



GRANTS PROGRAM



Rainier Valley Safe: Technology Investments to Improve Community Safety

Central Puget Sound Regional Transit Authority

PROJECT PARTNERS

Participatory Active Transportation for Health in South Seattle (PATHSS)
Seattle Neighborhood Greenways
Seattle Neighborhood Greenways Rainier Valley Chapter- Rainier Valley Chapter of SNG
Seattle Police Crime Prevention Coordinator

City of Seattle
Asian Counseling Referral Service
Bike Works, Deaf Blind Service Center
Filipino Community of Seattle
HopeLink
Mercy Housing
Southeast Effective Development (SEED)
South King County Mobility Coalition



PROJECT CHALLENGE

In an area with high volumes of traffic and 28 signalized at-grade rail crossings, this project addresses collisions amongst vulnerable road users, general purpose vehicles, and light rail vehicles as well as multimodal inefficiencies at signalized intersections. Proposed technology solutions include AI-based smart sensors (video based), C-V2X systems using roadside and on-board units, and advanced signal control with battery backup systems for multimodal traffic optimization and safety operations.

IMPACT

The project will be deployed at 8 signalized intersections surrounding three light rail stations. These areas experience high collision rates and feature diverse operational environments. The five census tracts surrounding the stations include communities of color having higher concentrations of people whose incomes are below the federal poverty threshold. Deployment of the technologies is expected to provide significant benefits to residents in the form of improved safety, reliability, accessibility, and efficiency across transportation system users and modes.

CURRENT STATE OF THE ISSUE

From 2017 to 2022, the Rainier Valley community, which is home to mixed-use developments, low-income housing, community services, schools, and public spaces, logged 879 total collisions, of which, 16 were serious injury and 5 fatalities. SDOT currently monitors safety metrics on the corridor by entering police department collision reports into a database. This is a reactive monitoring of collisions severe enough to warrant a police response.

POLICY QUESTIONS

Effectiveness of Technology Solutions: How effective are AI-based smart sensors, C-V2X systems, and advanced signal control strategies in improving traffic safety and efficiency at intersections? What are the potential benefits and cost savings associated with implementing these technologies at scale? ii. Impact on Vulnerable Road Users: How do the implemented technologies impact the safety of vulnerable road users such as pedestrians and cyclists? Are there significant reductions in collisions and near-misses involving pedestrians and cyclists after the deployment of V2X communications and smart sensing technologies?

STAGE 1 OUTCOMES

Potential successful outcomes of the prototype and at-scale projects include enhanced road safety especially for vulnerable road users; reliability and efficiency for all traffic modes and road users; reduced congestion and greenhouse gas emissions; equitable and affordable mobility solutions in highly disadvantaged communities; and enhanced partnerships and collaboration through resource and data sharing.

STAGE 2 VISION

Through systems integration and strategic partnerships, the project team aims to achieve goals spanning safety, resiliency, equity, climate impact, and seamless system integration. Each goal would contribute to the evolution of a more connected, accessible, and sustainable transportation system in the Rainier Valley Corridor.