

# Transit Fixed Guideway Alternatives

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E. Beimborn, University of Wisconsin-Milwaukee



## Fixed Guideway Alternatives

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- ❑ Fixed guideway alternatives require the construction of a track or guideway and stations for vehicle operation.
  - ❑ Most common options are heavy rail, light rail, commuter rail or bus rapid transit.
  - ❑ Some areas also consider people mover systems or monorail.
  - ❑ Have substantially different costs, capacities and levels of service.
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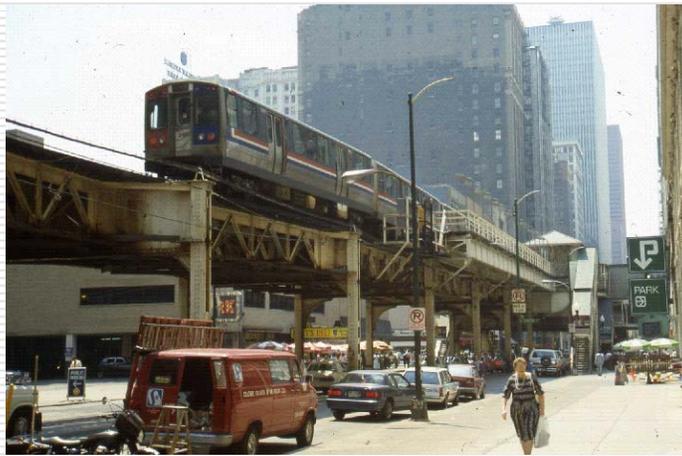
## Heavy Rail

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- ❑ Completely separated from streets by subway, elevated or separate right of way
  - ❑ Elaborate stations, operates in multiple car trains, high capacity, electrically powered with third rail.
  - ❑ Dominant system of transit in very large urban areas such as New York, Washington, D. C., Chicago, San Francisco Bay Area in the U.S. and elsewhere in the world (London, Paris, Toronto, Mexico City, Tokyo, etc.)
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## Chicago Elevated

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## Bay Area Rapid Transit

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## Light Rail Transit

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- ❑ Operates on existing streets and areas as well as on separated rights of way. It normally uses overhead wires to collect power.
  - ❑ Vehicles operate in highway medians, on streets, with at grade intersections or on old railroad or totally new right-of-ways. Stations (stops) are simple. Light rail has a lower cost and capacity than heavy rail.
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## Portland, Oregon Light Rail

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## San Diego Light Rail

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## Modern Streetcar

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- ❑ The modern streetcar is similar to light rail but uses smaller vehicles and operates almost exclusively on existing streets.
  - ❑ Implemented primarily in central business districts or in special zones of high activity.
  - ❑ Vehicles can be modern in appearance or built to look like historic street cars.
  - ❑ They provide circulation between buildings in concentrated areas or else may provide a connection between two nearby areas. Sometimes they also serve tourism markets.
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## Portland Oregon

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## Commuter Rail

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- ❑ Operates as passenger trains over conventional railroad tracks. They can be electrically powered or operate in trains pulled by diesel locomotives
  - ❑ Typically used by commuters traveling from suburbs to central city service over regular railroad tracks. It can use push-pull equipment and high capacity, double deck, cars.
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Virginia Railway Express, serves Washington, D.C.

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## Maryland Commuter Rail, serves Washington, D. C.

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## Bus Rapid Transit

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- ❑ Bus rapid transit operates similar to a rail system but without the tracks. Bus rapid transit systems feature separated right-of-way or exclusive lanes, signal priority, off line fare collection, and express service between stops.
  - ❑ Buses use regular streets for local collection and then use busway for higher speeds.
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## Bogotá, Columbia Bus Rapid Transit

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## Salem Oregon BRT

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## Transit malls, exclusive lanes

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- ❑ transit systems have priority usage on existing local streets with special features to facilitate transit service.
  - ❑ These could be for transit only such as a transit mall, specific lanes for transit or regulations that favor transit service over other modes.
  - ❑ These can be used by buses or by light rail systems.
  - ❑ Very often they use extensive street furniture and amenities that favor pedestrian and bicycle users,
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## Minneapolis - Nicollet transit mall

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## Minneapolis downtown light rail station

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## Bus/Bus and Bus/Rail connectivity

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- ❑ An important part of any system is to create good local connections between collector systems such as a local bus and the fixed guideway systems.
  - ❑ This is often done at outlying stations which combine park and ride facilities and a bus terminal.
  - ❑ The facility also can include retail activity and services.
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## Minneapolis bus/light rail station

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## Portland Light rail/bus transfer station

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## Other technologies

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- ❑ Automated Transit, People Mover, Personal Rapid Transit:
    - small automated vehicle, with no operator, that provides service on separated guideway (“horizontal elevator”).
    - Used in some airports and also downtowns.
  - ❑ Monorail: fixed guideway transit system similar to Heavy rail which uses only one rail rather than two.
    - Two types: suspended and supported.
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## Dallas airport people mover

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## Supported Monorail - Seattle

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## Suspended monorail, Wuppertal, Germany

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## Guided 'Bus'

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- ❑ Combines light rail and bus rapid transit, uses vehicles similar to light rail but with a single rail or electronic guidance that substitutes for standard trackage.
  - ❑ Has been used in some cities outside of the U.S.
  - ❑ Trans Lohr rubber tired tram in Padua, Italy uses a single rail for vehicle guidance and rubber tires for vehicle support. It operates primarily on existing streets. It also can operate by battery for portions of the line where overhead wires are undesirable.
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## Padua, Italy

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## Close up of vehicle and guide rail

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## Paratransit

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- ❑ Not a fixed guideway system
  - ❑ Paratransit are a family of transit like services which normally do not operate on a fixed route or fixed schedule. These include the following:
    - Dial a Ride
    - Shared ride taxi
    - Van pools and car pools
    - Subscription bus
    - Jitney
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## Haddonfield New Jersey Dial a Ride

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## Acknowledgements

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- ❑ Some of this material was developed as part of work being conducted by the Great Cities University consortium under the lead of the University of Alabama at Birmingham using funds provided by the Federal Transit Administration of the U.S. Department of Transportation.
  - ❑ The opinions expressed are the product of independent university work and not necessarily those of the sponsoring agencies or of the agencies supplying data for the project.
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