

An Introduction to Transit Modes in Michigan





86342



Greyhound



BROUGHT TO YOU BY FIRST G

PROFESSIONAL DRIVERS COMMITTED TO SAFETY: 1-800-SAFE-BUS

WEATHER GREYHOUND LINES INC. DALLAS TX US DOT 64410

An Introduction to Transit Modes in Michigan

The following summary provides a general description of existing and planned transit modes commonly found in Michigan and other states. The modes covered include: van pool, bus, intercity bus, bus rapid transit (BRT), light rail/streetcar, intercity passenger rail, commuter rail, and heavy rail.

Each mode description includes:

- **Vehicle type** – the vehicle capacity, size, other general characteristics.
- **Service area** – the geographical area of the specific mode.
- **Operating speeds** – the typical speed of the vehicle under prevailing traffic, and the amount of time needed for a trip.
- **Running way** – a description of the typical section of the route traveled on the transportation network in which the mode operates.
- **Route spacing** – the distance between stops or stations.
- **Frequency** – the headway, or time interval, between vehicles on a route.
- **Facilities** – the type of additional facilities or amenities required for the mode beyond vehicle type (i.e., shelters, stations, benches, ticket machines).
- **Fare collection** – how passengers pay to use the mode.

A table summarizing the detailed mode descriptions is provided at the end of the document.

Each transit agency operates its system to meet the needs of the agency's service area and budget. The information provided is general and based primarily on Michigan examples.

Descriptions and background information are derived from the American Public Transportation Association (APTA website) and other sources.

Vanpool

A pre-arranged group of people commuting to the same general location in a van driven by a member of the group. Vanpools often are sponsored by an employer or are subsidized by a transportation agency or the state. In Michigan, the Michigan Department of Transportation (MDOT) contracts with a vendor to provide the management of the Michivan program. MDOT provides a subsidy for the capital costs of the vans. There are also several local rideshare offices that coordinate with the vendor of Michivan to provide vanpooling services, such as the guaranteed ride home.



Vehicle type: Vans that can accommodate seven to 15 passengers.

Service area: Determined by the commuting needs of the group.

Operating speeds: Variable, depending on the number of passengers and traffic conditions.

Running way: Vanpools operate on the same roads and highways as other traffic.

Route spacing: Often one or two pick-up and drop-off locations.

Frequency: This mode operates on an as-needed basis.

Facilities: This mode doesn't require any additional facilities as it is often door-to-door service.

Fare collection: Fees are collected by the organization providing the service.

Bus

The most common transit service used by agencies. Most standard transit buses operate on fixed-route service or regular schedules. Standard transit buses are accessible for wheelchairs or by lifts and ramps, and some provide accommodations for bicycles.

Vehicle type: Buses are typically 40 feet long, but 35-foot and 30-foot versions also are common in smaller cities and on lightly-used routes. Can accommodate approximately 50 passengers.

Service area: The service area of this mode is suburban or urban, often along major corridors.

Operating speeds: Variable, depending on the number of stops and traffic conditions.

Running way: Buses operate on the same street network as other traffic. Some metro areas have dedicated lanes for buses that improve speeds and timeliness.

Route spacing: Standard bus routes often have frequent stops in developed areas.

Frequency: Frequency depends on the level of demand on a specific route. Buses can operate as frequently as every 10 minutes during peak hours to once an hour, and vary by time of day. During off-peak times, there is less frequency than during peak hours.

Facilities: This mode requires signed bus stops, and also includes amenities such as benches, shelters, route information, signs, and lighting. Often a transit agency will have a terminal building, which serves as the main hub. Transit agencies also have facilities to house administrative and maintenance operations.

Fare collection: Fares are collected on-board the vehicle.

An Introduction to Transit Modes in Michigan

Other types of bus vehicles include:

Articulated Bus: An extra-long (54 to 60 feet) bus with the rear body section connected to the main body by a joint mechanism. The accordion-like joint mechanism allows the vehicle to bend when in operation for sharp turns and curves and yet have a continuous interior.

Shuttle Bus: A vehicle which travels to and from a particular route and accommodates from five to 25 passengers depending on structural configuration. Often used for special events.

Trolley Replica Bus: A bus designed to look like a streetcar from the early 1900s. They usually hold 20 to 40 passengers. Often runs in a circular loop route with limited hours on entertainment or tourist routes.

Demand Response: Demand-response services, also known as “dial-a-ride,” provide transportation for passengers, upon request, to and from their destinations. Typically, a vehicle may be dispatched to pick up several passengers at different pick-up points before traveling to their respective destinations and may be interrupted en route to pick up other passengers.



Transit Bus: Grand Rapids (RAPID)



Articulated Bus: Capital Area Transit (CATA), East Lansing, MI



Shuttle Bus: Marquette County Transit Authority



Trolley Replica Bus: Muskegon Area Transit System

Intercity Bus

An intercity bus service using coaches to carry passengers a significant distance between different cities, towns, or other populated areas. Service generally has a single stop at one location in or near a city, and travels long distances without stops.

Vehicle type: Coaches with front door access only, separate luggage compartments, and usually with restroom facilities and high-backed seats for use in high-speed long distance service. They are usually 40 feet or longer, with only forward-facing, reclining seats. Can accommodate 60 to 80 passengers.

Service area: The service area of this mode is regional or national, often between urban areas along major corridors. MDOT contracts for five routes connecting rural areas in northern Michigan to the national network.

Operating speeds: Moderate to high, depending on the route and traffic conditions.

Running way: Coaches operate primarily on the same highways and interstates a other traffic.

Route spacing: Multiple stops in certain destination locations, often fewer to none between major destinations.

Frequency: Intercity bus often has low frequency of service due to the long distance of travel.

Facilities: This mode can require a terminal building or intermodal station supplemented with signed bus stops or shelters in rural areas.

Fare collection: Off-board at a station and via internet ticketing.



Michigan Flyer: Indian Trails, East Lansing, MI

Bus Rapid Transit (BRT)

A bus-based mass transit system. A BRT system generally has specialized design, branding, services and infrastructure to improve system quality and remove the typical causes of bus delay. BRT aims to combine the capacity and speed of a light rail or metro system with the flexibility, cost and simplicity of a bus system. BRT generally consists of improvements to the bus operating environment to increase speed and utility. It can include increased frequencies, dedicated lanes, longer stop spacing, and traffic signal priority.



Rendering of The Rapid's proposed Silver Line, Grand Rapids, MI

Vehicle type: High-capacity modified standard buses. Buses on some systems can accommodate more than 250 passengers.

Service area: The service area of this mode is often urban.

Operating speeds: Moderate, depending on the route and traffic conditions. A major factor in the speed of BRT is the existence of dedicated lanes or signal prioritization.

Running way: BRT operates primarily on the local street network mixed with other traffic. BRT also can operate in dedicated lanes, and in high-occupancy vehicle lanes.

Route spacing: This mode has fewer stops than standard bus, reflecting premium service, and enhanced reliability. Typical BRT stations range from one-quarter to 1 mile.

Frequency: BRT service often runs frequently and efficiently due to further spacing between stops - from five to 10 minutes during peak travel periods, and from 10 to 20 minutes during other times of the day.

Facilities: This mode requires a terminal building or intermodal station supplemented with signed bus stops or shelters. BRT also can include enhanced shelters, rider information, and ticket machines.

Fare collection: Off-board at a station.

Light Rail (includes streetcar, tramway, or trolley)

An electric railway with a “light volume” traffic capacity compared to heavy rail. Light rail may use shared or exclusive rights of way, high or low platform loading and multi-car trains or single cars. Light rail is often a high-capacity mode of transit.



Hiawatha Line: Minneapolis, MN



Proposed Streetcar: M-1 Rail, Detroit, MI

Vehicle type: Railcars that are typically driven electrically with power being drawn from an overhead electric line. High-capacity vehicles can accommodate more than 200 passengers.

Service area: The service area of this mode is often urban.

Operating speeds: Moderate, depending on the frequency of stops and if there are dedicated lanes for the vehicle. Average speeds over public streets may range from 10 to 20 mph. Speeds over grade-separated rights of way may range from 20 to 30 mph.

Running way: May operate in its own right of way or may share the street with other traffic.

Route spacing: Normal station spacing ranges from one-quarter to 1 mile.

Frequency: Light rail service often runs frequently, from five to 10 minutes during peak travel periods, and from 10 to 20 minutes during other times of the day.

Facilities: This mode requires stations, and may include ticket machines, route information, signage, etc.

Fare collection: Off-board at a station or on-board.

Automated Guideway Transit (personal rapid transit, group rapid transit, people mover)

An electric railway of guided transit vehicles operating without an on-board crew. Service may be on a fixed schedule or in response to a passenger-activated call button. The regions with automated guideways are Detroit, Indianapolis, Jacksonville, Las Colinas, Miami, and Morgantown. Automated guideways also are frequently found in non-transit settings, such as the Detroit Metropolitan Airport and hospital campuses.

Vehicle type: Automated railcars operating on a separate track. Can accommodate 40 people per car.

Service area: The service area of this mode is often urban or an enclosed facility.

Operating speeds: Can operate at high speeds.

Running way: Dedicated track.

Route spacing: Stations are often located as close as two blocks from each other.

Frequency: A very frequent mode with cars coming as often as every five minutes.

Facilities: This mode requires stations and dedicated tracks.

Fare collection: Off-board at a station



The People Mover: Detroit, MI

Intercity Passenger Rail

Passenger rail operates long-distance trains between many cities and/or regions of the country, and sometimes cross several countries. In most cases, passenger trains operate on a fixed schedule and have track occupancy rights over freight trains.



AMTRAK, Michigan

Vehicle type: Railcars that can accommodate approximately 80 passengers per car.

Service area: Regional and national

Operating speeds: Operates in Michigan at an average speed of 48 mph.

Running way: Dedicated tracks that may be shared with freight trains.

Route spacing: Station location varies depending on the proximity of regional destinations and cities.

Frequency: Varies based on demand. Some stations only have one departing and arriving train per day.

Facilities: This mode requires stations.

Fare collection: Off-board at a station

Commuter Rail

Also called suburban rail, commuter rail is a passenger rail transport service that primarily operates between a city center, the middle to outer suburbs beyond 10 miles, and commuter towns that draw large numbers of commuters.



METRA Commuter Rail: Chicago, IL

Vehicle type: Railcars similar to those used in intercity rail, accommodates approximately 80 passengers.

Service area: Metro area.

Operating speeds: Operates at high speeds, typically between 30 and 50 mph.

Running way: Dedicated track.

Route spacing: Moderate.

Frequency: Several trains at peak commuting times, with typical frequency limited during midday, evening, and weekend service.

Facilities: This mode requires stations and dedicated tracks that may be shared with freight trains.

Fare collection: Off-board at a station.

Heavy Rail (subway)

An underground or at-grade urban railroad, usually the system is an electric railway with the capacity to handle a heavy volume of traffic. The term is often used to distinguish it from light rail systems, which usually handle a smaller volume of passengers.



METRO Subway, Washington, D.C.

Vehicle type: A typical revenue train consists of eight to 11 cars, although can be as short as two, and can range from 150 to 600 feet long. Approximately 180 passengers per car.

Service area: Metro area.

Operating speeds: Operates between 15 and 30 mph, depending on station spacing.

Running way: Dedicated track.

Route spacing: Moderate.

Frequency: Several trains at peak commuting times, with typical frequency limited during midday, evening, and weekend service.

Facilities: This mode requires stations and dedicated tracks that may be below or above ground.

Fare collection: Off-board at a station.

An Introduction to Transit Modes in Michigan

	Buses						
	Demand Response	Shuttle	Standard	Articulated	Trolley	Intercity	BRT
Service Area	Rural/ Suburban	Point-to-Point	Urban/ Suburban	Urban/ Suburban	Urban	Regional/ National	Urban
Vehicle	Small Bus/Van	Small Bus/Van	Bus	Extended Bus	Modified Bus	Coach	Modified Bus
Operating Speeds	Low					Moderate/High	Moderate
Running Way	On Street						Dedicated Lanes
Frequency	As Needed	As Needed	High			Moderate	High
Facilities	None	None	Bus Stop			Station/ Bus Stop	Enhanced Bus Stop
Fare Collection	On-Board					Off-Board/ Internet	Off-Board

Fixed Guideway

	Light Rail	Automated Guideway	Intercity Passenger Rail	Commuter Rail	Heavy Rail/ Subway
Service Area	Urban	Urban	Regional/National	Metro Area	Metro Area
Vehicle	Railcar				
Operating Speeds	Moderate	Moderate/High	High	High	Moderate
Running Way	Dedicated Railway/ On Street	Dedicated Railway	Shared Railway	Shared Railway	Dedicated Railway
Frequency	High	High	Low	Moderate at peak times	High
Facilities	Station				
Fare Collection	Off-board				

For More Information

Michigan Department of Transportation
Office of Passenger Transportation
425 W. Ottawa Street
P.O. Box 30050
Lansing, MI 48909

517-373-0471



*MDOT: Providing the highest quality integrated
transportation services for economic benefit
and improved quality of life.*
