Oregon Department of Transportation

Research Stage 1 Problem Statement

Number 26-60 – "Evaluation of effective use cases for"bike buses" and "walk buses" to support program implementation"

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

Nearly every child in Oregon makes the trip to and from school every school day. Bike and walk buses, or organized groups of school children, parents, and ride/walk leaders, seek to encourage biking and walking to school. Aside from mitigating some of the negative effects of parents driving kids to school (such as traffic congestion in school zones, increased air pollution, including greenhouse gasses, and safety risks), bike and walk buses provide benefits to kids such as physical activity, which has been associated with improved academics and behavior, and offers potential for positive social interactions, and learning about bicycling, traffic safety and navigating their communities.

As a relatively new concept, limited information exists on where bike and walk buses work best, the potential to spread the concept beyond early adopter communities and participants, and what supportive infrastructure and policies could advance the concept. Following the passage of Oregon House Bill 3014 in 2023, schools now have the flexibility to receive funding for bike and walk buses, and some regional and local agencies are also supporting these efforts with infrastructure and other support along walk and bike bus routes. As schools, SRTS leaders, and municipalities start to implement and test efforts to support walk and bike buses, there is both an opportunity and a strong need to document and evaluate the impact of these interventions and the types of additional supports that can make these a success.

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

Schools and communities that are looking to start or grow walk and bike buses in Oregon currently are operating in the dark in some respects with regard to best practices to implementing successful programs, including specific, actionable information on what makes a good route and how to work with community partners to make the route safe, comfortable and inviting for bus participants. This research would collect data through a set of interviews and focus groups with bike bus leaders and SRTS leaders from around the state and country on best practices and challenges; and through an evaluation of a set of walk and bike bus interventions being implemented in Portland through a Metro Regional Travel Options grant. The research team will specifically seek out input from schools in disadvantaged communities to better understand their challenges and needs. In addition, through the Portland bike bus project the project team will explore ways to increase participation with students of color and low-income households. The final product will include guidance, such as a walk and bike bus route assessment tool, that will detail challenges and barriers to participation along with a set of solutions ranging from infrastructure to education, and which partnerships between schools, agencies, and community are needed to achieve successful implementation.

3. (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.

Name	Title	Email	Phone
Heidi Manlove	Safe Routes to School & Pedestrian and Bicycle Safety Program Manager, ODOT	Heidi.MANLOVE@odot.state.or.us	
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4. Decision making lenses

Please complete the following three sections. Your answers to these questions will be applied on a programmatic basis to support agency decisions. Answering yes to the questions below is not required. Resolving a narrowly focused technical research problem may meet agency needs without answering yes to any of the following questions. The ODOT Research Section will seek a balanced portfolio some projects will answer yes to one of the three categories below (e.g. climate, equity, and/ or safety) and other projects in a different category.

We are looking for an overall program balance and no one project is expected to balance all categories. Generally, a research problem statement is expected to be able to answer yes with clear and verifiable information in only one of the three categories below, some projects may be able to answer yes in two or even three categories. Some projects (i.e. needs focused on specific elements of infrastructure design), may have no yes answers but may still be high value research need.

Climate

Oregon recognizes the climate crisis and makes systemic changes to reduce emissions caused by travel. Every mile driven in Oregon is powered by a clean source of fuel. We seek research that supports construction and maintenance operations are carbon neutral and investments in mobility that support travel by low and no emission modes. While every research project may not result in a reduction in emissions, transportation investments overall support emission reductions to achieve state goals. Oregon envisions a transportation system that is resilient in the face of seismic and climate events and impacts to the degradation of the natural environment are reduced. Our vision includes a transportation infrastructure is built in a way that avoids impacts on key habitat and results in better environmental conditions for wildlife and native vegetation. For definitions and details please review the equity vision, goals, and objectives of the ODOT Strategic Action Plan and Oregon Transportation Plan.

4f. Will addressing the **transportation issue** identified as a need in Question 1 develop, or validate methods for the estimation, measurement, or monitoring of transportation generated greenhouse gasses (GHG)?

☐Yes ☒No ☐Unsure

4g. If climate or GHG is not the focus of this **transportation issue** identified in this problem statement, will the research apply a GHG analysis to transportation infrastructure, planning, operations, maintenance, or materials?

☐Yes ☐No ☒Unsure

4h. Will the addressing the **transportation issue** include development or testing of construction practices, methods, or materials to establish potential reductions in greenhouse gas emissions?

☐Yes ☒No ☐Unsure

4i. Will the solving the **transportation issue** in question 1 study or support the reduction of vehicle miles traveled and single occupancy vehicle travel or support transition to electric vehicles (or other types of zero emission vehicles) or low-carbon alternative fuels?

☒Yes ☐No ☐Unsure

4j. Will the solving the **transportation issue** in question 1 lead to work that will support, measure, monitor, transportation system resilience in response to expected climate events, effects, or natural disasters in general?

☒Yes ☐No ☐Unsure

4k. Will the solving the **transportation issue** in question 1 lead to work that may result in better environmental conditions for wildlife and native vegetation?

☐Yes ☐No ☒Unsure

4l. If you answered yes to any of the climate questions above or can provide alternative details related to climate, please provide additional information:

While climate is not the primary focus of this research, walk and bike buses have considerable potential to reduce driving and GHG emissions. Many students are currently driven bikeable and walkable distances to school, and many parents idle in long queues waiting to drop their children off. These alternative school travel modes take cars off the road (at a minimum for the specific trips / days on which the buses occur, but potentially for other trips as well as students and families adopt walking and biking as travel modes. Walking and biking are also resilient modes of travel, and having more families comfortable traveling via these modes can help in the event of major disruptions in other travel modes (e.g., fuel supply shortages, roadway damage, etc.).

Equity

Equity can have many dimensions and impacts relating to communities, and transportation. It is important that problem statement proposals clearly explain in what capacities are equity dimensions or impacts being examined within problem statements. It is a goal of the OTP to "Improve access to safe and affordable transportation for all, recognizing the unmet mobility needs of people who have been systemically excluded and underserved. Create an equitable and transparent engagement and communications decision-making structure that builds public trust". Proposed research may have the intent of studying elements of this goal or apply analysis to specific transportation topics to ensure the resulting research recommendations is consistent with our equity goals. For definitions and details please review the equity vision, goals, and objectives of the ODOT Strategic Action Plan and Oregon Transportation Plan.

4a Is the **transportation issue** identified as a need in Question 1 specifically focused on transportation equity?

☐Yes ☒No ☐Unsure

4b If the **transportation issue** is not focused on transportation equity, will the primary topic be assessed for equity benefits or impacts within the research project?

☐Yes ☐No ☒Unsure

4c Is the implementation of potential findings from this research likely to directly involve participation from an identified group that would benefit from an equitable process or outcome?

☒Yes ☐No ☐Unsure

4d Is the intended final product or information expected to support ODOT's equity efforts (Including but not limited to supporting one of the equity related objectives of the ODOT's Strategic Action Plan or Oregon Transportation Plan) ?

☒Yes ☐No ☐Unsure

4e If you answered yes to any of the equity questions above or can provide alternative details related to equity, please provide additional information:

While the project focuses broadly on all students and how active transportation options can be offered to increase participation, the research will explore equity concepts and the challenges of students of color and low-income households in walking and biking to school. The findings and the deliverables will be developed to help schools and communities that may currently not see themselves as capable of implementing walk and bike buses, including disadvantaged communities and places outside of cities.

Safety

Research outcomes may include interventions and countermeasures to prevent or reduce the frequency of crashes or other causes of transportation-related injury or death; or may include measures to reduce severity of injury (including prevention of death) after a crash or other injurious event. For definitions and details please review the equity vision, goals, and objectives of the ODOT Strategic Action Plan, Oregon Transportation Safety Action Plan and Oregon Transportation Plan.

4m. Will solving the **transportation issue** in question 1 support improving **safety culture** for either transportation workers or the traveling public?

☒Yes ☐No ☐Unsure

4n. Will the solving the **transportation issue** support improving safety through **healthy and livable communities**?

☒Yes ☐No ☐Unsure

4o. Will solving the **transportation issue** support improving safety through using **best available technologies**?

☐Yes ☒No ☐Unsure

4p. Will solving the **transportation issue** support improving safety through **communication and collaboration**?

☒Yes ☐No ☐Unsure

4q. Will the solving the **transportation issue** support improving safety through **investing strategically**?

☒Yes ☐No ☐Unsure

4r. If you answered yes to any of the safety questions above or can provide alternative details related to safety, please provide additional information:

The development and implementation of walking and biking buses are grounded in safety by making the route safe, comfortable, and inviting for participants. Part of the project will be working with the City of Portland to evaluate a suite of interventions, including education, wayfinding, and infrastructure route improvements. Safety concerns and perceptions of the improvements will be collected throughout the project from coordinators, parents, and students, along with observed traffic data along routes.

5. Other comments:

Portland State University's recent research on bike buses identified growing enthusiasm and interest in walk and bike buses, but also that many families are still not participating. Their research highlights that parents at schools with bike buses clearly believed the bike bus has a very positive impact on their children in a number of different areas. Notably, bike bus participants rated their level of agreement as being higher (compared to non-participants) to statements that their child is physically active every day and that their child knows how to navigate traffic in their neighborhood. These findings align with a parent convenience survey, which found that exercise and learning about traffic safety were the highest-ranked benefits for their child participants. In addition, perceptions and experiences of safety, both from traffic and crime, are extremely important to parents. PSU's research found bike bus parents overwhelmingly indicated their children are safe from crime (96%) and safe from traffic (70%).

The PSU research indicates that bike buses can be an important application within the SRTS programs and potentially could increase active transportation to school by reducing concerns about safety (both from crime and traffic), helping with longer distances traveled (averaging one mile, but often longer), and increasing breadth of participant ages (children as young as those in kindergarten were reported as riding with bike buses). Barriers still exist, including dissatisfaction with infrastructure and a lack of funding, but their initial research shows promise for expanding the available active transportation options to schools in the US.

John MacArthur, Nathan McNeil, and Evan Howington. Exploring Bike Bus Programs in the United States. NITC-RR-1597. Portland, OR: Transportation Research and Education Center (TREC), 2024. https://trec.pdx.edu/research/project/1597

6. Corresponding Submitter's Contact Information:

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