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OPTP Performance Measures

Discussion Paper

Oregon Public Transportation Plan

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Introduction

The goals, policies, and strategies of the Oregon Public Transportation Plan (OPTP) will guide statewide public transportation decisions and investments by proactively anticipating change and providing a blueprint for investing resources. Performance measures provide a means to document past trends and track future progress with regard to the OPTP’s goals, policies, and strategies. These measures support strategic investments and agency goals, and identify areas in need of improvement.

This memo explores potential statewide performance measures for tracking progress on OPTP goals and policies, drawing from a literature review and a review of performance measures in other states’ plans, as well as Oregon state mode and topic plans. Not all performance measures are appropriate for statewide application; some may work well at the local agency level but not be suitable for measuring progress on the OPTP.

Statewide Key Performance Measures (KPM) are used by Oregon agencies to track progress made toward state goals and objectives. ODOT has several KPMs supporting its statewide mission, including several tied to public transportation.

Current ODOT Key Performance Measures (KPM)

The Oregon Department of Transportation’s (ODOT) Key Performance Measures (KPMs) quantitatively track performance relative to the agency’s mission, goals, and services. This section reviews existing ODOT KPMs related to public transportation. OPTP performance measures will not duplicate existing KPMs, but will complement them with additional public transportation performance measurement specific to the OPTP’s desired outcomes.

ODOT KPMs are grouped according to five policy and goal areas: Safety, Mobility and Economic Vitality, Preservation, Sustainability, and Stewardship. The following KPMs related to public transportation performance support ODOT’s Mobility, Economic Vitality, and Preservation goals.

- **Special Transit Rides** – *Average number of annual elderly and disabled transit rides per each elderly and disabled Oregonian.* The Special Transit Rides KPM measures progress toward increasing service to elderly and disabled Oregonians, with a target of 24 annual trips per person per year by 2022. The Special Transit Rides KPM tracks progress toward this target, with the goal of a 2.5 percent increase in ridership each year to reach the target.¹
- **Passenger Rail Ridership** – *Number of rail service passengers.* The Rail Ridership KPM tracks the number of rail service (not including TriMet light rail, Portland Streetcar, or WES) and thruway bus passengers per year to track performance relative to yearly target ridership. Since 2007, passenger rail ridership has increased by more than 46,000 within Oregon. From 2012 through 2014, ridership exceeded ODOT ridership targets. In 2014-2015, ridership decreased somewhat,

¹ Oregon Department of Transportation. (2017). Special Transit Rides KPM Summary. Retrieved from <https://www.oregon.gov/ODOT/PerformMang/One%20paggers/Special%20Transit%20Rides%20One%20pager.pdf>

mirroring national transit ridership trends.² In 2016, ridership on the Cascades line improved, increasing 7.9% for the Oregon portion³.

- Intercity Passenger Service** – *Percent of communities of 2,500+ with intercity bus or rail passenger service.* In Oregon, intercity bus services, like Greyhound, connect larger cities to one another, but often do not extend service to rural communities. The Intercity Passenger KPM tracks progress toward connecting 95 percent of communities (2,500+) in Oregon, using General Transit Feed Specification (GTFS) data and population data. In 2016, the performance target of maintaining existing services and serving 95 percent of communities was met and increased to 100 percent of communities for 2017. ODOT is currently reviewing this KPM for potential revision.⁴
- Transit Condition** – *Percent of Public Transit buses that meet replacement standards.* ODOT tracks the percent of public transit buses exceeding useful life to determine and act upon the most cost effective maintenance and replacement strategies. The majority of rural transit vehicles are considered “in good repair” for as little as five years. Accordingly, ODOT has set an initial target of no more than 40 percent of vehicles statewide exceeding useful life through 2020.⁵

Performance Measures in other Oregon State Modal Plans

Performance measures support policy and investment planning in Oregon’s statewide modal plans that nest within the overall Oregon Transportation Plan. **Table 1-1** describes a selection of performance measures described in Oregon state modal plans. These statewide measures are good examples of the kinds of measures most appropriate for statewide application. While they will not be duplicated in the OPTP, these measures can help inform selection of the recommended measures.

Table 1-1. Performance Measures in Oregon State Plans

Plan Name	Goal / Category	Performance Measure
Transportation Options Plan	Accessibility	Transportation Options staff per capita Number of transportation options staff per capita
	System Efficiency	Vehicle Miles Traveled (VMT) Motor vehicle miles traveled per capita
	Transportation Options	Peak Hour Trips in Non-Single Occupant Vehicles Percent of trips that use a mode other than driving alone during the peak hour
Oregon Bicycle and Pedestrian Plan	Accessibility	Pedestrian Access to Transit (measure under development) Percent of streets within ½ mile of a transit stop that have sidewalks
	Data	Identifying Data Needs (measure under development) Data gaps for pedestrian and bicycle performance measures

² Oregon Department of Transportation. (2017). Rail Ridership. Retrieved from <https://www.oregon.gov/ODOT/PerformMang/One%20paggers/Rail%20Ridership%20One%20pager.pdf>

³ Oregon Department of Transportation, 2017: Rail and Public Transit Division data

⁴ Oregon Department of Transportation. (2017). Intercity Passenger Service. Retrieved from <https://www.oregon.gov/ODOT/PerformMang/One%20paggers/Intercity%20Passenger%20Service%20One%20pager.pdf>

⁵ Oregon Department of Transportation. (2017). Public Transit Fleet Status. Retrieved from <https://www.oregon.gov/ODOT/PerformMang/One%20paggers/Public%20Transit%20Vehicle%20Condition%20One%20pager.pdf>

Table 1-1. Performance Measures in Oregon State Plans

Plan Name	Goal / Category	Performance Measure
	Safety	Number of Pedestrian and Bicycle Fatalities Five-year average
		Number of Pedestrian and Bicycle Serious Injuries Five-year average
		Perceived Safety of Walking and Bicycling Percent of public that feels safe walking/biking
	Utilization	Utilization of Walking or Biking for Short Trips Percent of commute trips under 20 minutes that are accomplished by walking or biking
Oregon State Rail Plan	Economic	Increased Statewide Jobs Created/Retained Public and private sector long term and construction jobs
	Mobility	Improved system efficiency Measured using travel times and delays
		Improved System Connectivity and Access
Safety	Reduced Incidents Property, injury, fatality	
Oregon Transportation Safety Action Plan	Safety	Motorized Fatalities and Serious Injuries Including fatalities and serious injuries per 100M VMT
		Nonmotorized Fatalities and Serious Injuries
		Rural Road Safety
		Older Driver and Pedestrian Safety

Sources:

1. Oregon Department of Transportation. (2016) Oregon Bicycle and Pedestrian Plan. Retrieved from <https://www.oregon.gov/ODOT/Planning/Documents/OBPP.pdf>
2. Oregon Department of Transportation. (2014). Oregon State Rail Plan. Retrieved from <https://www.oregon.gov/ODOT/Planning/Documents/OSRP.pdf>
3. Oregon Department of Transportation. (2015). Oregon Transportation Options Plan. Retrieved from <https://www.oregon.gov/ODOT/Planning/Documents/OTOP.pdf>
4. Oregon Department of Transportation. (2016). Oregon Transportation Safety Action Plan. Retrieved from https://www.oregon.gov/ODOT/Safety/Documents/TSAP_2016.pdf

Key OPTP Outcomes

During development of the OPTP’s vision, goals, policies, and strategies, a number of key issues and desired outcomes have emerged. These address important policy outcomes identified by the Policy Advisory Committee (PAC) and help define how progress toward OPTP goals might look. Feedback from the PAC, the Technical Advisory Committee (TAC), the public and stakeholders across the state – as well as state, regional, and local agency staff – informed these key outcomes:

- Transit service is safe, and perceived that way by riders
- Public transportation service is available and widely used throughout Oregon

- Public transportation meets the needs of transportation disadvantaged (low-income, minority, disabled) riders
- Public transportation services are well-coordinated, benefiting riders and providers alike
- Public transportation helps reduce – and bypass – urban traffic congestion
- Public transportation is easily and safely accessible by walking and bicycling
- New development and major facilities are coordinated with public transportation, and planning at multiple levels (local, regional, and statewide) includes public transportation
- Public transportation is provided cost effectively
- Transit fleets and facilities are maintained in good working order
- Increased investment in public transportation investment promotes environmental stewardship and improved public health

These outcomes inform the range of performance measures considered in this paper, as well as those recommended for inclusion in the OPTP. However, not every outcome will have a corresponding performance measure in the plan. Some outcomes may be tracked through other means, such as qualitative evaluation, or simply through the course of ODOT's ongoing work.

Performance Measures Review

Reviewing literature, other states' public transportation performance measures, and local provider measures provides an understanding of the "universe" of public transportation performance measures and informs the recommended measures for the OPTP. This section reviews criteria for successful performance measures, and discusses select performance measures from the literature review and those in use by local providers and other states.

Successful Performance Measures

Successful performance measures are clear, concise, and, ideally, use readily available data. The project team, with feedback from ODOT and a review of the literature, identified a number of key criteria for selecting successful performance measures:

Clear and Concise. Measures should be easy to understand and clearly defined in the context of OPTP and the statewide public transportation system.

Linked to Goals. There should be a direct link to plan goals and measures should be easily tracked in terms of progress made toward OPTP goals.

Reliable and Trackable. Measures should use data that are readily available throughout Oregon, and can be reliably tracked over time to deliver a clear and convincing story of Oregon public transportation.

Informative and Meaningful. Measures should be meaningful and easily understood by Oregonians, incorporate social values, and help to inform decisions on future policy, goals, and investments.

Flexible. Measures should be flexible to permit change as OPTP targets and goals evolve over time, but should also retain context with historical measurements.

The project team used these criteria to screen potential and recommended performance measures reviewed in the last section of this paper. In addition, it is important to select an appropriate number of performance measures, balancing the number of measures with the available agency resources to track them.

Performance Measures Literature Review

To inform potential performance measures for use in the OPTP, the project team reviewed available technical papers, reports, and relevant federal requirements related to public transportation performance measures. In the coming months, Oregon requirements for performance monitoring and measurement are expected to change to reflect new 2017 legislation – and these requirements will be reflected in the OPTP as appropriate.

State Requirements

As of this writing, the Oregon legislature passed House Bill (HB) 2017, a major multi-modal transportation investment package that includes significant new funds for public transportation statewide. The bill will require various accountability measures as a condition of these funds. However, as this bill was just passed in July 2017, its full impact and how new procedures, measures, and reporting will work has not yet been determined. Rule-making and other implementation measures are just beginning. Final performance measures included in the OPTP may change as needed to reflect new requirements.

Federal Requirements

MAP-21 and FAST Act

Fixing America's Surface Transportation (FAST) Act is the most recent federal transportation authorization that funds surface transportation programs from fiscal years (FY) 2016 through 2020. The FAST Act continues the performance-based surface transportation program established in the previous authorization, Moving Ahead for Progress in the 21st Century Act (MAP-21). Under FAST Act requirements, states must establish performance targets that address the national performance measures issued by USDOT and report on them annually. The national performance measures track progress made toward seven national performance goals: safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduced project delivery delays.⁶

National Performance Management Measures; Transit Asset Management and Congestion Mitigation Air Quality Improvement Program (CMAQ) – USDOT Final Ruling

Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) final rulings on transit asset management and congestion mitigation require state DOTs to track progress toward maintaining a public transportation fleet in good repair and improving air quality through reductions in Single Occupancy Vehicle (SOV) trips. The Transit Asset Management final ruling is reflected in ODOT's Transit Condition KPM. Some states (including Washington) already have congestion mitigation performance measures in place and ODOT is now engaged in developing targets as well. The criteria contained in the USDOT final ruling are reflected in the research on performance measures in other states, and within the identified OPTP key outcomes.⁷

Technical papers

TCRP Report 88 - A Guidebook for Developing a Transit Performance-Measurement System

⁶ U.S. Department of Transportation. (Last updated February 2017). Fixing America's Surface Transportation Act. Retrieved from <https://www.fhwa.dot.gov/fastact/>

⁷ Federal Register Rule by FHWA. (January 18, 2017). National Performance Management Measures; Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program. Retrieved from <https://www.federalregister.gov/documents/2017/01/18/2017-00681/national-performance-management-measures-assessing-performance-of-the-national-highway-system>

The Transit Cooperative Research Program (TCRP) Report 88 is a guidebook for improving decision-making processes for transit agencies using performance measurement programs. The Guidebook provides a step-by-step process for developing performance measurement programs and reviews key characteristics of performance measurement systems. The criteria and characteristics discussed in the Guidebook echo the criteria for successful OPTP potential performance measures described in the section above. Key Guidebook characteristics of a performance measurement system include:

- Stakeholder acceptance
- Linkage to agency and community goals
- Clarity
- Reliability and credibility
- Variety of measures
- Number of measures
- Level of detail
- Flexibility
- Realism of goals and targets
- Timeliness
- Integration into agency decision making

The Guidebook includes 12 case studies of successful programs, focusing on programs that met agency goals and objectives identified in long range plans. Additionally, the Guidebook includes a menu of performance measures grouped into the following categories:⁸

- Availability measures
- Service delivery measures
- Community measures
- Travel Time measures
- Safety and Security measures
- Maintenance and Construction measures
- Economic measures
- Capacity measures
- Paratransit measures
- Comfort measures

⁸ Transit Research Board. (2003). TCRP Report 88 – A Guidebook for Developing a Transit Performance-Measurement System. Retrieved from https://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_88.pdf

NCHRP Research Results Digest 361 – State DOT Public Transportation Performance Measures: State of the Practice and Future Needs

The National Cooperative Highway Research Program (NCHRP) Research Result Digest 361 offers information on using public transportation performance measures effectively to support state-level decision making. The report provides results from a nationwide survey of 30 state DOTs, most of which were using between two and six measures. The most commonly used public transportation performance measures were associated with ridership, such as total ridership, passenger miles, ratio of ridership growth to population growth, passengers per capita, and number of riders at park-and-ride lot. Other measures used by state DOTs include:

- *Availability measures.* Total service hours provided versus total hours needed to meet transit demand, average days per week that transit service is available.
- *Internal cost and efficiency measures.* Passengers per vehicle mile, passengers per vehicle hour, total operating cost per passenger, operating expense per vehicle revenue mile, fuel economy.
- *Quality measures.* On-time performance by mode, ratings of public transportation system.
- *Asset management measures.* Age of fleet by vehicle type, percent of vehicle useful life remaining, number of mechanical failures, and distance between vehicle failures.
- *Community measures.* Percent of non-single-occupant vehicle commuters, number of auto vehicle trips reduced, energy savings, percent of fleet vehicles transitioned to clean or alternative fuels.
- *Safety measures.* Rate of injuries and/or fatalities involving transit vehicles.

Performance Measures used in Other States

Several other states using statewide public transportation measures have key outcomes and agency goals similar to OPTP goals and key outcomes. This section summarizes representative performance measures used in other states that reflect OPTP key outcomes and goals.

Washington. The Washington State Department of Transportation (WSDOT) statewide transportation performance measures and associated progress are published in quarterly and annual progress reports. WSDOT’s Office of Strategic Assessment and Performance Analysis is responsible for tracking the data and results associated with each performance measure.⁹

- *Avoided annual vehicle miles traveled (VMT).* Progress made toward reducing congestion by improving system efficiency is tracked by the number of SOV miles avoided due to use of transit. A scale factor of 0.62 SOV per transit passenger mile is applied to miles traveled, representing the estimation that “62 percent of transit miles traveled would have been taken as equivalent SOV trips if transit services were not available.”

⁹ Washington State Department of Transportation. (2016). 2016 Biennial Transportation Attainment Report. Retrieved from <https://wsdot.wa.gov/publications/fulltext/graynotebook/AR2016.pdf>

- *Amtrak Cascades ridership and on-time performance.* Ridership and percent of trips on time for Washington state sponsored Amtrak Cascades train service is used to track progress made on WSDOT's Mobility goal.
- *Fatalities and injuries.* The number of fatalities and injuries on public transportation is tracked for progress made toward the state's Safety goal.
- *Transit fleet status.* The percent of the transit fleet exceeding useful life is tracked, with a target of 25 percent maximum exceeding useful life by 2020.

California. California Department of Transportation (Caltrans) Office of Strategic Management is responsible for implementing performance-based management. Statewide performance measurement data is obtained through the Caltrans Performance Measurement System to use in tracking progress toward statewide transportation goals including: Safety and Health; Stewardship and Efficiency; Sustainability, Livability and Economy; System Performance; and Organizational Excellence.¹⁰

- *Multimodal information available to public.* The percentage of 25 top integrated corridors with real-time multimodal system information available to the public is tracked. The goal by 2020 is to provide real-time multimodal system information to the public on 50 percent of the top integrated corridors.
- *Accessibility and livability scores.* These measures are under development and will help track progress toward improving the quality of life for all Californians. Measures under consideration include the following: multimodal transportation proximity to jobs, disadvantaged communities, transit-oriented communities, and environmental justice concerns.
- *Non-auto commute modes.* California's baseline data is calculated from 2010-12 California Household Travel survey with a goal of doubling the use of transit mode to improve the quality of life for people and provide mobility choices by 2020.
- *Transit ridership.* Increase transit ridership for all modes.
- *Opportunities for safe, accessible active transportation.* Promote community health and reach 100 percent of funds of allocated vs programmed.
- *Housing and jobs near transit.* This is a California statewide indicator and policy performance measure to assess the number of housing and jobs within 0.5-miles of transit stops.
- *Number of fatalities and injuries.* There is currently a target of 10 percent fatality reduction.
- *Percent of transit assets in good repair.* This tracks progress toward improving multimodal mobility and maintaining a state of good repair.

Pennsylvania. The Pennsylvania Department of Transportation (PennDOT) has a long-range transportation plan and freight plan known collectively as "PA On Track" that includes the following

¹⁰ California Department of Transportation. (2015). Caltrans' Strategic Management Plan 2015-2020. Retrieved from http://www.dot.ca.gov/perf/library/pdf/Caltrans_Strategic_Mgmt_Plan_033015.pdf

statewide transportation goals: System Preservation, Safety, Personal & Freight Mobility, and Stewardship. PennDOT's sole public transportation performance measure is annual transit ridership.¹¹

Colorado. The Colorado Department of Transportation's (CDOT) Statewide Transit Plan outlines performance measures which help to track progress made on the following statewide goals: System Preservation and Expansion, Mobility/Accessibility, Transit System Development and Partnerships, Environmental Stewardship, Economic Vitality, and Safety and Security.¹² Measures include:

- *Alternative energy fleets.* The percentage of statewide transit using compressed natural gas, hybrid electric, clean diesel or other low emission fuel types is used to track progress toward the Environmental Stewardship goal.
- *Major employment and activity centers served by transit.* The percentage of major employment and activity centers that are served by public transit tracks progress on the Economic vitality goal. CDOT aims to increase the availability and attractiveness of transit and further integrate transit services into land use planning through this goal.
- *Rural transit access.* The percentage of rural population served by public transit is tracked for progress toward the goal of increasing service to rural population, and a target of 90 percent of rural populations with access to transit.
- *Transit assets in good repair.* The percent of transit assets in good repair tracks progress toward the target of 65 percent of fleets in good condition.

Local Provider Performance Measures in Oregon

Performance measures are most often tracked at the local level in the public transportation realm. However, local performance measures may not be appropriate for statewide application, as they often track provider-specific goals or data.

Metropolitan Planning Organization (MPO) areas generally encompass a number of local providers, and are required by federal law to lead and coordinate regular (four-year) updates to regional transportation plans. This section provides an overview of performance measures in use by local transit providers in Oregon that track progress made toward local and MPO regional planning goals.

TriMet. TriMet tracks a number of performance measures addressing ridership, efficiency, budget, and safety. Example measures include:¹³

- *Ridership by weekly boarding rides.*
- *Operating cost per boarding ride.* Direct cost for a ride on the TriMet system.

¹¹ Pennsylvania Department of Transportation (2016). Pennsylvania Long Range Transportation Plan. Retrieved from <http://www.penndot.gov/ProjectAndPrograms/Planning/Documents/PennDOT-LRTP%20-%20FINAL%20August%202016.pdf>

¹² Colorado Department of Transportation. (2015). Colorado Statewide Transit Plan. Retrieved from <https://www.codot.gov/programs/transitandrail/plans-studies-reports/statewidetransitplan/statewide-transit-plan/view>

¹³ TriMet. (May 2017). Performance Dashboard: May 2017. Retrieved from <https://trimet.org/about/dashboard/index.htm>

- *On-time performance.* For buses and MAX, on time departure is no more than one minute early and five minutes late, and for WES trains, it is within four minutes of scheduled time. A LIFT vehicle is considered on time if it arrives within 30 minutes of scheduled pick-up time.
- *Vehicle service miles per road call incident.* Measure of lost service by the average number of miles traveled per service delay or incident.
- *Income received from passenger revenue on fixed route and LIFT services.* Includes cash, ticket, and pass fares as well as revenues from a variety of special fare programs including the low-income fare program.
- *Transit collisions per 100,000 miles.* Preventability and liability is not distinguished. Collision types are tracked by TriMet mode.

Lane Transit District (LTD). LTD is the public transportation provider for the Eugene and Springfield metropolitan area. LTD has transit performance measures that support progress toward LTD's long-range goals and key concepts. Additionally, LTD lists potential ways that key outcomes and concepts can be met.¹⁴ Representative measures include:

- *On-time departures.* Percent of service departures within four minutes of the scheduled time. LTD uses electronic data collection methods through an automated vehicle locator system at significant time points to determine on-time performance.
- *Frequency of transit service.* Percent of the planned Frequent Transit Network (FTN) miles currently in operation, to ensure investments are leveraged to the best of abilities. Frequent transit service is considered an average of 15 minutes or better.
- *Passenger miles per revenue hour.*
- *Passenger miles per capita.*
- *Percent of households with access to transit.* Percent of residential addresses within 1/3-mile of frequent service stops and 1/4-mile of all other fixed routes.
- *Percent of employers with access to transit.* Percent of employers within 1/3-mile of frequent transit and 1/4-mile of all other fixed-routes, to measure the impact on strengthening the local economy.
- *Sense of safety while riding with other passengers.* This is a qualitative measure, capturing the perception of safety.
- *Operating cost per revenue mile.* This measures the cost to deliver transit service, with the cost broken down by direct service and operations, maintenance, and administrative support.
- *Operating costs per boarding.* General cost per bus ride, with the cost broken down by direct service and operations, maintenance, and administrative support.

Cherriots. Cherriots is the public transportation provider for the Salem-Keizer area. The Salem-Keizer area Regional Transportation System Plan includes *indicators* which report progress on long-range plan

¹⁴ Lane Transit District. (2014). Long Range Transit Plan March 2014. Retrieved from <http://www.movingahead.org/wp-content/uploads/2015/03/Long-Range-Transit-Plan-2014-03-Final.pdf>

goals and align with performance measures introduced as part of MAP-21 and FAST Act. These performance indicators include:¹⁵

- *Number of fatalities and injuries.* By mode to indicate progress made toward the related Safety goal.
- *Preserve the existing system.* Tracks average age of the transit fleet.
- *Provide a multi-modal system.* Tracks daily ridership, and the number of transit hours of service.
- *Maximize the efficient use of the existing system.* Tracks the number of people moved per hour, or throughput in specific corridors.

Additionally, the Cities of Salem and Keizer each have measures meant to show progress toward providing transportation options within their community. These measures include:¹⁶

- *Transit and land use.* Number of residential units or square feet of commercial development within a transit influence area.
- *New residential units near transit.* Number of new residential units within 1/4-mile walking distance of transit compared to all new residential units.
- *Growth in rideshare.* Number of people using alternative modes.

¹⁵ SKATS. (Adopted 2015, Amended 2016). Regional Transportation Systems Plan 2015 – 2035. Retrieved from <http://www.mwvcog.org/programs/transportation-planning/skats/planning-programs/regional-transportation-system-plan-rtsp/>

¹⁶

SKATS. (Adopted 2015, Amended 2016). Regional Transportation Systems Plan 2015 – 2035. Retrieved from <http://www.mwvcog.org/programs/transportation-planning/skats/planning-programs/regional-transportation-system-plan-rtsp/>

Recommendations

The preceding sections of this paper describe the context for establishing performance measures that support the OPTP. Performance measures are included in all of the statewide modal plans recently developed by ODOT; recent plans like the Bicycle and Pedestrian Plan and Transportation Options plan contain several performance measures (generally three to six) that track plan progress.

This section reviews potential performance measures gleaned from the research and findings presented earlier, evaluates them based on the criteria for adopting a successful performance measure, and recommends a set of performance measures for inclusion in the final OPTP.

Measures Considered

Table 3.1 describes potential performance measures that could be included as part of the OPTP. The project team developed this list of potential measures based on the research summarized in this memo, and by applying the criteria for selecting successful measures. This selection was also informed by performance measures in use in other Oregon state plans, by other states, and by local providers. A variety of possible measures are described, with different strengths and areas of focus. Some measures may lend themselves to tracking and documenting statewide progress, while others may be more appropriately considered as indicators that identify trends over time and show more generally how the public transportation system is working.

Table 3.1 evaluates the measures based on the criteria for selecting successful performance measures, and the following section recommends a subset of these (including both performance measures and indicators) for inclusion in the OPTP.

Table 3-1. Potential Performance Measures

Outcome	Potential measures	Data needs	Meets Criteria?/Notes
Transit service is safe, and perceived that way by riders	Public transportation incidents per million transit vehicle VMT	Reported public transportation incidents. Currently collected through the National Transit Database (NTD).	Yes. Data is readily available. However, this measure may require additional explanation in order to be readily understood by lay audiences. In addition, the definition of an “incident” can vary from transit agency to transit agency.
	Percent of individuals stating they perceive public transportation to be safe	Survey responses; similar question is included in the ODOT Transportation Needs and Issues Survey.	Yes. Relatively easy measure to track; is readily understandable and reliable.
	Percentage of agencies with adopted safety plans	Tracking of agency safety plans. ODOT RPTD could collect this information.	Partially. Adoption of safety plans does not track implementation of plans and therefore does not necessarily account for actual changes in public transportation safety. It may also be somewhat unclear what constitutes a “safety plan” as opposed to safety policies or safety elements integrated into broader plans.
	Average age of the public transportation fleet	Reported fleet age data. RPTD already collects this information and it is also reported to the NTD.	Yes. This is already an ODOT KPM and should be retained. However, it is important to note that this measure does not have a direct correlation with safety, but correlates more with service reliability and operating costs.
Public transportation service is available and widely used throughout Oregon	Public transportation ridership	Already reported by most providers to the NTD	Yes. Though ridership is affected by many external factors (as are most of the other measures reviewed in this table), overall ridership is a good measure of this outcome.
	Public transportation revenue hours per capita	Already reported by most providers to the NTD	Yes. This measure may be difficult to readily understand by the broader public. However, it represents an efficient way of tracking the supply of public transportation provided across the state. It also represents a “supply-side” measure that complements ridership above.
	Percentage of state population and employment within ½ mile of a public transportation route or stop	US Census data and transit stop or route information that ODOT RPTD already maintains.	Yes. This measure is for fixed route services that usually serve larger towns and urban areas.

Outcome	Potential measures	Data needs	Meets Criteria?/Notes
Public transportation meets the needs of transportation-disadvantaged (low-income, minority, disabled) riders	Percentage of employment and/or lower-wage employment within ½ mile of public transportation stops	US Census data for general employment and transit stop or route information that ODOT RPTD already maintains.	Yes. This measure does not directly address the outcome, but access to employment is nonetheless an important consideration for low-income households. This measure is also a surrogate for the degree to which public transportation is coordinated with development and transit-supportive land uses. This measure is for fixed-route services that are more prevalent in larger towns and urban areas. Lower-wage employment data may not be available at this time.
	Percentage of low-income population within ½ mile of public transportation routes or stops	US Census data and transit stop or route information that ODOT RPTD already maintains.	Partially. Relatively easy measure to collect data for. However, this may serve better as an indicator; local providers have limited influence on land use and housing decisions that affect this measure.
	Public transportation commute mode share for low-income groups	US Census/American Community Survey data	Yes. Relatively easy measure to collect data for. However, this census data point is somewhat controversial and may underreport mode share for non-SOV modes.
Public transportation services are well-coordinated, benefiting riders and providers alike	Number of public transportation systems that connect to neighboring services	Local provider public transportation networks in GIS format or survey of local systems to determine interconnections.	Partially. This measure would assess the level to which neighboring public transportation systems are connected, facilitating easy connections for riders. However, this measure would not necessarily track the number of interconnections or the utility of those connections (i.e., the frequency of service at interconnected stops).
Address urban congestion; helping public transportation bypass congestion	Public transportation travel time reliability in urban areas	Urban public transportation provider reliability data	Partially. This measure relies on reliability data as tracked by local providers; not all providers track travel time reliability, nor do they track it in the same way. Would be difficult for ODOT to determine this.
	Share of public transportation priority corridors with transit priority treatments	Linear feet of transit priority treatment as a percentage of designated public transportation priority corridors (GIS data)	Yes. This measure could serve to track the increase or decrease in transit priority treatments, indicating more physical separation of public transportation and other vehicle traffic, and therefore better congestion mitigation. Would require minimal information from local providers.

Outcome	Potential measures	Data needs	Meets Criteria?/Notes
	Avoided personal VMT due to public transportation use	Public transportation passenger miles in urban areas	Yes. Could adopt WSDOT methodology to estimate the number of avoided personal vehicle VMT. However, this measure is not easily understood by the public.
Improve safe access (e.g., bicycle/pedestrian facilities) to public transportation	Share of public transportation priority corridors with continuous cycling and pedestrian facilities	Designated public transportation priority corridors and cycling/pedestrian facility GIS data	Partially. Data for this measure may be difficult to collect in smaller urban and rural areas. This measure would need to be carefully considered in rural areas where dedicated cycling/walking facilities are often not present.
Ensure new development and major facilities are coordinated with public transportation and that planning at multiple levels (local, regional, and statewide) includes public transportation	Percentage of urban transit routes intersecting with high-density land uses	ODOT PlaceType data and statewide transit routes, both already maintained by ODOT	Yes. Important to note that this measure focuses on the “productivity” side of public transportation which inherently focuses on urban areas, as opposed to “coverage.” Could consider adopting a parallel measure to track performance in rural areas. Would also need to consistently define what “high density” land use is.
	Percentage of rural residents with access to public transportation	Transit routes and service areas	Partially. Data may be difficult to collect on an annual basis. Also focus is on rural areas, which represent a small portion of new development and major facilities.
Be good stewards of public funds by providing public transportation in a cost-effective manner	Cost per boarding for fixed-route service (adjusted for inflation)	Data already reported to NTD	Yes. Would be relatively simple to calculate and would provide meaningful information about system efficiency. This is a standard measure that most public transportation providers track. ODOT would need to carefully consider the methodology given the variety of providers and circumstances throughout the state; for example, relative to rural fixed-route service due to more limited data and the different circumstances that pertain to rural fixed-route.

Outcome	Potential measures	Data needs	Meets Criteria?/Notes
	Farebox recovery	Data already reported to NTD	Partially. Farebox recovery rates reflect local policy choices to collect more or less revenue at the farebox, and agencies have different policy goals for seeking lower or higher farebox recovery rates. For example, Corvallis operates a “fare-free” system. Farebox recovery is not recommended as a performance measure for the OPTP, but could be tracked as a general indicator.
Maintain transit fleet and facilities in good working order	Percentage of active public transportation fleet that exceeds design life	Data already collected by ODOT RPTD	Yes. This is already an ODOT KPM and should be retained.
Promote environmental stewardship and public health through public transportation investment	Percent of fleet that is low- or no-emission (e.g. hybrid gas-electric, non-fossil CNG, biodiesel)	ODOT RPTD could collect this data; RPTD already collects fleet data	Yes. Would be relatively simple to fold this data point into existing RPTD data collection practices.
	Access to public transportation measures described above could be surrogates for public health (access to public transportation encourages use, which promotes health.)	N/A	N/A

Recommended Measures

The project team recommends the performance measures below for consideration in the OPTP to help measure progress on goals, policies, and strategies. Performance measures should be reliable and trackable; needed data should be readily collectable and the measure should assess progress toward OPTP goals. Collectively, OPTP performance measures should not require undue time or resources for collection and assessment.

In the interest of maintaining a manageable number of performance measures that are matched with available agency resources, the recommended measures below do not address every outcome described in previous sections of this paper. The project team recommends these measures based on how well they measure overall progress on OPTP desired outcomes, their ability to broadly measure more than one outcome, whether they meet the criteria for successful performance measures, and how they relate to existing KPMs or the performance measures in other statewide modal plans. This memo does not articulate the exact methods or the best way to present these measures; these decisions will be determined by ODOT staff as part of OPTP implementation.

Recommended measures include:

- **Statewide public transportation ridership per capita.** This is a fundamental “demand-side” measure that addresses many outcomes. Data is readily available for fixed-route service and is reported by most providers to NTD. Tracking ridership per capita will show changes corrected for population growth, providing an indication of whether ridership is growing in excess of population growth. Ridership for demand response can be tracked separately if and when the data becomes readily available.
- **Public transportation revenue hours per capita.** This “supply-side” measure is a corollary to ridership, tracking changes in the amount of service provided. Similar to ridership, tracking at the per capita level will show whether the amount of service provided is keeping pace with population growth. Data is readily available for fixed-route services and is reported by most providers to NTD. Tracking per capita will show the service level changes corrected for population growth and allow for measurement of whether more or less service is being offered as the state grows.
- **Cost per boarding for fixed-route service (adjusted for inflation).** This measures how efficiently public transportation service is being provided. That is an important measure for accountability and stewardship of public funds. Data is readily available from transit providers and is reported to NTD. Care should be taken in developing the exact methodology due to the differences between urban and rural systems.
- **Percent of public transportation vehicle fleet that is low- or zero-emission.** This measure addresses both environmental sustainability and public health. Data for this measure is not consistently collected today, but is anticipated to be collected in the future through ODOT RPTD for the vehicles purchased with ODOT assistance (about half the total fleet in Oregon). Local providers on the OPTP TAC voiced strong support for inclusion of this measure.

- **Transit vehicle condition – percent of public transit buses exceeding useful life.** A current ODOT statewide KPM, this measure reveals information about the financial condition of transit agencies around the state, as well as information about the age of buses that is relevant to safety, environmental sustainability (new/clean technologies), and service for those who benefit from state of the art equipment to serve those with disabilities.

As of this writing, rulemaking is underway for House Bill 2017 (HB 2017), a major legislative transportation funding package. This process may result in a need for new or additional performance measures related to public transportation.

In addition to the recommended performance measures, several of the measures reviewed in this paper may be useful as more general indicators of progress or trends over time. Indicators that track important OPTP outcomes, and could be monitored by ODOT on an ongoing basis, include:

- **Public transportation incidents per million transit vehicle miles traveled.** Traffic safety data reveals that public transportation today is quite safe compared to other modes. This indicator could be tracked for multiple purposes, e.g. to compare transit safety to other modes of travel and to monitor traffic safety trends on the public transportation system.
- **Percent of individuals stating they perceive public transportation to be safe.** While it is difficult to assess performance based on perceptions, changes in safety perception are important to understand how users feel about the system and how likely they are to use it. The data needed for this indicator is already collected as part of the ODOT Needs and Issues survey.
- **Percent of low income population within ½ mile of a stop.** While variations among urban and rural systems make this less appropriate as a performance measure, as an equity indicator it could help monitor changes in public transportation accessibility for low income Oregonians.

Other measures discussed earlier, while providing valuable information, may require data that is not yet available or is difficult to collect. For example, the areas below require further research, additional data, or more development, but represent important OPTP outcomes:

- **Technology measures.** The “number of providers that have efare” is one potential indicator of technology dissemination to public transportation providers in Oregon. Efare is one of the more transformative technologies currently being implemented by providers in Oregon and keeping track of this indicator could serve as a good proxy for public transportation technology advancement statewide.
- **Fare affordability measures.** As of this writing, few public transportation providers and no states researched have performance measures concerning fare affordability. ODOT could consider looking into potential measures or indicators around fare affordability at a later date.
- **Transit asset management.** Transit asset management is an increasing focus for local providers due to recent FTA rules requiring providers to develop asset management plans. As reporting requirements evolve, it may become possible, and beneficial, to track broader measures of asset condition in addition to the transit vehicle condition measure recommended above.
- **Accessibility measures.** People’s ability to access public transportation (and go where they need to go on the system) is essential to the OPTP. However, potential performance measures to track this are typically best suited for measurement at the local level due to data

requirements. For example, measures around pedestrian access to public transportation usually require having up-to-date information on the local pedestrian network that is more easily tracked at the local level. Other measures of accessibility (such as the proximity of public transportation to residents, jobs, and services) are also used by many local providers, but it is presently difficult to assess these types of measures at the statewide level. Therefore, ODOT could continue to evaluate potential measures of accessibility that would be more viable at the statewide level.

These are not recommended for inclusion in the OPTP at this time, but may be considered in the future for tracking as indicators or for adoption as performance measures as data becomes more readily available.