2023 Award Winner

2023 Excellence in Transportation Awards

TRANSPORTATION ACHIEVEMENT AWARD — TSMO

City of Portland, TriMet, DKS Associates, City of Gresham, ODOT, and WSP, for the Division Transit Project: Signal and TSP Operations

The City of Portland, TriMet, DKS Associates, City of Gresham, ODOT, and WSP, have received a 2023 Transportation Achievement Award in the Transportation Systems Management & Operations (TSMO) Category for their **Division Transit Project: Signal and TSP Operations**. The Transportation Achievement Awards recognize excellence in the advancement of transportation to meet human needs, by entities concerned with transportation, such as governmental agencies, Tribes, legislative bodies, consulting firms, industry partners, and other organizations. Awards are presented in five categories: Complete Streets, TSMO, Safety, Planning, and Traffic Engineering.

Located on one of TriMet's highest ridership bus lines, Division FX is part road improvement, part bus rapid transit, part cycling and pedestrian infrastructure, part safety project, and part neighborhood revitalization. The Division Transit Project leveraged the most advanced signal technology available to deliver better buses to residents living along one of the region's most diverse—and historically, most dangerous—arterial corridors.

Division FX started as a transit project designed to improve bus reliability and performance along 15 miles of Division Street. The project improves transit capacity and efficiency, with the signal technology priority aided by longer buses, with room for 60 percent more riders; elevated bus stations, with level boarding at multiple doors for briefer stops; onboard bike storage; and stations located where rider demand is greatest.

Completing a road project as big as this—focused on transportation planning and traffic engineering services for a future high-capacity transit service connecting important institutions like Portland State University, Portland Community College, and Mount Hood Community College in Gresham—required cooperation from multiple local governments and transportation agencies in addition to TriMet and DKS Associates.

For many years, Division Street was a two-lane street near the inner-city end that widened to a four (and then five lane) avenue further from the center of Portland. It has been a dangerous road for decades: along the eastern segment in particular, the percentage of crashes involving pedestrians was 50% higher than the citywide average. The average distance between crosswalks was a quarter mile and crashes were 50% higher than the citywide average. About 40% of drivers using the road drove above the posted speed limit.

As the project progressed over several years, it became clear that planning for high-capacity transit was not enough. The Division Transit Project expanded to include enhancing the fabric of the neighborhoods along miles of the road, in coordination with Portland Bureau of Transportation's Outer Division Multi-Modal Safety Project, to dramatically reduce the number of injuries and deaths on the road and to vastly improve the experience for pedestrians and people riding bikes.

For TriMet, Next Gen TSP is a key piece of the innovation that drove the entire project. TriMet and its regional traffic agency partners chose to implement a cloud-based TSP, eliminating the need for any specific field or vehicle-borne TSP devices, while using standard NTCIP communication protocols. The new TSP system allows for a rich set of business rules that govern when TSP is requested and provides significantly more performance data than was available in TriMet's 30-year-old TSP system.

The transit signal priority (TSP) system is the first of its kind in the region, using a center-to-center communication network over a fiber optic trunk line to transmit a priority request between the bus and the traffic signals (instead of having equipment at each traffic signal). Lyt has a machine-learning algorithm that collects, analyzes, and predicts bus arrival times based on bus data and live traffic conditions. This algorithm predicts the most precise and accurate ETA for the buses and provides that data to our signal controllers. And it all happens through one device on our network instead of hundreds of Opticom devices.

The corridor includes protected bike lanes for 4.5 miles of outer east Portland and unique signal operations to separate vehicle right turns, bikes, pedestrians, and bus queue jumps. A large portion of the corridor consists of high crash locations, and especially pedestrian related crashes. The project added many new traffic signals to reduce the signal spacing to allow pedestrians to cross more frequently. The result is a roadway for the people who live along Division, not just for the cars passing through.

Listening to community members throughout the project's life cycle about how transportation and built environment improvements can impair or benefit people's lives morphed the transit project to include street lighting, improved pedestrian crossings and green stormwater management which make using the transportation system safer and more equitable bus station platforms elevated for quicker boarding, multiple-door boarding, onboard bike storage and stations located where rider demand is greatest.

Human-centered safety was the ultimate priority throughout the development of this project. This meant reordering who had priority on the road, with buses, bicycle riders and pedestrians given higher priority for movement, and car drivers coming second.

Sensitivity to simplicity and safety was key. Design elements included wider sidewalks, more comfortable and safe cycling with buffered bike lanes, reduced roadway speed limits, and signal priority for buses. It was challenging to make this corridor work better for all users, despite the complexities and limited right of way, while still maintaining mobility and making the corridor safer.

The project includes non-traditional improvements like additional street lighting, improved pedestrian crossings and green stormwater management—the on-the-ground improvements that often are not included in transit projects, but that make using the transportation system safer and more equitable.

Based on the early success of the Division project, TriMet is rapidly proceeding with expanding their Frequent Service and High-Capacity Transit program in the Portland region. Two more corridors are already in the design phase, and TriMet is exploring implementing Next Gen TSP on many other corridors. TriMet and their partner traffic agencies throughout the Portland metro area see both FX service and Next Gen TSP as critical components for the delivery of 21st century transit that is safe, affordable, equitable, convenient, and reliable, for every member of the community.

Read more about the Division Transit Project here.

Congratulations to all the team members who contributed to the project:

- City of Portland: **Peter Koonce; Bikram Raghubansh; Mark Haines; Kate Petak; Alison Tanaka**; and **Brandon Davis**
- TriMet: **AJ O'Connor; Michael Kiser**; and **Francisco Echeverria**
- DKS Associates: **Peter Coffey; Adrian Pearmine; Robin Tlehhema; Randy Johnson**; and **Steve Boice**
- City of Gresham: **Jim Gelhar**
- ODOT: **Tiffany Slauter**; **Brian Sloane**
- WSP: **Kyle Williams**