Oregon Department of Transportation

Multimodal Inventory Project

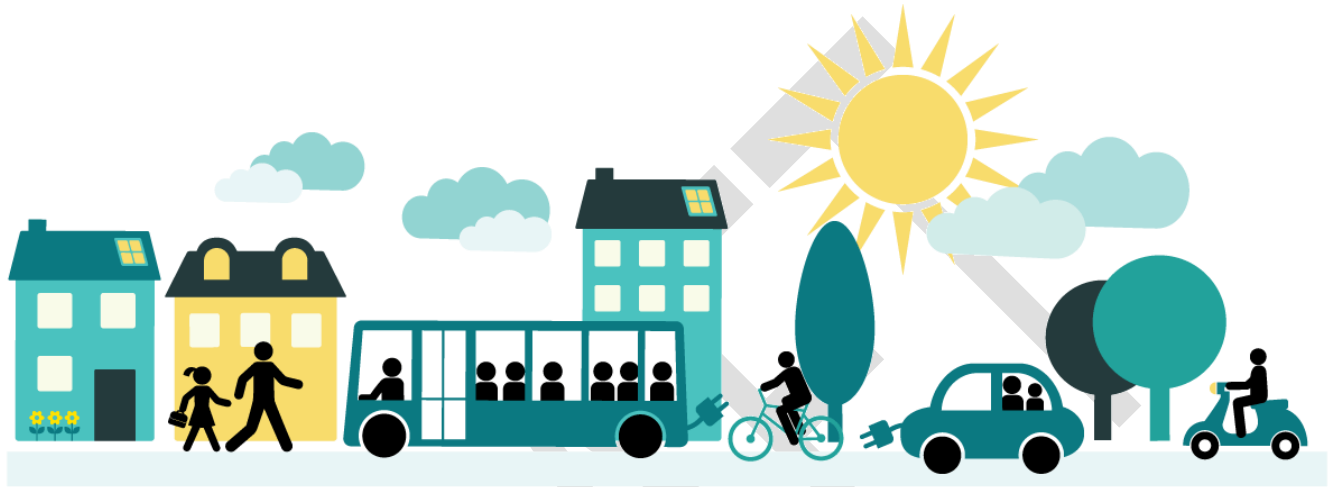|	
FROM:	Theresa Conley, Principal Planner, ODOT CFEC Program
DATE:	October 1, 2024
TIME:	10:30 am – 12:00 pm
LOCATION:	Zoom, Join the meeting now
	Meeting ID: 892 7659 0339
	Passcode: 222373
PROJECT:	ODOT Multimodal Inventory Project
SUBJECT:	Multimodal Inventory: Statewide Technical Advisory Committee – Meeting #1

Agenda

Time	Topic	Conversation Lead
10:30 – 10:35 am (5 min)	**Welcome & Introductions**	Theresa Conley, Sarah Peters, ODOT
10:35 – 10:55 am (20 min)	**Project Overview**	Carl Springer, DKS
10:55 – 11:00 am (5 min)	**STAC Role**	Jessica Pickul, JLA
11:00 – 11:25 am (25 min)	**Parter Engagement** • *Partner Engagement Plan* • *End User Survey Findings* • *Use Cases and Opportunities*	Talia Jacobson, Toole Design
11:25 – 11:55 am (30 min)	**Tech Memo #1: Draft Attribute List and Data Inventory Needs** • *Attribute Overview* • *TPR Requirements* • *Attribute Refinements and Working Groups*	Josh Ahmann and Eddie Montejo, Parametrix
11:55 am – 12:00 pm (5 min)	**Next Steps**	Josh Ahmann, Eddie Montejo

Multimodal Transportation System Inventory

Partner Engagement Plan

Oregon Department of Transportation

Contents

Project Description

This project will produce an inventory of multimodal infrastructure to support jurisdictions' compliance with the State's updated Transportation Planning Rules (TPR). Its scope includes pedestrian, bicycle, transit, and motor-vehicle systems within the urban growth boundaries of cities in MPO areas. This project will:

- Build from existing datasets.
- Use innovative computer-based methods.
- Compile, generate and integrate infrastructure inventory data.
- Give jurisdictions a locally owned initial dataset.
- Work with jurisdictions to define longer-term data management.

First steps include refining a project schedule and engagement plan. The project team hopes to:

- Access existing datasets as a starting point.
- Coordinate with local agencies on building a consistently TPR-compliant dataset.
- Make this initial dataset sustainable and usable for the longer term.

Engagement with data owners and users will be key to this project's success.

Goals

- Reach consensus on a data collection approach that will meet CFEC requirements.
- Make the collected data as useful as possible to ODOT and its partners while staying within the project's budget.
- Gather comprehensive information about internal agency and external partner data needs, priorities and opportunities.
- Gain commitment for a long-term, sustainable approach to data management.
- Educate internal and external stakeholders about data validity, technologies and opportunities to collect better multimodal data.

Timeline

- The project began in January 2024.
- Outreach to local agencies is anticipated in early 2024.
- The first datasets are anticipated in late 2024.
- Project completion is anticipated in late 2026.

Project Partners (Data Owners and Users)

	Primary (hold direct responsibility for data collection, management, and CFEC compliance)	**Secondary** (interested potential users of data who do not hold CFEC responsibilities)
Internal	Transportation Planning & Analysis Unit (TPAU) Transportation Data Services, incl: GIS Unit Crash Analysis and Reporting Unit (CAR) Roadway Inventory & Classification Services Unit (RICS) Transparency, Accountability, & Performance Program (TAP) TGM program (statewide and/or region) SPR/Planning Program (statewide and/or region) Transportation Asset Management Program (TAMP) Active Transportation Section (Needs assessment) Public Transportation Division (GTFS and beyond) Statewide Research Section	Development Review Guidelines AC Social Equity Tech Center/multimodal engineering (statewide and/or region)
External	DLCD MPOs Cities within MPOs Counties within MPO boundaries Transit agencies serving metro areas who hold substantial transit data in-house	Universities Consultants Counties within MPOs (only areas within UGBs affected) Local governments who are not required to comply with CFEC Other public agencies (transit, health, etc.)

Engagement Activities

Surveys

Survey #1: Data resources and end-use needs

- **Audience:** Primary external stakeholders, focusing on GIS staff and planning staff.
- **Purpose:** Informs STAC roster development, Task 3 Multimodal Data Inventory Needs, Task 4 Gather Existing Data and Identify Gaps, Task 8 Framework for Long Term Data Management and Maintenance.
- **Timing:** spring 2024; close and complete analysis by the end of May.

Survey #2 CONTINGENCY: Data management and maintenance plan.

- **Audience:** Primary external stakeholders, focusing on GIS staff and managers who oversee data budgets/resources.
- **Purpose:** Informs Task 8 Framework for Long Term Data Management and Maintenance.
- **Timing**: spring 2025, if authorized.

ODOT Multimodal Inventory Steering Committee (MISC)

A total of six (6) meetings will be held with the MISC.

- **Committee size:** up to 14 ODOT staff; prioritize primary audiences.
- **Meetings:**
  - Agendas to be confirmed prior to each meeting.
  - Precedes STACs, with up to two weeks in between to allow for reaction.
  - Plan to assign homework to disseminate info to their colleagues within ODOT.
  - Assume communication between meetings.
- **Timing:** April 2024-December 2025.

Statewide Technical Advisory Committee (STAC)

A total of five (5) meetings will be held with the STAC.

- **Committee size:** up to 24; prioritizing primary audiences.
- **Invitees:**
  - All eight MPOs
  - DLCD
  - TriMet
  - Lane Transit District
  - Cherriots
  - Bend Area Transit
  - Rogue Valley Transit
  - 48 cities — part of our contract due to their near/mid-term CFEC compliance requirements, broken into four groups by size. Two cities per size groups 2-4, from a mix of regions. (Group 1, comprised of the smallest cities, is unlikely to have staff capacity to participate or lead planning.)
  - **Meetings:**
    - Agendas to be confirmed prior to each meeting.
    - Plan to assign MPO homework to disseminate info to colleagues and local agency partners.
    - Assume communication between meetings.
- **Timing:** June 2024-December 2025.

Virtual Briefings

A total of three (3) meetings will be held to gather information and solicit input on the Project from interested partners throughout the state, with an emphasis on local jurisdictions and MPO's.
- **Meetings:**
    - Agendas and invitees to be confirmed prior to each meeting.
    - Assuming one briefing per year.
    - Assume communication with agencies in other methods to keep them informed.
- **Timing:** July and December 2024 and April 2025.

ODOT Coordination Meetings

A total of four (4) meetings will be held with ODOT technical staff to address project needs, as directed by PMT.

Key Messages

Why is this work needed?

- To meet essential transportation planning needs and requirements.

- To support local community goals for transportation and land-use planning, including climate, health and community design.

- To meet regulatory requirements, including those of the Climate Friendly and Equitable Communities (CFEC) program.

- To comply with the revised Transportation Planning Rule (TPR) adopted through CFEC efforts. This includes:

    - Expanded requirements and performance measures for bicycle, pedestrian, transit and roadway facility inventories.

    - Corresponding performance measures for some inventory requirements.

What will the project accomplish?

The project will:
- Gather and integrate infrastructure inventory data for pedestrian, bicycling, transit, and vehicular systems.

- Build consensus on the roles and responsibilities ODOT and the partner agencies have for managing this dataset over the long term.

Agencies will use the dataset for use in transportation system planning and stewardship, development review, and performance measure monitoring requirements.

Who's involved?

- ODOT, DLCD, eight MPOs and a range of cities and transit agencies representing peer agencies across the state.

Why ODOT?

- Until now, ODOT has solely collected and maintained nearly all statewide transportation data.

Who's affected?

- The revised Transportation Planning Rule significantly changed transportation planning requirements, primarily in Oregon's eight metropolitan areas: Albany, Bend, Corvallis, Eugene/Springfield, Grants Pass, Medford/Ashland, Portland Metro and Salem/Keizer).
- Primary audiences are DLCD, MPOs, cities and counties within MPOs boundaries, and transit agencies that serve metro areas and hold substantial transit data in-house.

What are the project benefits?

A more uniform statewide dataset will mean:

- Better information for counties, local governments, public agencies focused on transit and public health, universities and more to meet their planning obligations.
- Better informed planning and engineering consultants.
- Better tools to compete for local and federal funding.

What are the benefits of participating?

- Help make sure your local data is accurately included into a statewide database and it will be useful for future data needs.
- Help make sure the dataset meets as many project needs as possible within a set budget.
- Better understand how this project interacts with your local planning needs.
- Represent interests and needs of similarly sized jurisdictions with similar needs.

Other considerations

- To get the full benefits of this project, agencies may need to change how they gather and maintain data.
- For the dataset to have long-term value, everyone will need to contribute data.
- The team hopes to collect *all* available data on existing transportation systems .
- The project team will need local agencies' time and assistance to understand what's possible: What data exists, is reasonable to collect, awareness of gaps, what issues could arise.
- The project will have different ways for agencies to get involved and stay informed, depending on their level of interest, capacity and available staff time and resources.
- The team will learn about AI and other cutting-edge tools for data collection, to guide future efforts.

Keeping you up to date

- Survey: what's your dataset, how do you use it and at what level do you want to be involved.
- Need to be selective in how many partners are involved on the committees so that conversations can be effective, yet we're committed to keeping those who this project may support informed throughout the process.
- MPO can communicate updates about this.
- Do we want to use the ACTs in the same way? Provide updates.

- This could create a foundation for data that could eventually expand to other regions beyond the eight metropolitan areas.

Preliminary Meeting Topics with Partners

MISC #1: April 2024
Informational items
- Project overview
- 2.1 PEP

Discussion drafts
- 2.2 Draft Survey
- 3.1 Infrastructure Attributes

MISC #2: June 2024
Informational items
- 3.1 Infrastructure Attributes (final)
- 2.2 Survey Findings

Discussion drafts
- 3.2 Data Needs
- 4.1 Existing Data Collection Schedule
- 4.2 Draft Existing Data Compilation

STAC #1: June 2024
Informational items
- Project overview
- 3.1 Infrastructure Attributes (final)
- 2.2 Survey Findings

Discussion drafts
- 3.2 Data Needs
- 4.1 Existing Data Collection Schedule
- 4.2 Draft Existing Data Compilation

Virtual Briefing #1: July 2024
Informational items
- Project overview
- Data needs for CFEC compliance
- 2.2 Survey Findings
- 4.2 Draft Existing Data Compilation

MISC #3: September 2024
Informational items
- 4.2 Draft Existing Data Compilation
- 7.1 Training

Discussion drafts
- 4.3 Multimodal Data Gaps Analysis
- 5.2 Process Existing Data
- 5.3 Data QA Method
- 7.2 New Data Collection Form

STAC #2: September 2024
Informational items

- 4.2 Draft Existing Data Compilation
- 7.1 Training

Discussion drafts
- 4.3 Multimodal Data Gaps Analysis
- 5.2 Process Existing Data
- 5.3 Data QA Method
- 7.2 New Data Collection Form

MISC #4: November 2024
Informational items
- Lessons learned from 5.2 Process Existing Data
- 5.3 QA Review
- 7.2 New Data Collection - First Round
- 7.3 Process New Data
- 7.4 New Data QA Review

Discussion drafts
- 8.1 Long-Term Data Plan Outline

STAC #3: November 2024
Informational items
- Lessons learned from 5.2 Process Existing Data
- 5.3 QA Review
- 7.2 New Data Collection - First Round
- 7.3 Process New Data
- 7.4 New Data QA Review

Discussion drafts
- 8.1 Long-Term Data Plan Outline

Virtual Briefing #2: December 2024
Informational items
- Existing Data Collection/Compilation/Processing
- Data Gaps Analysis
- New Data Collection - First Round & Lessons Learned

MISC #5: March 2025
Informational items
- 5.2/5.3 Process & QA Existing Data Update
- 7.2 New Data Collection Update

Discussion drafts
- 8.1 Revised Long-Term Data Plan Outline & discussion on maintenance/management

STAC #4: March 2025
Informational items
- 5.2/5.3 Process & QA Existing Data Update
- 7.2 New Data Collection Update

Discussion drafts
- 8.1 Revised Long-Term Data Plan Outline & discussion on maintenance/management

Virtual Briefing #3: April 2025
Informational items

- 2025 deliverables
- How we're adjusting based on 2024 lessons learned
- Progress report on long term management/maintenance planning
- Survey announcement (if doing a second survey)

MISC #6: July 2025
Informational items
- Task 5 and 7 activities
Discussion drafts
- 8.2 Draft Data Management and Maintenance Plan

STAC #5: August 2025
Informational items
- Task 5 and 7 activities
Discussion drafts
- 8.2 Draft Data Management and Maintenance Plan

CONTINGENCY MISC #7: November 2025
Informational items
- 2025 Data Collection, Processing, & QA Review
- Updated lessons learned
Discussion drafts
- 8.2 Revised Data Management and Maintenance Plan

CONTINGENCY STAC #6: November 2025
Informational items
- 2025 Data Collection, Processing, & QA Review
- Updated lessons learned
Discussion drafts
- 8.2 Revised Data Management and Maintenance Plan

TECH MEMO #1: MULTIMODAL INVENTORY DATA NEEDS

DATE: September 27, 2024

TO: Statewide Technical Advisory Committee (STAC)

FROM: Multimodal Inventory Consultant Team

SUBJECT: ODOT Multimodal Inventory – Draft Tech Memo #1 – STAC Review

INTRODUCTION

This memorandum proposes a set of infrastructure attributes necessary to meet the requirements of Oregon Administrative Rule (OAR) 660-012, also known as the Transportation Planning Rule (TPR), when developing Transportation System Plans (TSPs) in metropolitan areas. This memorandum identifies the attributes and describes how they will be used to support transportation system inventories, develop and prioritize projects, select and set performance standards, report on land use and transportation performance measures, and achieve other agency goals for enhancing multimodal transportation systems in metropolitan areas. This memorandum also identifies the source of the data used to establish the proposed attributes.

The proposed attributes identified in this memorandum were updated based on input from the Project Management Team (PMT), Multimodal Inventory Steering Committee (MISC), and will be further updated based on input from the Statewide Technical Advisory Committee (STAC). The final attributes will be collected by the project team in coordination with local agencies in metropolitan areas throughout the state, including Metro.

BACKGROUND

In 2020, the Land Conservation and Development Commission (LCDC) directed the Department of Land Conservation and Development (DLCD), Oregon's land use planning agency, to draft updates to the TPR to address growing concerns about transportation-related climate pollution. The updates resulted in the Climate-Friendly and Equitable Community (CFEC) program which updates the

approach to land use and transportation system planning within Oregon's eight metropolitan areas, including Albany, Bend, Central Lane, Corvallis, Middle Rogue, Rogue Valley, Salem-Keizer, and Metro. Some areas of the updated TPR distinguish between cities and counties in the Portland Metropolitan area and other metropolitan areas throughout the state.

The updated TPR requires cities and counties within metropolitan areas and Metro to update their TSPs and land use plans to ensure Oregonians have more options to travel safely and efficiently within their communities, and don't have to rely on a single travel mode to meet their daily needs. The updated TPR also aims to improve equity and help community transportation, housing, and planning serve all Oregonians, particularly those traditionally underserved and discriminated against.

PURPOSE

The purpose of this memorandum is to present the proposed infrastructure attributes necessary to meet the requirements of the TPR, identify how the attributes will be used by cities and counties to develop local TSPs, and identify how the attributes can be used to achieve other agency goals. The information provided in this memorandum will ensure that sufficient data is collected by the project team as part of this project and that local agencies have guidance on future data collection needs.

DATA USAGE

This section identifies how the proposed infrastructure attributes will be used to develop TSPs in metropolitan areas, including developing transportation system inventories, prioritizing transportation system improvement projects, selecting and setting performance standards, reporting on land use and transportation performance measures, and achieving other agency goals for enhancing and managing multimodal transportation systems.

PLANNING AREA

The focus of the multimodal inventory project is on all transportation facilities and services located within the urban growth boundaries (UGBs) of the incorporated cities in metropolitan areas, which includes portions of counties located within the UGBs but outside the city limits. As such, several geographic boundaries are needed to organize the data by jurisdiction. The boundaries include *metropolitan planning organization boundaries*, *county boundaries*, and the *urban growth boundaries* and *city limits* of the incorporated cities. Other geographic boundaries that are referenced in various elements of the TPR include: *climate-friendly areas (CFA)*, *Metro Region 2040 Centers*, areas within ¼ **mile of all primary and secondary schools**, and areas with high concentrations of *underserved*

populations. The boundaries considered will be the most current boundaries at the time the data is collected. Changes that occur after the data is collected will need to be addressed by local agencies.

TRANSPORTATION SYSTEM INVENTORIES

Cities and counties in metropolitan areas are required to develop transportation system inventories that comply with multiple OARs. OAR 660-012-0150 identifies requirements that apply to all facilities and refers to subsequent sections of the TPR for more detailed requirements for each travel mode. The subsequent sections include OAR 660-012-0505: Pedestrian System Inventory, OAR 660-012-0605: Bicycle System Inventory, OAR 660-012-0705: Public Transportation System Inventory, and OAR 660-012-0805: Street and Highway System Inventory. Detailed inventory requirements are identified in each section for each travel mode. Additional information on the data needs associated with each of these OARs is provided below.

TRANSPORTATION SYSTEM INVENTORY

OAR 660-012-0150 requires transportation system inventories to include all publicly owned, operated, or supported transportation facilities and services within the planning area regardless of ownership or maintenance responsibility. The data needed to comply with the OAR requirements include *ownership*, *maintenance responsibility*, *classification*[1], *primary uses*, *primary users*, and *land use context* for all transportation facilities and services.

PEDESTRIAN SYSTEM INVENTORY

OAR 660-012-0505 requires pedestrian inventories to include information on pedestrian facilities and street crossings for all areas within CFA's, Metro Region 2040 Centers, within one-quarter mile of all primary and secondary schools, and along all arterials and collectors. The data needed to comply with the OAR include *type*, *width*, and *condition* for all pedestrian facilities, *crossing distance*, *type of crossing*, *closed crossing*, *curb ramps*, and *distance between crossings* for all pedestrian crossings, *crash risk factors* for all inventoried pedestrian facilities[2], and the location of all reported injuries and deaths of people walking or using a mobility device from the most recent five years of *crash data* available. Other pedestrian-related data needed to comply with other OARs include *key pedestrian destinations* (-0500), *pedestrian crossing treatments* (-0905) and *pedestrian level of traffic stress* (-0905).

---

[1] Classification refers to both the functional classification of streets and highways as well as the classification/designation of pedestrian (-0510), bicycle (-0610), and public transportation facilities (-0710).

[2] Per the OAR, pedestrian and bicycle crash risk factors include, but are not limited to, speed, volume, separation (bicycle only) and roadway width. The Oregon Bicycle and Pedestrian Safety Implementation Plan includes a comprehensive list of pedestrian and bicycle crash risk factors, most of which are accounted for in the streets and highways inventory element.

BICYCLE SYSTEM INVENTORY

OAR 660-012-0605 requires bicycle inventories to include information on bicycle facilities of all types within CFA's, Metro Region 2040 Centers, within one-quarter mile of all primary and secondary schools, on bicycle boulevards, and along all arterials and collectors. The data needed to comply with the OAR include *type*, *width*, and *condition* for all bicycle facilities, *type of crossing* for all bicycle crossings, *crash risk factors* for all inventoried bicycle facilities, and the location of all reported injuries and deaths of people on bicycles from the most recent five years of *crash data* available. Other bicycle-related data needed to comply with other OARs include *key bicycle destinations* (-0600) and *bicycle level of traffic stress* (-0905).

PUBLIC TRANSPORTATION SYSTEM INVENTORY

OAR 660-012-0705 requires public transportation inventories to include information on local and intercity transit services. The data needed to comply with the OAR for transit lines include *coverage type*, *service type, route number,* if the transit service is in dedicated *transit lanes,* and *service frequency* and *service span* in transit priority corridors. The data needed to comply with the OAR for transit supportive facilities include the *location* and *type* of *transit stops* and *major stations*, as well as *amenities* like *shelters*, *signage*, or other *ancillary facilities*, and if the stop is *ADA accessible*. The data needed to comply with the OAR for transit priority infrastructure include the *type* of infrastructure, such as transit priority signals, queue jumps, on-route charging, and other features. Other transit-related data needed to comply with other OARs include *key transit destinations* (-0700).

STREET AND HIGHWAY SYSTEM INVENTORY

OAR 660-012-0805 requires street and highway inventories to include data on all local streets, collectors, arterials, and expressways. The data needed to comply with the OAR include *functional classification* of each facility, including the *federal functional classification*. The data also include *location* for all local streets, collectors, arterials, and expressways; *condition* and *number of general-purpose travel lanes*, and *turn lanes* for all collectors, arterials, and expressways; *lane width* for arterials and expressways; and *location* and *type* of interchanges for all expressways. The data also include the location of all reported serious injuries and deaths of people related to motor vehicle crashes from the most recent five years of available *crash data*. The data also include *pricing strategies, including specific facility pricing, area or cordon pricing, and parking pricing*, each of which will be collected at the time of the TSP update. Finaly, the data include the *location* of all designated *freight routes*, *freight terminals*, and *intermodal facilities* within the planning area. Other street and highway data needed to comply with other OARs include *key street and highway destinations* (-0800).

The proposed infrastructure attributes shown in Attachment A and discussed later in this report will provide data needed to comply with each of the OARs described above for the transportation system inventories.

PRIORITIZATION FRAMEWORK

OAR 660-012-0155 requires cities and counties in metropolitan areas and Metro to use a specific framework for decision making regarding prioritization of transportation facilities and services. They are also required to consider the functional classification, planned land use context, and expected primary users when making decisions about appropriate transportation facilities and services.

PRIORITIZATION FACTORS

OAR 660-012-0155(3) requires cities and counties to prioritize transportation facilities and services based on several factors, including: meeting greenhouse gas reduction targets; improving equitable outcomes for underserved populations; improving safety, particularly reducing or eliminating fatalities and serious injuries; improving access for people with disabilities; improving access to key destinations; completing the multimodal transportation network, including filling gaps and making connections; supporting the economies of the community, region, and state, and; other factors determined in the community.

The proposed infrastructure attributes will provide data to support use of the prioritization factors identified above and comply with this OAR. For example, *crash data*, along with other facility-related information, will provide data to evaluate the safety of the transportation system, identify safety issues that need to be addressed, and support the overall prioritization process. Similarly, *key destinations*, along with other facility-related information, will provide data to assess access to key destinations, identify gaps and deficiencies, determine existing and future needs, develop alternative solutions, and support the overall prioritization process.

FUNCTIONAL CLASSIFICATION

OAR 660-012-0155(4) requires cities and counties to consider the functional classification of planned or existing transportation facilities when making decisions about appropriate transportation facilities and services. Mode-specific functional classifications may also be established for facilities that are owned and operated by the cities and counties (e.g., pedestrian, bicycle, and transit route designations). The proposed infrastructure attributes include *functional classification* data for all street and highway facilities, at a minimum, and may include *classification/designation* data for all other transportation facilities and services, which is sufficient to comply with this OAR.

LAND USE CONTEXT

OAR 660-012-0155(5) requires cities and counties to consider the planned land use context around existing or planned transportation facilities when making decisions about transportation facilities and services. Specifically, decision making for facilities within CFAs must prioritize pedestrian, bicycle, and public transportation facilities and services, resulting in safe, low stress and comfortable travel.

The proposed infrastructure attributes include *land use context*, as well as *climate-friendly areas* and various facility and service information in CFAs and areas with concentrations of *underserved populations*, which is sufficient to comply with this OAR.

PRIMARY USERS

OAR 660-012-0155(6) requires cities and counties to consider expected primary users of existing and planned transportation facilities when making decisions about transportation facilities and services. In areas near schools, or other locations with expected concentrations of children, or areas with expected concentrations of older people or people with disabilities, cities and counties must prioritize safe, protected, and continuous pedestrian and bicycle networks connecting to key destinations and transit stops. In industrial areas, along routes accessing key freight terminals, and other areas where freight accommodations are needed, cities and counties must consider the needs of freight users and provide pedestrian, bicycle and public transportation facilities at a level that provides safe access for workers.

The proposed infrastructure attributes include *primary users*, the *location of schools*, *freight route designations*, and the location of *freight terminals*. The attributes may also include *demographic* information to help identify concentrations of elderly populations, which is sufficient to comply with this OAR.

SELECT AND SET PERFORMANCE STANDARDS

OAR 660-012-0215 requires cities and counties in metropolitan areas to adopt performance standards to evaluate the performance of the transportation system. The performance standards must include characteristics that can be quantified to calculate performance, thresholds to determine if the performance standards are met, and findings for how the performance standards support meeting targets for performance measures (see below). Per OAR 660-012-0215(3), cities and counties must adopt two or more performance standards and at least one of them must support increasing multimodal transportation options and avoiding principal reliance on the automobile. The performance standards must evaluate at least two of the following objectives for any or all travel modes: reducing climate pollution, equity, safety, network connectivity, accessibility, efficiency, reliability, and mobility.

The proposed infrastructure attributes will inform the development of performance standards and establish a baseline for evaluating existing and projected future transportation system conditions,

which is sufficient to comply with this OAR. Key attributes include *demographics*, *crash data*, the *location*, *type*, and *condition* of pedestrian and bicycle facilities, and other inventory data that can be used to support development of performance standards.

LAND USE AND TRANSPORTATION PERFORMANCE MEASURES

OAR 660-012-0905 requires cities and counties in metropolitan areas to report on land use and transportation performance measures established during a regional process as outlined in Division 44 (Metropolitan Greenhouse Gas Reduction Targets). Cities and counties that have not completed a regional process must report on capital improvements and the adoption of policies or programs aimed at reducing pollution and increasing equitable outcomes for underserved populations. In addition, these communities must report on the performance measures as presented in OAR 660-012-0905, which include measures related to compact mixed-use development, active transportation, transportation options, transit, parking management, and the transportation system.

The proposed infrastructure attributes may be used to support reporting on these approved greenhouse gas reduction performance measures. This includes, but is not limited to, information regarding *climate-friendly areas*, areas with concentrations of *underserved populations*, the *location* of arterials, collectors, transit stops, pedestrian crossings, etc. While there is some data that can support reporting on the performance measures, much of the data gathered from the inventory may not directly contribute to these measurements.

OTHER AGENCY GOALS

The proposed infrastructure attributes may also support a number of other agency goals, including establishing active transportation performance measures, monitoring and measuring pedestrian and bicycle safety, and developing a priority multimodal network.

ACTIVE TRANSPORTATION PERFORMANCE MEASURES

As indicated above, OAR 660-012-0215 requires cities and counties within metropolitan areas and Metro to adopt at least two transportation performance standards of which one must support increasing transportation options and avoiding principal reliance on the automobile. Additionally, the adopted performance standards must support meeting the targets for performances measures set, as provided in OAR 660-012-0910. While a straight correlation is not required, cities and counties must adopt at least two performance standards that help support the performance targets.

ODOT is currently in the process of developing a toolbox of measures and potential thresholds that could serve as performance standards for local jurisdictions to consider adopting. Thresholds may differ depending on the facility type or transportation system element being evaluated. While ODOT

has not yet completed its work, their current recommendations include a variety of potential performance standards aimed at active transportation, including: accessibility to key destinations, employment, and transit; bicycle level of traffic stress (BLTS) and pedestrian level of traffic stress (PLTS); system completeness; bicycle and pedestrian crash risk; percent of collector and arterial streets in priority areas rated BLTS and PLTS 1 or 2; percent of corridors or priority areas meeting target crossing spacing, and; percent of jurisdiction able to be reached by BLTS 1 routes.

Some attributes proposed in the inventory and included in the primary phase of this project may inform these measurements such as those under pedestrian bicycle crossings: location, type, crossing distance, closed crossing, and curb ramps. BLTS and PLTS are not considered in the primary phase of this project but can be considered in the contingency task and would help with these measurements if analyzed. Certain aspects of the active transportation performance measurements must be analyzed based on data in the inventory.

OREGON BICYCLE AND PEDESTRIAN SAFETY IMPLEMENTATION PLAN

The Oregon Bicycle and Pedestrian Safety Implementation Plan is a plan made in accordance with the National Cooperative Highway Research Program (NCHRP) Implementation Support Program. The plan is data-driven and intended to identify risk factors, high-risk locations, and potential countermeasures throughout Oregon. Data is an important component of this plan and allows the assignment of risk factors for various pedestrian and bicyclist facilities.

Many of the proposed attributes can be utilized for updates to this plan in the future such as posted speed, presence of sidewalk, classification, and proximity to schools. Many of these attributes are not highlighted in the TPR as crash risk factors but are being collected for other TPR-related requirements and can be used to increase the development of crash risk factors.

PEDESTRIAN AND BICYCLE PERFORMANCE MEASURES RECOMMENDATIONS: CAPTURING OUR TRUE PROGRESS

ODOT's Pedestrian and Bicycle Performance Measures Recommendations: Capturing Our True Progress focused on new Key Performance Measures (KPM) for active transportation modes that should result in increased access, improved safety, and increased walking and biking. This effort outlined the near-term and future performance measurements. Attributes listed in this project such as *type* and *condition* of bikeways and walkways, crosswalk *location*, and pedestrian and bicycle *crash data* will provide some of the data necessary for the measures to be analyzed.

ACTIVE TRANSPORTATION NEEDS INVENTORY

The Active Transportation Needs Inventory (ATNI) compiles existing sidewalk, bike lane, shared-use path, and shoulder data sets for state facilities and provides an inventory of existing infrastructure, an

assessment of gaps and deficiencies with regards to rural and urban standards in the ODOT highway design manual, and an evaluation and prioritization of needs based on an established methodology. The current ATNI provides detailed information and priorities on state highways for the entire state and for each region (ODOT regions 1-5.).

The ATNI uses a set of evaluation criteria to prioritize bicycle and pedestrian needs on state highways. The evaluation criteria include: bicycle or pedestrian crash frequency; bicycle or pedestrian risk; bicycle level of traffic stress; fills a gap in an area surrounded by existing facilities; access to essential destinations; access to transit; bicycle tourism routes; transportation disadvantaged communities; health; local plan/TSP priorities; and presence of existing facility. The ATNI describes the criteria, identifies the data needs, defines the methodology used to develop the criteria scores, and describes any limitations.

Many of the proposed attributes can be used to support future updates to the ATNI. The attributes can be used to develop the inventory, identify gaps and deficiencies, and support the evaluation and prioritization of needs – many of the evaluation criteria and data needs align with the proposed attributes.

PROPOSED INFRASTRUCTURE ATTRIBUTES

The proposed infrastructure attributes are presented in Attachment A. The attributes are organized into five data groupings, including non-modal datasets, vehicular + freight facilities, bicycle + pedestrian facilities, transit facilities, and other relevant data. Within each grouping the attributes are identified as either primary (will be collected as part of this project), secondary (will be collected as part of future TSPs), or contingency (may be collected as part of this project based on direction from ODOT).

PRIMARY ATTRIBUTES

The primary attributes include those that are **required to comply with the transportation system plan inventory elements of the TPR and will be collected as part of this project**. These attributes provide data on the physical and operational characteristics of transportation facilities within the planning area. Attachment A includes several lists of the primary attributes by travel mode and provides references to various elements of the TPR.

SECONDARY ATTRIBUTES

The secondary attributes include those that are related to the primary attributes and may also be required to comply with the transportation system plan inventory elements of the TPR; however, due to the nature of the data needed to populate the attributes, the project team determined that they

should be collected in conjunction with the development of local TSPs. These attributes include non-static attributes, attributes that are in process, or attributes that require further analysis.

NON-STATIC ATTRIBUTES

Non-static attributes include those that are updated periodically or may vary by jurisdiction. The non-static attributes include:

- *Underserved Populations* – cities and counties will likely rely on US Census Data for identifying the location and concentration of transportation disadvantaged populations within their communities. US Census data is updated every 10 years, making it relatively non-static; however, ACS data is updated annually. Therefore, the data should be collected when completing a TSP. In addition, while the TPR defines underserved populations, concentrations of these populations will vary by jurisdiction, which may change how the data is collected and used throughout the planning process.

- *Key Destinations* – cities and counties are required to identify key destinations within their communities as part of transportation system inventories. Given the nature of some key destinations, there will likely be a need to verify and/or update the data annually. In addition, while the TPR defines key destinations, they are likely to vary from jurisdiction to jurisdiction based on community goals and changes in the built environment. Therefore, the key destinations data should be collected when completing a TSP.

- *Crash data* – cities and counties will likely rely on ODOT's crash data for identifying the location, type, and severity of crashes within their communities. ODOT's crash data is updated annually and per the TPR, the crash data must include the five most recent years of available data prior to the year of adoption of the system inventory. Therefore, the crash data should be collected when completing a TSP update.

IN-PROCESS ATTRIBUTES

In-process attributes include those that have not yet been fully developed. The in-process attributes include:

- *Climate Friendly Area Boundaries* – cities and counties in metropolitan areas are currently in the process of establishing CFAs within their communities and they will likely not be established when the data is collected. This project will not be developing the CFA boundaries, and therefore the CFA's boundaries will not be part of the inventory data at this time.

CALCULATED ATTRIBUTES

The attribute list requires a few items to be calculated using other attributes that may not be collected as part of this project. The calculated attributes include:

- *Pedestrian and Bicycle Crash Risk* – Much of the data needed to support pedestrian and bicycle crash risk assessments will be collected in the primary project phase. However, additional data and analysis is needed to support crash risk assessments. Therefore, pedestrian and bicycle crash risk are identified as secondary attributes and will be developed in conjunction with local TSPs.
- *Pedestrian and Bicycle Level of Traffic Stress (PLTS and BLTS)* – Like pedestrian and bicycle crash risk, much of the data needed to support PLTS and BLTS will be collected in the primary project phase. However, a significant amount of additional data and analysis is needed to support PLTS and BLTS assessments. Therefore, PLTS and BLTS are identified as secondary attributes and will be developed in conjunction with local TSPs.

CONTINGENCY ATTRIBUTES

The contingency attributes primary reflect data needed to complete the pedestrian and bicycle level of traffic stress (PLTS and BLTS) analyses. PLTS and BLTS require a significant amount of data to complete. While much of the data is required for transportation system inventories and will be collected as part of this project, much more data and analysis are needed.

- *Pedestrian and Bicycle Level of Traffic Stress (PLTS and BLTS)* – Additional attributes needed to support PLTS and BLTS are identified under the contingency phase of the project if approved by ODOT. The attributes are separated by geometry type (lines and points) and would provide all the data needed to complete PLTS and BLTS analyses along roadway segments and at intersections. As indicated above, the additional data are not directly related to any inventory requirements, and therefore are included under the contingency phase of the project. However, the data would enable jurisdictions to report on the performance of the transportation system.

The proposed infrastructure attributes presented in Attachment A were updated based on input from the PMT and will be further updated based on input from the MISC and STAC. At a minimum, the attributes identified as primary (non-contingency) will be collected by the project team as part of this project while the attributes identified as contingency may be collected based on direction from ODOT.

DATA SOURCE

Project datasets will be generated using existing jurisdiction GIS datasets when they exist, with additional attributes added to meet TPR requirements. When GIS datasets do not exist or are not available, they will be generated by the project from either artificial intelligence (AI) derived sources including Vexcel or Ecopia, GIS Analysis, aerial imagery (e.g., Google Earth), and/ or anecdotal data provided by jurisdictions.

LOCAL JURISDICTION DATA

Jurisdictional GIS datasets will be utilized during the project. The source of the jurisdictional data is different for each jurisdiction. For example, some small cities' data is managed by the MPO or Councils of Governments (COGs) and some COGs and MPOs collect all the data for cities under them. Therefore, the data source for these jurisdictions is highly variable. Anecdotal data provided by jurisdictions will consider presence, function, etc. For certain attributes the collection of certain data will be collected by a jurisdiction while developing a TSP.

ARTIFICIAL INTELLIGENCE

When GIS datasets are not available, Vexcel and Ecopia will be utilized to generate them using artificial intelligence (AI) derived sources. Vexcel will provide 2024 aerial imagery of the study areas. Ecopia will use its AI models to derive geometries and attributes from aerial imagery. Ecopia and the project team will conduct human reviews of a subset of data before it is incorporated into the datasets for the jurisdictions.

GIS ANALYSIS / PROCESSING

When GIS datasets exist or are created through other means, but attributes are unavailable, the project team will populate the attributes from existing attributes or by using spatial processes. One example of this would be developing crosswalk tables to convert a local description to a standardized state description. Another example would be to develop attributes using spatial processes that utilize other datasets.

AERIAL IMAGES

In some cases, aerial recognizance may be necessary for certain data that is not able to be collected through jurisdictional data, artificial intelligence, or GIS analysis. In these cases high resolution aerial imagery provided by Vexcel will be used.

ATTACHMENT A: DATA ATTRIBUTES LIST

DATE: September 27, 2024

TO: Statewide Technical Advisory Committee (STAC)

FROM: Multimodal Inventory Consultant Team

SUBJECT: ODOT Multimodal Inventory – Draft Data Attribute List – STAC Review

INTRODUCTION

This memo describes the proposed GIS-based data layers and associated attributes for the Oregon Department of Transportation (ODOT) Multimodal Inventory project. The remainder of this memo is divided by map layer. Within each subsection the layer is defined along with the associated attributes required to comply with the *Climate-Friendly and Equitable Communities* (CFEC) analysis effort.

DEFINITIONS

This memo uses technical and planning terminology that may be new to some readers. Explanations of each term are included below:

Feature Class: A GIS term for a map layer stored in an ESRI-compliant File Geodatabase. Pedestrian routes are an example of a feature class. Feature classes can be stored in three geometry types as described below.

> **Point:** *One or more locations described using a point on a map. (Example: Bus Stop)*
> **Line:** *One or more locations described using a line on a map. (Example: Pedestrian Routes)*
> **Polygons:** *One or more locations described using a polygon on a map. (Example: Urban Growth Boundary)*

The feature class data will include metadata that conforms to the Oregon GIS Metadata Standard, as applicable.

Attribute: A GIS term for a field within a feature class. Attributes contain information about the feature class such as a road or pedestrian route. Width is an example of an attribute that would apply to a pedestrian route. In the tables within this report, attributes are described by the type of values they will hold as described below:

> *Short Integer = Whole numbers 0-99. (Example: 1)*
> *Long Integer = Whole numbers 100 – 1,000,000,000 (Example: 100)*
> *Double = Numbers with decimals (Example 1.5)*
> *String = Text (Example: Fair)*

TPR: Reference to Oregon Administrative Rule (OAR) 660-012, also known as the *Transportation Planning Rules* (TPR). For purposes of this effort, subcodes in the TPR (e.g., -0150, -0505) are referenced below for each feature class and/or attribute, which applies directly to CFEC implementation.

Domain Value: Domain values are a list of suitable entries for a specific attribute. Domains are intended to standardize data by reducing transcription errors. (Example: Local Road, Collector, Arterial, Expressway)

Source: Project datasets will be generated using existing jurisdiction sources whenever possible. When available existing GIS datasets will be used as the basis for project datasets. When existing GIS datasets are not available data will be developed from either artificial intelligence (AI) derived sources including Vexcel or Ecopia, or from aerial imagery (e.g., Google Earth) and/or anecdotal data provided by jurisdictions.

Climate-Friendly and Equitable Communities (CFEC): Reference to the rulemaking process conducted by the Department of Land Conservation and Development (DLCD) to address concerns about transportation-related climate pollution. One outcome of the rulemaking process was significant changes to the TPR, which primarily impact cities and counties in metropolitan areas.

TPR Use: The TPR Use column in the tables below describe how the attribute will be used when completing a CFEC-related analysis. The CFEC Use types are described below:

> *Inventory = The attribute is required as part of the CFEC inventory and may be an input for analysis.*
> *Prioritization = The attribute is required for prioritization during CFEC analyses.*
> *Reporting = The attribute is required for CFEC reporting.*

Project Phase: For the purposes of this memo, the project has been split into two phases: Primary and Contingency. Tasks identified as occurring during the Primary Phase are those completed under the non-contingency tasks, and tasks listed as Contingency are those that may be completed under the project's Contingency task pending Agency approval.

Transportation System Plan (TSP): A TSP describes the existing transportation system and the projects, programs, and policies that will allow a community to meet its transportation needs and aspirations now and 20 years into the future.[1]

National Cooperative Highway Research Program (NCHRP): Funded by Federal Highway Administration (FHWA), United States Department of Transportation (USDOT), and American Association of State Highway and Transportation Officials (AASHTO), NCHRP is an objective national highway research program that uses modern scientific techniques. NCHRP has produced numerous studies on roadway safety, data management, and active transportation, and is considered one of the national resources for best practices and cutting-edge findings on transportation issues.

Bicycle Level of Traffic Stress (BLTS): BLTS is a measure of estimated comfort of bicyclists in the traffic stream, where level 1 indicates the roadway is low-stress and comfortable for most ages and abilities to bike on, while level 4 refers to a roadway with multilane, fast-moving traffic that is high-stress for most cyclists.

Pedestrian Level of Traffic Stress (PLTS): Like BLTS, PLTS is a measure of estimated comfort of pedestrians along a roadway, where level 1 indicates the roadway is low-stress and comfortable for most ages and abilities, while level 4 refers to a high-stress roadways which may not be suitable for most people.

DATA GROUPINGS

Data prepared for the project can be categorized into the groups described below. Each dataset is described in more detail in the following sections.

NON-MODAL DATASETS

These datasets will be used for reference by the project.

- Metropolitan Planning Area (MPA)
- Urban Growth Boundaries (UGB)
- City Limits
- Climate Friendly Areas (CFA)*
- Metro Region 2040 Centers
- Primary and Secondary Schools
- Primary and Secondary Schools ¼-mile buffer**

---

[1] https://www.oregon.gov/odot/planning/tsp-guidelines/pages/what.aspx

- US Census Data
- Underserved Populations***

* Climate Friendly Areas may not be developed at the time a jurisdictions data is processed. This project will not be responsible for developing Climate Friendly Area boundaries.

** Primary and Secondary School ¼-mile Buffers will be developed as a reference dataset to identify potential data gaps between school buffers and Urban Growth Boundaries. This will be used to inform jurisdictions of possible coverage gaps in project datasets.

*** The Underserved Populations dataset will be developed by jurisdictions and may not be available at the time the jurisdiction's data is processed.

VEHICULAR + FREIGHT FACILITIES

The vehicular datasets below will be developed as part of the project.

- Roadways*
- Freight Routes
- Freight Terminals**

* Depending on the jurisdiction's existing data, roadway datasets may be combined into a single roadway facility dataset or separated by classification (local, collector, arterial, and expressway).

** The schema for these datasets will be defined during this project. Due to the temporal nature of these datasets, development will be completed by each jurisdiction during TSP development.

BICYCLE + PEDESTRIAN FACILITIES

The pedestrian and bicycle facility datasets below will be developed as part of the project.

- Pedestrian Routes
- Bicycle Routes
- Pedestrian and Bicycle Crossings

TRANSIT FACILITIES

The transit facility datasets below will be developed as part of the project.

- Transit Lines
- Transit Supportive Facilities
- Transit Priority Infrastructure

OTHER RELEVANT DATA

The datasets below cross multiple mode types:

- Key Destinations (Pedestrian, Bicycle, Transit, Vehicles) *
- Crashes (Vehicle, Pedestrian, Bicycle) *
- Intersection Points**

The schema for these datasets will be defined during this project. Due to the temporal nature of these datasets, development will be completed by each jurisdiction during TSP development.

*** The Intersection Points dataset is an optional dataset which would be developed to support BLTS and PLTS analyses. This dataset would be developed under the Contingency task if approved by ODOT.*

VEHICULAR + FREIGHT FACILITIES

The following roadway facility data will be collected as part of this effort.

ROADWAYS

Description: All roadway facilities, including local roads, collectors, arterials, and expressways on public rights of way within a UGB. Data on private facilities will be included to the extent that it is available from the jurisdictions.

Geometry Type: Line

Source: Jurisdictions existing data

Relevant TPRs: -0150, -0155, -0805

Project Phase: Primary

TABLE 1: ROADWAY PRIMARY ATTRIBUTE LIST

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
GEOID*	String	NA	-	Prioritization, Reporting	Census block group GeoID used for joining ACS data.
OWNERSHIP*	String	-0150(3)	City, County, State, Private	Inventory	Jurisdictional ownership of facility.
MAINTENANCE RESPONSIBILITY*	String	-0150(3)	City, County, State, Private	Inventory	Jurisdiction responsible for facility maintenance.

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
CLASSIFICATION*	String	-0150(4)(a)	Arterial, Collector, Local, Expressway	Inventory	Provides a generalized classification of a roadway facility.
PRIMARY USES*	String	-0150(4)(a) -0155(4)	Local, Regional, Pass-Through, Freight Traffic	Inventory Prioritization	Describes the primary use of a facility.
PRIMARY USERS*	String	-0150(4)(b) -0155(6)	Foot, Bicycle, Transit, Freight, Personal Vehicle	Inventory Prioritization	Describes the primary user of a facility.
LAND USE CONTEXT*	String	-0150(4)(c) -0155(5)	TBD	Inventory Prioritization	Describes the land use context of a facility.
FUNCTIONAL CLASSIFICATION	String	-0805(1)	-	Inventory	Describes the local agency functional classification of a roadway facility.
CONDITION	String	-0805(1)	TBD	Inventory	Describes the condition of a roadway facility – applies to arterials, collectors, and expressways.
CONDITION YEAR	Long Integer	-0805(1)	-	Inventory	Identifies the year the condition was populated.
NUMBER OF TRAVEL LANES	Short Integer	-0805(1)	-	Inventory	Describes the total number of travel lanes for a roadway facility – applies to arterials, collectors, and expressways.
LANE WIDTH	Double	-0805(1)	-	Inventory	Describes the average lane width in feet for a roadway facility – applies to arterials and expressways.
CENTER TURN LANE	String	-0805(1)	Yes, No	Inventory	Describes whether the road facility includes a center two-way left-turn lane (TWLTL) – applies to arterials and collectors.
CENTER TURN LANE WIDTH	String	-0805(1)	-	Inventory	Describes the average width of a center TWLTL – applies to arterials and collectors

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
INTERCHANGE LOCATION	String	-0805(1)	Yes, No	Inventory	Describes whether the road facility includes a freeway interchange – applies to expressways.
INTERCHANGE TYPE	String	-0805(1)	Diamond, Partial Cloverleaf, Other**	Inventory	Describes what type of interchange the road facility connects to based on the HDM (page 600-24) – applies to expressways.
PRICING STRATEGY	String	-0805(3)	Facility Pricing, Cordon Pricing, Parking Pricing	Inventory	Describes the pricing strategy used along the roadway facility.
TRAVEL SPEED	Double	-0505(2) -0605(3)	-	Inventory	Designated/posted speed
TRAFFIC VOLUME	Long	-0505(2) -0605(3)	-	Inventory	Annual Average Daily Traffic (AADT)
ROADWAY WIDTH	Double	-0505(2) -0605(3)	-	Inventory	Total roadway width in feet
ROADWAY WIDTH TYPE	String	-0505(2) -0605(3)	Curb-to-curb, Fog Line-to-Fog Line, Total Paved, Total Right-of-way, Taxlot to Taxlot, Unknown	Inventory	Describes how total roadway width was measured.

Indicates an attribute that will be applied to all facilities including vehicular, bike, pedestrian, and transit. For brevity, these attributes will not be repeated in the Bicycle, Pedestrian, and Transit facility tables within this memo but will be included in the data schema for each facility type.

** Diamond interchanges include tight, compressed, and folded; Partial Cloverleaf interchanges may include one or more loops in any quadrant; Other interchanges include partial and full directional, single-point (SPUI), diverging diamond (DDI), and other types of grade-separated connections (typically found on lower-classified roadways).*

TABLE 2: ROADWAYS SECONDARY ATTRIBUTE LIST (CONTINGENCY)

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
MEASURED SPEED	Double	-	-	Inventory	Measured Speed

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
FEDERAL FUNCTIONAL CLASSIFICATION*	String	-	Local Road, Collector, Minor Arterial, Other Principal Arterial, Principal Arterial – Interstate, Principal Arterial – Other Freeways and Expressways	Inventory	Describes the federal functional classification of a roadway facility following FHWA 2023 Classifications ([reference](#))
FEDERAL FUNCTIONAL CLASIFICATION LAND USE DESIGNATION	String	-	Urban, Rural	Inventory	Identifies the land use designation associated with the federal functional classification
ACCESS DENSITY	Double	NCHRP Report 893	-	Inventory	Number of approaches per mile.

*If this data is collected, it will be collected from ODOT, not the local jurisdictions.

FREIGHT ROUTES

Description: Designated freight routes and intermodal connectors on public rights of way within a UGB.

Geometry Type: Line

Source: USDOT National Multi-modal Freight Network and Jurisdictions

Relevant TPRs: 0155, -0805

Project Phase: Primary

TABLE 3: FREIGHT ROUTES PRIMARY ATTRIBUTE LIST

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
DESIGNATION – LOCAL	String	-0805(4)	Yes, No	Inventory	Indicates if the roadway segment includes a local freight route designation.
DESIGNATION – STATE	String	-0805(4)	Yes, No	Inventory	Indicates if the roadway segment includes a state freight route designation

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
DESIGNATION – NATIONAL	String	-0805(4)	Yes, No	Inventory	Indicates if the roadway segment includes a national freight route designation
INTERMODAL CONNECTORS	String	-0805(4)	Yes, No	Inventory	Indicates if a road facility is an intermodal connector.

FREIGHT TERMINALS

Description: Freight terminals accessible from public rights of way within a UGB.

Geometry Type: Point

Source: USDOT National Multi-modal Freight Network and Jurisdictions

Relevant TPRs: -0155, -0805

Project Phase: Primary

Collection Note: The schema for this dataset will be developed as part of this project. The dataset will be populated by jurisdictions during TSP development.

TABLE 4: FREIGHT TERMINALS PRIMARY ATTRIBUTE LIST

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
LOCATION	String	-0805(4) 0155(6)(b)	-	Inventory Prioritization	Name of Freight Terminal. If no name is available this values will be the x,y location.
FREIGHT TERMINAL	String	-0805(4)	Yes, No	Inventory	Is it a freight terminal or not.

PEDESTRIAN + BICYCLE FACILITIES

The following bicycle and pedestrian facility data will be collected as part of this effort.

PEDESTRIAN ROUTES

Description: All paved pedestrian and shared use facilities on public rights of way within a UGB.

Geometry Type: Line

Source: Jurisdictions existing data supplemented by Ecopia

Relevant TPRs: -0150, -0155, -0505, -0905

Project Phase: Primary

TABLE 5: PEDESTRIAN ROUTES PRIMARY ATTRIBUTE LIST

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
LOCATION	String	-0155(5)(a) -0505(1) 0905(2)(b)(a)	TBD	Inventory Prioritization Reporting	Location of facility
TYPE	String	-0505(1)	Sidewalk, Path	Inventory	Type of facility
WIDTH	Double	-0505(1)(a)	-	Inventory	Width of pavement per segment in feet
CONDITION	String	-0505(1)(a)	Poor, Fair, Good	Inventory	Facility condition

TABLE 6: PEDESTRIAN ROUTES SECONDARY ATTRIBUTE LIST (CONTINGENCY)

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
PEDESTRIAN LTS*	String	-0905(2)(b)(A)	PLTS 1-4	Reporting	Requires the output of a Pedestrian Level of Traffic Stress analysis
PEDESTRIAN CRASH RISK SCORE*	String	-0505(2)	1-15**	Inventory	Requires the output of a Pedestrian Crash Risk Assessment per the Oregon Bicycle and Pedestrian Safety Implementation Plan

* The attributes necessary to calculate pedestrian level of traffic stress (LTS) and crash risk will be collected as part of this project; however, the LTS and crash risk scores will need to be calculated during the TSP planning process.

**ODOT's Bicycle and Pedestrian Safety Implementation Plan provides a methodology for calculating pedestrian crash risk, which relies on a variety of risk factors that are scored, summed, and ultimately ranked to identify low and high-risk facilities.

BICYCLE ROUTES

Description: All paved, marked bicycle facilities on public rights of way within a UGB.

Geometry Type: Line

Source: Jurisdictions existing data supplemented by Ecopia

Relevant TPRs: -0605(1), -0610(1), -0150(4)(a), -0155(5)(a), -0905(2)(b)(A)

Project Phase: Primary

TABLE 7: BICYCLE ROUTES PRIMARY ATTRIBUTE LIST

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
LOCATION	String	-0155(5)(a) -0605(1) -0905(2)(b)(a)	TBD	Inventory Prioritization Reporting	Location of facility
TYPE	String	-0605(1)	Bike Lane, Buffered Bike Lane, Separated Bike Lane, Counterflow-Bike Lane, Paved Shoulder, Shared Lane, Shared Use Path, Off-road Unpaved Trail, Other	Inventory	Type of facility
WIDTH	Double	-0605(1)	-	Inventory	Facility width in feet from curb to curb or line demarcation to curb depending on type.
CONDITION	String	-0605(1)	TBD	Inventory	Facility condition

TABLE 8: BICYCLE ROUTES SECONDARY ATTRIBUTE LIST (CONTINGENCY)

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
BICYCLE LTS*	String	-0905(2)(b)(A)	BLTS 1-4	Reporting	Requires the output of a Bicycle Level of Traffic Stress analysis

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
BICYCLE CRASH RISK SCORE*	String	-0605(3)	1-15**	Inventory	Requires the output of a Bicycle Crash Risk Assessment per the Oregon Bicycle and Pedestrian Safety Implementation Plan

* The attributes necessary to calculate bicycle level of traffic stress (LTS) and crash risk will be collected as part of this project; however, the LTS and crash risk scores will need to be calculated during the TSP planning process.

**ODOT's Bicycle and Pedestrian Safety Implementation Plan provides a methodology for calculating bicycle crash risk, which relies on a variety of risk factors that are scored, summed, and ultimately ranked to identify low and high-risk facilities.

PEDESTRIAN + BICYCLE CROSSINGS

Description: Pedestrian and bicycle crossings with striping on public rights of way within a UGB.

Geometry Type: Point[2]

Source: Jurisdictions existing data supplemented by Vexcel

Relevant TPRs: -0505(1)(b), 0155(5)(a), -0605(1), -0155(5)(a), -0905(2)(b)(A)

Project Phase: Primary

TABLE 9: PEDESTRIAN AND BICYCLE CROSSINGS PRIMARY ATTRIBUTE LIST

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
LOCATION	String	-0155(5)(a) -0505(1) -0605(2)	TBD	Inventory Prioritization Reporting	Location of crossing
TYPE	String	-0505(1)(b) -0605(2)	Signalized Intersection, Unsignalized Intersection, Mid-block	Inventory	Type of crossing
CROSSING DISTANCE	Double	-0505(1)(b)	-	Inventory	Crossing distance in feet from curb to curb.
CLOSED CROSSINGS	String	-0505(1)(b)	Yes No	Inventory	Indicates if a crossing is closed

---

[2] The point indicates an individual crossing and does not aggregate them by intersection.

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
CURB RAMP PRESENT	String	-0505(1)(b)	Yes No	Inventory	Are curb ramps present

TABLE 10: PEDESTRIAN AND BICYCLE CROSSING SECONDARY ATTRIBUTE LIST (CONTINGENCY)

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
DISTANCE BETWEEN CROSSINGS	Double	-0505(1)(b)	-	Inventory	Point-to-point distance to the nearest crossing in feet
CROSSING TREATMENT	String	-0905(2)(b)(B)	RRFB, Raised Crossing, Presence of Median, etc.	Reporting	Type of crossing treatment*

* Crossing treatment populated by the jurisdiction and could include text information.

TRANSIT FACILITIES

The following Transit facility data will be collected as part of this effort.

- Transit Lines
- Transit Supportive Facilities (Stops)*
- Transit Priority Infrastructure*

Dataset produced will include available resources at the time of data collection. Due to the temporal nature of these datasets, additions may be updated by each jurisdiction during TSP development.

TRANSIT LINES

Description: Existing Transit Service Lines on public rights of way within a UGB.

Geometry Type: Line

Source: GTFS (primary source) with Transit Agencies/Jurisdictions providing input and review

Relevant TPRs: -0705, -0150

Project Phase: Primary

TABLE 11: TRANSIT LINES PRIMARY ATTRIBUTE LIST

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
COVERAGE TYPE	String	-0705(1)	Local, Intercity	Inventory	Transit service coverage type
SERVICE TYPE	String	-0705(1)	LRT, Streetcar, BRT, FX, Bus, Rail	Inventory	Type of transit service
ROUTE NO.	String	-0705(1)	-	Inventory	Route number
TRANSIT LANES	String	-0705(1)	Yes, No	Inventory	Is transit service in dedicated lane
MINIMUM HEADWAY	Long	-0705(1)	-	Inventory	Transit headway in minutes – applies to transit priority corridors
MAXIMUM HEADWAY	Long	-0705(1)	-	Inventory	Transit peak period headway in minutes – applies to transit priority corridors
SERVICE SPAN	String	-0705(1)	-	Inventory	Duration of service (from hour to hour) – applies to transit priority corridors
CLASSIFICATION / DESIGNATION	String	-0150(4)(a)	TBD	Inventory	RTP or TSP classification

TRANSIT SUPPORTIVE FACILITIES (STOPS)

Description: Existing Transit Stops on public rights of way within a UGB.

Geometry Type: Point

Source: GTFS (primary source) with Transit Agencies/Jurisdictions providing input and review

Relevant TPRs: -0705(1), -0700(4)(a)

Project Phase: Primary

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
LOCATION	String	-0705(1)	-	Inventory	Location of transit stop.
TYPE	String	-0705(1)	Center, Station, Stop	Inventory	Type of transit stop.
MAJOR STATION	String	-0705(1)	Yes, No	Inventory	Is the Transit Stop considered a major station
AMENITIES – SHELTER*	String	-0700(4)(a)	Yes, No	Inventory	Does the stop have a bus shelter
AMENITIES – SIGNAGE*	String	-0700(4)(a)	Static, Live, None	Inventory	What type of schedule signage does the stop have
AMENTIIES – ANCILLARY FACILITIES*	String	-0700(4)(a)	Yes, No	Inventory	Does the stop have ancillary facilities (e.g., benches, garbage cans, bike parking)
ADA ACCESSIBLE	String	-0705(1)	Yes, No	Inventory	Is the stop ADA compliant, sperate from the pedestrian network

These attributes will be added to the data schema but the necessary information to populate may not be available. If unavailable, this information will be updated by each transit agency / jurisdiction during TSP development.

TRANSIT PRIORITY INFRASTRUCTURE

Description: Existing infrastructure to support transit movement on public rights of way within a UGB.

Geometry Type: Point

Source: Jurisdictions existing data

Relevant TPRs: -0705(1)

Project Phase: Primary

TABLE 13: TRANSIT PRIORITY INFRASTRUCTURE PRIMARY ATTRIBUTE LIST

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
TYPE	String	-0705(1)	Priority Signal, Queue Jumps, On-Route Charging, Other Facilities	Inventory	Type transit priority feature

OTHER RELEVANT DATASETS

The following data will be collected as part of this effort.

- Key Destinations (Pedestrian, Bicycle, Transit, Vehicles)*
- Crashes (Vehicle, Pedestrian, Bicycle)*
- Intersection Points (Vehicle, Pedestrian, Bicycle)

The schema for these datasets will be defined during this project. Due to the temporal nature of these datasets, development will be completed by each jurisdiction during TSP development.

KEY DESTINATIONS

Description: Key destinations to support vehicle, transit, pedestrian, and bicycle users. Locations identified as key destinations could include: Transit Stops, Retail and Service Establishments, Child Care Facilities and Schools, Parks, Recreation Centers, Farmers Markets, Libraries, Government Offices, Community Centers, Arts Facilities, Post Offices, Social Service Centers, Medical or Dental Clinics, Hospitals, Gyms, Health Clubs, Major Sports and Performing Arts Venues, among others.

Geometry Type: Point

Source: Jurisdictions existing data

Relevant TPRs: -0360(2), -0700(2)(C),-0905(2)(d)(C), -0155(3)(e), -0600(2)(c), -0500(2)(c), -0800(2)(c)

Project Phase: Primary (Due to the changes in the built environment, the data schema for Key Destinations will be developed as part of the Primary effort but it will be up to jurisdictions to populate the dataset during TSP development.)

TABLE 14: KEY DESTINATION SECONDARY ATTRIBUTE LIST (CONTINGENCY)

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
TYPE	String	-0360(2) -0700(2)(C) -0905(2)(d)(C) -0155(3)(e) -0500(2)(c) -0600(2)(c) -0800(2)(c)	TBD	Inventory Prioritization Reporting	Type of key destination

CRASHES

Description: Crash locations for 5-years.

Geometry Type: Point

Source: ODOT

Relevant TPRs: -0505(2), -0605(3), -0805(2), 0155(3)(c)

Project Phase: Primary (Crash data will come directly from ODOT and will be downloaded by jurisdictions during development of the TSP.)

TABLE 15: CRASHES SECONDARY ATTRIBUTE LIST (CONTINGENCY)*

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
CRASH ID	String	-	-	-	Unique record ID to match the crash data to the ODOT crash database
YEAR	String	-0505(2) -0605(3) -0805(2) -0155(3)(c)	-	Inventory Prioritization	Year crash occurred
INJURY SEVERITY	String	-0505(2) -0605(3) -0805(2) -0155(3)(c)	Fatal Injury (K), Suspected Serious Injury (A), Suspected Minor Injury (B), Possible Injury (C), No Apparent Injury (O)	Inventory Prioritization	Identifies the highest sustained injury

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
PARTICIPANT TYPE	String	-0505(2) -0605(3) -0805(2) -0155(3)(c)	Pedestrian, Pedecyclist, Motorist	Inventory Prioritization	Identifies the most vulnerable participant type

The required data fields are a subset of the existing fields within ODOT's crash dataset. The selected attributes are anticipated to impact CFEC, TSP, BLTS, and PLTS analyses but additional fields may be required.

INTERSECTION POINTS

Description: Points for each road entering an intersection. This dataset will be used primarily for BLTS and PLTS analyses. This dataset would only apply to **collector and arterial streets**. Typically, this dataset is developed manually, and it may not be possible to develop a statewide dataset with the specified level of detail.

Geometry Type: Point

Source: Ecopia and/or Project Team

Relevant TPRs: -0905(2)(b)(A) requires jurisdictions to report on the percent of collector and arterial streets in climate friendly areas and underserved population neighborhoods with bicycle and pedestrian facilities with Level of Traffic Stress 1 or 2.

Project Phase: Contingency (This dataset would only be developed if approved by ODOT)

TABLE 16: INTERSECTION POINTS CONTINGENCY ATTRIBUTE LIST

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
LANES PER DIRECTION*	Long	-	1 Lane, 2 Lanes, 3 or More	-	Number of travel lanes in each direction (excluding center TWLTL)
PARKING PRESENCE*	String	-	Yes, No	-	Is on-street parking present
PARKING WIDTH*	Long	-	-	-	Width of on-street parking in feet

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
FREQUENT BLOCKAGE*	String	-	Yes, No	-	Is the bike lane frequently blocked by parking maneuvers and/or other vehicle activity
BIKE LANE BUFFER PRESENCE**	String	-	Yes, No	-	Is there a buffer between vehicle lanes and bicycle facilities
BIKE LANE BUFFER WIDTH**	Short	-	-	-	Width of bike lane buffer in feet
BIKE LANE BUFFER TYPE**	String	-	Landscaped, Curbs, Bollards, Bioswales, Parking, Other	-	Type of buffer between vehicle lanes and bicycle facilities
RIGHT TURN LANE TYPE FOR BICYCLE USERS**	String	-	Straight, Left Alignment, Lane Drop, Shared	-	Bicycle lane interaction with vehicle right turns
RIGHT TURN LANE LENGTHS**	Long	-	-	-	Length of right turn lane
RIGHT TURN LANE VEHICLE SPEED**	String	-	<= 15 mph, <= 20 mph, >20 mph	-	Right turn typical turning speed in mph
LEFT TURN LANE VEHICLE SPEED**	String	-	<= 15 mph, <= 20 mph, >20 mph	-	Left turn typical turning speed in mph
LEFT TURN BICYCLE LANES CROSSED**	String	-	0, 1, 2+	-	Number of vehicle lanes crossed by bicycles
INTERSECTION TYPE**	String	-	Signalized, Stop-Controlled, Roundabout	-	Type of intersection control
MEDIAN REFUGE*	String	-	Yes, No	-	Presence or absence of median refuge
MEDIAN WIDTH*	Long	-	-	-	Width of the median refuge in feet

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
UNSIGNALIZED ONE-WAY OR TWO-WAY**	String	-	One-way, Two-way	-	If the intersection is unsignalized, are the adjoining streets one-way or two-way
UNSIGNALIZED PREVAILING SPEED LIMIT**	String	-	$\leq$ 25 mph, 30 mph, 35 mph, $\geq$ 40 mph	-	If the intersection is unsignalized, what is the prevailing speed limit of the adjoining roads
ROUNDABOUT ENTRY TYPE**	String	-	Single Entry, Dual Entry	-	How many vehicle lane entries are there in one direction
ROUNDABOUT EXIT TYPE**	String	-	Single Exit, Dual Exit	-	How many vehicle lane exits are there in one direction
ROUNDABOUT ENTRY APPROACH**	String	-	Tangential, Non-tangential	-	How does roadway traffic approach the roundabout
ROUNDABOUT EXIT APPROACH**	String	-	Tangential, Non-tangential	-	How does roadway traffic exit the roundabout
ROUNDABOUT # OF CIRCULATING LANES**	String	-	1 Lane, 2+ Lanes	-	How many vehicle lanes circulate through the roundabout
SIDEWALK BUFFER TYPE***	String	-	No Buffer, Solid Surface Landscaped, Vertical	-	Type of buffer separating sidewalk and roadway
SIDEWALK BUFFER WIDTH***	Short	-	-	-	Buffer width between roadway and sidewalk in feet
TOTAL SIDEWALK BUFFER WIDTH***	Short	-	-	-	Total buffer width between roadway and sidewalk including bicycle lanes, shoulder, and parking
ILLUMINATION PRESENCE***	String	-	Yes, No	-	Presence or absence of street lighting
SIDEWALK RAMPS ***	String	-	Yes, No	-	Presence or absence of sidewalk ramps

ATTRIBUTE NAME	TYPE	TPR REFERENCE(S)	DOMAIN VALUES	TPR USE	DESCRIPTION
TREATMENTS MARKINGS***	String	-	Yes, No	-	Presence or absence of crosswalk markings
TREAMENTS ROADSIDE SIGNAGE***	String	-	Yes, No	-	Presence or absence of roadside signage alerting of pedestrian crossing
TREATMENT PHB OR RRFB***	String	-	Yes, No	-	Presence or absence of PHB and RRFB
TREATMENT IN-STREET SIGNS***	String	-	Yes, No	-	Presence or absence of in-street pedestrian crossing signage
TREATMENT CURB EXTENTIONS***	String	-	Yes, No	-	Presence or absence of curb treatments
TREATMENTS RAISED CROSSWALK***	String	-	Yes, No	-	Presence or absence of a raised crosswalk
TREATMENTS FLASHING BEACON***	String	-	Yes, No	-	Presence or absence of flashing pedestrian beacon
CROSSING TYPE	String	-	Intersection, Mid-block	-	Type of crossing in relation to intersections

For BLTS and PLTS.

**For BLTS only.*

***For PLTS only.*