

The Regional Transportation Plan — 2018

Appendix M

Maintenance, Preservation, and Operations



May 2018

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APPENDIX M: Maintenance, Preservation, And Operations

Maintaining and preserving the region's transportation assets in a safe and usable condition is critical to keeping people and goods moving throughout the region. Although the two terms are frequently used interchangeably, *maintenance* often refers to more routine, preventative activities that maintain or improve the functional condition of an asset (e.g. 'chip seal', the application of a protective surface to an existing pavement), while *preservation* often refers to costlier activities intended to more significantly extend an asset's useful life (e.g. structural reinforcement of an existing bridge or reconstruction of a roadway). *Operations* refers to all non-capital investment related costs associated with operating all facets of the transportation system (e.g. transit operations, active traffic management, traffic signal retiming).

Ranging from seismic retrofits to paving projects to the timely replacement of transit vehicles and fiber-optic cable, these behind-the-scenes investments are critical to the transportation network functioning in a safe and efficient manner. Conversely, a lack of maintenance and preservation of existing transportation assets can have significant consequences to the system and the economy. For these reasons, the Regional Transportation Plan places a high priority on maintaining and preserving the existing transportation system.

Years of deferred maintenance have resulted in a significant backlog of maintenance and preservation investment need, and many agencies are still experiencing budget shortfalls. Simply put, existing resources are not sufficient to make critical maintenance and preservation investments to keep people and goods moving. Responding to these fiscal realities, cities, counties, the Washington State Department of Transportation (WSDOT), and transit agencies are stretching dollars further through innovative cost saving measures in maintenance and preservation project design, phasing, and timing. For example, cities are using more expensive concrete when paving highly used transit lanes whereas remaining lanes are treated with asphalt or other less expensive materials. On highways, WSDOT has implemented new approaches to extending the life of pavements through practices such as dowel-bar retrofitting (a method of reinforcing cracks in highway pavement by inserting steel dowel bars in slots cut across the cracks). Additionally, key safety investments such as seismic retrofits are being prioritized.

Though owners and operators of the transportation system are making these crucial investments for the integrity of the infrastructure, without additional dedicated revenue tools to fund maintenance and preservation the region faces a continuing degradation of the system, which could severely limit personal and freight mobility.

FEDERAL AND REGIONAL EMPHASIS ON MAINTENANCE AND PRESERVATION

The Fixing America's Surface Transportation (FAST) Act (signed into law in 2015) emphasizes maintaining and preserving existing transportation infrastructure and services through the deployment of maintenance and preservation performance-based planning measures. According to the Federal Highway Administration (FHWA), the purpose of this approach is to increase accountability and transparency at the local level, improve decision making through better information, and ultimately provide the most efficient investment of federal transportation funds towards maintenance and preservation of transportation infrastructure.

In 2017, FHWA released the final rule for measures to assess the performance of bridges on the National Highway System (NHS) and of pavements on the Interstate and non-Interstate NHS. These measures include:

- Percentage of pavements on the Interstate system that are in Good and Poor conditions, respectively
- Percentage of pavements on the non-Interstate NHS that are in Good and Poor conditions respectively
- Percentage of NHS bridges classified as in Good and Poor conditions, respectively

The Federal Transit Administration (FTA) issued a final rule in 2016 requiring transit agencies to prepare agency-wide asset management plans as well as maintain and document minimum transit asset management (TAM) standards. Measures associated with this rule include:

- Percentage of rolling stock that have either met or exceeded their “useful life benchmark”
- Percentage of track segments with performance restrictions
- Percentage of facilities within an asset class rated below “Adequate” condition as measured by federal standards
- For equipment, a combination of useful life benchmarks for non-revenue service vehicles and condition assessments for other equipment

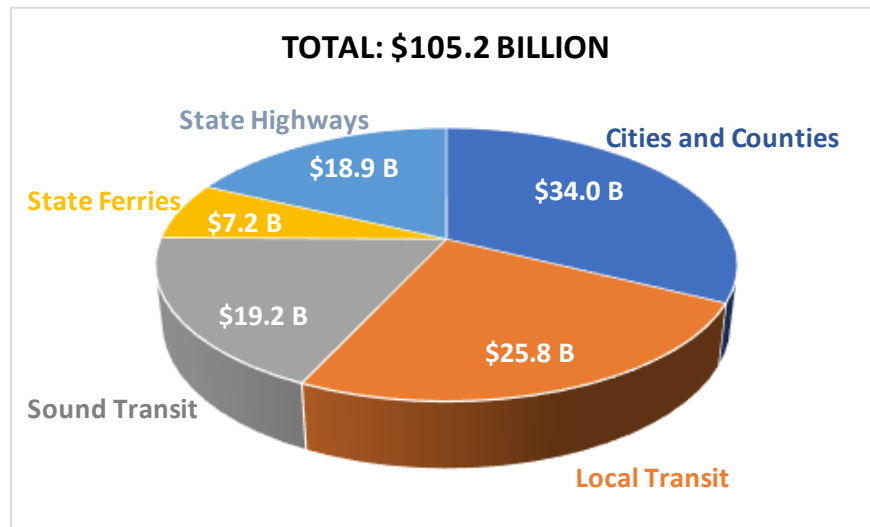
In addition to this federal direction, which is discussed further in Appendix K, the Policy Framework for PSRC’s Federal Funds sets aside a portion of both FHWA and FTA funds for preservation investments.

REGIONAL TRANSPORTATION PLAN INVESTMENT

The plan commits, as a high priority, to funding the maintenance, preservation and operation of the existing transportation infrastructure in a safe and usable state. The plan’s financial strategy reflects a concerted effort to develop informed estimates of maintenance and preservation need. These estimates are a key component of PSRC’s financial strategy.

As shown in Figure 1 below, the plan identifies \$105.2 billion in estimated needs to maintain, preserve, and operate the existing transportation system, which represents over half of the total investment planned between 2018 and 2040.

Figure 1
Maintenance, Preservation, & Operations Expenditure Estimates (\$2018 Constant)



Methodologies Used for Expenditure Estimates

A range of methodologies were utilized to develop expenditure estimates for the various maintenance and preservation categories. The Maintenance and Preservation Working Group, comprised of members of PSRC's Regional Project Evaluation Committee (RPEC) and Regional Staff Committee (RSC), was convened in 2016 to help refine and implement these methodologies, as well as address other key maintenance and preservation issues. The working group, which included a multi-disciplinary set of staff from WSDOT and the region's cities, counties, and transit agencies, met 10 times between June 2016 and June 2017.

Cities and Counties

There is limited information available on which to base future maintenance and preservation cost estimates for local jurisdictions. Historically, the plan's financial strategy relied upon a series of programmatic models based on historic expenditures to project maintenance and preservation investment costs for cities and counties. This approach was limited by the fact that it relied entirely on past spending and did not account for projected future need or local planning policies.

Beginning with the 2014 update, PSRC began a long-term effort to evolve the way in which future maintenance and preservation needs in cities and counties were estimated, aiming to capture future need based on desired outcomes instead of merely extrapolating historic trends. New methodologies were developed for estimating need for several asset classes: pavement preservation, stormwater drainage, and local signal operations and Intelligent Transportation Systems (ITS).

The draft financial strategy reflects refinements to these outcome-based methodologies and incorporates improvements to estimation approaches for additional elements of the transportation system. One of the more significant improvements is the development of a new

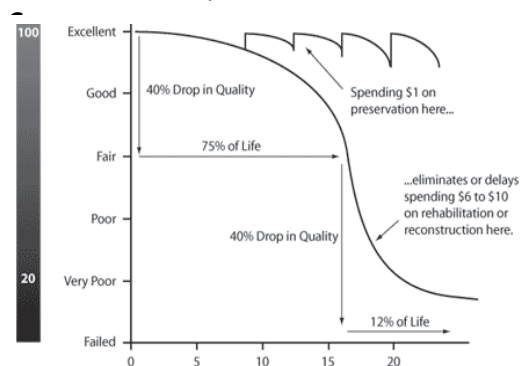
outcome-based approach to estimating the maintenance and preservation needs of local bridges and other structures, including culverts, seawalls, and street walls. PSRC staff worked with the Maintenance and Preservation Working Group to develop, refine and implement these methodologies. Provided below are descriptions of the methodologies used for city and county maintenance and preservation cost estimates in the plan. The total projected expenditure estimate for cities and counties is \$34 billion.

Pavement Preservation

The Maintenance & Preservation Working Group developed and refined an approach for estimating cities' and counties' pavement preservation needs that capitalizes on local asset management policies, practices, and project costs to achieve an average Pavement Condition Index (PCI) score of 70. The total projected cost for local pavement preservation in the plan is approximately \$14.5 billion.

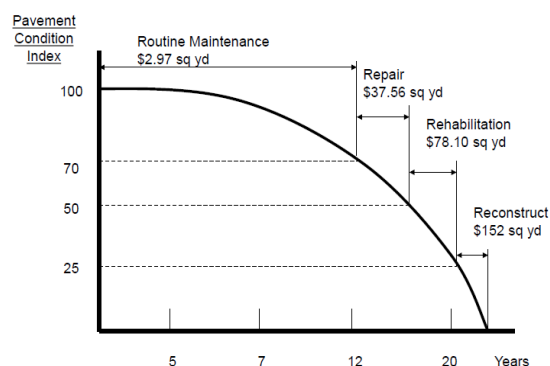
An average PCI score of 70 (or local equivalent) was selected as a desired regional outcome based on a review of local measurement approaches and thresholds of what is considered to be “good” condition. Additionally, an average PCI rating score of 70 establishes an outcome close to what could be considered “optimal” management of the system since investing in lower-cost treatments in the “sweet spot” on the pavement deterioration curve results in minimizing lifecycle costs relative to investments made lower on the curve. Figures 2 and 3 illustrate the importance of re-investing in pavement earlier in the lifecycle of a roadway segment, for maintaining higher quality pavements at a lower cost.

Figure 2: Illustration of Pavement Condition Index Relationship to Pavement Deterioration



Source: FHWA Office of Asset Management

Figure 3: Roadway Maintenance Treatment Cost Comparison



The approach implemented by the Maintenance & Preservation Working Group relies heavily on data provided by cities and counties through a survey instrument designed to capture three key components (please see Attachment A for a sample pavement preservation survey response):

- **Existing Conditions:** Respondents were asked to provide existing conditions data by pavement and facility type based on the federal functional classification (FFC) system.
- **Investment Backlog:** Jurisdictions were asked to provide an estimate of the current backlog of roadway preservation needs relative to a desired pavement condition score of 70, by

facility type based on the FFC. This included both deferred maintenance and reconstruction costs.

- **Long-term Pavement Preservation Need:** Respondents were asked to utilize their pavement management systems to develop a cost estimate to maintain an average pavement condition score by facility and pavement type across their jurisdiction of 70.

While only 30% of jurisdictions completed the survey, the pool of respondents included nearly all of the larger jurisdictions and accounted for the majority of lane miles in the region. As a result, the data reported via the survey represents approximately 85% of PSRC's total pavement preservation cost projection. Average lane mile costs based on the reported data were used to extrapolate estimates for the jurisdictions that did not respond to the survey (primarily smaller cities and towns).

This approach to developing pavement preservation cost estimates has three primary benefits: (1) establishing a target condition rating moves the region toward federal mandates related to outcome-based planning; (2) the target score (70 PCI) helps to prepare more accurate life cycle cost estimates, and can be used to inform decision-making and tradeoff discussions; and (3) the approach better connects local and regional planning by incorporating city and county planning policies, priorities, and project costs with the regional financial strategy.

Stormwater Drainage

Stormwater runoff from the transportation system has been an issue of increasing importance in the central Puget Sound region for years. Additional impervious surfaces and inadequate storm drainage and treatment systems are causing significant concerns regarding the impact to Puget Sound.

Stormwater drainage has become a greater issue at the national level, as well, which is reflected in the strengthening of the National Pollutant Discharge Elimination System (NPDES) permitting process. Since 2009, NPDES Phase I jurisdictions,¹ including Pierce, Snohomish, and King counties, as well as the cities of Seattle and Tacoma, have been required to implement enhanced requirements such as higher standards for roadside retention basins and drainage facilities. Phase II jurisdictions² are required to implement the new standards by 2018.

The total projected cost for city and county stormwater management (SWM) in the plan is approximately \$5 billion. PSRC's methodology for estimating these costs isolates the increased expenditures seen in Phase I jurisdictions' annual Budget Accounting Reporting System (BARS) data as a result of new NPDES requirements, and applies similar adjustments to Phase II jurisdictions in the approximate timeframe of the required implementation of new NPDES requirements. The Maintenance & Preservation Working Group identified an annual 3.5%

¹ Phase I of the NPDES Stormwater Program was promulgated in 1990. It requires large and medium municipal separate storm sewer systems (MS4s) located in incorporated counties with a population of 100,000 or more to obtain NPDES permits.

² Phase II of the NPDES Stormwater Program was promulgated in 1999. It requires MS4s not regulated by Phase I, and small construction activities, to obtain NPDES permits and develop comprehensive stormwater management programs that will eliminate illicit discharges and reduce pollutants in stormwater runoff.

increase in the cost estimates to address future potential strengthening of NPDES requirements and other key stormwater-related issues that will likely increase costs associated with stormwater management. These key issues include a lack of established best practices and standard equipment, the need for more frequent inspections for Low Impact Development (LID) systems, increasing storm volatility associated with climate change, and several other challenges.

The approach to estimating future stormwater drainage costs was shaped by significant stakeholder discussion and consultation with the Washington State Department of Ecology on the future implementation of federal stormwater requirements in the state.

Local Traffic Operations/Intelligent Transportation Systems (ITS)

Traffic operations refers to components that facilitate the flow of traffic through a transportation system. This includes both Intelligent Transportation Systems (ITS) which utilize information and communication technology, such as traffic signals and dynamic messaging signs, and non-ITS traffic control infrastructure, such as traffic circles and speedbumps. Costs associated with maintaining, preserving, and operating traffic operations programs and equipment were specifically identified by the Maintenance and Preservation Working Group as an area of interest. The total projected cost for this element in the plan is just under \$3.5 billion.

To account for ITS needs, staff engaged PSRC's Regional Traffic Operations Committee (RTOC) to develop and refine a city and county survey similar to the pavement preservation effort (please see Attachment B for a sample ITS survey response). The goal of this survey was to compare what is currently spent on local ITS operations with cost estimates under an "optimal" scenario. PSRC defined "optimal" as an agency being fully staffed and able to carry out all intended functions in a timely manner, including regular maintenance, and all capital components of ITS systems being replaced within their intended lifecycle. PSRC requested a comparison of these two funding levels for three primary areas:

- **Capital preservation:** This element includes costs to replace all existing physical infrastructure including components such as signals, cabinets, poles, transportation management center components, and fiber optic cable.
- **Maintenance:** Includes day-to-day maintenance activities such as inspections and general upkeep
- **Operations:** Primarily relates to staffing outside of maintenance activities. This category also includes signal retiming, utility bills, and engineering services.

PSRC also separately requested data for costs associated with non-ITS traffic control infrastructure, although most local jurisdictions were unable to provide this information. The reported estimates from the ITS survey were supplemented with historical BARS data to better account for these non-ITS traffic control and modest expansion costs.

The survey resulted in a wide range of reported costs, which was expected given the different system management capabilities and goals of various cities and counties. Although only 25% of jurisdictions completed the survey, the pool of respondents included most of the larger jurisdictions and accounted for the majority of lane miles in the region. As a result, the data reported via the survey represents approximately 80% of PSRC's total traffic operations/ITS cost projection. Average lane mile costs based on the reported data were used to extrapolate

estimates for the jurisdictions that did not respond to the survey (primarily smaller cities and towns). Lane mileage was utilized because it was the best available standardized unit on which to base the extrapolations

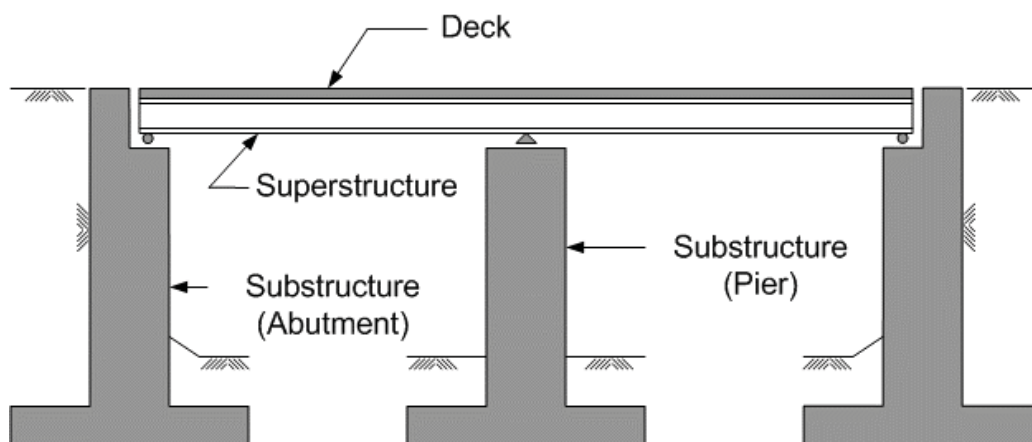
Ultimately, the optimal funding level scenario was selected as the input to the financial strategy because it more accurately reflected the true level of need.

Bridges, Culverts and Other Structures

The condition and stability of thousands of bridges and other structures that support the transportation network is essential to safety and mobility. A new outcome-based approach for estimating maintenance and preservation needs related to this infrastructure was developed by the Maintenance and Preservation Working Group. Based on this new approach, the total projected cost for locally-owned structures in the plan is approximately \$3.3 billion. Separate methodologies were used for bridges, culverts, and “other structures” (e.g. street walls, retaining walls), as described below.

Bridges. The methodology used for locally-owned bridges is based on the policy outcome that no bridges in the central Puget Sound region will be classified as “structurally deficient” by National Bridge Inventory (NBI) standards in 2040. This status indicates that a bridge has one or more structural defects on the *deck*, *superstructure*, or *substructure* that require attention. Figure 4 provides a visual representation of these bridge elements from USDOT’s 2012 Bridge Inspection Reference Manual:

Figure 4
Bridge Component Diagram: Substructure, Superstructure, and Deck



Source: USDOT Bridge Inspection Reference Manual, 2012

The development of this methodology occurred through discussions with WSDOT staff, regional stakeholders (via the Maintenance and Preservation Working Group), and staff from the metropolitan planning organization for the Philadelphia Region, the Delaware Valley Regional Planning Commission (DVRPC). DVRPC was consulted because they had previously applied a similar methodology for their bridge expenditure estimates.

The methodology entailed utilizing historic NBI condition data to calculate average annual bridge

deterioration rates by bridge material (concrete, steel, and timber). These rates were then applied to the current condition for every bridge in the region to estimate what their condition ratings would be in 2040 if left unattended. All bridges that would have been classified as “structurally deficient” by 2040 were flagged as requiring mitigation (there were a total of nearly 600). The most cost-efficient rehabilitation or replacement option to address the forecasted deficiency was assigned to each bridge.

All rehabilitation and replacement options were assigned a cost per-square-foot, based on a similar methodology developed by DVRPC. Cost estimates used by DVRPC were normalized to the central Puget Sound region construction market using the Engineering News-Record Building Construction Index (an index widely used in the construction industry to convert costs across different regions), and were further adjusted in consultation with the WSDOT Bridge and Structures Office. Based on the appropriate rehabilitation or replacement option and associated mitigation costs, an expenditure estimate to address the structural deficiency for each bridge was calculated. In addition, annual routine maintenance costs were added to every bridge on the system.

The City of Seattle and King County were the only agencies able to provide their own estimates for bridge maintenance and preservation costs through 2040. For these two jurisdictions, PSRC used the locally-produced estimates instead of applying the above methodology, since they better reflected local planning policies, priorities, and project costs.

Based on this approach the projected expenditure for the maintenance and preservation of bridges through 2040 is approximately \$1.7 billion.

Culverts. The approach for estimating culvert replacement needs was developed in consultation with the Washington State Department of Fish and Wildlife (DFW), the Fish Barrier Removal Board, the Association of Washington Cities, and the Maintenance and Preservation Working Group. Based on these discussions, PSRC estimated that one third of all locally-owned culverts will need to be replaced by 2040 due to either fish passage barrier issues or physical deterioration. An average culvert replacement cost of \$1.5 million was utilized in calculations based on historic DFW data. To determine the total culvert cost estimate, the assumed cost was multiplied by the estimated number of culverts (based on inventory provided by DFW)

The projected expenditure for the maintenance and preservation of culverts through 2040 is approximately \$860 million.

Other Structures. PSRC relied on locally-produced cost estimates to maintain and preserve other structures, which included seawalls, street walls, and retaining walls that support transportation infrastructure. Only the City of Seattle and King County were able to provide these estimates. This was not a robust enough dataset to use as a basis for extrapolating other jurisdictions, so only the combined amount reported by these two jurisdictions was added to the total.

Based on this approach, the projected expenditure for the maintenance and preservation of other structures through 2040 is approximately \$740 million.

Other Asset Classes & Administration Costs

For asset classes where developing an outcome-based approach was not feasible due to insufficient data, PSRC continued the current approach of extrapolating historic investment trends compiled using BARS data. This dataset includes annual transportation-related expenditure information reported to the State Auditor directly by cities and counties.

Asset classes that received this treatment include bicycle and pedestrian infrastructure, street lighting, roadside development (the right-of-way beyond the outside edge of the shoulder), and other (a grouping of miscellaneous expenses). The total projected costs for these asset classes and additional administration expenditures is \$7.9 billion.

The Maintenance and Preservation Working Group emphasized that the current lack of complete and quality datasets on bicycle and pedestrian infrastructure leads to significant challenges in accurately estimating maintenance and preservation expenditures for these facilities.

Local Transit

Costs to maintain existing local transit operations were calculated based on observed data and transit agency assumptions. Projected expenditures through 2040 are approximately \$25.8 billion, which includes operating costs as well as maintenance, preservation, and capital replacement needs associated with transit vehicles, maintenance bases, and other locally-owned equipment and facilities.

Starting with current service hours and total service cost, PSRC applied transit agency assumptions of annual service hour cost increases (which are reflected in local provider long-range plans). Administration and capital outlays were grown at inflation. Costs to maintaining passenger-only ferry service and associated capital costs were provided by King County Water Taxi and Kitsap Transit per locally-adopted long-range plans.

The reliance on locally adopted assumptions represents an improvement over previous approaches (which used historic trends to derive escalation factors) because it directly connects regional planning with local policy and better reflects projected future need.

Sound Transit

Costs for maintaining and preserving service included in the Sound Move and ST2 programs were provided by Sound Transit's finance staff. A total of \$19.2 billion was projected for all operations and maintenance costs associated with currently existing Sound Transit light rail, streetcar, commuter rail, and regional express bus service. Costs for maintaining, preserving, and operating future Sound Transit extensions (including Sound Transit 3) are included in the system expansion portion of the financial strategy.

State Ferries

Washington State Ferries (WSF) staff provided estimates for all costs associated with

maintaining current levels of ferry service. Calculated by route, these projections incorporate operating expenses for terminals and vessels, including labor, non-labor, and fuel costs. They also incorporate the projected maintenance and capital preservation needs associated with the terminals and vessels. A total of \$7.2 billion in need was estimated through 2040 for maintaining current levels of ferry service within the central Puget Sound region.

State Highways

PSRC worked with WSDOT staff to refresh maintenance and preservation estimates for state highway facilities in the central Puget Sound region. Estimates reflect the breadth of maintenance, preservation, and operations activities carried out by WSDOT, including:

- Toll Operations and Maintenance
- Toll Facility Preservation
- Maintenance and Preservation of Facilities Program
- Targeted Safety Investments
- Highway Maintenance
- Pavement/Roadway Preservation
- Bridge Preservation
- Other Facility Preservation
- Traffic Operations
- Environmental Retrofit – Fish Passage

The total expenditure estimate for maintaining and preserving currently existing state highway facilities in the central Puget Sound region through 2040 is \$18.9 billion.

REGIONAL ASSET MANAGEMENT

Given the challenges associated with estimating maintenance and preservation need for cities and counties, the Maintenance and Preservation Working Group examined the possibility of a regional asset management planning program or coordinated approach that would allow for more informed and consistent expenditure estimates. In addition to discussions internal to the Working Group, additional feedback was solicited from PSRC's Regional Project Evaluation Committee (RPEC) and the countywide transportation planning forums.

The purpose of the program would be to establish more complete and consistent datasets for transportation assets (e.g. roadways, bridges, bicycle/pedestrian facilities) across jurisdictions through the development of regional guidelines or standards for data collection and reporting. This would allow for potential benefits such as better articulation of current and future regional maintenance and preservation needs, more informed investments at the local and regional levels, and increased competitiveness for funding opportunities. Possible drawbacks of a top-down, regional program or approach were also identified, including potentially cumbersome requirements at the local level (particularly for smaller jurisdictions with fewer resources) and the potential disruption of existing local asset management programs.

It is recommended that a maintenance and preservation-focused committee be convened to evaluate options for a regional asset management proposal going forward.

Transit Asset Management

Transit Asset Management (TAM) is the process by which transit agencies prioritize funding in a way that most effectively maintains and preserves capital assets based on consistent and comprehensive measurement of current conditions.

In October 2016 FTA's final rule for TAM performance management was put into effect. The rule established four performance measures (detailed earlier) and required public transit providers to develop and implement TAM plans. It applied to all public transit operators within the region and the initial milestone required public transit agencies to set their agency-specific performance targets by January 1, 2017.

In order to assist in implementing the federal TAM rule, PSRC convened a group of TAM professionals from the region's public transit agencies. As part of the process, information was gathered from the agencies on their initial performance targets to develop required *regional* TAM performance targets. These regional targets were approved by PSRC's boards in June 2017.

Transit agencies in the region continue to work to implement the federal TAM rule, including developing agency-specific transit asset management plans and preparing to report data to the National Transit Database (NTD) in compliance with federal requirements.

PSRC will continue to coordinate with transit providers to further integrate transit asset management plans and performance targets into the region's planning documents. Given the timing of agency compliance with the federal rule compared to adoption of the update to the Regional Transportation Plan, PSRC will begin by tracking progress towards achieving initial performance targets and assessing agency efforts to update their targets based upon their agency-specific transit asset management plans, expected to be adopted by October 2018.

FUTURE WORK/RECOMMENDATIONS

- **Explore and evaluate options for a Regional Asset Management Approach.** This will include convening an ad-hoc maintenance and preservation-focused committee with representation from all four central Puget Sound counties and a cross-section of jurisdiction sizes. The group will work to identify current key issues related to regional and local asset management, potentially determine the details and scope of an asset management program or approach that will address those issues, and ultimately provide a recommendation to PSRC advisory committees and policy boards on how to proceed.
- **Continue to refine maintenance and preservation expenditure estimate methodologies.** PSRC will work with stakeholders to continue to refine the methodologies for developing maintenance and preservation expenditure estimates. The primary focus will be to improve the processes so they better capture future need based on desired outcomes instead of the extrapolation of historic trends. If a regional asset management approach is adopted it will likely play a major role in shaping these methodologies.

- **Further explore stormwater management issues in VISION 2050.** Stormwater management issues and challenges will be further explored in the VISION 2050 update process.
- **Continue to coordinate with transit agencies and develop data sharing methods for transit asset management.** Coordinate with transit agencies on development of federally-compliant transit asset management plans and track progress towards meeting established local and regional performance targets.
- **Continue to support efforts to bolster the resilience of the Region's transportation system.** Engage with regional partners to improve the resilience of the region's transportation system. See Appendix O for more details.

ATTACHMENT A:

SAMPLE PAVEMENT PRESERVATION SURVEY

Data Source: Streetsaver

Data Year: 2016

City/County of - Sample	Existing Conditions			Current Backlog		Lifecycle Replacement
National Highway System (NHS)	Centerline Miles	Lane Miles	Current Weighted Condition Rating	Current Deferred Maintenance Backlog (\$\$)	Current Reconstruction Backlog (\$\$)	2018 -2040 Investment
Asphalt or other HMA Treatment	21.85	87.55	64.00	32,592,219.17	8,013,641.56	12,589,727.44
Concrete	0.39	1.81	67.00	820,152.75	106,669.11	209,319.73
Other						
Principle Arterials NOT on the NHS	Centerline Miles	Lane Miles	Current Weighted Condition Rating	Current Deferred Maintenance Backlog (\$\$)	Current Reconstruction Backlog (\$\$)	2018 -2040 Investment
Asphalt or other HMA Treatment	4.47	16.33	65.00	5,923,029.25	1,010,133.28	1,586,956.77
Concrete						
Other						
Minor Arterials	Centerline Miles	Lane Miles	Current Weighted Condition Rating	Current Deferred Maintenance Backlog (\$\$)	Current Reconstruction Backlog (\$\$)	2018 -2040 Investment
Asphalt or other HMA Treatment	36.87	127.43	57.00	42,329,768.35	7,972,503.62	12,383,704.89
Concrete	4.64	11.89	67.00	5,387,633.27	700,715.86	1,375,034.01
Other						
Collector Streets	Centerline Miles	Lane Miles	Current Weighted Condition Rating	Current Deferred Maintenance Backlog (\$\$)	Current Reconstruction Backlog (\$\$)	2018 -2040 Investment
Asphalt or other HMA Treatment	50.37	136.47	64.00	53,080,973.76	8,441,695.59	13,262,216.17
Concrete	0.80	1.74	67.00	788,434.14	102,543.78	201,224.49
Other						
Local/Residential Access Streets	Centerline Miles	Lane Miles	Current Weighted Condition Rating	Current Deferred Maintenance Backlog (\$\$)	Current Reconstruction Backlog (\$\$)	2018 -2040 Investment
Asphalt or other HMA Treatment	284.30	480.50	67.00	234,738,522.56	34,094,041.54	56,131,296.99
Concrete	0.29	0.57	65.00	258,280.15	33,591.93	65,918.37
Other						

ATTACHMENT B: SAMPLE ITS SURVEY

CITY OF: SAMPLE

CURRENCY: \$2016

Actual 2016 Preservation Expenditures	Estimated 2016 Preservation Need (Optimal Scenario)	Actual 2016 Maintenance Expenditures	Estimated 2016 Maintenance Need (Optimal Scenario)	Actual 2016 Operating Expenditure s	Estimated 2016 Operating Need (Optimal Scenario)
\$ 101,000	\$ 139,000	\$ 43,074	\$ 110,160	\$ 145,125	\$ 182,104

Total Actual 2016 Expenditures	Estimated Total 2016 Need (Optimal Scenario)
\$ 289,199	\$ 431,264
Budget Gap	
\$ (142,065)	