

SPR RESEARCH PROGRAM

SECOND-STAGE PROPOSAL SUMMARY

PROBLEM NUMBER AND TITLE

27-14 - Statewide Multimodal Destination Access Methods And Demographic Analysis.

PROBLEM SUMMARY

The Oregon Department of Transportation does not currently have a consistent, statewide method to evaluate destination access—whether people can reliably and affordably reach essential destinations such as employment, education, health care, and key services. While agency performance measures and analyses focus primarily on infrastructure conditions and system mobility, they do not answer whether investments are improving people’s ability to access what they need for daily life. Without a standardized destination access methodology, ODOT lacks a clear, data-driven basis for monitoring progress, understanding structural access gaps, or using access outcomes to inform investment decisions.

ODOT OBJECTIVES

1. Establish a standardized, agency-wide methodology for multimodal destination access analysis.

ODOT currently performs destination access analysis on an ad hoc basis and does not have a consistent, documented method for statewide or cross-program use. This project will develop and test a unified approach that can be used across business lines for performance reporting, planning, and investment decision-making.

2. Integrate user profile analysis to identify which populations face transportation access gaps—and to what extent.

This research will move beyond single-variable demographic assumptions and instead use data-informed definitions of at-risk populations to better understand who experiences structural access barriers and why.

3. Develop a tool for viewing destination accessibility metrics.

The tool can be used to view accessibility by mode and destination type by region. The combination of transportation and land use data will enable planners to understand existing accessibility conditions and needs in specific areas. This tool would be usable for the ODOT Capital Investment Plan (CIP), local transportation system plans, and other programs where access measures offer utility.

BENEFITS

This research fulfills a need for a destination access methodology that supports ODOT policy, planning, and prioritization. With the results of this research, ODOT will be able to answer critical questions about how the transportation system is serving residents. Access metrics can play a critical role in VMT per capita and emissions reduction strategies by informing staff on which areas have feasible multimodal access.

SCHEDULE, BUDGET AND AGENCY SUPPORT

Estimated Project Length: 24 months.

Estimated Project Budget: \$185,000

ODOT Support Serena Stoudamire Wesley, Director of Engagement & Civil Rights; Amanda Pietz, Policy, Data, and Analysis Division Administrator; Ian Davidson, Bicycle and Pedestrian Program Manager. Chris Melson, Transportation Planning and Analysis Manager

FOR MORE INFORMATION

For additional detail, please see the complete STAGE 2 RESEARCH PROBLEM STATEMENT online at:

<https://www.oregon.gov/odot/Programs/ResearchDocuments/27-14.pdf>

SPR RESEARCH PROGRAM

SECOND-STAGE PROBLEM STATEMENT

FY 2027

PROBLEM NUMBER AND TITLE

27-14: Statewide Multimodal Destination Access Methods And Demographic Analysis.

RESEARCH PROBLEM STATEMENT

The Oregon Department of Transportation currently lacks a consistent, statewide method to evaluate destination access—whether people can reliably and affordably reach essential destinations such as employment, education, health care, and key services. Existing performance measures emphasize infrastructure condition and mobility but do not assess whether investments improve people’s ability to meet daily needs. Without a standardized methodology, ODOT lacks a data-driven basis to monitor progress, identify structural access gaps, or integrate access outcomes into investment decisions.

This research would answer foundational questions: How accessible are essential destinations by mode? Where are structural gaps across Oregon? Who is most affected? Are investments improving access outcomes?

ODOT policies and statewide plans support destination access as a goal but lack a consistent performance measure. The updated Transportation Planning Rule requires prioritizing investments that improve access to key destinations. ODOT’s Strategic Action Plan calls for increasing connectivity and access (Strategic Outcome #7), and multiple statewide plans—including the Oregon Highway Plan, Public Transportation Plan, Bicycle and Pedestrian Plan, and Transportation Options Plan—identify multimodal access as a goal without a corresponding metric. The Oregon Transportation Plan (OTP) explicitly promotes access to essential destinations with and without a private vehicle and is considering destination access as a performance measure.

Developing a documented statewide methodology would enable integration into the OTP performance framework, reporting through the State of the System Dashboard, and incorporation into the Capital Investment Plan to prioritize projects that close access gaps—particularly for underserved communities. This research establishes the analytical foundation necessary for ODOT to measure and advance its commitment to equitable destination access.

RESEARCH OBJECTIVES

This project will develop and test a unified approach for measuring access by essential destination type and by mode that can be used across business lines for performance reporting, planning, and investment decision-making. Because the destination access performance measure is connected to an OTP goal, it is critical to understand who experiences structural gaps to access and why. The research will include at-risk populations and public-informed analysis that identifies populations and geographic areas where transportation systems, land use patterns, and service design create unfair access conditions. These insights will refine ODOT’s understanding of at-risk populations and inform data-driven decision-making to advance fair and reliable access to essential destinations statewide.

The destination access analysis will answer the following questions:

- **Vehicle Access to Employment and Nonwork Destinations:**
 - Jobs accessible within 45 minutes by car compared to other modes.
 - Essential nonwork destinations reachable within 20 minutes by car.
 - Share of residents with high, moderate, or limited access.
- **Transit Access to Employment Destinations:**
 - Jobs accessible within 45 minutes under current service levels and locations of structural service gaps.
 - Changes in job access under reduced service scenarios and populations most affected.
- **Bicycle Access to Essential Nonwork Destinations:**
 - Essential nonwork destinations reachable within 20 minutes by bicycle.
 - Share of residents with high, moderate, or limited access.
 - Comparison of access on low-stress versus high-stress networks.
- **Walk Access to Essential Nonwork Destinations:**
 - Essential nonwork destinations reachable within 20 minutes on foot and share of residents by access level.
 - Relationship between limited access areas and pedestrian crash risk or unsafe conditions.

The research team will establish consistent data and analytical methods to measure multimodal access to essential destinations across geographies. Using employment and destination datasets, multimodal transportation networks, impedance measures (e.g., GTFS and Level of Traffic Stress), and cumulative opportunities analysis with distance decay weighting, the team will quantify access and examine structural gaps across population groups through regression or cluster analysis. The study will also assess the availability and suitability of secondary datasets capturing experienced transportation barriers to inform future integration of experiential indicators into performance measurement.

The project will document the methods and data used to conduct the analysis for inclusion in ODOT's Analysis Procedures Manual, which will provide guidance to ODOT staff and local transportation agencies.

WORK TASKS, COST ESTIMATE AND DURATION

Task 1 – Framework, Performance Measure & State of the Practice

Establish a scalable statewide analytical framework for destination access by aligning with policy, defining essential destinations and time thresholds, standardizing impedance and performance measures, and documenting best practices from peer DOTs and research literature.

Task 2 – Data Assembly & Multimodal Network Development

Compile consistent statewide datasets (employment, essential services, demographics, GTFS, crash, multimodal inventory) and develop auto, transit, bicycle (LTS-based), and pedestrian networks suitable for accessibility modeling.

Task 3 – Pilot Modeling & Workflow Testing

Conduct a structured statewide pilot of accessibility modeling tools to evaluate feasibility, scalability, and operational readiness. Train regional staff, test workflows across project types, and document technical challenges to refine and improve implementation processes.

Task 4 – Demographic & Structural Gap Analysis

Analyze how destination access varies across population groups and geographies using regression and clustering methods to identify structural disparities and areas with the most pronounced access gaps.

Task 5 – Exploratory Assessment of Self-Reported Transportation Barriers

Evaluate available datasets capturing self-reported transportation barriers to determine feasibility of integrating experiential indicators with modeled accessibility metrics, documenting data availability, privacy considerations, methodological alignment, and recommended next steps.

Task 6 – Destination Access Implementation Guidebook

Develop a formal guidebook and standard operating procedures documenting the statewide methodology, suitable for inclusion in ODOT's Analysis Procedures Manual and integration into planning, performance reporting, and investment processes.

Task 7 – Practitioner-Focused Destination Access Tool

Develop an online mapping tool, similar to existing TransGIS applications, allowing ODOT and partner agencies to view and apply destination access metrics by mode and destination type for planning and project development.

Key Deliverables:

- Statewide analysis of destination access to inform investment decisions and decision support tool for ODOT and local agency staff
- Demographic analysis of those experiencing low levels of access by mode and destination type
- Analysis of multiple data sources to discern which populations experience barriers to transportation or face transportation insecurity and how this corresponds with accessibility analysis
- Summary of feasibility findings, integration pathways, and recommendations for future research.

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EXPECTED ODOT IMPLEMENTATION ACTIONS

- **OTP Performance Measure.** Once a destination accessibility method has been defined, ODOT will identify performance targets associated with the measure for the OTP.
- **State of the System Dashboard.** ODOT will place the destination accessibility performance measure on the State of the System dashboard. Like the other performance measures tracked, ODOT will define an update cycle for monitoring.
- **Capital Investment Plan.** ODOT will incorporate destination accessibility as an indicator in the CIP. Using the statewide destination access analysis as a reference, projects in areas with low levels of destination access will be prioritized in the scoring system.
- **Local Transportation System Plans.** ODOT's Metropolitan Planning Program will share guidance on destination access tools and methods to local transportation agencies for analysis in their transportation system plans.
- **Right to Access.** A destination access indicator translates the Right to Access Plan from principle to practice. It will provide a measurable definition of fair access, guide investment prioritization, identify disparities, and create accountability for closing gaps.
- **Training.** ODOT will conduct destination access training with staff responsible for updating the statewide performance measure and conducting access analysis for other plans and projects.
- **Webinars.** ODOT will hold internal and external-facing webinars to educate staff and local partners on the destination access concept, benefits, tools, methods, and application.

POTENTIAL BENEFITS

This research fulfills a need for a destination access methodology that supports ODOT policy, planning, and prioritization. With the results of this research, ODOT will be able to answer critical questions about how the transportation system is serving residents. Destination access is a direct way of assessing transportation benefits by providing insight about which destinations are accessible within a reasonable distance, by which modes, and who benefits from investments. Access metrics can play a critical role in VMT per capita and emissions reduction strategies by informing planners on which regions have feasible multimodal access. Travel behavior insights from the recent Oregon Travel Study can be analyzed in conjunction with access metrics to better understand mode choice drivers and empower planners to fulfill ODOT's goals.

PEOPLE

ODOT champion(s): Serena Stoudamire Wesley, Director of Engagement & Civil Rights; Amanda Pietz, Policy, Data, and Analysis Division Administrator; Chris Melson, Transportation Planning and Analysis Unit Manager; Michael Rock, Statewide Policy and Planning Unit Manager; Ian Davidson, Bicycle and Pedestrian Program Manager

Problem Statement Contributors: Kelly Rodgers, Senior Transportation Planner; Susie Ashenfelter, Policy and Procedures Manager; Thor Morris, Senior Transportation Economist; Leia Kagawa, Transportation Analysis Engineer

REFERENCES

Broach, J., Currans, K.M., Roll, J.F., & Orrego-Oñate, J.P. (2024). *Incorporating bicycle activity and vehicle travel reduction from bicycle infrastructure into strategic planning tool*. National Institute for Transportation and Communities.

Committee on data, metrics, and analytic methods for assessing equity impacts of surface transportation investments: Phase 2 study to support state and local decision making (2025). *An assessment of data, tools, and metrics for equity in decisions about surface transportation investments: Transportation Research Board Special Report 356*. National Academies of Sciences, Engineering, and Medicine. <https://www.nationalacademies.org/our-work/data-metrics-and-analytic-methods-for-assessing-equity-impacts-of-surface-transportation-investments-phase-2-study-to-support-state-and-local-decision-making>

STAFF REVIEW PAGE

LITERATURE CHECK

Multi-Modal Performance Measures in Oregon.

https://www.oregon.gov/odot/Programs/ResearchDocuments/SPR760_TCIFinalReport.pdf

TRID&RIP

A review of TRID & RIP databases found no existing research that answers the research question

ODOT DECISION LENSES

Climate Destination access analysis not only addresses the primary purpose of transportation—reaching valued destinations—but also enables analysis of climate, equity, and public health outcomes. Increasing access to destinations is a proven way to reduce driving and reduce greenhouse gas emissions. For example, Broach et al. (2024) found that a 1% increase in bicycle network access predicts a corresponding 0.025% to 0.23% reduction in daily household motorized VMT. With an accepted destination access method that this research will provide, ODOT can examine how travel behavior outcomes and GHG emissions change with changes in access. Developing a destination access methodology within ODOT provides a foundation for further research that can provide better guidance for strategic policy and practice change to reduce VMT and GHG.

Equity: In a 2025 National Academies Report on transportation equity data and methods, destination access was considered the primary way to evaluate the benefits of transportation investments from an equity perspective. Consistent with this finding, destination access is a key theme in the OTP and is a recommended OTP performance measure. Through a demographic analysis of destination access, ODOT will better understand which population groups and geographies are underserved by the transportation system. This helps inform ODOT's definition of transportation-disadvantaged. With this analysis, ODOT can prioritize investments to improve access for these populations and improve outcomes for all Oregonians.

Safety: Current transportation policy, analysis, and performance measures tend to favor vehicle mobility solutions, with the assumption that decreasing travel times by increasing speeds is an ideal solution. However, without connecting increased speeds to people's ability to reach destinations, ODOT is essentially valuing speed for speed's sake, which can have adverse consequences for safety. A multimodal destination access analysis enables ODOT to understand how land uses and the transportation network work together to provide access. With this understanding, ODOT can identify other solutions to improve access that does not rely on speed as a measure for improvement. In addition, multimodal destination access analysis can help steer investments toward improved walking and bicycling networks, contributing to improved health and livability outcomes. Furthermore, destination access analysis can be used to understand access to key health-supporting destinations, such as grocery stores and health care providers, enabling decision makers to target investments to support public health outcomes.

TECHNOLOGY & DATA ASSESSMENT

No Identified T&D output

At the end of this project, the implementing unit(s) within ODOT will need to coordinate the adoption of new technology or data in order to realize the full potential of this research.

CROSS-AGENCY IMPACTS

- The primary units impacted are in Policy Analysis and Data Division (Statewide Policy and Planning and Transportation Planning and Analysis, and the Office of Engagement and Civil Rights. All these units support this research effort. The final tool would be of potential use to local agency partners