

# Next stop: more rail.

## RAIL TRANSIT MODES

### Fact Sheet



#### A train isn't just a train – there are many types.

Metro continues to expand its rail network with new projects being planned or under construction. Part of this planning involves evaluating different types of rail that each have different features and operating characteristics. The types of rail are referred to as "modes" of transit.



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# Overview of Rail Transit Modes

**During the planning and environmental evaluation process for a new rail line, many factors will be considered to determine the mode.**

Some of these factors include cost, available funding, carrying capacity, speed, travel demand, urban fit, if the project being studied is an extension of an existing line, or availability of a rail maintenance and storage facility. Information below is based on current performance of modes currently operating and will be updated as performance improves and new modes become available. *Please see our other fact sheets for more information on environmental evaluation, and other topics.*

## Modes of Transit Currently Operating in LA County

### Light Rail

Metro currently operates light rail transit on the Blue, Green, Gold and Expo Lines. There are currently five rail maintenance and storage facilities to serve these lines. Two projects under construction, Crenshaw/LAX and Regional Connector, will add to this network. Metro is also building the new Southwest Rail Maintenance yard to serve the Crenshaw/LAX Line and support expanded Green Line service.

Characteristics of light rail include:

- > Powered by overhead catenary wires
- > Typical station spacing: one mile
- > Operates above, below or at street level
- > Passenger capacity: 135/car
- > At peak times, Metro trains:
  - Can be up to three cars long
  - Carry up to 405 passengers/train
  - Operate every five to six minutes
- > Top speed 55-65 mph
- > Average speed 24-35 mph



Light Rail – Metro Gold Line

### Heavy Rail

Metro currently operates heavy rail transit on the Red and Purple Lines. A nine-mile extension of the Purple Line is currently under construction. A rail maintenance and storage facility currently serves these lines. It will be expanded to support the Purple Line Extension.

Characteristics of heavy rail include:

- > Powered by third rail
- > Typical station spacing: one to two miles
- > Only operates above or below ground
- > Passenger capacity: 135/car
- > At peak times, Metro trains:
  - Can be up to six cars long
  - Carry up to 810 passengers/train
  - Operate every five minutes
- > Top speed 70 mph
- > Average speed 32 mph



Heavy Rail – Metro Red Line

## Commuter (or Passenger) Rail

Metrolink operates commuter rail connecting from Los Angeles Union Station to the San Fernando Valley, North County, San Gabriel Valley, Southeast LA County and adjacent Ventura, Orange, San Bernardino and Riverside Counties. Amtrak operates intercity passenger rail service across the United States. In Southern California, their Pacific Surfliner connects between San Luis Obispo and San Diego, with many stations shared with Metrolink.

Characteristics of commuter rail include:

- > Locomotive-powered
- > Typical station spacing: five miles
- > Generally operates at ground level
- > May share track with freight rail
- > May operate above or below ground at selected crossings and via tunnels through mountains
- > Fares based on distance traveled
- > Specifically scheduled timetables, which can include:
  - At peak times, 15- to 30-minute frequencies
  - Less frequent service outside of peak times
- > Metrolink:
  - Passenger seating capacity: 140/car
  - Can be up to four to six cars long
  - Top speed 79 mph
  - Average speed 36 mph
- > Amtrak Pacific Surfliner:
  - Passenger seating capacity: 70/car
  - Can be up to six cars long
  - Top speed 79 mph
  - Average speed 43 mph
- > On-board amenities can include:
  - Restrooms
  - Water fountains
  - Tables for eating, reading or getting work completed
  - Power outlets for electronic devices
  - Storage space for luggage, bicycles and belongings
  - Wi-fi and café car (Amtrak only)



Commuter Rail – Metrolink

## Other Modes Operating Elsewhere

### High Speed Rail

(there are two types of high speed rail train systems)

Conventional-wheeled:

- > Powered by electric, electric-fuel or fueled systems
- > Track is built or specially upgraded for high-speed travel
- > Typical station spacing: varies but tends to connect city centers along the route
- > Can operate above, below or at street level in its own dedicated right-of-way
- > Can be up to 12 cars long; average is seven to nine cars long
- > Passenger seating capacity: varies; 65-75/car
- > Specifically scheduled timetables
- > Top speed 350 mph; average speed 150-200 mph
- > Selected examples currently in operation: Asia, Europe

MagLev:

- > Powered by magnetic levitation, vehicles travel along a guideway provided with magnets to control in-flight stability, and create propulsion and lift, eliminating mechanical constraints of dry friction
- > Track is built specifically for MagLev
- > Typical station spacing: varies but tends to connect city centers along the route
- > Can operate above or below ground
- > Passenger seating capacity: 65-70/car
- > Specifically scheduled timetables
- > Top speed 375 mph; average speed varies
- > Selected examples currently in operation: Japan

For more information about Rail Transit Modes,  
visit [metro.net/railmodes](http://metro.net/railmodes).

## Other Modes Operating Elsewhere (continued)

### Monorail

- > Powered by third rail or wires
- > Typically elevated
- > Typical station spacing: one-half mile to one mile
- > Passenger capacity: about 60 passengers/car
- > Trains up to six cars long
- > Top speed 40-50 mph
- > Average speed 18-30 mph
- > Selected examples currently in operation: Disneyland, Las Vegas, Air Train JFK, Seattle, Detroit People Mover, Japan, Germany

### Trams/Streetcars/Trolley

(terms are used interchangeably)

- > Powered by overhead catenary wires
- > Generally run at street level with other vehicle traffic but can operate in dedicated guideways
- > Passenger capacity: varies
- > Average speed 32 mph
- > Typical station spacing: every quarter-mile
- > Selected examples currently in operation: San Francisco; Portland (OR); Dallas; Washington, D.C.

### Personal Rapid Transit (PRT)

- > Powered by electricity
- > Stations: typically close together but located on side track to allow other cars to pass
- > Depending on size, cars/pods carry one to 20 people
- > Typically operates in smaller, closed systems
- > Selected examples currently in operation: Morgantown (WV), Masdar City (United Arab Emirates), Suncheon (South Korea)