/2018	11/16/2018
<u>NHS (non-Interstate)</u> : Percentage of Person-Miles Traveled that are Reliable	DOTs, MPOs	5/20/2018	11/16/2018
<u>NHS</u> : Percent Change in Tailpipe CO2 Emissions	DOTs, MPOs	9/28/2018	3/27/2019
5. System Performance Measures: Freight Movement (1 measure)			
<u>Interstate system</u> : Percentage of Mileage providing for Reliable Truck Travel Times	DOTs, MPOs	5/20/2018	11/16/2018
6. System Performance Measures: Congestion Mitigation and Air Quality Program (3 measures)			
<u>NHS</u> : Annual Hours of Peak Hour Excessive Delay Per Capita	DOTs, MPOs	5/20/2018	5/20/2018
<u>NHS</u> : Percentage of Non- SOV Travel	DOTs, MPOs	5/20/2018	5/20/2018
<u>CMAQ Program Emissions</u> : Total Emission Reductions for each applicable criteria pollutant and precursor	DOTs, MPOs	5/20/2018	5/20/2018
7. Transit Asset Management (4 measures)			
<u>Rolling stock (Age)</u> : Percentage of revenue vehicles that have met or exceeded useful life	Transit Providers, MPOs	10/31/2018	4/29/2019
<u>Equipment (non-revenue) service vehicles (Age)</u> : Percentage of vehicles that have met or exceeded useful life	Transit Providers, MPOs	10/31/2018	4/29/2019
<u>Rail fixed-guideway (Condition)</u> : percentage of track segments, signal, and systems with performance restrictions	Transit Providers, MPOs	10/31/2018	4/29/2019
<u>Stations/ Facilities (Condition)</u> : The percentage rated below condition 3 on the TERM scale.	Transit Providers, MPOs	10/31/2018	4/29/2019
8. Transit Safety (4 measures)			
<u>Fatalities</u> : Total number and rate (per revenue vehicle mile) of reportable fatalities	Transit Providers, MPOs	TBD	TBD + 1 year
<u>Injuries</u> : Total number and rate of reportable injuries	Transit Providers, MPOs	TBD	TBD + 1 year
<u>Safety Events</u> : Total number and rate of reportable Derailments, Collisions, Fires, and Evacuations	Transit Providers, MPOs	TBD	TBD + 1 year
<u>System Reliability</u> : Mean distance between Major and Other Mechanical System Failures	Transit Providers, MPOs	TBD	TBD + 1 year



TABLE 2: MATRIX OF RESPONSIBLE AGENCIES FOR PERFORMANCE BASED PLANNING AND PROGRAMMING

	B. Highway Safety	C. Highway Pavement and Bridge Condition	D. System Performance (NHS Congestion, Freight, and CMAQ Program)	E. Transit Safety	F. Transit Asset Management
District DOT	√	√	√	√	√
Maryland DOT	√	√	√		
Maryland Transit Administration				√	√
Virginia DOT	√	√	√		
Virginia Department of Rail and Public Transportation				√	√
National Park Service		√			
Maryland Transportation Authority		√			
Metropolitan Washington Airport Authority		√			
Arlington County		√		√	√
City of Alexandria		√		√	√
City of Fairfax		√		√	√
Fairfax County		√		√	√
Fauquier County		√			
City of Frederick		√			
Montgomery County		√		√	√
Prince George's County		√		√	√
Prince William County		√			
Potomac and Rappahannock Transportation Commission				√	√
Virginia Railway Express				√	√
Washington Metropolitan Area Transit Authority				√	√

