

Number: 25-03

Proposed Title: Advancing Equity in Oregon's Transportation: Strategies and Recommendations for Inclusive Allocation of Funding

1. Concisely describe the **transportation issue** (including problems, improvements, or untested solutions) that Oregon needs to research.

There is a need in Oregon to investigate the equitable distribution of transportation project and formula funds for local and regional agencies throughout the state. Oregon could more equitably distribute their funds from the state level to local municipalities to better support underserved communities, particularly those with higher crash rates (especially injury and fatality crash rates), less economic activity, different multimodal use, and different reliance on public transit. Roughly half of all local highway revenue used by cities and counties comes from the distribution of State Highway Funds. However, there are discrepancies between these local entities; some may have additional funding mechanisms in place (e.g., property taxes, traffic impact fees) due to encompassing a wealthier population, different modal cultures, different mobility needs, different employment types, and varying environments, which may result in safety and mobility access inequities in various communities. Thus, an investigation of how project and formula funds are distributed and used by local and regional entities to increase safety, modal access, and other metrics of interest to Oregon, is missing in current research. This would be a novel investigation that has not been considered in other states; thus, a framework with measurements has yet to be developed to account for inequities in service/safety in formula funds, project funds, and other funds/resources distribution.



Figure 1. Example of Equitable Framework for Funding and Resource Distribution

2. Document how this **transportation issue** is important to Oregon and will meet the [Oregon Research Advisory Committee Priorities](#)

This research would greatly benefit those who are in most need of safety and service solutions in Oregon. By identifying areas of improvement to the fixed formula funds distribution and other funding availability/resources, this framework will assist those communities in greatest need with the goal of allowing them to have the same level of safety and service as other communities throughout the state. Thus, overall, the development of this framework may be critical in improving equitable mobility throughout the state, which aligns with the current Strategic Action Plan within the “Equity” priority, which is also one of the ‘strategic direction’ categories listed in the Oregon Research Advisory Committee Priorities. Specifically, it aligns by identifying and providing actionable solutions to systemic barriers within transportation services and investments for all communities throughout the state. It is unknown whether all communities, especially communities of color, low-income communities, and older communities, are able to access and use transportation services equally, using an equitable (rather than equal) distribution of funds and other resources (see Figure 1).

Further, this research supports the Oregon Research Advisory Committee strategic direction of “Stewardship of Public Resources” by providing all communities with equity statistics, a framework, demographic characteristics statistics, and comparisons with other similar communities’ performances in the state. This will assist communities of all levels with their federal funding applications, potentially leading to increased funding within Oregon by local entities, as these metrics and statistics are always of interest within grant applications, especially within the current federal administration under IJJA. Finally, this research directly

aligns with the mission of ODOT to “provide a safe and reliable multimodal transportation system that connects people and helps Oregon’s communities and economy thrive” by creating a framework that will assist local communities to make better, more efficient decision in their funding use towards their specific goals, including systems that works towards accomplishing the mission of Oregon DOT.

3. What **final product or information** needs to be produced to enable this research to be implemented?

The resulting framework and solutions outlined here are designed for seamless implementation by ODOT, Oregon's governing bodies, and personnel at the city, county, and MPO levels. To conduct this research effectively, we'll require access to Oregon's current local transportation funding distribution formulas. In addition, our research will involve gathering essential data sources, including crash statistics, demographic information from the US Census, data on multimodal transportation usage, local government data, and financial records on local funding and expenditures. In summary, our final deliverables will comprise three key components:

- 1) **Equity-Driven Policy Framework:** This framework will encompass a range of categorized funding formulas, each tailored to fulfill distinct equity objectives set by ODOT.
- 2) **Tailored Recommendations:** Researchers will provide specific, practical recommendations for optimizing spending practices, infrastructure enhancements, and other strategies for each local entity within Oregon. These recommendations will be accessible through a user-friendly webpage, addressing various objectives, from safety enhancements to improved access and increased multimodal transportation usage.
- 3) **Enhancing Equitable Resource Allocation:** In addition to funding formulas, we will offer recommendations for both local entities and ODOT to enhance equitable resource distribution and utilization, extending beyond traditional funding mechanisms.

In conclusion, this research aims to facilitate the practical and equitable improvement of Oregon's transportation system. It offers user-friendly tools and recommendations for a wide range of stakeholders, enabling them to address unique community challenges and goals while fostering a more inclusive and efficient transportation network across the state.

4. (Optional) Are there any individuals in Oregon who will be instrumental to the success of implementing any solution that is identified by this research? If so, please list them below.

N/A

5. Other comments:

Proposed Scope of Work: A tentative scope of tasks for the proposed research project is provided below:

- 1) Kickoff Meeting
- 2) Comprehensive Literature Review
- 3) **Data Gathering:** Collect various datasets, including crash data, employment data, travel modal data, Census data, multimodal use data, roadway ownership data, local government expenditure data (categorized), funding formulas, and current and anticipated funding mechanisms for local entities (state and federal), transit use data, and other relevant data, as identified in consultation with ODOT.
- 4) **Data Collection:** Develop a survey to be distributed to all local transportation entities to ascertain their spending practices, additional revenue streams, employees and roles, and needs/goals. Strive to collect this information from all local entities in the state, in consultation with ODOT.
- 5) **Data Modeling:** Gather, clean, and organize all data for advanced statistical modeling. Run multiple data envelopment analyses aligned with identified strategic goals, determined from the surveys and in consultation with ODOT. These goals include safety, different modal use, and access, among others. Employ

the novel data analysis method of data envelopment analysis in transportation, as it provides unique insights not achievable with traditional methods.

- 6) Formula Fund Optimization: Develop and optimize multiple funding distribution formulas based on the modeling results. Consider advanced statistical modeling, including uncertainty analyses, to ensure robustness across various goal areas. Identify formulas of varying complexity for easy dissemination at the policy level.
- 7) Webpage Development: Create a user-friendly webpage to disseminate project results and recommendations to local agencies. Include specific statistics, demographic characteristics, and other information for each local entity, as well as spending recommendations. Implement a search engine for ease of use by agencies.
- 8) Final Report/Presentation Deliverables.

This concise list outlines the key tasks essential for the successful completion of the research project, as subject to potential adjustments by ODOT/TAC staff.

Problem Statement Coauthor: This problem statement is being submitted with one other coauthor, listed below:

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Past Work: The existing body of research in the fields of transportation equity measurement and equitable resource distribution is notably limited within current literature. However, the lead researcher (A. Ryan) stands as a prominent figure in this burgeoning domain. She boasts a substantial publication record, featuring numerous papers specifically dedicated to this area of research. Furthermore, she has been a sought-after speaker, delivering numerous invited talks and presentations on the subject matter. Presently, she holds the position of Chair for the Institute of Transportation Engineers Equity Case Studies Subcommittee. In this role, her primary responsibility is to identify best practices and establish metrics for assessing equity within various transportation projects. In addition to her equity-focused endeavors, A. Ryan also conducts research in the realm of safety. Her ongoing projects are centered on safety equity and human factors, including a collaborative effort with the City of Phoenix to investigate red-light running cameras. Both authors of this research statement (A. Ryan and B. Russo) bring extensive expertise in safety measurement and operations research. They have also engaged in collaborative work with local entities across multiple states. Moreover, the co-author of this statement, B. Russo, brings a wealth of experience, having directly collaborated with ODOT on previous projects related to bicycle safety (SPR833) and traffic signal systems (SPR837). This combined expertise positions the research team as well-prepared and well-suited to undertake the proposed project, given their extensive knowledge and demonstrated proficiency in these critical domains.

6. Corresponding Submitter’s Contact Information:

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