TECHNICAL MEMORANDUM #2 - DRAFT

Date: March 26, 2018 Project #: 21289

To: Paige West, RVTD

From: Susan Wright, PE (Kittelson & Associates, Inc.)
Ryan Farncomb (Jacobs)
Laura Higashi-Poynter (Jacobs)

Subject: Performance Measures and Criteria for Transit Improvements

TABLE OF CONTENTS

INTRODUCTION

This memorandum provides an overview of transit system performance measures applicable to the Rogue Valley Transportation District (RVTD) and identifies proposed evaluation criteria for evaluating transit service scenarios and alternatives for RVTD's 2040 Transit Master Plan (the Plan). The transit system performance measures are identified in RVTD, regional, state, and federal plans and policies and provide guidance on performance benchmarks that the Plan will seek to achieve.

IN THIS MEMO

- Existing Performance Measures
- Proposed Evaluation Criteria

Applicable performance measures were identified from the following plans and policies:

- RVTD
  - RVTD Ten-Year Long-Range Plan, 2007–2017
  - RVTD Title VI Plan
- Rogue Valley Metropolitan Planning Organization (RVMPO)
  - RVMPO Regional Transportation Plan (RTP) Alternative Measures
  - RVMPO Regional Transportation Plan 2017–2042

- State
  - State Greenhouse Gas Reduction Targets (House Bill 3543)
  - Oregon Statewide Transportation Strategy (Senate Bill 1059)
  - Transportation Planning Rule (Oregon Administrative Rules 660-012)
  - Oregon Public Transportation Plan
- Federal
  - Federal Transit Administration (FTA) MAP-21 and FAST Act legislation
- Peer Agencies
  - Cedar Rapids Transit, IA
  - Transit Joint Powers Authority for Merced County, CA
  - Erie Metropolitan Transit Authority, PA

EXISTING PERFORMANCE MEASURES

RVTD

RVTD's current Ten-Year Long-Range Plan and Title VI plans were reviewed to identify performance measures and criteria that currently guide RVTD.

RVTD TEN-YEAR LONG-RANGE PLAN, 2007–2017

RVTD adopted its Ten-Year Long-Range Plan (LRP), 2007–2017, in 2007. The plan included one mission statement, four overarching goals, related objectives, and measures and standards to monitor performance over time. The goals, objectives, and performance measures are summarized in **Table 1** below.

Table 1: Overview of Goals and Objectives in RVTD's Ten-Year Long-Range Plan, 2007–2017

Goal Category	Objective	Number of Identified Performance Measures and Actions
Social	Support equitable access to transportation	13
	Improve quality of life	9
Organizational	Ensure the efficient use of transit investments	10
	Maintain overall service quality while increasing service levels	12
	Improve communication with key partners	5
	Improve internal communications	8
	Improve public outreach/marketing	19
Economic	Support economic vitality	3
	Enhance RVTD's financial stability	6

Goal Category	Objective	Number of Identified Performance Measures and Actions
Environmental	Air pollution/fuel efficiency	3
	Reduce sprawl	4
	Reduce water and other pollution	7

As part of the LRP, RVTD created 99 "performance measures" that were to be assessed by 2017. The "performance measures" include performance measure benchmarks as well as actions for moving RVTD's operations and program forward that are either complete ("achieved"), on-going (or "unmet"), or "not measured". **Table 2** includes the performance measures related to service planning.

Table 2: Overview of Transit Service Planning Related Performance Measures Identified in RVTD's Ten-Year Long-Range Plan, 2007–2017

Objective	PM Number	Performance Measure	Status (as assessed by RVTD in 2017)
Goal 1: Social			
Support equitable access to transportation	1	Ensure service is provided within 0.25 miles of all densely populated neighborhoods within the District consisting mainly of low-income, aged, and disabled demographics.	Not measured
	8	Establish feeder service (Valley Vanpool) that would provide access to 25% of the trunk route system using linear miles analysis.	In progress
	3	Maintain on-time performance above 95% for all non–peak hour routes; 90% for peak hour routes.	Unmet
	4	Maintain delivery performance of passengers from point A to point B in no more than 1.5 times that of car travel time.	Unmet
	9	Revitalize Front St. Transfer Station in Medford to provide more comfortable passenger waiting areas, additional amenities such as eateries and automatic fare purchasing vendor, and additional bus bays.	Unmet
Quality of life	5	When enhancing transit system, limit the need for passengers to transfer to no more than two times, each one-way trip, to reach their destination.	Achieved
Goal 2: Organizational			
Ensure the efficient use of transit investments	8	Conduct community survey before starting new service, or utilize similar data, to ensure new service will be productive after no more than five years. Productivity is linked to farebox ratio and passengers per mile.	Achieved
Maintain overall service quality while increasing service levels	1	Expand service hours to include earlier mornings and later evenings on appropriate routes by 2012. Preferred service hours have first bus leaving transfer station at 4 AM and last bus leaving at 10 PM.	Unmet
	2	Increase headways (service frequency) on high productivity routes to 30 min. with peak hour service of 15 min.; Low productivity routes to 1 hour by 2012.	Mostly Achieved
	3	Add service miles that will provide 0.25-mile access to all densely populated areas within 2007 city limit boundaries.	Not Measured

Objective	PM Number	Performance Measure	Status (as assessed by RVTD in 2017)
	4	New routes and circulators will be considered only when an existing route's on-time performance would exceed 95% and/or passenger trip would exceed 1.5 times that of an average car trip.	Not Measured
	12	Establish a vanpool traveling from Grants Pass to Medford by 2010 and one new vanpool throughout region each year thereafter.	Unmet
Goal 3: Economic			
	2	Provide service within 0.15 mile of all densely populated employer sites of 1,000 employees or more. Sites not currently within 1 mile of service route will be required to adopt a bus pass program or provide alternative financial contribution that will offset the non-productive service costs to receive service.	Not Measured
	3	Provide service within 0.25 mile of all major shopping destinations with 15 or more congruent commercial businesses to support consumer activity.	Not Measured
Goal 4: Environmental			
Reduce Sprawl	2	Prioritize service such that established areas meeting density requirements receive service prior to any new development.	Achieved

The LRP also mentions the following three performance measures, which are suited for continual monitoring of the transit system:

- Cost per mile and hour
- Cost of overhead
- Cost of equipment

RVTD TITLE VI PLAN

RVTD's Title VI Plan (see Technical Memorandum #4) discusses goals, objectives, and performance measures that RVTD wants to incorporate into future operations of its transit system. The primary objectives of RVTD's Title VI Plan are to:

a) Ensure that the level and quality of transportation service is provided without regard to race, color, national origin, gender, age or disability;
b) Identify and address, as appropriate, disproportionately high and adverse human health and environmental effects, including social and economic effects of plans, projects, and activities on minority populations and low-income populations;
c) Promote the full and fair participation of all affected populations in transportation decision making;
d) Prevent the denial, reduction, or delay in benefits related to programs and activities that benefit minority population or low-income populations; and
e) Ensure meaningful access to program and activities by persons with Limited English Proficiency (LEP).

As discussed in the Title VI Plan, the FTA requires fixed-route transit providers to develop quantitative standards for the following measures:

- Vehicle load,
- Vehicle headways,
- On-time performance, and
- Service availability.

Through the Title VI Plan, RVTD has established processes for measuring these indicators and standards to help monitor progress.

RVMPO

The RVMPO includes the cities of Ashland, Central Point, Eagle Point, Jacksonville, Medford, Phoenix, and Talent, as well as White City and the surrounding portions of Jackson County. Transit-related performance measures from RVMPO's Alternative Measures and the RTP are summarized below.

RVMPO ALTERNATIVE MEASURES

RVMPO's 2015 Alternative Measures Update Final Report outlines seven alternative measures that were adopted in 2002 to replace the state Vehicle Miles Traveled (VMT) reduction standard. The seven alternative measures are:

1. Transit and bike/pedestrian mode share,
2. % dwelling units (DUs) within ¼-mile walk to 30-minute transit service,
3. % collectors/arterials with bike facilities,
4. % collectors/arterials in Activity Centers with sidewalks,
5. % of new DUs in Activity Centers,
6. % of new employment in Activity Centers, and
7. Alternative transportation funding.

The report shares the 5-year benchmark goals and 2020 targets for these seven alternative measures, as shown in the exhibit below.

Exhibit 1: Alternative Measures, Benchmarks, and 2020 Target in RVMPO's 2015 Alternative Measures Update Final Report

Measure	Current 2000	Benchmark 2005	Benchmark 2010	Benchmark 2015	Target 2020
Measure 1: Transit and bicycle/pedestrian mode share	*% daily trips* transit: 1.0 bike/ped: 8.2	*% daily trips* transit: 1.2 bike/ped: 8.4	*% daily trips* transit: 1.6 bike/ped: 8.8	*% daily trips* transit: 2.2 bike/ped: 9.8	*% daily trips* transit: 3.0 bike/ped: 11
Measure 2: % Dwelling Units (DU's) w/in ¼ mile walk to 30-min. transit service	12%	20%	30%	40%	50%
Measure 3: % Collectors and arterials w/ bicycle facilities	21%	28%	37%	48%	60%
Measure 4: % Collectors and arterials in TOD areas w/ sidewalks	47%	50%	56%	64%	75%
Measure 5: % Mixed-use DUs in new development	0%	9%	26%	41%	49%
Measure 6: % Mixed-use employment in new development	0%	9%	23%	36%	44%
Measure 7: Alternative Transportation Funding	N/A	$950,000	$2.5 Million	$4.3 Million	$6.4 Million

RVMPO REGIONAL TRANSPORTATION PLAN 2017–2042

The RVMPO RTP establishes goals corresponding to performance indicators. Goals and performance indicators that are relevant to transit service planning are provided in **Table 3**.

Table 3: Overview of Transit Service Planning Related Performance Indicators in the RVMPO RTP

Goal Category	Performance Indicators
Design, develop, and support a balanced multi-modal transportation system which will address existing and future needs.	Increase the proportion of regional corridors serving no less than three modes.
	Growth in transit, pedestrian and bicycle use.
Identify and utilize transportation investments to foster compact, livable, and unique communities.	Measure changes in mixed-use and downtown development.
Identify, plan and develop transportation infrastructure which maximizes the efficient use for all users and modes.	Track on-time performance for RVTD.
Identify, develop and support diverse strategies to lessen dependence upon single-occupant vehicles.	Track transit service hours and ridership.
	Measure population living within ¼ mile of transit service.
Evaluate and support regional transportation investments to foster economic opportunities locally and regionally.	Measure employment change in vicinity of projects.

STATE

The following describes performance measures or targets in Oregon state plans and legislation relevant to RVTD.

STATE GREENHOUSE GAS REDUCTION TARGETS (HOUSE BILL 3543)

In 2007, The Oregon Legislature established climate change goals through HB 3543[1]. These include:

- Arrest growth and start reducing greenhouse gas (GHG) emissions by 2010;
- Achieve GHG levels 10% below 1990 levels by 2020 and 75% below 1990 levels by 2050.

This legislation established the Oregon Global Warming Commission to oversee work toward meeting these goals.

OREGON STATEWIDE TRANSPORTATION STRATEGY (SENATE BILL 1059)

In 2010, Oregon Legislature passed Senate Bill 1059,[2] requiring a statewide transportation strategy (STS)[3] to help reach the goals established in House Bill 3543. The STS is a long-range statewide approach for reducing GHG emissions from transportation.

The primary goal of the STS is to reduce transportation system GHG emissions by 75 percent from 1990 levels by 2050. The STS describes transportation scenarios that include strategies for achieving these reductions. Improving transit is noted as a key strategy toward meeting emissions-reduction goals. The STS notes that the following must happen to meet the 75 percent emissions-reduction goal by 2050:

- 50 percent of vehicle fleet converted to hybrid or electric;
- Carbon intensity of fuels reduced by 20 percent;
- Number of people choosing to travel by rail rather than air shifted by 30 percent; and
- Transit service levels in metropolitan areas and along major corridors increased.

TRANSPORTATION PLANNING RULE (OREGON ADMINISTRATIVE RULES 660-012)

Oregon's Transportation Planning Rule (TPR) requires local and regional agencies to prepare and adopt a transportation system plan, among other requirements. Areas of the state with MPOs, including the Rogue Valley, must adopt standards to support transportation alternatives and demonstrate progress toward reducing dependence on automobiles. An MPO can demonstrate compliance by adopting plans and measures likely to achieve a five percent reduction in vehicle miles traveled (VMT) per capita

[1] Oregon Legislative Assembly. (2007). House Bill 3543. Retrieved from: https://olis.leg.state.or.us/liz/2007R1/Downloads/MeasureDocument/HB3543
[2] Oregon Legislative Assembly. (2010) Senate Bill 1059. Retrieved from: https://olis.leg.state.or.us/liz/2010S1/Downloads/MeasureDocument/SB1059/Enrolled
[3] Oregon Department of Transportation. (2014). Statewide Transportation Strategy Short-Term Implementation Plan. Retrieved from: http://www.oregon.gov/ODOT/Planning/Documents/STS-Short-Term-Implementation-Plan.pdf

over the 20-year planning period, or can enact measures, such as reduced parking requirements, that encourage a reduction in single occupant vehicle driving.[4]

OREGON PUBLIC TRANSPORTATION PLAN

The Oregon Public Transportation Plan (OPTP) is a statewide plan that guides public transportation decisions and investments across the state. The updated OPTP has not yet been adopted by the state, but includes performance measures intended to track progress toward the OPTP's goals. The performance measures recommended for adoption include:[5]

- Statewide public transportation ridership per capita;
- Public transportation revenue hours per capita;
- Cost per boarding for fixed-route service (adjusted for inflation);
- Percent of public transportation vehicle fleet that is low- or zero-emission; and
- Transit vehicle condition – percent of public transit buses exceeding useful life.

FEDERAL MAP-21 AND FAST ACT

Moving Ahead for Progress in the 21st Century (MAP-21) was signed into law in 2012 as a two-year federal transportation funding authorization. MAP-21 included requirements for performance-based planning, including requirements for states to demonstrate progress toward performance measures established by the U.S. Department of Transportation. Transit providers are required to develop Transit Asset Management plans and demonstrate progress toward maintaining a "state of good repair" for capital assets and facilities. A state of good repair means that the asset is able to:

- Perform its design function;
- Does not pose a known unacceptable safety risk; and
- Its lifecycle investments must have been met or recovered. [6]

Additionally, MAP-21 required the creation of a National Public Transportation Safety Plan that contains measures for assessing transit system safety.[7] While agencies are not required to adopt the measures established in the plan per se, they must consider these targets as they evaluate their own system safety plans and develop measures appropriate for their unique operations. The measures included in the plan are:

- Fatalities — total number of reportable fatalities and rate per total vehicle revenue miles by mode;
- Injuries — total number of reportable injuries and rate per total vehicle revenue miles by mode;

[4] Oregon Secretary of State, Land Conservation and Development Department. 660-112-0035 Evaluation and Selection of Transportation System Alternatives. Retrieved from: https://secure.sos.state.or.us/oard/viewSingleRule.action?ruleVrsnRsn=175283

[5] Oregon Department of Transportation. (2017). OPTP Performance Measures. Retrieved from http://www.oregon.gov/ODOT/Planning/Documents/OPTP-Performance-Measures.pdf

[6] 49 CFR 625

[7] Federal Transit Administration. (2017). National Public Transportation Safety Plan. Retrieved from https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/National%20Public%20Transportation%20Safety%20Plan_1.pdf

- Safety events — total number of reportable events and rate per total vehicle revenue miles by mode;
- System reliability — mean distance between major mechanical failures by mode.

The Fixing America's Surface Transportation (FAST) Act, the most recent federal transportation authorization, continued the performance-based planning framework, including the state of good repair and transit safety provisions described above.

PEER AGENCIES

This section reviews performance measures used by three peer transit agencies. The three peer transit agencies were selected based on an analysis of service characteristics and service area data, in addition to discussion with RVTD staff.

CEDAR RAPIDS TRANSIT

Cedar Rapids Transit is the fixed-route provider for the Cedar Rapids Metropolitan Area, Iowa, governed by The Corridor Metropolitan Planning Organization. Cedar Rapid Transit does not maintain performance measures independent from the MPO.

The transit agency's current Long-Range Transportation Plan lists performance measures and indicators used for tracking progress toward MPO, state, and federal goals. The plan describes the following performance measures relating to transit:[8]

- Average age of transit fleet
- Total transit ridership
- Passengers per transit revenue mile
- Total vehicle-miles traveled (VMT) and total vehicle hours traveled (VHT)
- Farebox recovery ratio
- Transit revenue miles
- Populated area not within ½ mile of transit facility
- Population living within ¼ mile of transit stop
- Population density within ¼ mile of new or expanded transit facilities
- Employment density within ¼ mile of new or expanded transit facilities
- % transit commuters
- Number and rate of fatalities
- Mode shift
- Greenhouse gas emissions

[8] The Corridor Metropolitan Planning Organization (Adopted 2015, amended 2017). Connections 2040: The Corridor MPO's 2040 Long Range Transportation Plan. Retrieved from: http://www.cedar-rapids.org/Community%20Development/MPO/Final_Connections2040_20171221.pdf

TRANSIT JOINT POWERS AUTHORITY FOR MERCED COUNTY, CA

Transit Joint Powers Authority administers The Bus, Merced's Regional Transit System. Performance measures are published in the Short-Range Transit Plan, which outlines a five-year approach for reaching the 10-year vision.[9]

Systemwide performance is tracked using the following measures:

- Passengers per revenue hour
- Passengers per revenue mile
- Cost per revenue hour
- Cost per revenue mile
- Cost per passenger
- Subsidy per passenger
- Average fare
- Farebox recovery

ERIE METROPOLITAN TRANSIT AUTHORITY, PA

The Pennsylvania legislature approved Act 44 in 2007, requiring transit agencies to participate in a formal performance review process taking place every 5 years.[10] Act 44 distributes funding based on need and performance. The Erie Metropolitan Transit Authority (EMTA) reports system performance in accordance with Act 44 for the following categories:[11]

- Passengers per revenue vehicle hour
- Operating cost per revenue vehicle hour
- Operating revenue per revenue vehicle hour
- Cost per passenger trip

In addition to the Act 44 performance reporting, Erie Metropolitan Transit Authority also reports financial indicators and targets for:

- Non-capital cash reserves
- State carryover subsidies
- Credit available / annual payroll
- Actual local match / required match
- Accounts payable / receivable
- Operating debt and annual operating cost

[9] Transit Join Powers Authority for Merced County. (2012). Final Short Range Transit Plan 2012-2017. Retrieved from: http://www.mercedthebus.com/DocumentCenter/View/26

[10] Pennsylvania Department of Transportation. (2016). Pennsylvania Public Transportation Annual Performance Report Fiscal Year 2014-2015. Retrieved from: http://www.northwestpa.org/wp-content/uploads/2016/05/14-15-PA-Public-Transportation-Annual-Performance-Report.pdf

[11] Pennsylvania Department of Transportation. Act 44 Transportation Funding. Retrieved from: http://www.penndot.gov/Doing-Business/Transit/Funding%20and%20Legislation/Documents/Act44FundPresentation.pdf

POTENTIAL EVALUATION CRITERIA

Based on the review of performance measures from RVTD, regional, state, federal, and peer agency plans that include transit performance measures, a "menu" of potential criteria for evaluating projects, programs, and scenarios developed as part of the LRP process has been prepared. The potential criteria are shown in **Table 4** and **Table 5**.

Table 4 describes potential criteria most applicable to evaluating project or program alternatives (e.g., different routing options); these criteria are intended to help differentiate project alternatives from one another. **Table 5** describes criteria most applicable for evaluating "scenarios" (e.g., packages of projects and programs); these criteria are intended to help evaluate the total effect of a package of improvements on the transit system and the region as a whole. Some evaluation criteria are applicable to both differentiating project alternatives as well as scenarios.

Each table describes individual criteria in addition to the data needed, justification, and any additional notes. These criteria are not necessarily intended to be used by RVTD for system performance monitoring, although some may be adopted later as performance monitoring measures during later phases of the project.

This menu of potential criteria will be reviewed by RVTD and the advisory committees. It will both inform the development of goals and objectives as well as be refined once the project goals and objectives are finalized.

Table 4: Potential Project-Level Evaluation Criteria

Performance Measure	Data Needs	Justification
Availability		
Ridership	Ridership from T-BEST tool	Standard metrics and data are readily available
Percentage of all dwelling units within ¼ mile of 30-minute transit service	U.S. Census Bureau housing units; housing units by TAZ for future years from regional travel model	MPO alternative measure; good measure of transit availability
Percentage of all dwelling units within ¼ mile of transit service	U.S. Census Bureau housing units; housing units by TAZ for future years from regional travel model	Complements measure above; indication of transit coverage
Frequency of service	Scheduled headways	Measures frequency of transit service provided per hour or day
Capacity		
Person-carrying capacity of transit route/project	Transit fleet maximum schedule load, frequency, passenger volume information	Good measure for alternatives analysis, especially for high-traffic corridors
Community		

Performance Measure	Data Needs	Justification
Number of regional essential destinations within ¼ mile of a transit route or stop	Essential destinations from parcel data (grocery stores, medical facilities, schools, social services, parks, large employers, major retail)	Measure of access to destinations
Percentage of current and future mixed-use/multi-family zoned land within ¼ mile of a transit route or stop	Current zoning, future comp plan designations or Placetypes data	Measures support for local and regional land use plans; TOD
Low-income population within ¼ mile of transit route or stop	U.S. Census Bureau data and transit route and stop data	Measure of equity
Minority population within ¼ mile of transit route or stop	U.S. Census Bureau data and transit route and stop data	Measure of equity
Economics		
Estimated farebox recovery ratio	Agency financial and operating statistics data; T-BEST output	Indication of usage, financial feasibility
Number of employees within ¼ mile of transit route or service	Future employment by TAZ from the regional travel model	Measure of access to jobs
Environment		
Estimated reduction in regional GHG emissions	Mode shift/VMT data from regional travel model; vehicle emissions assumptions from GreenSTEP model	Supports regional and state goals for GHG emissions reductions; proxy for reductions in other types of air emissions as well
Natural, built, and cultural resources at risk	Qualitative assessment of whether a project could potentially impact a known resource	Addresses environmental stewardship; may only be applicable to a limited number of project alternatives
Funding/Costs		
Estimated capital costs	Order-of-magnitude capital cost estimates or qualitative assessment	Basic measure important to decision-making
Estimated operations costs	Order-of-magnitude operations cost estimates based on future revenue miles, average cost of service per revenue mile	Basic measure important to decision-making
Opportunity to leverage other capital projects	Degree to which project may be able to take advantage of other projects to realize cost savings/efficiencies	Important for decision-making
Number of funding sources available	Qualitative assessment of whether a project would be eligible for funding other one or more funding/grant programs	Important for decision-making
Other		
Relative degree of stakeholder/public support	Assessment from surveys, PAC, and public event feedback	Measures public support for an alternative

Table 5: Potential Scenario Evaluation Criteria

Performance Measure	Data Needs	Justification
Availability		
Total ridership	Ridership from T-BEST tool	Standard metric and data is readily available
Transit mode share	Share of transit trips relative to all trips from regional travel model	MPO alternative measure
Percentage of all dwelling units within ¼ mile of 30-minute transit service	U.S. Census Bureau housing units; housing units by TAZ for future years from regional travel model	MPO alternative measure; good measure of transit availability
Percentage of all dwelling units within ¼ mile of transit service	U.S. Census Bureau housing units; housing units by TAZ for future years from regional travel model	Complements measure above; indication of transit coverage
Revenue miles of service per capita per year	Future system revenue miles of service from T-BEST tool; future regional population	Supply-side measure of transit availability; transit usage strongly tied to service availability.
Community		
Number of regional essential destinations within ¼ mile of all transit service	Essential destinations from parcel data (grocery stores, medical facilities, schools, social services, parks, large employers, major retail)	Measure of access to destinations
Percentage of current and future mixed-use/multi-family zoned land within ¼ mile of all transit service	Current zoning, future comp plan designations or Placetypes data	Measures support for local and regional land use plans; TOD
Percentage of transit service area (or region) accessible within a 30-minute transit trip from Front Street Station and other future transit centers	Future routes; GIS network analysis to create isochrones	Measure of community accessibility by transit
Percentage of low-income households within ¼ mile of transit service	Low-income households (lowest quintile) by TAZ from regional travel model	Measure of equity
Economics		
Share of regional employment within ¼ mile of transit service	Future employment by TAZ from the regional travel model	Measure of access to jobs
Environment/Health		
Estimated reduction in regional GHG emissions	Mode shift/VMT data from regional travel model; vehicle emissions assumptions from GreenSTEP model	Supports regional and state goals for GHG emissions reductions; proxy for reductions in other types of air emissions as well
Estimated reduction in mortality/morbidity due to increased transit usage (and associated walking/cycling)	Reduction in VMT data from regional travel model or ridership data from T-BEST; sketch model from ODOT Mosaic tool	Estimate of impacts on public health. Could be monetized.

Performance Measure	Data Needs	Justification
Funding/Finance		
Total estimated capital costs	Order-of-magnitude capital cost estimates or qualitative assessment	Basic measure important to decision-making
Total estimated operations costs	Order-of-magnitude operations cost estimates based on future revenue miles, average cost of service per revenue mile	Basic measure important to decision-making
Total annualized operations costs as a percentage of current annual operations costs	Current and estimate operations costs	Help indicate the magnitude of growth associated with a scenario
Safety and Security		
Estimated cumulative reduction in fatalities/injuries	Estimate based on mode shift/VMT reduction from service scenarios and assumptions on vehicle/transit vehicle crash rates per VMT	Indicator of safety. Could also be monetized.
Other		
Relative degree of stakeholder/public support	Assessment from surveys, PAC, and public event feedback	Measures public support for an alternative