

# TriMet's Rail Vehicle Fleet

*The evolution of the light rail vehicles, and the power of WES Commuter Rail trains*



## Type 1 light rail vehicles

Two classes of light rail vehicles (LRV) operate on the TriMet system. The first class is referred to as Type 1. Between 1984 and 1986, 26 LRVs were purchased for the original Eastside MAX line and manufactured by Bombardier. Bombardier developed the design from cars previously supplied to Rio de Janeiro and Manila. Each car has run reliably for more than a million miles on the TriMet system since their first arrival.

### Type 1 specifications

- Vehicles are six-axle, single-articulated cars, 89-feet long.
- Vehicles have high floors and interior steps for use with low platforms.
- Platform-mounted lifts were used for wheelchair loading before the arrival of low-floor vehicles. (The Type 1 vehicles are now only run in two-car trains with Type 2 or 3 LRVs, so that all trains are fully ADA compliant.)

## Type 2 low-floor cars

In 1992 TriMet conducted a “Level Boarding Study” on low-floor vehicles and concluded that they were the least costly way to provide universal, level boarding on the entire light rail system. This feature eases boarding for people using mobility devices.

TriMet first ordered 35 Type 2 low-floor LRVs for the Westside Light Rail Project, supplied by Siemens and



assembled in Sacramento. With subsequent add-on orders for system ridership growth and an extension to the airport, a total of 52 LRVs were delivered between 1997 and 2000.

### Type 2 specifications

- Vehicles are six-axle, double-articulated cars, 92-feet long.
- The low-floor design is 14 inches above top of rail (empty, with new wheels) for use with a 10-inch platform.
- The low-floor center section makes up 70 percent of the floor area, with interior steps to carry people to the high-floor section that rests atop the power trucks.
- The bridge plate provides what is known as “level boarding” for passengers who request it. Bridge plates extend out 15 inches and span a nominal two-inch horizontal and three-inch vertical gap.



## Type 3 LRVs

TriMet has 27 Type 3 LRVs ordered from Siemens. These newest LRVs are essentially the same as the Type 2s, except they have automatic passenger counters and improved air conditioning systems. Seventeen were ordered for the Interstate MAX line, and 10 more for ridership growth.

## Type 4 LRVs

A new low-floor vehicle was built for the light rail project that became the MAX Green Line. These Type 4 LRVs are three feet longer than Type 2 or Type 3 LRVs and have 8 more seats per two-car consist. Yet a lighter weight and advanced electronic systems allow the Type 4 cars to slow down and stop at stations even more smoothly than its predecessors.



TriMet received 22 of the new cars, bringing the total light rail vehicle fleet to 126.

## Light rail train configurations

Two-vehicle trains, called “consists”, provide most of TriMet’s service. Type 2 and 3 vehicles are designed to run singularly, in pairs or coupled to another Type 1, 2 or 3 vehicle. These configurations ensure that at least one car in a train is fully accessible, making it possible to remove the obsolete Eastside MAX platform lifts. A Type 4 vehicle can only be coupled to another Type 4.



## Diesel multiple units

The WES (Westside Express Service) Commuter Rail line in Washington County operates with diesel multiple unit (DMU) self-propelled individual rail cars. Powered cars accommodate 74 seated passengers and trailer cars have 80 seats. Both types of cars have room for two mobility devices and up to six bicycles.

Four cars were purchased from Colorado Railcar for the project: three single powered cars and one trailer car. With the ability to move along the track in either direction, the single-powered cars have cabs at both ends of the vehicle, and the trailer car has a cab at one end only.

The DMU’s average speed is 37 mph, with a maximum speed of 60 mph. Each DMU is equipped with two, 600 horsepower Detroit Diesel engines. All cars comply with stringent federal safety requirements for passenger cars sharing track with freight.

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