



BANFIELD LIGHT RAIL EASTSIDE MAX BLUE LINE

Background

Breaking the mold

In 1975, the region adopted an Interim Transportation Plan, rejecting previous plans for 54 new highway projects at a cost of \$2 billion (in 1969 dollars). The new plan proposed modest roadway projects and a network of transitways along major travel corridors to meet future demand. By 1976 the Banfield Freeway corridor was selected as the top priority.

The Oregon Department of Transportation asked the federal government to transfer funds under the 1973 Federal Aid Highway Act from the Mt. Hood Freeway project to the Banfield. The City of Portland and Multnomah County had rejected the freeway project in 1974 after public outcry over destruction of neighborhoods and its expected cost. Many remember its defeat and the Interim Transportation Plan as a benchmark in Portland's evolution toward a new kind of American urban planning and civic development.

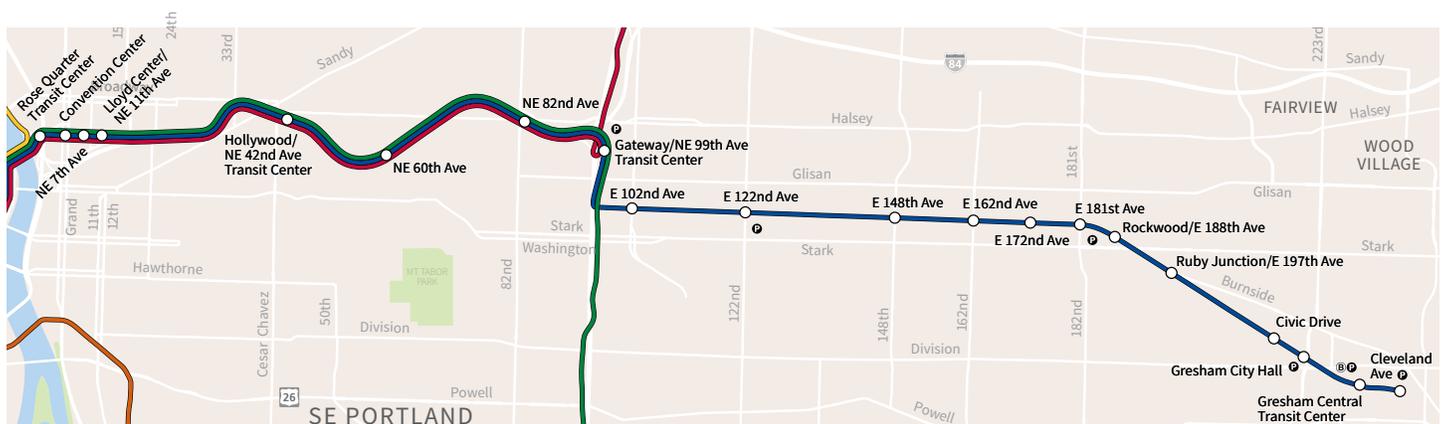
The move to light rail

Originally the Banfield was conceived as a bus transitway. A Banfield Transitway Study compared

alternative transit scenarios for a busway, carpool/bus (HOV) lanes, low-cost road improvements and "no-build." As the study progressed the community asked that light rail be added as an alternative. In 1979 light rail was selected by the community and participating jurisdictions. Federal approval followed in 1980, making it one of the first federally funded light rail projects.

U.S. Senator Mark Hatfield turned the first spade of dirt for the Ruby Junction Maintenance Facility in 1982, declaring that effective transit in the cities should be as much a national priority as the Interstate Highway system. Later that year, construction of the trackway began in Gresham. In September 1986, the Eastside MAX line opened for revenue service as one of only three light rail systems in the country.

After the Westside extension opened in 1998, the entire MAX line stretched 33 miles from Hillsboro and Beaverton in the west, through downtown and out to Gresham in the east. When the Airport MAX Red Line extension opened in 2001, the Eastside/Westside line was renamed MAX Blue Line.



MAX Blue Line light rail service connects Hillsboro, Beaverton, Portland City Center, East Portland and Gresham.

Design highlights

New territory

In 1979, modern light rail was still a new and largely untried concept in the U.S. TriMet assembled an in-house staff to learn light rail technology, and then managed the project with the assistance of engineering design consultants. The project needed to draw on the best practices in the U.S. as well as Europe—where most of the expertise in light rail resided at that time.

The entire Banfield project consisted of widening five miles of the Banfield Freeway (I-84) from four to six lanes, and constructing a 15-mile light rail line from Gresham to Downtown Portland.

Traffic preempt system

Early on, TriMet adopted a design policy that trains should only stop at stations, and traffic crossings should be preempted whenever possible to prevent trains from being mired in traffic delays.

Pedestrian safety

The construction of the light rail median on Burnside Street created a pedestrian barrier through some neighborhoods. Between NE 197th and NE 97th avenues, 13 uncontrolled pedestrian “zee” crossings were installed, the first modern application of this simple concept. The design forces pedestrians to slow down and take notice as they approach a crossing.

Gateway

Gateway Transit Center in east Portland is a major bus/rail transfer point and the midpoint of the line. Trains, buses and pedestrian crossings were built at grade, on one level. This design was cost effective and more comfortable for transit riders. The MAX Red Line to the airport and MAX Green Line to Clackamas County and Downtown Portland also stop here.

Downtown

The final segment of the Eastside of the MAX Blue Line was built on reserved lanes through about two miles of the Downtown Portland core, with a turn-back loop



Gateway Transit Center provides light rail and bus service and is adjacent to the Oregon Clinic, a transit-oriented development.



The Steel Bridge allows the MAX Blue Line, as well as the Red, Yellow and Green lines, to travel over the Willamette River, serving as the major light rail connector between the metropolitan region's east and west halves.

at SW 11th Avenue. From SW 1st Avenue, the line splits onto one-way streets, running west in the direction of traffic on Morrison Street and returning east on Yamhill Street. Traffic operation allows the trains to run unimpeded from the station using the existing downtown traffic signal progression. As a result, trains have almost no effect on cross traffic—a vital consideration with some 300 trains a day running each way through downtown.

Technical Highlights

Vehicles

In 1980, TriMet placed an order for 26 light rail vehicles from Bombardier, based on a design used in Belgium and Rio de Janeiro. These were conventional, six-axle, articulated cars with steps at each door.



Steel Bridge

The massive Steel Bridge is one of America's great monuments to the railroad era. It carries Union Pacific rail tracks and a multi-use path on the lower level, and two traffic lanes and two light rail trackways on the upper level. Both levels can lift to allow ships to pass, either the lower level alone or both at once. The light rail overhead system moves out of the way when the bridge opens, copying the method originally installed in 1912 for Portland's first streetcars. The west approach to the Steel Bridge features a brief seven percent grade, the steepest on the MAX system.

Fares

TriMet uses fareboxes to collect fares on the bus system. With light rail, TriMet became a pioneer in self-service fare collection requiring proof of payment—a concept that has since become virtually standard on new light rail systems.

Accessibility

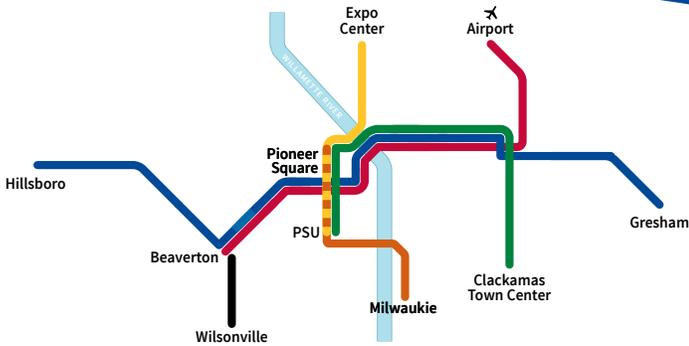
The Eastside MAX line was built with lifts mounted on the platforms to accommodate passengers with wheelchairs. This design was chosen to ensure trains could continue to operate if a lift failed. When low-floor cars were introduced as part of the Westside line, these lifts were removed.



Each MAX light rail vehicle has four accessible areas for seniors and riders using mobility devices.

Transit-oriented development

The Eastside MAX Blue Line was built mostly through existing neighborhoods and has proven a catalyst for redevelopment and infill projects along its route. Billions of dollars in development has occurred along the entire Eastside MAX line, with development activity greatest in Downtown Portland and the neighboring Lloyd District. Eastside MAX and subsequent MAX lines have played an important role in revitalizing the city center. Virtually every parcel of vacant land adjacent to MAX has changed hands, been developed or had development plans announced.



Snapshots

Timeline

- **1979** Local community and jurisdiction approval
- **1980** Federal approval
- **March 1982–August 1986** Construction
- **September 1986** Opened

Annual ridership (entire MAX Blue Line)



Frequency

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

Facilities

- **Length** 15 miles (MAX Blue Line: 33 miles total)
- **Stations** 31
- **Park & Rides** 4, with nearly 1,670 spaces
- **Parking garages** 2, with more than 1,230 spaces
- **Maintenance facility** Ruby Junction

Travel times

- **Downtown Portland (Pioneer Square) to Gateway Transit Center** 25 minutes
- **Gateway to Gresham end of line** 22 minutes
- **Downtown to Gresham end of line** 47 minutes

Bus connections

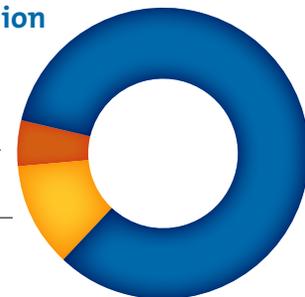
Includes 45 connections with TriMet bus lines along the Eastside alignment, as well as with numerous bus lines downtown. Also connects to the C-TRAN bus to Vancouver, Washington.

Funding

Total: \$214 million
(in 1978 dollars)

\$10.9 million
Local

\$24.8 million
State



Widening the Banfield Freeway (I-84) cost \$107 million, and constructing the light rail line cost \$214 million. Federal funds covered 83 percent of the project; state and local funds paid 17 percent. Federal dollars came largely from the allocation of funds slated for the halted Mt. Hood Freeway project and investing in transit and smaller road projects.

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