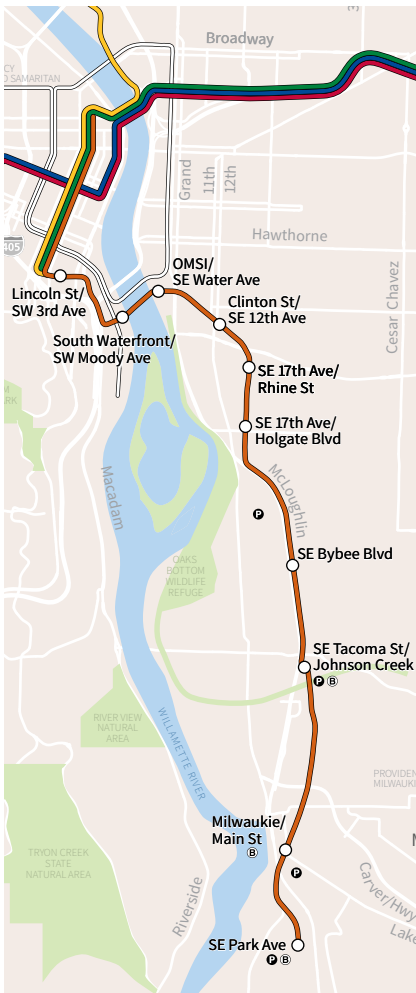




# PORTLAND-MILWAUKIE MAX ORANGE LINE



*MAX Orange Line light rail service connects Oak Grove, Milwaukie, SE Portland, Portland State University and Portland City Center. Most northbound trains continue through Portland City Center as MAX Yellow Line trains to Expo Center.*

## Background

With an estimated 400,000 new residents projected for the Portland metropolitan area by 2035, expansion of the region's high capacity transit system is crucial. The Portland-Milwaukie corridor, specifically, is expected to experience significant growth. This important alignment, which connects communities to jobs, education and recreation, was selected by the region for TriMet's latest light rail extension: The MAX Orange Line.

The Orange Line is the agency's second light rail connection with Clackamas County—the first was the MAX Green Line, which opened in 2009. In the summer of 2008, Metro approved the Locally Planned Alternative (LPA) for the Portland-Milwaukie Corridor. The 7.3-mile LPA travels north-south, extending from the terminus of the MAX Green and Yellow lines at Portland State University in Downtown Portland, to South Waterfront, SE Portland, Milwaukie and North Clackamas County. Travel time between SE Park Ave in Clackamas County and downtown Portland on the Orange Line in 2030 is estimated to decrease by 40 percent compared to existing TriMet bus service.

Community involvement and purposeful partnerships were leveraged throughout the planning and construction of the Orange Line, resulting in a myriad of community benefits beyond a new travel option—redevelopment, sustainability initiatives, active transportation improvements, public art and more.

## Tilikum Crossing

One of the most stunning visual components of the Orange Line is the project's iconic structure, Tilikum Crossing, *Bridge of the People*. The cable-



*Tilikum Crossing is a 1,720-foot-long structure.*

stayed bridge is the first span to be built over the Willamette River in the Portland area in more than 40 years. Tilikum Crossing is the only bridge of its kind in the U.S., carrying MAX trains, buses, streetcars, cyclists and pedestrians, but no private vehicles.

Cable-stayed bridge types are efficient at spanning long distances while minimizing the number of piers in the water. They can also be designed with thinner decks than other bridge types, allowing a more transparent structure and more vertical navigation clearance. Aesthetic lights focused on the cables and piers fluctuate in response to changes in the Willamette River below. A data point in the river translates the height, speed and temperature to a beautiful light art feature.

## Project Benefits

### Active transportation

Transit ridership depends on the integration of pedestrian, bike and mobility device access to station areas. To this end, the project team worked with communities along the project route and advocates to maximize station access, and include many bicycle and pedestrian improvements that make connecting to station areas easier. More than \$65 million was invested in bicycle and pedestrian improvements, including 446 new bike parking spaces and approximately 10 miles of new or replaced

sidewalks and nearly eight miles of new or replaced bicycle facility improvements.

### Public art

TriMet's commitment to public art continued along Orange Line. The Public Art Program emphasized the uniqueness of individual station areas, encouraging connectivity, stewardship and sustainability.



*Morning Star public art near Tilikum Crossing.*

Twenty-five artists created artwork for Orange Line stations and their surrounding communities. The projected worked in collaboration with

project partners, the Regional Arts and Culture Council (RACC), the Clackamas County Arts Alliance and the communities along the route.

### Sustainability

The project employed an industry-leading approach to sustainable design, with early and ongoing commitments made to sustainable practices and a groundbreaking reporting process. New standards were set for what can be considered part of a light rail project, with initiatives as diverse as growing sustainable infrastructure, active transportation amenities and on-site alternative energy generation. The result of these efforts is TriMet's most sustainable MAX line to date.

Innovation is a hallmark of the sustainability initiatives included in the project. For example, the Lincoln/SW 3rd Ave MAX Station includes eco-track at the station platform. Although green trackways



*Eco-roofs help lower urban air temperatures.*



*Eco-track at Lincoln St/SW 3rd Ave MAX Station.*

exist in Europe, this is the only known treatment in the United States. The vegetated track provides a carpet of flowering, low-growing evergreen plants that aid with capturing stormwater runoff. Eco-track also helps reduce train noise and vibration.

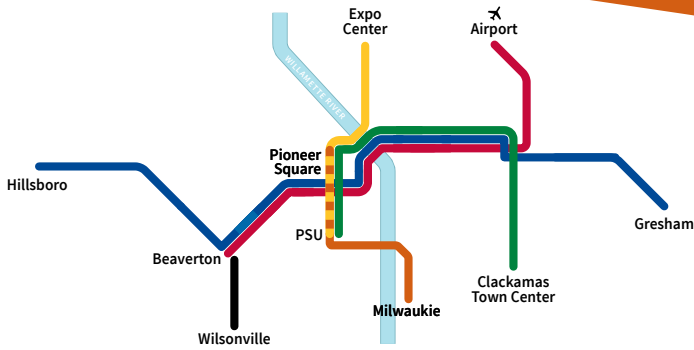


*Solar panels on a Clinton St/SE 12th Ave MAX station platform.*

More innovative infrastructure can be seen at a substation near the SE Tacoma St/Johnson Creek MAX Station, which features the first U.S. installation of a wayside supercapacitor. This technology allows for energy created during braking to be stored and then re-used. In energy savings mode, the storage unit absorbs energy generated by braking rail vehicles and stores it until the system can safely feed it back to the power supply during vehicle acceleration, reducing energy use.

Other sustainability features of the project include:

- 286 bioswales to capture and filter 1.8 million square feet of stormwater
- Twenty-eight solar installation sites to offset power usage, saving electricity and creating aesthetic design amenities
- Eight structures with eco-roofs—six on the east side of the river and two on the west side—for a total of 3,500 square feet to help divert stormwater by absorbing rainwater
- 21,500 tons of byproduct material was salvaged during westside construction and either reused within the project or recycled elsewhere
- 3,200 dump truck loads of contaminated materials safely encased in South Waterfront station area, diverted from landfill



## Snapshots

### Timeline

- **2008–2011** Preliminary studies
- **July 2008** Locally preferred alternative recommendation
- **July 2011** Construction begins on Tilikum Crossing, *Bridge of the People*
- **May 2012** Federal approval (FFGA)
- **July 2011–September 2015** Construction
- **September 2015** MAX Orange Line service began

### Facilities

- **Length** 7.3 miles of new alignment
- **Stations** 10 new stations
- **Park & Ride facilities** 2 with 719 spaces
- **Maintenance facility** Ruby Junction

### Frequency

Approximately every 15 minutes peak hour; approximately every 35 minutes early morning and nighttime service.

### Travel Times

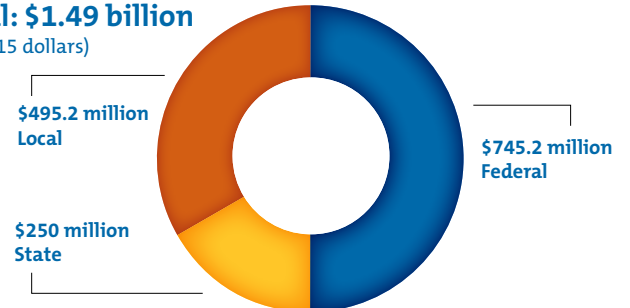
- **SE Park Avenue to South Waterfront** 19 minutes
- **SE Park Avenue to Portland State University** 24 minutes
- **SE Park Avenue to Pioneer Courthouse Square** 28 minutes

### Bus connections

Ten bus lines connect stations along the MAX Orange Line alignment.

### Funding

**Total: \$1.49 billion**  
(in 2015 dollars)



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See where it takes you.

MAX Orange Line Tour Fact Sheet / July 2016