Adopted January 6, 2022
Resolution 21-5220

2021 Transportation System Management & Operations (TSMO) Strategy

Portland Metro Region

TSMO

Portland Metro Region

Metro

FEHR & PEERS

This document is best viewed when downloaded and opened in Adobe Acrobat Reader.

Metro respects civil rights

Metro fully complies with Title VI of the Civil Rights Act of 1964 that requires that no person be excluded from the participation in, be denied the benefits of, or be otherwise subjected to discrimination on the basis of race, color or national origin under any program or activity for which Metro receives federal financial assistance.

Metro fully complies with Title II of the Americans with Disabilities Act and Section 504 of the Rehabilitation Act that requires that no otherwise qualified individual with a disability be excluded from the participation in, be denied the benefits of, or be subjected to discrimination solely by reason of their disability under any program or activity for which Metro receives federal financial assistance.

If any person believes they have been discriminated against regarding the receipt of benefits or services because of race, color, national origin, sex, age or disability, they have the right to file a complaint with Metro. For information on Metro's civil rights program, or to obtain a discrimination complaint form, visit ***www.oregonmetro.gov/civilrights*** or call **503-797-1536**.

Metro provides services or accommodations upon request to persons with disabilities and people who need an interpreter at public meetings. If you need a sign language interpreter, communication aid or language assistance, call **503-797-1700** or TDD/TTY **503-797-1804** (8 a.m. to 5 p.m. weekdays) 5 business days before the meeting. All Metro meetings are wheelchair accessible. For up-to-date public transportation information, visit TriMet's website at www.trimet.org.

Metro is the federally mandated metropolitan planning organization designated by the governor to develop an overall transportation plan and to allocate federal funds for the region.

The Joint Policy Advisory Committee on Transportation (JPACT) is a 17-member committee that provides a forum for elected officials and representatives of agencies involved in transportation to evaluate transportation needs in the region and to make recommendations to the Metro Council. The established decision-making process strives for a well-balanced regional transportation system and involves local elected officials directly in decisions that help the Metro Council develop regional transportation policies, including allocating transportation funds. JPACT serves as the MPO board for the region in a unique partnership that requires joint action with the Metro Council on all MPO decisions.

Project website:
https://www.oregonmetro.gov/tsmo

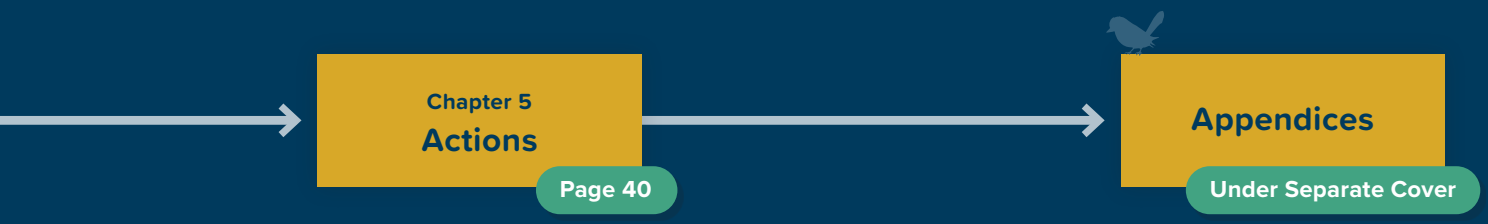
The preparation of this report was financed in part by the U.S. Department of Transportation, Federal Highway Administration and Federal Transit Administration. The opinions, findings and conclusions expressed in this report are not necessarily those of the U.S. Department of Transportation, Federal Highway Administration and Federal Transit Administration.

Table of Contents

For operators of greater Portland's roads, highways, transit, shared-use mobility services, freight and active transportation facilities, this TSMO Strategy will bolster partnerships to achieve a shared vision.

With increased coordination, we will effectively and efficiently manage publicly funded transportation assets, optimize operations for reliability, innovate through technology research and advance the Regional Transportation Plan policy priorities.

The actions in this strategy will help people connect to more transportation options that are **equitable, safe, reliable and climate-friendly**.



Executive Summary

This transportation system management and operations (TSMO) strategy is an innovative, holistic, multimodal, and cost-effective approach to managing the region's transportation system. An effective TSMO Strategy prioritizes optimization of the existing transportation system by improving business practices and collaboration, encouraging behavior changes through travel demand management, and using technology to understand and manage how the system operates.

Process

This Strategy's **Vision** and **Goals** define what the transportation system in the region should provide.

The **Objectives** define how progress towards the desired outcomes will be achieved over the next 10 years.

Performance Measures and Targets define how progress will be measured.

Lastly, the **Actions** present time constrained and achievable actions needed to achieve the Goals and Vision.

Equity

This Strategy is rooted in equity with both Goals and Objectives that aim to correct past disparities and undue burdens experienced by **Black, Indigenous, people of color, and people with low incomes**. The Strategy planning process began with an equity focus, developing an assessment tool called the **Equity Tree** that will now apply to TSMO decision making in the region for years to come. The Equity Decision Tree is a tool for widening perspectives from "solving congestion" to "solving disproportional impacts of congestion and transportation" by including the context, choices, and voices that lead to well-defined problems, solutions and is accountable for outcomes.

Vision Statement

Collaborate to provide reliable, agile, and connected travel choices so that all users are free from harm, and to eliminate the disparities experienced by Black, Indigenous, people of color, and people with low incomes.

Goals

Free From Harm

Create a transportation system where all users are free from harm.

Collaboration & Partnerships

Collaborate as effective stewards of the transportation system.

Eliminate Disparities

Eliminate the disparities in the transportation system experienced by Black, Indigenous, people of color, and people with low incomes

Prepare for Change

Manage the system to be agile in the face of growth, disruptions, and changing technology.

Reliable Travel Choices

Provide a transportation system that is reliable for all users.

Connected Travel Choices

Connect all people to the goods, services, and destinations they need through a variety of travel choices.

Performance Measures

Vehicle Miles Traveled (VMT) per Capita

A measure of the average number of auto miles driven per person.

Number of Crashes by Severity

A measure of transportation safety and performance.

Buffer Index

The extra time a traveler adds to their trip (buffer) to ensure on-time arrival.

Agency Collaboration and Communication Events

Frequency of staff collaborating and communicating progress towards TSMO Goals.

System Connectivity

How complete and connected the infrastructure system is for each travel mode.

Targeted TSMO Investments

Distribution of investments regionally and on key corridors for modal efficiency.

Timely Traveler Information

How effectively information is being relayed to travelers to reduce delay associated with planned or unexpected events.

Actions

Planning

- 03 Develop a Mobility on Demand strategy and policy.
- 05 Pilot Origin-Destination data to prioritize TSMO investments.
- 18 Participate in regional public outreach to assist in guiding, listening and learning through TSMO-focused conversations.
- 21 Update the regional ITS Architecture.

Listening & Accountability

- 06 Track and prioritize TSMO Investments for and with Black, Indigenous, people of color, and people with low incomes.
- 13 Create a community listening program.
- 19 Improve TSMO data availability to aid in traveler decisions and behavior.

Data Needs

- 01 Establish TSMO performance measures baseline.
- 12 Explore new TSMO data sources.

Concepts, Capabilities, and Infrastructure

- 02 Inventory and manage regional signal and ITS Communication infrastructure.
- 04 Manage transportation assets to secure the network.
- 07 Continue freight technology and ITS deployment.
- 08 Facilitate ground truthing of emerging technologies.
- 09 Establish a Regional Transit Operators TSMO Group.
- 10 Unify and standardize fare subsidies for transit and MOD.
- 11 Develop an ITS travel time information data collection and distribution plan for RDPO regional emergency routes.
- 14 Create continuous improvement process for existing and new signal systems and related performance.
- 15 Deploy regional traveler information systems.
- 16 Implement integrated corridor management and mainstream into corridor planning.
- 17 Create a TSMO safety toolbox.
- 20 Build and use a TSMO Toolbox to connect gaps in bicycle and pedestrian infrastructure.

Beaverton, OR

Chapter 1

Overview

TSMO focuses on making the most of the existing system.

A Strategy that supports a systems approach must build on existing efforts, align with other regional efforts to manage the transportation system and move the region towards desired outcomes.

1.1 Metro

Metro works with communities, businesses and residents in the Portland metropolitan area to chart a course for the future while protecting the things we love about the place. The region has experienced consistent growth in population, jobs, and housing in the last decade. As the region grows, it brings an influx of new ideas, new opportunities, and new technology, but this growth also strains our transportation system. As the federally designated Metropolitan Planning Organization (MPO) for Clackamas, Multnomah and Washington counties, Metro is tasked with coordinating and planning the transportation system for the area. Metro's elected Council engages community to develop transportation policy that lead to strategies for on expanding transportation options, making the most of existing streets, and improving public transit services, efforts aligned with the goals of Transportation System Management & Operations (TSMO).

1.2 What is TSMO?

TSMO is making the most of what we have, to make the system more efficient and effective for users.

TSMO is a way for transportation professionals to be good stewards of the transportation system by managing and operating the system as efficiently and effectively as possible. TSMO strategies provide alternatives to chasing capacity growth by continuously building more lanes, miles of roadways, and larger intersections. Instead, TSMO aims to get the most out of the existing system by managing demand, improving business practices and collaboration across jurisdictional boundaries, using technology to measure and manage transportation operations and track progress towards regional goals.

TSMO is...

A holistic systems approach

A broad set of strategies

Innovative, cost-effective solutions

TSMO is not...

Large and costly construction projects

1.3 Who is Responsible for TSMO?

Metro partners with the Oregon Department of Transportation (ODOT), counties, and cities in the Portland region to create a TSMO strategy that establishes a shared set of goals, objectives and actions that will advance TSMO in the region.

When it comes to implementing TSMO, it is the responsibility of the agency that owns and operates the system to complete the actions outlined in the regional plan. On state owned roadways, ODOT is responsible for implementing TSMO while responsibility for implementing these strategies on local roadways lies with the City or County. Transit operators, Washington State partners, federal partners and Metro also have roles and responsibilities through TSMO implementation.

Transportation Planning Rule (TPR)

OAR 660.012, the Oregon's Transportation Planning Rule (TPR), stipulates that coordinated land use and transportation plans should increase transportation choices and make more efficient use of the existing transportation system through transportation system management and demand management measures. This approach is core to TSMO.

Many of the transportation plans and strategies within the region include TSMO-related actions and strategies. These plans, developed by Metro and their partner agencies, were used to inform the 2021 TSMO Strategy. Specifically, these plans were used a source for developing goals and actions that are consistent with ongoing efforts across the region.

Transportation Policy Alternatives Committee (TPAC):

TPAC reviews area plans and advises area leaders on transportation investment areas and policies. The group consists of technical staff from several local governments, agencies, and community groups, The goals of this group are aligned with TSMO, as they advise elected officials on policies and projects that will help the region be better stewards of the transportation system.

TransPort

TransPort is a subcommittee of Metro's Transportation Policy Alternatives Committee (TPAC). The group is charged with advancing the TSMO Strategy and providing a forum for cooperative planning and deployment. Broad TransPort participation is encouraged. Core membership consists of seven agencies:

- ODOT
- TriMet
- Metro
- Clackamas County
- Multnomah County
- Washington County
- City of Portland

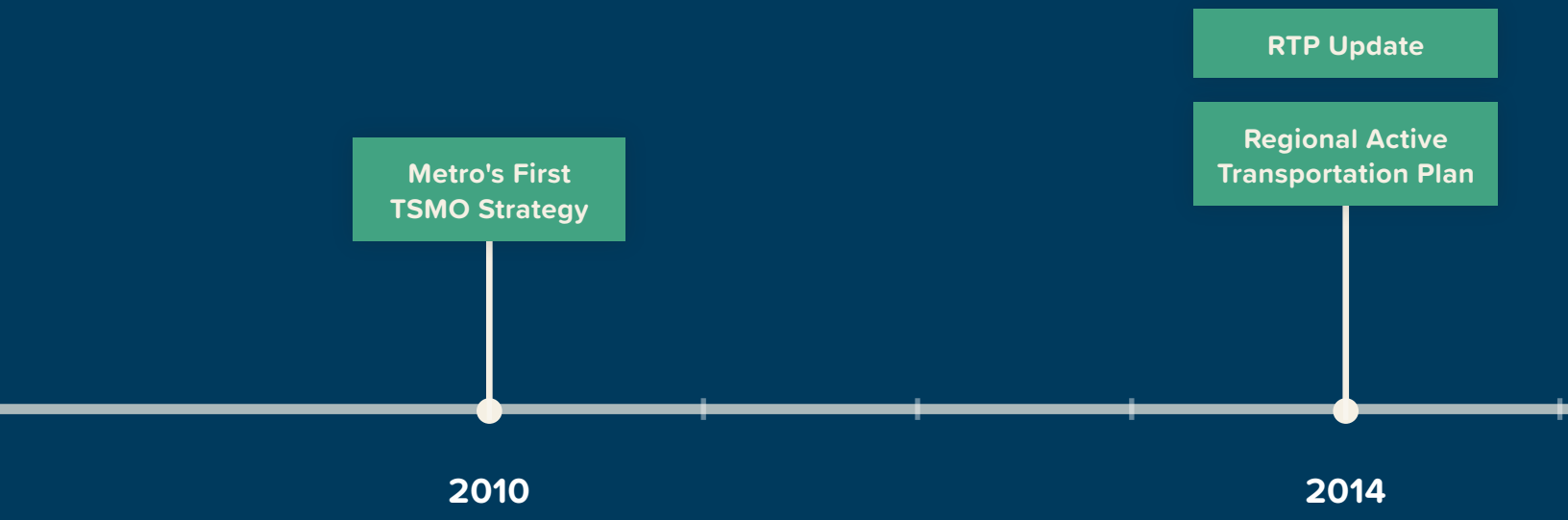
This group, comprised primarily of transportation system operators and engineers who play a key part in coordinating and advancing TSMO in the region.

Multidisciplinary

TSMO participation is multidisciplinary, and requires collaboration across several disciplines, including planners, engineers, emergency responders, demand management specialists, operators, and maintenance professionals. Through the TSMO project development process, these disciplines will each fill different role. Regardless of the stage of the overall TSMO strategy, each role remains engaged to ensure the successful implementation of the plan, or to help redirect the progress to a more successful conclusion.

1.4 History of Regional TSMO Planning

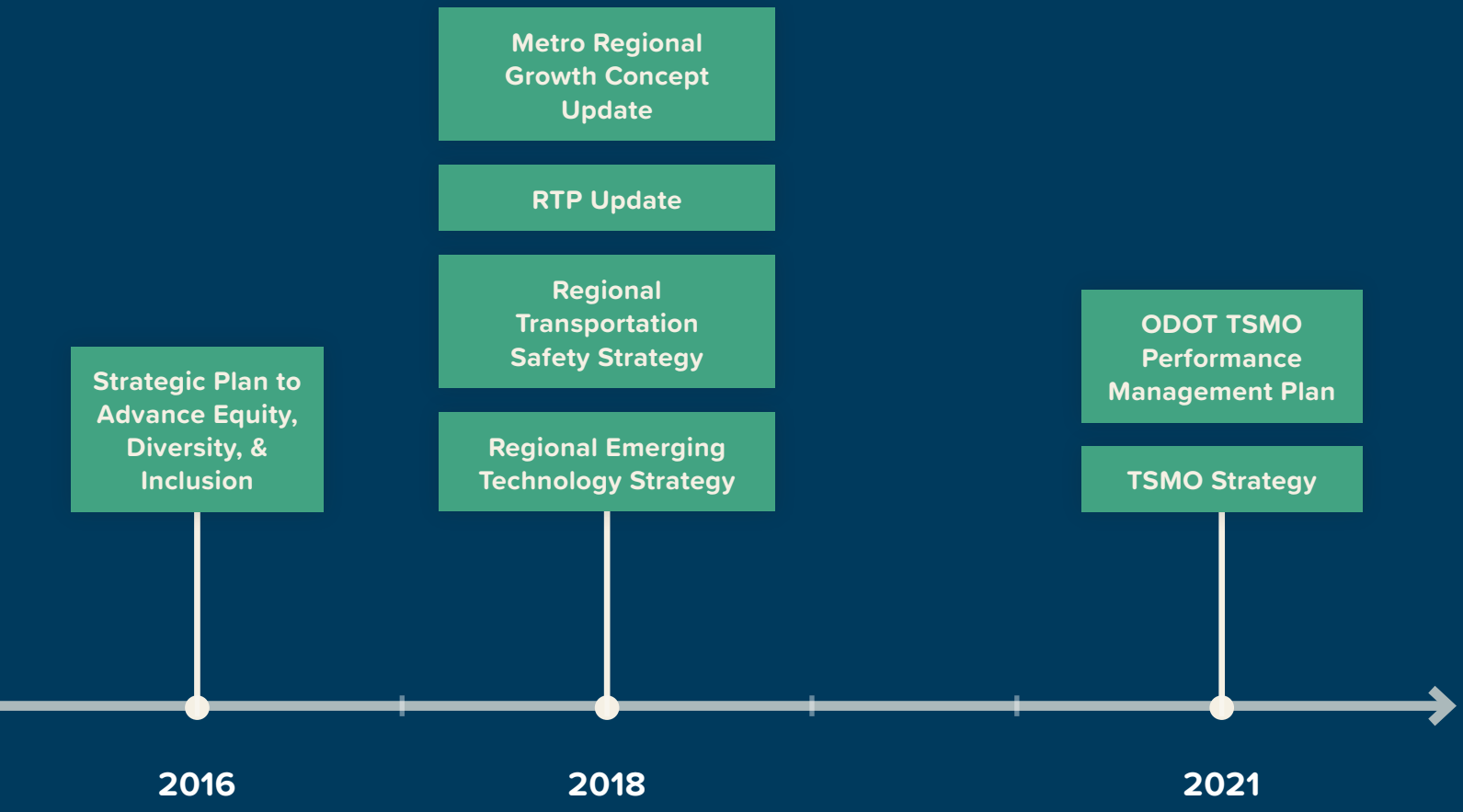
TSMO is not new to the Metro region. The first TSMO Strategy was developed in 2010. Over the last 10 years goals identified in that plan have been supported by other planning efforts including the 2018 Regional Transportation Plan (RTP), Metro's Safety Strategy, and ODOT's TSMO Performance Management Plan. The timeline below depicts the history of TSMO planning in the region and identifies key plans that inform and support this Strategy.



2010: Metro's First TSMO Plan

This plan established the region's first TSMO goals and guiding principles, applied through a list of projects ranging from ITS to travel demand management, which guided regional implementation between 2010 and 2020. A summary of projects included in the 2010 TSMO Plan can be found in **Appendix A**.

- **Reliability**: Provide reliable travel times for people and goods movement.
- **Safety & Security**: Enhance transportation safety and security for all modes.
- **Quality of Life**: Enhance the environment and quality of life by supporting state and regional greenhouse gas reduction and air quality goals.
- **Traveler Information**: Provide comprehensive multimodal traveler information to people and businesses.



2018: RTP Update

The plan is an outcomes-based framework and identifies the following desired outcomes:

- **Equity**: The benefits and burdens of growth and change are distributed equitably.
- **Vibrant Communities**: People live, work, and play in vibrant communities where their everyday needs are easily accessible.
- **Economic Prosperity**: Current and future residents benefit from the region's sustained economic competitiveness and prosperity.
- **Clean Air and Water**: Current and future generations enjoy clean air, clean water, and healthy ecosystems.
- **Climate Leadership**: The region is a leader in minimizing contributions to global warming.

1.5 2021 TSMO Strategy

The 2021 Strategy update created an opportunity to engage a more diverse set of stakeholders and expand the TSMO focus to address the disproportionate impacts of the transportation system on Black, Indigenous, people of color, and people with low incomes.

The 2021 TSMO Strategy is a joint collaboration between Metro and ODOT and benefited from input provided by a diverse set of stakeholders through the Stakeholder Advisory Committee (SAC). The SAC was made up of individuals representing various agencies, community based organizations, and the community at-large. For a full list of SAC members, see **Appendix B**.

The planning process used to create the 2021 TSMO Strategy is shown on this page. This process allowed for input from the SAC and other leadership groups in the region including the Transportation Policy Alternatives Committee (TPAC) and TransPort at the key milestones shown to the right.

The Planning Process

Vision & Goals

The vision for the 2021 TSMO Strategy is an aspirational statement that defines what TSMO should achieve over the life of this strategy. The goals provide strategic direction for collaboration and investments decisions to make progress towards the vision. The priorities and needs that shape the vision and goals for the 2021 TSMO Strategy were shaped by considering three key questions about the region's transportation system:

What do we want to protect?

What do we want to create?

What do we want to avoid?

Objectives

Objectives clarify what each goal should achieve. The 26 objectives in this Strategy are specific, measurable, actionable, and realistic. Over the life of this Strategy, Metro and their partner agencies will track progress towards these objectives and make changes to ensure progress is made.

Performance Measures and Targets

To track progress towards the vision and goals, Metro and their agency partners will rely on the performance measures and targets developed for this Strategy. Throughout the life of the Strategy, the performance measures will indicate how successful the actions are at moving the region towards the vision for the transportation system, including progress on many RTP performance measures.

Actions

The Actions for this Strategy map how stakeholders will achieve the vision and goals over the life of this Strategy. Actions presented in this Strategy reflect input from partner agencies and key stakeholders. Each Action also includes a timeline for achievement, including who will track and report on progress over the next 10 years.

Oregon City, OR

Chapter 2

Equity in TSMO

> By addressing the barriers experienced by Black, Indigenous, people of color, and people with low incomes, we will effectively also identify solutions and remove barriers for other disadvantaged groups.

— Metro's Strategic Plan to Advance Equity, Diversity, & Inclusion.

Equity in transportation means improving equitable outcomes by creating a transportation system that removes barriers and eliminates disparities faced by Black, Indigenous, people of color, and people with low incomes. By defining Transportation System Management & Operations (TSMO) solutions through an equity lens, this Strategy will focus solutions on those most impacted by the negative impacts of the transportation system and improve transportation equity in the region.

TSMO strategies and implementation historically focused on reliability, safety, traveler information, and congestion management. While these elements are not forgotten in this Strategy, the Metro region recognized that equity implications should be incorporated into all of their transportation planning efforts.

In 2016 Metro published their Strategic plan to advance racial equity, diversity and inclusion. This guiding document establishes racial equity "as the approach to ensure that all people who live, work and recreate in the Portland region have the opportunity to share in and help define a thriving, livable and prosperous region.... By addressing the barriers experienced by all of their people of color, we will effectively also identify solutions and remove barriers for other disadvantaged groups." This approach influenced the vision, goals, and projects included in the 2018 Regional Transportation Plan (RTP) update and served as the foundation of the equity focus woven throughout this Strategy.

So how can TSMO address equity issues? The first step is reframing the discussion from focusing on the problem locations, to who is being affected by the problems and how solutions can remove barriers for people who are most burdened. Instead of jumping straight into identifying congestion bottlenecks and solutions to fix them, instead we should ask whether there are certain groups who bear the greatest burden of congestion, do they have access to other reliable modes of travel, and what solutions do they say would be most helpful?

These questions were the basis for creating the Vision, Goals, Objectives, Performance Measures, Targets, and Actions that make up this Strategy.

Navigating the Equity Tree

1. Start at the root and **define a problem**
2. Follow the branches and leaves of the through the Plans level to **identify keys** to solving a problem
3. Continue through the Strategies level to **develop a solution step** to a problem
4. At the tree top, **evaluate and refine** actions, being accountable to the result

Why Equity?

More than **1 in 10** Americans have a mobility disability such as serious difficulty walking or climbing stairs.

People who are Black, Asian, Native American, Pacific Islander or Latino-origin are **4 times more likely** to rely on transit for their work commute than people who are White.

Households in the bottom 90% income bracket spend **twice the amount on transportation** than households in the top 10% income bracket spend each year

Pedestrian Fatality Rates

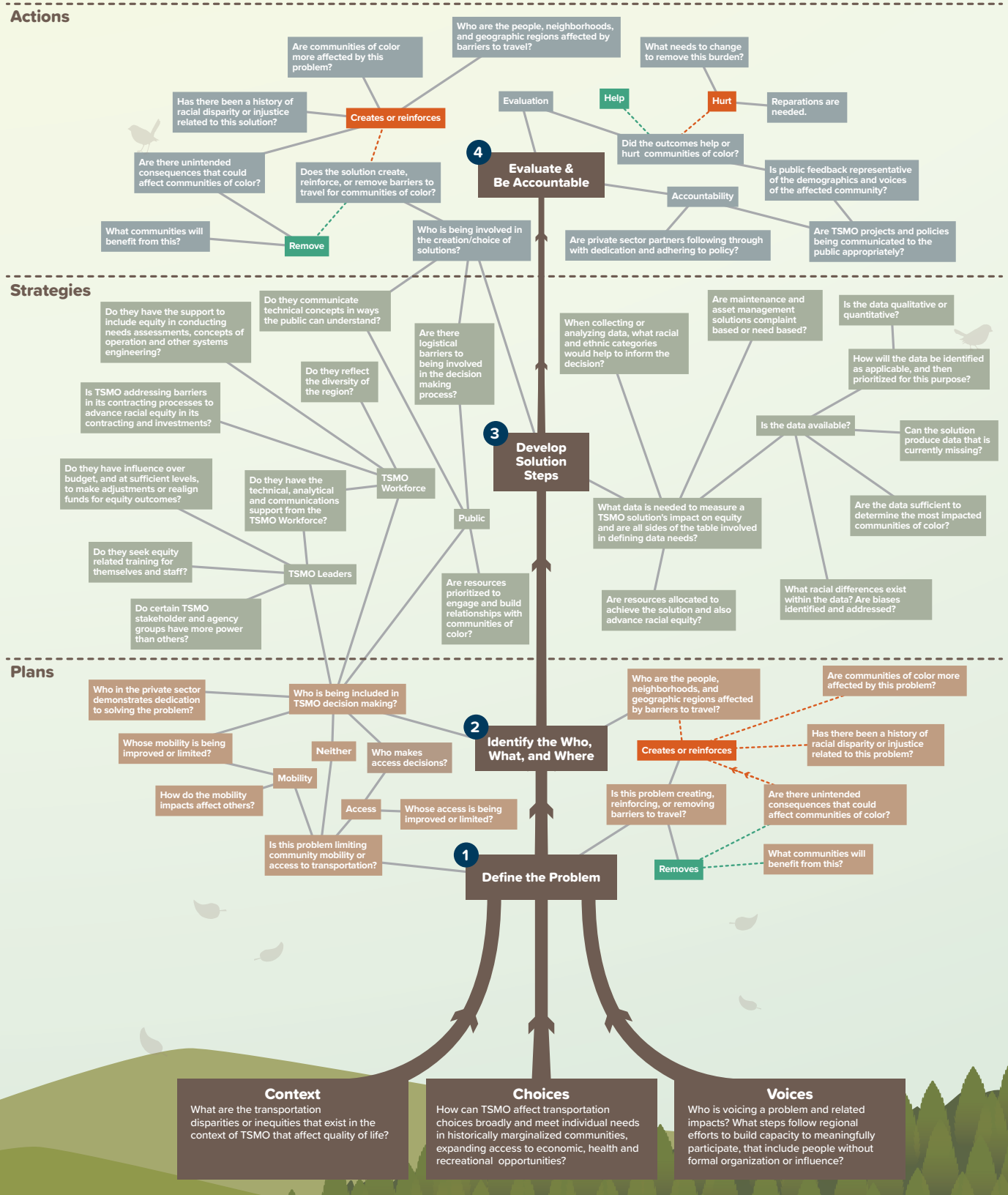
Households Without a Car

Sources: Smart Growth America; Centers for Disease Control and Prevention; Census; Treasury

TSMO Equity Tree

oregonmetro.gov/tsmo

As a user moves up the tree from root to branches, they 1 define the problem, 2 identify keys to solving the problem, 3 develop a solution, and then 4 evaluate and refine the actions to be accountable for the result.




AMERICAN
BANK BUILDING
Portland, OR

Chapter 3
Vision, Goals, & Objectives

Vision, Goals, and Objectives illustrate what the Transportation System we desire to create looks like.

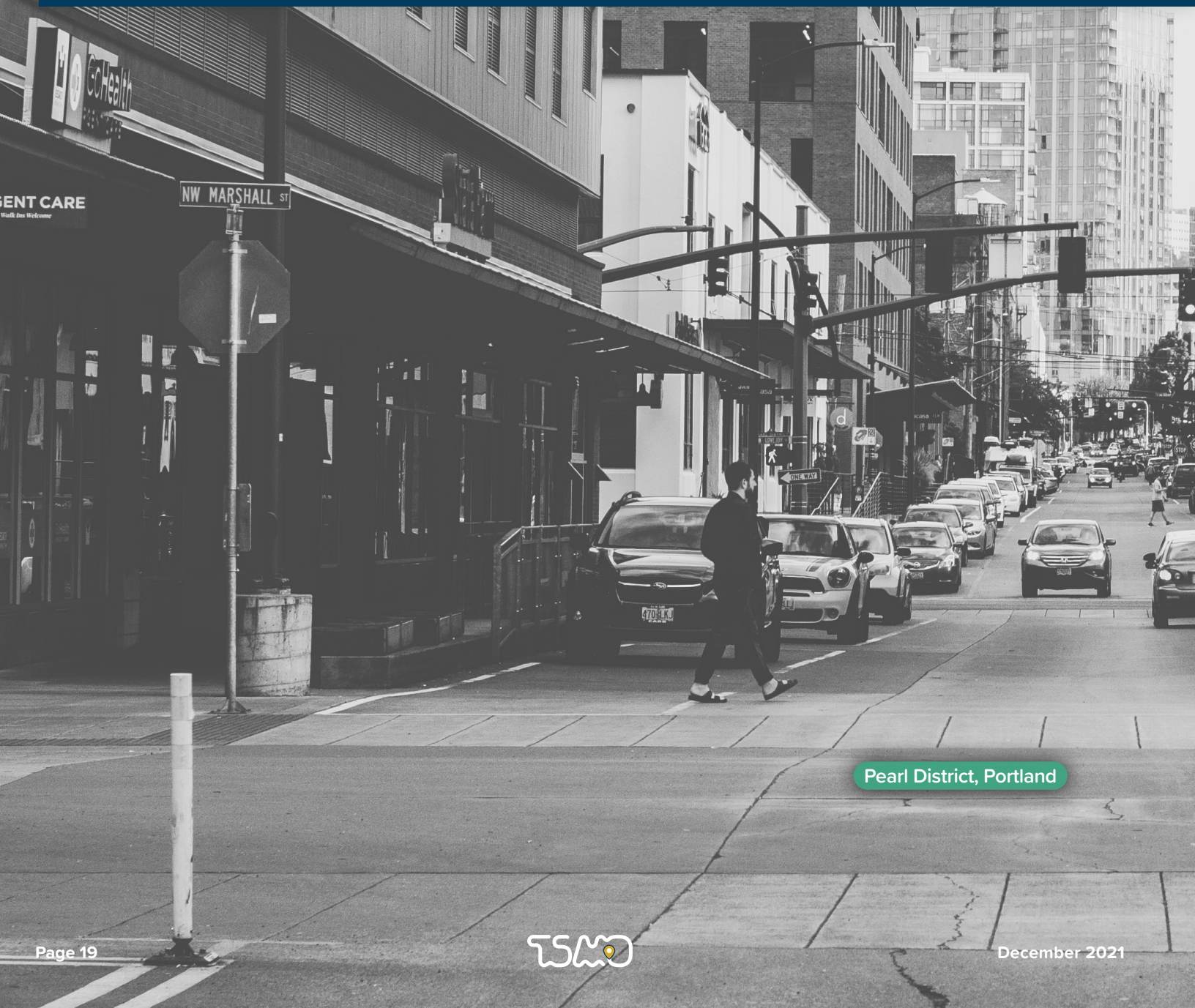
The Vision for the future of the greater Portland region's Transportation System Management & Operations (TSMO) strategy was created by asking three questions: What do we want to protect? What do we want create? What do we want to avoid? Together the Vision, Goals, and Objectives illustrate what the TSMO Strategy advances for the transportation system. This is the system the region wants to move towards over the lifetime of this Strategy.

More information on the development of the Vision, Goals, and Objectives is included in **Appendix C.**

3.1 The Vision

The vision for the Strategy is an aspirational statement that defines what implementation of the Strategy should achieve over of the next ten years.

Collaborate to provide reliable, agile, and connected travel choices so that all users are free from harm, and to eliminate the disparities experienced by Black, Indigenous, people of color, and people with low incomes.



Pearl District, Portland

3.2 Goals & Objectives

The six goals for the Strategy provide direction for collaboration and investment decisions that will result in progress towards the Vision. These goals will move the region towards a transportation system that travelers can use without harm, that provides access for all travelers, reflects the needs and desires of all voices, and that supports travelers to access and choose different modes when traveling.

Each goal has a set of objectives that reflect collaboration with the Stakeholder Advisory Committee (SAC). These objectives define how the region will achieve the six goals.

1. Free From Harm

Create a transportation system where all users are free from harm.

Objectives

1.1 Manage the transportation system to reduce negative health impacts so that public health risk does not adversely affect people's mode choice.

1.2 Ensure Black, Indigenous, people of color, and people with low incomes benefit from safety improvements.

1.3 Provide a transportation system where human error does not result in serious injury or loss of life.

1.4 Ensure people of color and low income individuals can safely access multiple low stress mode choices and routes within the transportation system by improving access to and accessibility of transit stops, pedestrian, and bicycle facilities.

2. Regional Partnerships & Collaboration

Collaborate as effective stewards of the transportation system.

Objectives

2.1 Collaborate to provide consistent travel experiences across jurisdictional boundaries through knowledge-sharing on best approaches to multimodal traffic signal timing integrated payment and scheduling systems, integrated corridor management, and data sharing between agencies.

2.2 Collaborate with emergency management when prioritizing investments on key emergency response routes.

2.3 Collaborate with and educate travelers.

2.4 Improve interagency collaboration to ensure efficient operations by identifying and addressing barriers in communication when making decisions about network operation or expansion.

3. Eliminate Disparities

Eliminate the disparities in the transportation system experienced by Black, Indigenous, people of color, and people with low incomes.

Objectives

3.1 Prioritize reaching underrepresented groups when providing traveler information and community outreach and ensure that modal access and traveler information is free from technological and financial barriers.

3.2 Identify and correct disparities when planning, operating, and maintaining the transportation system (e.g., transit access, exposure to air toxics, allocation of funds).

3.3 Identify and increase awareness of the unique travel experiences of Black, Indigenous, people of color, and people with low incomes.

3.4 Reduce the transportation cost burden experienced by Black, Indigenous, people of color, and people with low incomes.

.

4. Connected Travel Choices

Connect all people to the goods, services, and destinations they need through a variety of travel choices.

Objectives

4.1 Connect decentralized travel options to facilitate viable destinations in Regional Centers, Town Centers, and employment areas outside downtown Portland.

4.2 Prioritize the completion and expansion of planned transit and active mode networks when investing discretionary revenues especially to destinations with limited travel choices.

4.3 Connect goods and delivery services to people and businesses by providing for and managing last mile connections for goods delivery.

4.4 Increase availability and accessibility of low-cost transportation options for Black, Indigenous, people of color, and people with low incomes and acknowledgement that a significant percentage of people will not have access to an automobile.

5. Reliable Travel Choices

Provide a transportation system that is reliable for all users.

Objectives

5.1 Manage recurring and non-recurring congestion to improve travel time reliability for all users, including active transportation, transit, and freight.

5.2 Expand travel time reliability improvements for Black, Indigenous, people of color, and people with low incomes burdened with long travel distances.

5.3 Manage critical freight corridors to create reliable routes for freight movement between key destinations.

5.4 Communicate expected changes in reliability so that travelers can make informed travel choices.

6. Prepare for Change

Manage the system to be agile in the face of growth, disruptions, and changing technology.

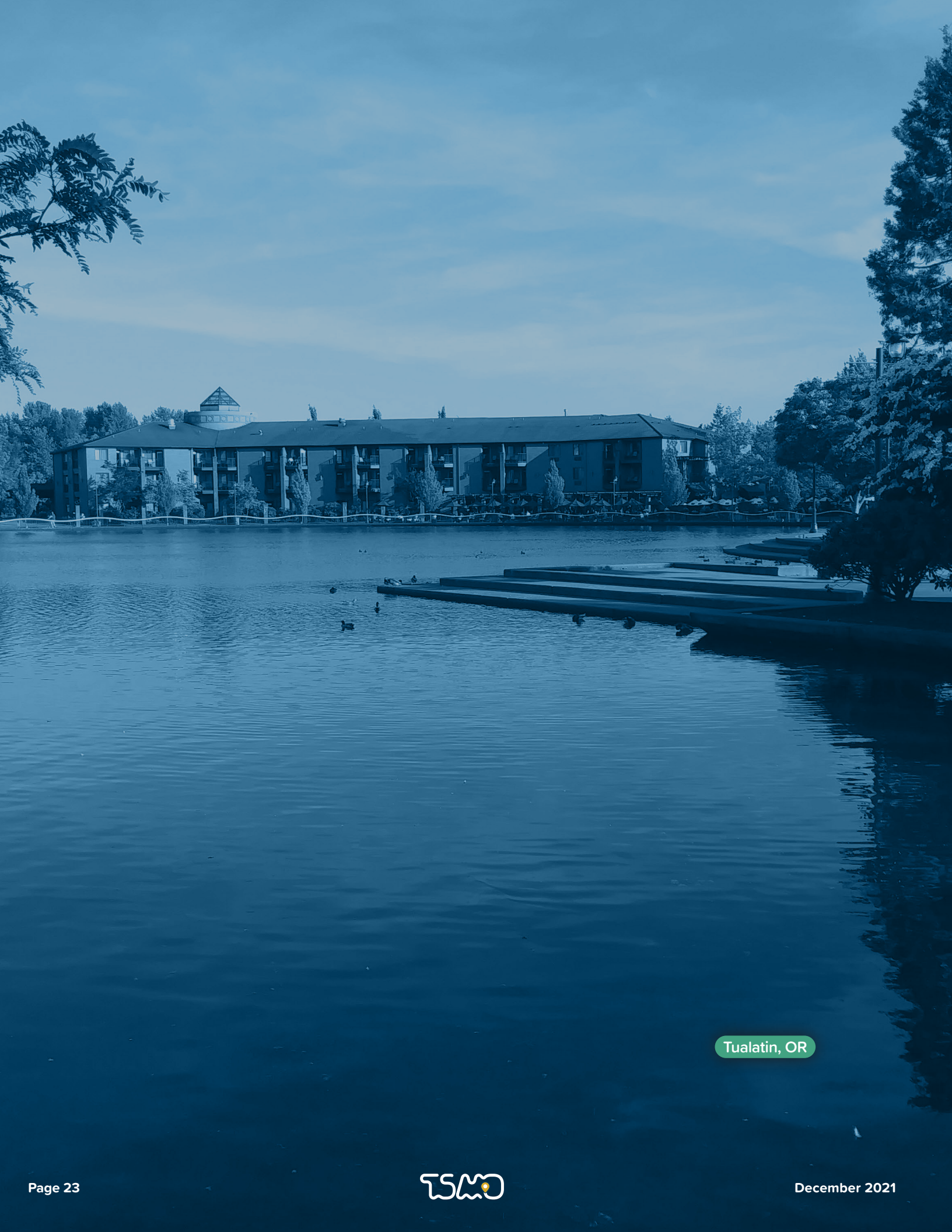
Objectives

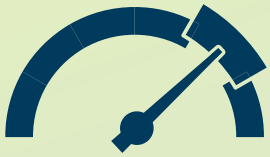
6.1 Plan and design a flexible transportation network that can adapt to new technology and travel choices that are consistent with the region's desired land use and transportation outcomes.

6.2 Manage projects and resources to be responsive to changes in land use planning and growth patterns.

6.3 Minimize long term disruptions to the transportation system by creating resiliency to climate change and economic shifts.

6.4 Provide public agency staff with the data, tools, models, and training needed to assess long-term disruptive transportation trends.


Tualatin, OR



Chapter 4

Performance Measures & Targets

Seven performance measures were identified that will be used to measure progress toward the Strategy's Goals & Objectives. These measures are Transportation System Management & Operations (TSMO):

- → Vehicle Miles Traveled (VMT) per Capita
- → Number of Crashes by Severity
- → Buffer Index
- → Agency Collaboration & Communication Events
- → System Connectivity
- → Targeted TSMO Investments
- → Timely Traveler Information

More information on the development of these Performance Measures and Targets are included in **Appendix D**.

Vehicle Miles Traveled (VMT) per Capita

A measure of the average number of auto miles driven per person.

This performance measure supports the following TSMO goals:

- Free From Harm
- Collaboration & Partnerships
- Eliminate Disparities
- Prepare for Change
- Reliable Travel Choices
- Connected Travel Choices

Key Performance Metrics

Regional VMT per Capita measures how much travelers are driving in the region.

- The measure is related to air toxics and greenhouse gas emissions, but does not account for vehicle electrification. Historically, VMT responded to land use context and economic changes (as the economy grew, so did VMT). However, as gas prices rose in 2008, VMT and the economy began to separate. VMT is still related to economics, and can represent upward economic movement, but new technology, higher seat utilization, and greater mobility choices can help reduce overall VMT, reducing recurring and non-recurring congestion. VMT can also be measured by geography determining an area's VMT generation and exposure.

VMT Exposure per Capita is an indicator of the transportation systems impact.

- Exposure to VMT can result in increased exposure to air toxics and higher crash risk. Historically, major routes have been constructed in Black, Indigenous, people of color, and low income neighborhoods, disproportionately exposing those communities. Measuring VMT exposure tracks these impacts.

VMT Generation per Capita is an indicator of transportation choices and economic activity.

- VMT per capita is a measure of land use efficiency and travel choice. Areas with higher densities, mixed uses, and robust networks for walking, bicycling, and transit produce lower VMT per capita. However, VMT per capita may also be low due to low incomes, high unemployment, and a lack of travel choices. Comparing VMT per capita across the region can help identify areas with disparate outcomes.

Exploratory Metrics

Number of Coordination Events and Number of Agencies Involved.

- Coordination between agencies can take a variety of forms. Making connections across departments and agency boundaries deepens the level of knowledge and empathy for the work and challenges staff face across the region.
- Coordination events build relationships and communication paths that lead to information sharing that allow agencies to be more agile and responsive in a rapidly changing environment.

Performance Measures & Targets

Vehicle Miles Traveled (VMT) per Capita	» Reduce average vehicle miles traveled per person by 10 percent from 2021.
Number of Crashes by Severity	» Show progress toward meeting the 2035 Vision Zero Goal (Eliminate Fatal and Severe Injury crashes), and collisions in Equity Focus Areas are equal to or less than the regional average.
Buffer Index	» Buffer Index (vehicle or transit, calculated as noted) is below 50% for all identified routes.
Agency Collaboration & Communication Events	» 100% of engagement activities involve Black, Indigenous, people of color, and people with low incomes and 100% of agencies are sharing data annually.
System Connectivity	» 100% of signals on identified routes have communications. » There is a 10% increase (from 2021) in the connectivity index and percent of households/employers within 10 minutes of transit, and a 15% increase in these metrics in Equity Focus Areas
Targeted TSMO Investments	» TSMO investments benefiting the identified key corridors/geographies make up at least 50% of total TSMO investments in the region.
Timely Traveler Information	» 50% of transit shelters, and 100% of shelters in Equity Focus Areas have real-time arrival displays. » 100% of agencies have a traveler information system plan.

Direct Relationships

As **VMT per Capita** goes up ↑, **increases** ↑ are expected for:

- Tailpipe air toxics and greenhouse gases
- Economic activity
- Volume of cut-through traffic
- Crash risk

Inverse Relationships

As **VMT per Capita** goes up ↑, **decreases** ↓ are expected for:

- Use of non-auto modes such as walking, biking, and transit
- Seat utilization

Number of Crashes by Severity

A measure of transportation safety and performance.

This performance measure supports the following TSMO goals:

- Free From Harm
- Collaboration & Partnerships
- Eliminate Disparities
- Prepare for Change
- Reliable Travel Choices
- Connected Travel Choices

Key Performance Metrics

Total Crashes per MVMT

» Total Crashes per Million Vehicle Miles Traveled (MVMT). Metro's Safety Strategy aims to eliminate severe crashes (crashes with major injuries or fatalities) by 2035. Crashes on the transportation network cause non recurring congestion, and fatal crashes result in longer incident response times with sustained impacts. The TSMO Strategy aims to reduce harm and reduce the non-recurring congestion created by incident by improving the safety of the system overall. Therefore, tracking total crashes should be evaluated inthe following subsets:

- Crash rate by severity (crashes/MVMT/per100,000 capita).
- Crash rate by mode (crashes/MVMT/per100,000 capita).
- Crash frequency of fatal, pedestrian, andbicycle related crashes (number of crashes).
- Ratio of crashes that occur in equity focus areasto total regional crashes (percent).

Exploratory Metrics

Crash Demographics

» Current crash demographics is not readily available. Metro's Safety Strategy identifies that "Traffic deaths are increasing and are disproportionately impacting people of color, people with low incomes and people over age 65." This metric would improve the region's understanding of the disproportional impacts of crashes, and how to correct them.

Secondary Crashes

» Secondary crashes are those that occur at the scene of the original crash or in the queue, even in the opposite direction. Current crash reporting documents do distinguish between a primary and secondary crash. This metric would help Metro measure the region's ability to manage, clear, and reopen facilities following an incident.

Crash Risk

» Crash analysis is currently conducted using historical data and is therefore reactive. Technology and data sources are available to identify locations of increased crash risk before crashes occur but can be costly and privately owned. This metric would help the region be proactive in transportation safety improvements.

Average Miles Biked or Walked

» Pedestrian and Bicycle miles traveled are lower than the total vehicle miles traveled. Therefore, when evaluating pedestrian and bicycle crash rates per miles traveled data on the average trip length or total miles walked or biked, better correlates than the total miles traveled by vehicles in the region. A data source for this measurement needs to be researched and determined for this work. These could include traveler surveys or data from a third-party provider.

Performance Measures & Targets

Vehicle Miles Traveled (VMT) per Capita	» Reduce average vehicle miles traveled per person by 10 percent from 2021.
Number of Crashes by Severity	» Show progress toward meeting the 2035 Vision Zero Goal (Eliminate Fatal and Severe Injury crashes), and collisions in Equity Focus Areas are equal to or less than the regional average.
Buffer Index	» Buffer Index (vehicle or transit, calculated as noted) is below 50% for all identified routes.
Agency Collaboration & Communication Events	» 100% of engagement activities involve BIPOC and low income communities and 100% of agencies are sharing data annually.
System Connectivity	» 100% of signals on identified routes have communications. » There is a 10% increase (from 2021) in the connectivity index and percent of households/employers within 10 minutes of transit, and a 15% increase in these metrics in Equity Focus Areas
Targeted TSMO Investments	» TSMO investments benefiting the identified key corridors/geographies make up at least 50% of total TSMO investments in the region.
Timely Traveler Information	» 50% of transit shelters, and 100% of shelters in Equity Focus Areas have real-time arrival displays. » 100% of agencies have a traveler information system plan.

Direct Relationships

As **Number of Crashes by Severity** goes up ↑, **increases** ↑ are expected for:

- Black, Indigenous, people of color, and people with low incomes that are seriously injured or killed while using the transportation system
- Non-recurring congestion events related to crashes
- Resources needed for incident management
- Tailpipe air toxics & greenhouse gases

Inverse Relationships

As **Number of Crashes by Severity** goes up ↑, **decreases** ↓ are expected to any progress toward reducing:

- Disproportional impacts of transportation on neighborhood safety

Buffer Index

The extra time a traveler adds to their trip (buffer) to ensure on-time arrival.

This performance measure supports the following TSMO goals:

Free From Harm | Collaboration & Partnerships | **Eliminate Disparities** | Prepare for Change | **Reliable Travel Choices** | **Connected Travel Choices**

Key Performance Metrics

Buffer Index

» Travel time reliability is measured by taking the ratio of the longest to shortest duration trips for trips of the same distance on the network. Buffer index measures is the variability between 90th percentile and 10th-percentile or run time for transit, or between the 90th percentile and average travel time for vehicles, as calculated by the following equation:

$$\frac{90th\text{-}Percentile - 10th\text{-}Percentile}{10th\text{-}Percentile} = Transit\ Buffer\ Index\ (\%)$$

$$\frac{90th\text{-}Percentile - 50th\text{-}Percentile}{50th\text{-}Percentile} = Vehicle\ Buffer\ Index\ (\%)$$

A higher percent value indicates a higher degree of variability during congested hours. Buffer index can measure by mode, and the TSMO strategy will report on changes to Transit Buffer Index and Vehicle Buffer Index:

- Transit Buffer Index for Frequent Bus Routes & Light Rail
- Transit Buffer Index for BIPOC and Low-Income Service Routes
- Vehicle Buffer Index for Throughway Segments and Arterials
- Freight Buffer Index for Regional Intermodal Connectors

Performance Measures & Targets

Vehicle Miles Traveled (VMT) per Capita	» Reduce average vehicle miles traveled per person by 10 percent from 2021.
Number of Crashes by Severity	» Show progress toward meeting the 2035 Vision Zero Goal (Eliminate Fatal and Severe Injury crashes), and collisions in Equity Focus Areas are equal to or less than the regional average.
Buffer Index	» Buffer Index (vehicle or transit, calculated as noted) is below 50% for all identified routes.
Agency Collaboration & Communication Events	» 100% of engagement activities involve BIPOC and low income communities and 100% of agencies are sharing data annually.
System Connectivity	» 100% of signals on identified routes have communications. » There is a 10% increase (from 2021) in the connectivity index and percent of households/employers within 10 minutes of transit, and a 15% increase in these metrics in Equity Focus Areas
Targeted TSMO Investments	» TSMO investments benefiting the identified key corridors/geographies make up at least 50% of total TSMO investments in the region.
Timely Traveler Information	» 50% of transit shelters, and 100% of shelters in Equity Focus Areas have real-time arrival displays. » 100% of agencies have a traveler information system plan.

Direct Relationships

As **Buffer Index** goes up ↑, **increases** ↑ are expected for:

- Reliability of transit routes and on time performance
- Transit run time variability
- Reliability of routes in a corridor
- Congested areas that delay transit

Inverse Relationships

As **Buffer Index** goes up ↑, **decreases** ↓ are expected for:

- Total elapsed time in which responders are able to clear incidents from roadways, railroads, and transit tracks

Agency Collaboration and Communication Events

Frequency of staff collaborating and communicating progress towards TSMO Goals.

This performance measure supports the following TSMO goals:

Free From Harm | **Collaboration & Partnerships** | **Eliminate Disparities** | **Prepare for Change** | Reliable Travel Choices | **Connected Travel Choices**

Key Performance Metrics

Number of Agencies with a public participation plan that includes Black, Indigenous, people of color, and people with low incomes.

- Metro and their agency partners develop transportation solutions that serve the entire community. The solutions aim to correct historically disproportional impacts to Black, Indigenous, people of color, and people with low incomes. This relies on creating strategic opportunities for these communities to participate in the decision making. This metric is a pass/fail for each agency represented by Metro.

Number of Agencies Attending TransPort

- Transport is a group of engineers and planners representing partner agencies that coordinate TSMO and Intelligent Transportation Systems projects regionally. Continuing this coordination is key to TSMO's success in the region.

Percent of Key Operating Agreements Executed.

- Metro and their partner agencies create agreements for collecting and sharing data, managing systems, and traffic incident management. These agreements are key to TSMO's success. This metrics ensure that agencies are following through on agreements or modifying them as needed for interagency coordination.

Exploratory Metrics

Number of Coordination Events and Number of Agencies Involved.

- Coordination between agencies can take a variety of forms. Making connections across departments and agency boundaries deepens the level of knowledge and empathy for the work and challenges staff face across the region.
- Coordination events build relationships and communication paths that lead to information sharing that allow agencies to be more agile and responsive in a rapidly changing environment.

Performance Measures & Targets

Vehicle Miles Traveled (VMT) per Capita	» Reduce average vehicle miles traveled per person by 10 percent from 2021.
Number of Crashes by Severity	» Show progress toward meeting the 2035 Vision Zero Goal (Eliminate Fatal and Severe Injury crashes), and collisions in Equity Focus Areas are equal to or less than the regional average.
Buffer Index	» Buffer Index (vehicle or transit, calculated as noted) is below 50% for all identified routes.
Agency Collaboration & Communication Events	» 100% of engagement activities involve Black, Indigenous, people of color, and people with low incomes and 100% of agencies are sharing data annually.
System Connectivity	» 100% of signals on identified routes have communications. » There is a 10% increase (from 2021) in the connectivity index and percent of households/employers within 10 minutes of transit, and a 15% increase in these metrics in Equity Focus Areas
Targeted TSMO Investments	» TSMO investments benefiting the identified key corridors/geographies make up at least 50% of total TSMO investments in the region.
Timely Traveler Information	» 50% of transit shelters, and 100% of shelters in Equity Focus Areas have real-time arrival displays. » 100% of agencies have a traveler information system plan.

Direct Relationships

As **Agency Collaboration and Communication Events** goes up ↑, **increases** ↑ are expected for:

Economic activity | Crash risk

Inverse Relationships

As **Agency Collaboration and Communication Events** goes up ↑, **decreases** ↓ are expected for:

Use of non-auto modes

System Connectivity

How complete and connected the infrastructure system is for each travel mode.

This performance measure supports the following TSMO goals:

Free From Harm | Collaboration & Partnerships | Eliminate Disparities | Prepare for Change | Reliable Travel Choices | Connected Travel Choices

Key Performance Metrics

Percent of Signals with Communications.

» Installing communications across signals allows for connection to a central signal system, improved data collection, and signal management and operations. These connections should be prioritized for signals on regionally-designated and other important routes, including:

- Frequent bus routes
- Arterials serving equity focus areas
- Freeway Segments and Mobility Corridors
- Regional Intermodal Freight Connectors

Percent of Households and Employers within 10-minute Walk or Bike Travel Shed from Transit.

» This measurement determines how easily travelers can access and interface with transit by low-stress bicycle and walking routes. The 10-minute walk or bike travel shed shows how far from transit a traveler can live but still have reasonable access to the system. The walk and bike travel shed connectivity using the existing system, assuming travelers are only able to use identified lowstress and accessible bike and walking routes. The metrics should be measured by census block, breaking out equity focus areas, regional centers, and town centers.

Connectivity Index of Infrastructure.

» A connectivity index is the comparison of 30-minute travel shed on the existing network as compared to an ideal grid network. A high connectivity index represents redundancy in the transportation network that can reduce the impacts of unforeseen events and the non-recurring congestion those events can cause. For example, a high connectivity index for bicycles represents an alternative route when trails are flooded, or bridges are raised. A high connectivity index for vehicles could present shorter trips through neighborhoods, or alternative routes in regions impacted by natural disasters such as forest fire or mudslides. Connectivity Index should be measured mode and geography, including:

- for active modes (pedestrian, bicycle) by route level of stress;
- for vehicular modes; and
- measured by census block, breaking out equity focus areas, regional centers, and town centers.

Performance Measures & Targets

Vehicle Miles Traveled (VMT) per Capita	» Reduce average vehicle miles traveled per person by 10 percent from 2021.
Number of Crashes by Severity	» Show progress toward meeting the 2035 Vision Zero Goal (Eliminate Fatal and Severe Injury crashes), and collisions in Equity Focus Areas are equal to or less than the regional average.
Buffer Index	» Buffer Index (vehicle or transit, calculated as noted) is below 50% for all identified routes.
Agency Collaboration & Communication Events	» 100% of engagement activities involve Black, Indigenous, people of color, and people with low incomes and 100% of agencies are sharing data annually.
System Connectivity	» 100% of signals on identified routes have communications. » There is a 10% increase (from 2021) in the connectivity index and percent of households/employers within 10 minutes of transit, and a 15% increase in these metrics in Equity Focus Areas.
Targeted TSMO Investments	» TSMO investments benefiting the identified key corridors/geographies make up at least 50% of total TSMO investments in the region.
Timely Traveler Information	» 50% of transit shelters, and 100% of shelters in Equity Focus Areas have real-time arrival displays. » 100% of agencies have a traveler information system plan.

Direct Relationships

As **System Connectivity** goes up ↑, **increases** ↑ are expected for:

- Miles of infrastructure by mode in Equity Focus Areas where field devices are connected to centers
- Geographic transit coverage
- Systems infrastructure such as transit signal priority or stop amenities
- Transit, jobs, and services
- Walking and biking network completeness

Inverse Relationships

As **System Connectivity** goes up ↑, **decreases** ↓ are expected for:

- Sidewalk and bicycle system gaps

Targeted TSMO Investments

Distribution of investments regionally and on key corridors for modal efficiency.

This performance measure supports the following TSMO goals:

- Free From Harm
- Collaboration & Partnerships
- Eliminate Disparities
- Prepare for Change
- Reliable Travel Choices
- Connected Travel Choices

Key Performance Metrics

Percent of TSMO Investments benefiting key corridors.

» Where TSMO investments are made is an indication of who is benefiting from the efficiencies that result from this strategy. To ensure those efficiencies are realized in an equitable way, and to match the priorities and values of the region, the distribution of the investments should be measured through the life of the strategy. This strategy will track where investment benefit the following types of corridors as defined by other regional plans.

- Frequent bus routes
- Arterials serving equity focus areas
- Freeway Segments and Mobility Corridors
- Regional Intermodal Freight Connectors

Performance Measures & Targets

Vehicle Miles Traveled (VMT) per Capita	» Reduce average vehicle miles traveled per person by 10 percent from 2021.
Number of Crashes by Severity	» Show progress toward meeting the 2035 Vision Zero Goal (Eliminate Fatal and Severe Injury crashes), and collisions in Equity Focus Areas are equal to or less than the regional average.
Buffer Index	» Buffer Index (vehicle or transit, calculated as noted) is below 50% for all identified routes.
Agency Collaboration & Communication Events	» 100% of engagement activities involve Black, Indigenous, people of color, and people with low incomes and 100% of agencies are sharing data annually.
System Connectivity	» 100% of signals on identified routes have communications. » There is a 10% increase (from 2021) in the connectivity index and percent of households/employers within 10 minutes of transit, and a 15% increase in these metrics in Equity Focus Areas.
Targeted TSMO Investments	» TSMO investments benefiting the identified key corridors/geographies make up at least 50% of total TSMO investments in the region.
Timely Traveler Information	» 50% of transit shelters, and 100% of shelters in Equity Focus Areas have real-time arrival displays. » 100% of agencies have a traveler information system plan.

Direct Relationships

As **Targeted TSMO Investments** goes up ↑, **increases** ↑ are expected for:

- Equitable distribution of resources and ensuring that Equity Focus Areas are receiving equal or greater investment than the regional average
- Collaboration across jurisdictions as Mobility Corridors cross jurisdictional boundaries and connect cities.
- Transit signal priority investments
- Transportation operator's ability to integrate corridor management
- Economic gains from greater freight access
- Reliability, access, and safety on intermodal connectors and other freight routes.
- Resiliency of key facilities such as bridges
- Truck drivers finding places to park for required rest periods
- Preparation for short- and long-term disruptions
- Improving reliability for high frequency transit

Timely Traveler Information

How effectively information is being relayed to travelers to reduce delay associated with planned or unexpected events.

This performance measure supports the following TSMO goals:

Free From Harm | **Collaboration & Partnerships** | **Eliminate Disparities** | **Prepare for Change** | **Reliable Travel Choices** | Connected Travel Choices

Key Performance Metrics

Percent of transit shelters with functional real-time arrival displays.

» Travelers without access to smart phones or online data sources at bus stop locations may not be aware of transit delays or missed buses. Shelters are installed at high frequency and high ridership locations as identified by the transit operators. Ensuring these locations have on-time arrival displays can provide travelers with needed information. Ensuring that these displays are functional and continue to operate is key to ensuring the maintenance of the system moving forward. These should be reported as a total forthe region and for equity focus areas.

Number of Agencies with a Traveler Information System (TIS) plan.

» Metro and their partner agencies regularly provide information to the public around both planned and unexpected incidents. The creation of a TIS plan will help agencies to be prepared to rapidly distribute information to travelers about detours, closures, and hazardous conditions. The plan should at a minimum include standards for communication in a variety of languages and an equitable variety ofcommunication channels.

Exploratory Metrics

Non-recurring delay associated with incidents.

» It is currently difficult to quantify and report non-recurring delay that is associated with specific incidents such as a crash. Exploring new data sources that can measure this delay would enable Metro to better understand whether their travel notifications are successful rerouting drivers and what share of delay is associated with recurring vs non-recurring congestion.

Data sharing with Connected & Automated Vehicles (CAV), Smart Phones, and Mobility Devices.

» CAV technology enables a new level of traveler communication through in-vehicle data sharing. That data sharing also extends to specific Smart Phone apps, and other smart mobility devices. Applications include Mobility on Demand, Mobility as a Service, on-board notifications of traffic incidents, dangerous queues, or other roadway hazards. Mobility data can also be used to identify and report hard braking and other behaviors related to unexpected delays and non-recurring congestion. These data sources should be researched, with specific attention given to impacts to equity, safety, reliability, and cost.

Performance Measures & Targets

Vehicle Miles Traveled (VMT) per Capita	» Reduce average vehicle miles traveled per person by 10 percent from 2021.
Number of Crashes by Severity	» Show progress toward meeting the 2035 Vision Zero Goal (Eliminate Fatal and Severe Injury crashes), and collisions in Equity Focus Areas are equal to or less than the regional average.
Buffer Index	» Buffer Index (vehicle or transit, calculated as noted) is below 50% for all identified routes.
Agency Collaboration & Communication Events	» 100% of engagement activities involve Black, Indigenous, people of color, and people with low incomes and 100% of agencies are sharing data annually.
System Connectivity	» 100% of signals on identified routes have communications. » There is a 10% increase (from 2021) in the connectivity index and percent of households/employers within 10 minutes of transit, and a 15% increase in these metrics in Equity Focus Areas.
Targeted TSMO Investments	» TSMO investments benefiting the identified key corridors/geographies make up at least 50% of total TSMO investments in the region.
Timely Traveler Information	» 50% of transit shelters, and 100% of shelters in Equity Focus Areas have real-time arrival displays. » 100% of agencies have a traveler information system plan.

Direct Relationships

As **Timely Traveler Information** goes up ↑, **increases** ↑ are expected for:

- Traveler happiness and comfort using the system

Inverse Relationships

As **Timely Traveler Information** goes up ↑, **decreases** ↓ are expected for:

- Non-recurring congestion associated with both planned and unexpected events


Fanno Creek Trail
TRAIL RULES:
Trail open dawn to dusk.
No smoking.
Alcohol, camping, fires, motorized vehicles are prohibited.
Dogs must be on leash and waste must be removed.
Walkers have the right-of-way.
Bicyclists yield to pedestrians.
No collecting plants or animals.
Trail contact
503.718.2598
Security
503.629.0111
YOU ARE HERE
FANNO CREEK PARK
ASH AVE DOG PARK
JIM GRIFFITH MEMORIAL CITY HALL SKATE PARK
SENIOR CENTER
LIBRARY
Tigard, OR

Chapter 5

Actions

Twenty-one Transportation System Management & Operations (TSMO) Actions were identified by the Regional TSMO Stakeholders. Each action was categorized with one of four activity areas:

- → Planning
- → Concepts, Capabilities, & Infrastructure
- → Listening & Accountability
- → Data Needs

Each action was given a priority and completion timeline, as well as an agency that would track and report the action progress over the life of the plan.

These actions are meant to be a starting direction for the Regional TSMO Strategy. Over the course of the plan, if progress is not being measured on the strategy's objectives, the actions should be revised to better meet the region's needs.

More information on the development of these actions is included in **Appendix E**.

1. Establish TSMO performance measures baseline.

Planning | Concepts, Capabilities, & Infrastructure | Listening & Accountability | **Data Sources**

Action Description

Create a baseline for measuring regional TSMO performance and advancement by:

- Mapping regionally significant routes as identified in other Metro planning documents where TSMO Performance Measures will be reported. These should include state routes, freight routes, transit routes, emergency transportation routes, and Mobility Corridors.
- Summarize findings from TSMO project before/after studies.
- Establish a standard calculation for VMT exposure and generation by census block and calculate a baseline for census blocks within the region.
- Extend bicycle and pedestrian Level of Traffic Stress (LTS) threshold and inventory existing LTS for through corridors and arterials.
- Calculate a 2021 baseline connectivity index for all census block groups, downtowns (Regional and Town Centers) and mainstreets, informed by community-identified barriers to connectivity.
- Calculate a 2021 baseline of total households and employment within a 10-minute walk or bike from transit for all census block groups and Regional/Town Centers.
- Identify gaps in travel time information available for identified routes needed calculating buffer index. Identify gaps on routes where travel time information is needed for calculating reliability (e.g., buffer index).
- Establish benchmarks, milestones and/or estimte costs for Actions. Complete this as early as possible in the scoping of each Action and communicate this information throughout the life of this Strategy.

Advancing TSMO Objectives

This data is needed to track the identified TSMO Performance Measures

References to other Plans and Projects

NCHRP 17-87 Enhancing Pedestrian Volume Estimation and Developing HCM Pedestrian Methodologies for Safe and Sustainable Communities: *https://trec.pdx.edu/research/project/1366*

Priority

Low | Medium | High

Required but not urgent

Timeline

Near: '21 | '22 | '23 | '24 | '25 | '26 | '27 | '28 | '29 | '30 | '31

Milestone: Complete in coordination with RTP update

Tracked By

Metro and ODOT

2. Inventory and manage regional signal and ITS Communication infrastructure.

Planning | **Concepts, Capabilities, & Infrastructure** | Listening & Accountability | Data Sources

Action Description

- Create a regional inventory of traffic signal capabilities by location and operator (e.g., connected to central signal system for traffic signal timing updates, utilizing Next Generation Transit Signal Priority, serving freight, sensing bike and pedestrian movements).
- Using the inventory, develop a high quality, reliable, and redundant signal communication, and fiber network by identifying gaps, prioritizing high need projects, and completing high priority projects.

  Upgrade traffic signals and communication networks on regionally significant corridors to meet the needs of advanced applications such as Next-Generation Transit Signal Priority (NextGen TSP) and Automated Traffic Signal Performance Measures (ATSPM) that require Advanced Transportation Controllers (ATCs) and fiber optic communication.
- Monitor and address signal performance on regionally significant corridors by identifying performance issues such as freight delay, transit delay, or high pedestrian and bicycle traffic stress.

Advancing TSMO Objectives

5.1 Manage recurring and non-recurring congestion to improve travel time reliability for all users, including active transportation, transit, and freight.

6.2 Manage projects and resources to be responsive to changes in land use planning and growth patterns.

Priority

Low | Medium | **High**

Ensure the benefits of Next Generation Transit Signal Priority are extended region-wide

Timeline

Ongoing

'21 | '22 | '23 | '24 | '25 | '26 | '27 | '28 | '29 | '30 | '31

Milestone: September 2022 Division Transit Project

Tracked By

TransPort's Central Signal System Subcommittee and PBOT

3. Develop a Mobility on Demand strategy and policy.

Planning | Concepts, Capabilities, & Infrastructure | Listening & Accountability | Data Sources

Action Description

Create a Regional Mobility on Demand (MOD) Working Group consisting of agency staff, transportation demand management non-profits (e.g., Transportation Management Associations), private partners, and community based organizations and stakeholders representing and helping to solve accessibility issues common to online services, to:

- Build on existing regional policy conversations in support of mobility partnerships, and technology solutions for last-mile connections.
- Participate in expanding access through micro freight delivery (curb side delivery such as on-line purchases, food delivery apps, etc).
- Coordinate with parking managers to improve operations particularly in downtowns and along main streets (e.g., Regional and Town Centers).
- Examine regulations for shared mobility. Examine benchmarks set for shared mobility services (such as the PBOT Scooter Policy) by partner agencies and establish regional minimum level of service benchmarks for MOD service in equity focus areas connecting to opportunities, to Black, Indigenous, people of color, and people with low incomes.
- Evaluate unified payment strategy and related policies, including congestion pricing, as they function to provide demand and system management through MOD, transit and connected travel options.
- Establish a strategy for connecting people to recreational destinations not well served by traditional transit during off-peak service hours.
- Identify opportunities for pilots to connect people to MOD and support them through programs with MOD service providers.
- Develop a pilot package delivery hub program for the “last 50 feet freight delivery”, focusing on equity focus areas, incorporating guidance on siting package lockers, and the ability to co-locate with transit and other services.
- Develop communications with travelers inclusive of people with app or online services accessibility needs, to inform more travelers about these choices.
- Establish public-agency person-to-person lines of communication, formal agreements as necessary, pre-planned emergency needs and information flows supportive of MOD operations.
- Use information flows with forecast models to optimize traveler’s experience and MOD operator logistics.

Priority

Low | Medium | **High**

Timeline

'21	Near '22	'23	'24	'25	'26	'27	'28	'29	'30	'31

Milestone: Form the working group in 2022.

Responsibility

Metro convenes across planners and operators

Advancing TSMO Objectives

2.1 Ensure Black, Indigenous, people of color, and people with low incomes benefit from safety improvements.

2.4 Improve inter-agency & intra-agency collaboration to ensure efficient operations by identifying and addressing barriers in communication when making decisions about network operation or expansion.

4.1 Connect decentralized travel options to facilitate viable destinations in Regional Centers, Town Centers, and employment areas outside downtown Portland.

4.2 Prioritize the completion and expansion of planned transit and active mode networks when investing discretionary revenues especially to destinations with limited travel choices.

4.3 Connect goods and delivery services to people and businesses by providing for and managing last mile connections for goods delivery.

4.4 Increase availability and accessibility of low-cost transportation options by Black, Indigenous, people of color, and people with low incomes.

6.1 Plan and design a flexible transportation network that can adapt to new technology and travel choices that are consistent with the region's desired land use and transportation outcomes.

6.2 Manage projects and resources to be responsive to changes in land use planning and growth patterns.

6.4 Provide public agency staff with the data, tools, models, and training needed to assess long-term disruptive transportation trends.

References to other Plans and Projects

TriMet Mobility on Demand Sandbox Grant 2017-2019: ***https://trimet.org/mod/***

TriMet Integrated Mobility Innovation: ***https://trimet.org/imi/***

City of Portland Transportation Wallet: ***https://www.portland.gov/transportation/wallet***

4. Manage transportation assets to secure the network.

Planning | **Concepts, Capabilities, & Infrastructure** | Listening & Accountability | Data Sources

Action Description

Secure the network from natural disasters, cyber attacks, and other disruptions by physically securing signal cabinets, junction box, and other infrastructure on critical communication corridors to reduce unscheduled downtime. Identifying end of life equipment, and replacing it proactively.

Further Objectives

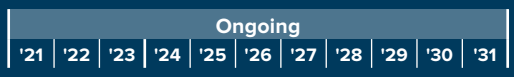
2.2 Collaborate with emergency management when prioritizing investments on key emergency response routes.

6.3 Minimize long term disruptions to the transportation system by creating resiliency to climate change and economic shifts.

Priority

Low | Medium | **High**

Timeline



Tracked By

Individual Agency Responsibilities and TransPort's ITS-NMT Group

5. Pilot Origin-Destination data to prioritize TSMO investments.

Planning | Concepts, Capabilities, & Infrastructure | Listening & Accountability | Data Sources

Action Description

- Identify data sources and obtain Origin-Destination (OD) data to determine the highest use trip pairs in the region, pairs with the greatest trip lengths, pairs with a trip end in an equity focus area, and pairs without existing transit connections for use in planning and project prioritization.
- Use the data to identify TSMO upgrades that benefit multiple modes and are adaptable to emerging technologies (i.e. charging stations for e-bikes and EVs, controller upgrades that allow for varying communication systems).
- Create an active system of OD collection, monitoring, and reporting.

Further Objectives

4.2 Prioritize the completion and expansion of planned transit and active mode networks when investing discretionary revenues especially to destinations with limited travel choices.

5.2 Expand travel time reliability improvements for Black, Indigenous, people of color, and people with low incomes burdened with long travel distances.

6.1 Plan and design a flexible transportation network that can adapt to new technology and travel choices that are consistent with the region's desired land use and transportation outcomes.

6.4 Provide public agency staff with the data, tools, models, and training needed to assess long-term disruptive transportation trends.

Priority

Low | **Medium** | High

Timeline

Near: '23 | '24 | '25

'21 | '22 | '26 | '27 | '28 | '29 | '30 | '31

Tracked By

Metro considers pilot with partners

6. Track and prioritize TSMO Investments for and with Black, Indigenous people of color, and people with low incomes.

Planning | Concepts, Capabilities, & Infrastructure | **Listening & Accountability** | Data Sources

Action Description

- Create a priority process that identifies TSMO solutions for identified needs and guides funding for and with Black, Indigenous people of color, and people with low incomes.
- Review and update TSMO discretionary revenue prioritization to reflect the 2021 TSMO Strategy's updated Goals and Objectives.
- Evaluate TSMO prior investments from the last 10 years and identify disparities for Black, Indigenous, people of color, and people with low incomes.
- Identify and multimodal connectivity disparities to target future TSMO investments.
- Track TSMO investments in equity focus areas and report bi-annually.

Advancing TSMO Objectives

1.4 Ensure Black, Indigenous, people of color, and people with low incomes can safely access multiple low stress mode choices and routes within the transportation system by improving access to transit stops, pedestrian, and bicycle facilities.

3.2 Identify and correct past disparities when planning, operating, and maintaining the transportation system (e.g., transit access, exposure to air toxics, allocation of funds).

4.2 Prioritize the completion and expansion of planned transit and active mode networks when investing discretionary revenues especially to destinations with limited travel choices.

Priority

Low | Medium | **High**

Timeline

Near: '21 | '22 | '23 | '24 | '25 | '26 | '27 | '28 | '29 | '30 | '31

Milestone: RTP Update

Tracked By

Metro, ODOT, and a third-party.

7. Continue freight technology and ITS deployment.

Planning | **Concepts, Capabilities, & Infrastructure** | Listening & Accountability | Data Sources

Action Description

- Utilize existing and pilot new freight ITS technologies that identifies solutions to optimize freight operations and improve safety on critical corridors, such as optimizing progression for trucks, progress to pilot programs, freight dilemma zone detection and green extension.
- Share TSMO-generated data resources broadly with start-ups and established freight services.

Advancing TSMO Objectives

4.3 Connect goods and delivery services to people and businesses by providing for and managing last mile connections for goods delivery.

5.3 Manage critical freight corridors to create reliable routes for freight movement between key destinations.

References to other Plans and Projects

Metro Regional Freight Plan: *https://www.oregonmetro.gov/regional-freight-plan*

City of Portland convened a Freight Committee: *https://www.portlandoregon.gov/transportation/54899*

ODOT Commercial Truck Parking Study: *https://www.oregon.gov/odot/Projects/Pages/Commercial-Truck-Parking-Study.aspx*

Priority

Low | **Medium** | High

Timeline

Tracked By

All Agency Operators

8. Facilitate Ground Truthing of Emerging Technologies.

Planning | **Concepts, Capabilities, & Infrastructure** | Listening & Accountability | Data Sources

Action Description

Respond to community-voiced needs to initiate agency partnerships to test emerging technologies. Consider efforts in context provided by the forthcoming Metro Emerging Trends Study. Consider these as examples, recognizing that more pilots are needed to keep pace with technology advancements:

- Collaborate with ODOT on the connected vehicle infrastructure environment to reduce pedestrian related collisions.
- Explore best practices for collision avoidance systems, policy implications, and implementation.
- Create a readiness training program for the region to evaluate and prepare for risks from technology, economic, and ecological disruptions.
- Identify solutions to changes in growth patterns, travel behavior, and other non-emergency travel trends.
- Partner to increase mobility with electric vehicle (EV) adoption, including e-bikes, shared vehicles and fleets. EVs relate to connectivity index in equity focused areas, downtowns (Regional and Town Centers), main streets and employment areas.

  Collect and evaluate safety and operational performance metrics for multimodal users (including pedestrians, bicyclists, and transit) through emerging detection technologies.

  Partner with regional university transportation research centers in identifying and implementing projects exploring emerging technologies and data sources.
- Collaborate with ODOT Public Transit Division, transit agencies and rail operators to identify technologies for safe, efficient and reliable operations.

Priority

Low | **Medium** | High

Timeline

Ongoing

'21 | '22 | '23 | '24 | '25 | '26 | '27 | '28 | '29 | '30 | '31

Milestone: Metro Emerging Trends Study

Tracked By

Washington County, ODOT, PBOT, and Portland State University (PSU) Transportation Research & Education Center (TREC)

Advancing TSMO Objectives

1.1 Manage the transportation system to reduce negative health impacts so that public health risk does not adversely affect people's mode choice.

1.3 Provide a transportation system where human error does not result in serious injury or loss of life.

4.4 Increase availability and accessibility of low-cost transportation options for Black, Indigenous, people of color, and people with low incomes.

6.1 Plan and design a flexible transportation network that can adapt to new technology and travel choices that are consistent with the region's desired land use and transportation outcomes.

6.4 Provide public agency staff with the data, tools, models, and training needed to assess long-term disruptive transportation trends.

References to other Plans and Projects

ODOT Office of Innovation: *https://www.oregon.gov/odot/Programs/Pages/OfficeOfInnovation.aspx*

FHWA Office of Research, Development, and Technology: *https://highways.dot.gov/research*

FHWA Experimental Features Program

9. Establish a Regional Transit Operators TSMO Group.

Planning | **Concepts, Capabilities, & Infrastructure** | Listening & Accountability | Data Sources

Action Description

Establish a Metro Regional Transit Operators TSMO Group as a subcommittee of Transport consisting of representation from local and regional transit operators. Collaborate with the group to:

- Identify transit stops on high frequency routes without real time bus information technology, prioritize improvements, and complete high priorities.
- Coordination with ODOT Rail Crossing Safety Unit to identify and implement mitigations at transit and train at grade rail crossing locations with a history of collisions.
- Review and Regional NextGen Transit Signal Priority (TSP) projects and develop a coordination standard for deploying TSP throughout the region.
- Coordinate with transit operators to identify TSMO solutions to support a bus on shoulder implementation plan, building on lessons learned from I-5/I-205 pilot program.
- Inform and review speed and reliability project need and solutions.
- Create a standard for reviewing and deploying new technology.

Priority

Low | Medium | **High**

Timeline

Ongoing

'21 | '22 | '23 | '24 | '25 | '26 | '27 | '28 | '29 | '30 | '31

TriMet

Advancing TSMO Objectives

1.3 Provide a transportation system where human error does not result in serious injury or loss of life

2.3 Collaborate with emergency management when prioritizing investments on key emergency response routes.

5.1 Manage recurring and non-recurring congestion to improve travel time reliability for all users, including active transportation, transit, and freight.

5.2 Expand travel time reliability improvements for Black, Indigenous, people of color, and people with low incomes burdened with long travel distances.

5.4 Communicate expected changes in reliability so that travelers can make informed travel choices.

10. Unify and standardize fare subsidies for transit and MOD.

Planning | **Concepts, Capabilities, & Infrastructure** | Listening & Accountability | Data Sources

Action Description

- Create a policy that includes standardized eligibility criteria with regard for ADA, Medicaid, and other assistance programs. Utilize existing efforts such as the General Transit Feed Specification for Eligibilities and Capabilities.
- Expand low or free fare/price subsidies to include MOD and transit for Black, Indigenous, people of color, and people with low incomes.
- Evaluate feasibility of implementing City of Portland's Transportation Wallet pilot program for connecting affordable transportation options with people living in affordable housing.

Advancing TSMO Objectives

2.1 Collaborate to provide consistent travel experiences across jurisdictional boundaries through integrated payment and scheduling systems, integrated corridor management, and data sharing between agencies.

4.4 Increase availability and accessibility of low-cost transportation options for Black, Indigenous, people of color, and people with low incomes.

References to other Plans and Projects

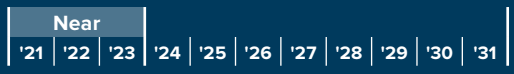
ODOT General Transit Feed Specification (GTFS) Eligibilities and Capabilities Project: *https://github.com/full-path/gtfs-eligibilities/blob/main/project_summary.md*

Portland BIKETOWN for all: *https://www.biketownpdx.com/pricing/biketown-for-all?utm_medium=email&utm_source=govdelivery*

Priority

Low | Medium | **High**

Timeline



Tracked By

TriMet

11. Develop an ITS travel time Information Data Collection and Distribution Plan for RDPO Regional Emergency Routes.

Planning | **Concepts, Capabilities, & Infrastructure** | Listening & Accountability | Data Sources

Action Description

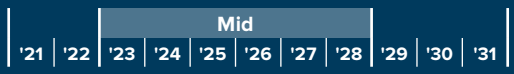
- Coordinate with agency partners to identify bottlenecks on Regional Disaster Preparedness Organization (RDPO) Regional Emergency Transportation Routes, Oregon State Seismic Lifeline Routes and routes lacking redundancy and develop TSMO solutions to address these.
- Model strategies to reduce emergency response times and evacuation scenarios through technology or other actions.
- Create an Emergency Route travel time data collection plan. The plan should:
  - Identify Intelligent Transportation Systems (ITS) travel time information data collection and distribution gaps on RDPO Regional Emergency Transportation Routes and Oregon State Seismic Lifeline Routes to inform detour routing decisions and provide alternative route information during evacuations.
  - Prioritize data collection and distribution gaps on RDPO Regional Emergency Transportation Routes and Oregon State Seismic Lifeline Routes.
  - Install data collection and distribution infrastructure on RDPO Regional Emergency Transportation Routes and Oregon State Seismic Lifeline Routes.

Priority

Low | **Medium** | High

8 SAC Votes

Timeline



Tracked By

ODOT

Advancing TSMO Objectives

6.2 Manage projects and resources to be responsive to changes in land use planning and growth patterns.

6.3 Minimize long term disruptions to the transportation system by creating resiliency to climate change and economic shifts.

References to other Plans and Projects

PORTAL Archive: *https://portal.its.pdx.edu/home*

Regional Emergency Transportation Route (RETR) Phase 1: *https://rdpo.net/emergency-transportation-routes*

12. Explore new TSMO data sources.

Planning | Concepts, Capabilities, & Infrastructure | Listening & Accountability | Data Sources

Action Description

» Explore new sources to measure identified exploratory TSMO performance measures. Exploratory metrics include:

- Average miles walked and biked
- Frequency of secondary crashes
- Collision risk
- Transportation cost burden for Black, Indigenous, people of color, and people with low incomes
- Non-recurring delay associated with incidents
- Freight travel time and movement data

» Develop a National Highway Traffic Safety Administration Fatality Analysis Reporting System data reporting policy and incorporate into annual reporting.

Priority

Low | Medium | High

SAC did not vote on this

Timeline

Ongoing

'21 | '22 | '23 | '24 | '25 | '26 | '27 | '28 | '29 | '30 | '31

Responsibility

PSU TREC

Advancing TSMO Objectives

1.2 Ensure Black, Indigenous, people of color, and people with low incomes benefit from safety improvements.

1.3 Provide a transportation system where human error does not result in serious injury or loss of life.

1.4 Ensure Black, Indigenous, people of color, and people with low incomes can safely access multiple low stress mode choices and routes within the transportation system by improving access to transit stops, pedestrian, and bicycle facilities.

3.2 Identify and correct past disparities when planning, operating, and maintaining the transportation system (e.g., transit access, exposure to air toxics, allocation of funds).

5.1 Manage recurring and non-recurring congestion to improve travel time reliability for all users, including active transportation, transit, and freight.

5.3 Manage critical freight corridors to create reliable routes for freight movement between key destinations.

References to other Plans and Projects

Portal: *http://portal.its.pdx.edu/*

BikePed Portal: *http://bikeped.trec.pdx.edu/*

NHTSA FARS Data: *https://www.nhtsa.gov/research-data/fatality-analysis-reporting-system-fars*

13. Create a community listening program.

Planning | Concepts, Capabilities, & Infrastructure | **Listening & Accountability** | Data Sources

Action Description

Build capacity for a community listening program to reduce barriers for travelers to report experiences related to TSMO. Tactics may involve but are not limited to partnering with large-scale public outreach to facilitate a breakout group specific to TSMO, supporting equity-focused consultants and Community Based Organizations (CBOs) to share input, initiating a study of agency customer feedback (including social media), piloting an anonymous feedback system generated by and for Black, Indigenous people of color, and people with low incomes to report travel experiences related to operations. Build capacity at CBOs to share an understanding of this Strategy and to guide partnership. Collaborate with CBOs using a culturally specific model and approach to reach out to non-English speakers or limited-English-proficiency groups.

As part of the listening program, create a pilot where Black, Indigenous people of color, and people with low incomes are paid to provide feedback and share their traveler experiences/stories with agency staff. Support efforts with service providers to add capacity. Participate to listen for TSMO-related issues and follow up on previous efforts, identifying TSMO-related solutions.

Priority

Low | Medium | **High**

Timeline

Near										
'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'31

Responsibility

ODOT, Metro, and PSU TREC

Advancing TSMO Objectives

3.1 Prioritize reaching underrepresented groups when providing traveler information and community outreach and ensure that modal access and traveler information is free from technological and financial barriers.

3.3 Identify and increase awareness of the unique travel experiences for Black, Indigenous, people of color, and people with low incomes.

References to other Plans and Projects

TriMet Reimagine Transportation

ODOT Office of Social Equity

Metro Regional Travel Options Program.

14. Create continuous improvement process for existing and new signal systems and related performance.

Planning | **Concepts, Capabilities, & Infrastructure** | Listening & Accountability | Data Sources

Action Description

Outline and begin continuous improvement process for signal systems and new concepts that serve major arterials and high-injury corridors. The continuous improvement process will utilize systems engineering from concept of operations through retirement of legacy systems and prioritize solutions based on effectiveness and costs.

In coordination with asset managers, inventory automatic traffic recorder stations, Advanced Transportation Controllers, and detection sensors (location, status, age, and operability). Identify through corridors and major arterials that do not currently have travel time information collection by mode to identify gaps existing system. Create a plan to mitigate identified gaps by completing high priority projects targeted for either technological upgrades (sensors, automatic traffic recorders, etc.) or crowd sourced data.

Advancing TSMO Objectives

2.1 Collaborate to provide consistent travel experiences across jurisdictional boundaries through integrated payment and scheduling systems, integrated corridor management, and data sharing between agencies.

5.1 Manage recurring and non-recurring congestion to improve travel time reliability for all users, including active transportation, transit, and freight.

6.1 Plan and design a flexible transportation network that can adapt to new technology and travel choices that are consistent with the region's desired land use and transportation outcomes.

6.4 Provide public agency staff with the data, tools, models, and training needed to assess long-term disruptive transportation trends.

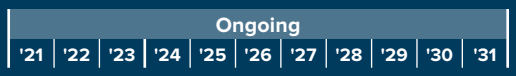
References to other Plans and Projects

ODOT ITS Master Communication Plan.

Priority

Low | Medium | High

Timeline



Responsibility

TransPort's Center Signal System Users Group and PBOT

15. Deploy regional traveler information systems.

Planning | **Concepts, Capabilities, & Infrastructure** | Listening & Accountability | Data Sources

Action Description

Create a traveler information and educational campaign with Black, Indigenous, people of color, people with low incomes, and people with limited English proficiency. The campaign should also start deploying traveler information systems (TIS) where community-voiced need and multiple transportation options are present, building into a methodology TIS priorities that may involve transit stops, public buildings, major destinations within regional centers and on-vehicle displays. The TIS should incorporate a broad cross section of traveler needs which may include travel time, route, and real-time transit and shared-use mobility information.

Further Objectives

2.3 Collaborate with and educate travelers.

3.1 Prioritize reaching underrepresented groups when providing traveler information and community outreach and ensure that modal access and traveler information is free from technological and financial barriers.

References to other Plans and Projects

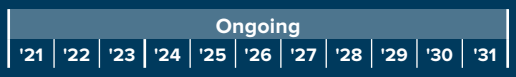
ODOT's TripCheck Program: *https://tripcheck.com*

TriMet Third Party Apps: *https://trimet.org/apps/*

Priority

Low | Medium | **High**

Timeline



Responsibility

Metro for convening and scoping

16. Implement Integrated Corridor Management and mainstream into corridor planning.

Planning | **Concepts, Capabilities, & Infrastructure** | Listening & Accountability | Data Sources

Action Description

Provide tools for regional partners based on I-84 Multimodal Integrated Corridor Management (ICM) Deployment Plan including:

- Establish a multimodal detour policy across agencies. Define lines of communication and pre-plan emergency needs by rehearsing scenarios for a variety of events impacting operations. Provide job-shadow and training experiences.
- Create a data sharing policy and inter-agency(s) agreement with agency partners to incorporate data into PORTAL or another identified internal sharing system. Share construction schedules across agencies. Implement a decision support system, employing forecast models as useful
- Participate in all phases of a corridor project listening for needs voiced by communities, considering disruptions and proposing TSMO-related solutions where applicable. Keeep communication lines open post-project to recognize ongoing burdens and participate in adjustments

Beginning with the next Regional Transportation Plan update, consider corridor needs that can be met through ICM based on regional efforts and Federal Highway Administration guidance and local operators.

Advancing TSMO Objectives

1.1 Collaborate to provide consistent travel experiences across jurisdictional boundaries through integrated payment and scheduling systems, integrated corridor management, and data sharing between agencies.

2.2 Collaborate with emergency management when prioritizing investments on key emergency response routes.

2.4 Improve inter-agency & intra-agency collaboration to ensure efficient operations by identifying and addressing barriers in communication when making decisions about network operation or expansion.

5.1 Manage recurring and non-recurring congestion to improve travel time reliability for all users, including active transportation, transit, and freight.

6.4 Provide public agency staff with the data, tools, models, and training needed to assess long-term disruptive transportation trends.

References to other Plans and Projects

I-84 Multimodal ICM Deployment Plan

Priority

Low | Medium | High

Timeline

Near: '21 | '22 | '23 | '24 | '25 | '26 | '27 | '28 | '29 | '30 | '31

Milestone: RTP Update

Responsibility

Metro

17. Create a TSMO Safety Toolbox.

Planning | **Concepts, Capabilities, & Infrastructure** | Listening & Accountability | Data Sources

Action Description

Create a TSMO Safety Toolbox to advance actions identified in the Metro Regional Safety Strategy. The toolbox should utilize the Safe Systems Approach. Include guidance for the deployment of new technologies and create policy for evaluating their effectiveness.

Create a Speed Management Plan in coordination with Statewide Policy, and collaborate with local agencies to provide guidance and implementation program for active speed management and feedback including, automated speed feedback signs, changeable speed limits, automated enforcement, and traffic calming solutions. Evaluate speed limits and identify opportunities to apply a safe systems approach to speeds in regional and town centers, high pedestrian, and bicycle corridors, and in equity focus areas. Apply Automated Traffic Signal Performance Measures (ATSPMs), including speeds, to emerging research related to speed reduction through signal timing strategies.

The toolbox should respond to context and point out where overlapping road functions or classifications have potential for creating risk and/or preventing implementation of TSMO safety tools.

Advancing TSMO Objectives

1.2 Ensure Black, Indigenous, people of color, and people with low incomes benefit from safety improvements.

1.3 Provide a transportation system where human error does not result in serious injury or loss of life.

References to other Plans and Projects

Metro's Regional Transportation Safety Strategy: ***https://www.oregonmetro.gov/regional-transportation-safety-plan***

Priority

Low | Medium | **High**

Timeline

'21	Near '22	'23	'24	'25	'26	'27	'28	'29	'30	'31

Milestone: Achieve Vision Zero by 2035.

Responsibility

18. Participate in regional public outreach to assist in guiding, listening and learning through TSMO-focused conversations.

Planning | Concepts, Capabilities, & Infrastructure | Listening & Accountability | Data Sources

Action Description

TSMO-focused public outreach should include traveler safety information and be focused on Black, Indigenous, people of color, people with low incomes, and people with limited English proficiency. Work with local agencies to create/update public outreach that specifically include equity focused TSMO that include Black, Indigenous, people of color, people with low incomes, and people with limited English proficiency.

Advancing TSMO Objectives

1.2 Ensure Black, Indigenous, people of color, and people with low incomes benefit from safety improvements.

2.3 Collaborate with and educate travelers.

3.1 Prioritize reaching underrepresented groups when providing traveler information and community outreach and ensure that modal access and traveler information is free from technological and financial barriers.

5.4 Communicate expected changes in reliability so that travelers can make informed travel choices.

Priority

Low | **Medium** | High

Timeline

Near: '21 | '23 | '23 | '24

'25 | '26 | '27 | '28 | '29 | '30 | '31

Responsibility

Metro, ODOT, and a Third Party

19. Improve TSMO data availability to aid in traveler decisions and behavior.

Planning | Concepts, Capabilities, & Infrastructure | **Listening & Accountability** | Data Sources

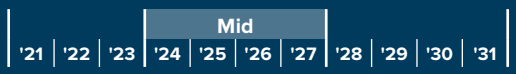
Action Description

- Unify multimodal trip planning by coordinating among transit service providers' and riders' needs, creating opportunities for TriMet and other Open Trip Planner partners.
- Create an external facing dashboard for TSMO metrics accountability connecting each metrics' relevance to travelers.
- Communicate TSMO to raise awareness in the need for travelers to participate to improve transportation system outcomes and metrics. For example, signage about moving over for emergency vehicles, merging, or moving property-damage-only crashes out of the travel lane will help with overall system management and clearance metrics.
- Increase communication about how the system could operate safer and more efficiently using signage and coordinating agency Public Service Announcements (PSAs.)

Priority

Low | **Medium** | High

Timeline



Responsibility

Metro, Trimet, and ODOT

Advancing TSMO Objectives

2.1 Collaborate to provide consistent travel experiences across jurisdictional boundaries through integrated payment and scheduling systems, integrated corridor management, and data sharing between agencies.

2.3 Collaborate with and educate travelers.

5.4 Communicate expected changes in reliability so that travelers can make informed travel choices.

References to other Plans and Projects

TBD

20. Build and use a TSMO Toolbox to connect gaps in bicycle and pedestrian infrastructure.

Planning | **Concepts, Capabilities, & Infrastructure** | Listening & Accountability | Data Sources

Action Description

Create a connected bicycle and pedestrian infrastructure with TSMO tools. Start with a Connectivity Index of existing pedestrian and bicycle infrastructure that includes community-voiced barriers, inventories of low stress facilities, and other identified gaps in the system. The toolbox should consider how pedestrian and bicycle modes interact with signals, illumination, and transit connections, while also the disparities experienced by Black, Indigenous, people of color, and people with low incomes. Investments made using the toolbox should afford complete treatment to address these disparities.

Advancing TSMO Objectives

1.4 Ensure Black, Indigenous, people of color, and people with low incomes can safely access multiple low stress mode choices and routes within the transportation system by improving access to transit stops, pedestrian, and bicycle facilities.

4.1 Connect decentralized travel options to facilitate viable destinations in Regional Centers, Town Centers, and employment areas outside downtown Portland.

4.2 Prioritize the completion and expansion of planned transit and active mode networks when investing discretionary revenues especially to destinations with limited travel choices.

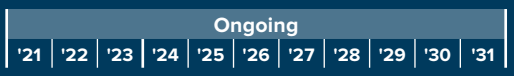
References to other Plans and Projects

ODOT Active Transportation Needs Inventory (ATNI): *https://www.oregon.gov/odot/RPTD/Pages/Statewide-Active-Transportation-Needs-Inventory.aspx*

Priority

Low | Medium | **High**

Timeline



Milestone: ODOT Pedestrian and Bicycle Priority Routes

Responsibility

All Agencies, and PSU TREC

21. Update the Regional Intelligent Transportation Systems (ITS) Architecture.

Planning | Concepts, Capabilities, & Infrastructure | Listening & Accountability | Data Sources

Action Description

Collaborate on updates to the Regional ITS Architecture by reviewing changes on a quarterly basis and adjusting every two years to include innovations in the national and statewide architecture.

Advancing TSMO Objectives

2.4 Improve inter-agency & intra-agency collaboration to ensure efficient operations by identifying and addressing barriers in communication when making decisions about network operation or expansion.

6.1 Plan and design a flexible transportation network that can adapt to new technology and travel choices that are consistent with the region's desired land use and transportation outcomes.

References to other Plans and Projects

Metro's Regional ITS Architecture 2016 Update: ***https://www.oregonmetro.gov/public-projects/regional-tsmo-strategy/2010-2020-tsmo***

Priority

Low | Medium | High

Timeline

'21	Near '22	'23	'24	'25	'26	'27	'28	'29	'30	'31

Responsibility

Metro, ITS Architecture Group

This page is intentionally blank.

If you picnic at Blue Lake or take your kids to the Oregon Zoo, enjoy symphonies at the Schnitz or auto shows at the convention center, put out your trash or drive your car **– we've already crossed paths.**

So, hello.
We're Metro – nice to meet you.

In a metropolitan area as big as Portland, we can do a lot of things better together. Join us to help the region prepare for a happy, healthy future.

Stay in touch with news, stories and things to do:
oregonmetro.gov/news

Follow oregonmetro

600 NE Grand Ave.
Portland, OR 97232-2736
503-797-1700

Adopted January 6, 2022
December 2021

2021 Transportation System Management & Operations (TSMO) Strategy

Portland Metro Region

TSMO
Portland Metro Region

Metro

FEHR & PEERS