TRANSIT MODE PRIMER

The Regional Tampa Bay Next is a program to modernize Tampa Bay's transportation infrastructure and prepare for the future. FDOT is committed to a comprehensive approach to transportation planning and development for an integrated, multimodal regional transportation system. The program includes:

- Interstate Modernization
- Transit
- Bicycle/Pedestrian Facilities
- Complete Streets
- Transportation Innovation
- Freight Mobility

Tampa Bay's complex transportation problems require comprehensive, multimodal solutions. With Tampa Bay Next, FDOT's interstate planning is fully integrated with transit planning.

How can Tampa Bay make transit a reality?

Transit is a locally supported service and any major transit improvements would require investment from the local community. When you look at successful transit models across the United States, you see local communities prioritizing funding for transit systems. FDOT continues to be a funding partner for transit services investing millions of dollars annually in the Tampa Bay area.

This primer describes the transit modes being discussed as part of Tampa Bay Next.

We're committed to providing both financial and technical support to our local partners in their pursuit of better transit services. To make a robust and reliable transit system a reality, the Tampa Bay community must work together to reach a consensus on transit improvement projects and develop a viable funding plan to construct, operate and maintain the system. To get better transit services in our community, we must answer one important question: Are we willing to pay for it?

Transit Mode Characteristics

Type of service provided: average distance of trip

Type of station: elevated, platform, shelter, on-street, or park-and-ride

Spacing between stations: average distance between stations

Operating speeds: average operating speeds (miles per hour); affected by the number of stations, weight of the vehicle, incline, and number and degree of turns

Capacity: optimal capacity measured in passengers per hour; assumes bus or train arrives at a station every 10 minutes, except aerial cable transit (3 minutes) and commuter rail (15 minutes)

Corridor width: average width of corridor in feet; does not include space for stations, may be wider at turns, especially commuter rail

Turning radius required: average turning radii; may have a significant impact on right-of-way needed dependent on the transit mode

LOCAL BUS

Local bus service is provided by rubber tire vehicles on local streets. Buses run on deisel, gasoline, battery, or alternative fuel. Service is provided on a repetitive, fixed-schedule along a specific route. Stops are close together to deliver and pick up passengers as close to their destinations or origins as possible, resulting in lower average speeds. Fares are paid on-board and buses typically contain bicycle racks on the fronts of the vehicles.

Type of Service:
Short distance trips

Type of Station:
On-street, shelter, or transit center

Spacing Between Stations:
Generally 1/10 mile to 1/4 mile

Examples:
PSTA in Pinellas County, FL (pictured); HART in Hillsborough County, FL; PCPT in Pasco County, FL

Operating Speeds: 10-45 MPH

Capacity: (passengers/hour) 256-960

Corridor Width: 24 FT

Turning Radius Required: 35-44 FT

EXPRESS BUS

Express Bus is a commonly used in urban areas and typically intended to run faster than local bus service between commuter destination points. Express buses do not make as many stops as local bus service and often take routes that are quicker, such as freeways or dedicated toll lanes. Buses may operate out of park and ride lots and in some cases only run during rush hour in the peak direction.

Type of Service:
Medium and long distance trips

Type of Station:
On-street, shelter, or park and ride

Spacing Between Stations:
Varies, generally more than 5 miles

Examples:
Tampa to Orlando Megabus (pictured); Tampa, FL; St. Petersburg, FL; Orlando, FL

Operating Speeds: 10-65 MPH

Capacity: (passengers/hour) 320-880

Corridor Width: 24-28 FT

Turning Radius Required: 44 FT

Average speed information based on project examples and provided by the American Public Transit Association; Vehicle seated capacity based on manufacturer specifications, references available upon request; Corridor width and turning radii based on project examples as provided by the Federal Transit Administration and manufacturer specifications, references available upon request.

BUS RAPID TRANSIT

Bus Rapid Transit has specialized design, branding, services, and infrastructure that improve quality of service and reduce delay. Vehicles may be given priority at intersections. Off-board ticketing, low floor vehicles, and multiple doors allow for faster boarding. This service aims to combine the capacity and speed of rail with the flexibility, lower cost, and simplicity of a bus.

Type of Service:
Short and medium distance trips

Type of Station:
On-street, shelter, or platform

Spacing Between Stations:
1/4 mile to 3 miles

Examples:
Los Angeles, CA (pictured); Las Vegas, NV; Charlotte, NC

Operating Speeds: 10-45 MPH

Capacity: (passengers/hour) 320-880

Corridor Width: 24-28 FT

Turning Radius Required: 44-75 FT

BUS RAPID TRANSIT IN DEDICATED LANE

Bus Rapid Transit in a dedicated lane has the same characteristics as Bus Rapid Transit, but vehicles run in their own lane dedicated to buses. This allows the vehicles to bypass congestion and makes the service more reliable and the travel time to destinations more competitive compared to personal vehicles.

Type of Service:
Short and medium distance trips

Type of Station:
On-street, shelter, or platform

Spacing Between Stations:
1/4 mile to 3 miles

Examples:
Eugene, OR (pictured); Los Angeles, CA; Cleveland, OH; Boston, MA; Orlando, FL

Operating Speeds: 10-65 MPH

Capacity: (passengers/hour) 480-1,440

Corridor Width: 24-28 FT

Turning Radius Required: 44-75 FT

Average speed information based on project examples and provided by the American Public Transit Association; Vehicle seated capacity based on manufacturer specifications, references available upon request; Corridor width and turning radii based on project examples as provided by the Federal Transit Administration and manufacturer specifications, references available upon request.

Photo Credit: Creative Solutions

AUTONOMOUS RUBBER TIRE

Photo Credit: Creative Solutions

Autonomous solutions are fully automated forms of transit with rubber-tire vehicles operating along a guideway. The most common application in the U.S. is at airports, such as Tampa International. These systems span a variety of designs, from subway-like advanced rapid transit (ART) systems to smaller car-like vehicles known as group rapid transit (GRT) with vehicles sized for around 20 passengers.

Type of Service Provided:
Short and medium distance trips

Type of Station:
Platform or elevated platform

Spacing Between Stations:
Varies, generally less then 1 mile

Examples:
Heathrow Airport, London (pictured); Metromover, Miami, FL; Tampa International Airport, Tampa, FL

Operating Speeds: 10-30 MPH

Capacity: (passengers/hour) 160-2,000+

Corridor Width: 30-40 FT

Turning Radius Required: **35-75 FT**

HERITAGE STREETCAR

Heritage Streetcar uses steel-tracked fixed guideways and electric-powered vehicles electrified by an overhead wire. Vehicles are typically restored from or replicas of early 1900s vehicles. Service is often characterized as an urban circulator and consists of a single car or double car train operating on a city street. The track can run in its own lane or in a lane with vehicles.

Type of Service:
Short distance trips

Type of Station:
On-street, shelter, or raised platform

Spacing Between Stations:
Generally 1/4 mile to 1 mile

Examples:
Tampa, FL (pictured); New Orleans, LA; San Francisco, CA; Philadelphia, PA

Operating Speeds: 10-15 MPH

Capacity: (passengers/hour) 250-2,000+

Corridor Width: 24-40 FT

Turning Radius Required: **40-50 FT**

Average speed information based on project examples and provided by the American Public Transit Association; Vehicle seated capacity based on manufacturer specifications, references available upon request; Corridor width and turning radii based on project examples as provided by the Federal Transit Administration and manufacturer specifications, references available upon request.

MODERN STREETCAR

Modern Streetcar uses steel-tracked fixed guideways and electric-powered trains often electrified by an overhead wire. Modern streetcar typically operates in a lane with vehicles to fit easily into urban settings. Off-board ticketing, low floor vehicles, and multiple doors allow for faster boarding. Service operates as a single train and stations are spaced close together, typically every 1/4 mile.

Type of Service Provided:
Short and medium distance trips

Type of Station:
Platform

Spacing Between Stations:
Approximately 1 mile

Examples:
Portland, OR (pictured); Dallas, TX; Atlanta, GA; Salt Lake City, UT

Operating Speeds: 30-65 MPH

Capacity: (passengers/hour) 800-4,800

Corridor Width: 24-40 FT

Turning Radius Required: 40-80 FT

LIGHT RAIL

Light Rail uses steel-tracked fixed guideways and electric-powered trains often electrified by an overhead wire. Vehicles operate in their own lane and can operate as a single train or as multiple vehicles coupled together. Off-board ticketing, low floor vehicles, and multiple doors allow for faster boarding. The term "light rail" was coined to convey the vehicle's design, "..for light loads and fast movement."

Type of Service Provided:
Short, medium, and long distance trips

Type of Station:
Platform

Spacing Between Stations:
Approximately 1 mile

Examples:
Phoenix, AZ (pictured); Denver, CO; San Diego, CA; St. Louis, MO; Seattle, WA

Operating Speeds: 20-60 MPH

Capacity: (passengers/hour) 400-7,200

Corridor Width: 40 FT

Turning Radius Required: 50-100 FT

Average speed information based on project examples and provided by the American Public Transit Association; Vehicle seated capacity based on manufacturer specifications, references available upon request; Corridor width and turning radii based on project examples as provided by the Federal Transit Administration and manufacturer specifications, references available upon request.

HEAVY RAIL

Heavy Rail is powered by electricity that runs through a rail below the vehicle. The electric rail requires it to operate exclusive from other vehicles to protect riders from the electrical current. Heavy rail operates in 2 to 12 car trains and has a larger carrying capacity than light rail and modern streetcar. Off-board ticketing, low floor vehicles, and multiple doors allow for faster boarding.

Type of Service:
Short and medium distance trips

Type of Station:
Platform or elevated platform

Spacing Between Stations:
Varies, generally 1 to 5 miles

Examples:
Miami, FL (pictured); Atlanta, GA; Chicago, IL; Baltimore, MD

Operating Speeds: 50-80 MPH

Capacity: (passengers/hour) 1,000-6,000+

Corridor Width: 40-100 FT

Turning Radius Required: 330 FT

ELEVATED RAIL

Elevated Rail is powered by electricity that runs through a rail below or above the vehicle. The electric rail requires it to operate exclusive from other vehicles and elevated above the street on a viaduct or other structure to protect riders from the electrical current. The technology has a larger carrying capacity than light rail and modern streetcar. Off-board ticketing, low floor vehicles, and multiple doors allow for faster boarding.

Type of Service Provided:
Short and medium distance trips

Type of Station:
Elevated Platform

Spacing Between Stations:
Varies, generally 1/4 to 1 mile

Examples:
Las Vegas, NV (pictured); Seattle, WA; Chicago, IL; Miami, FL; Vancouver, Canada

Operating Speeds: 40-70 MPH

Capacity: (passengers/hour) 800-6,000+

Corridor Width: 40-100 FT

Turning Radius Required: 200-330 FT

Average speed information based on project examples and provided by the American Public Transit Association; Vehicle seated capacity based on manufacturer specifications, references available upon request; Corridor width and turning radii based on project examples as provided by the Federal Transit Administration and manufacturer specifications, references available upon request.

COMMUTER RAIL

Commuter Rail consists of a traditional locomotive pulling several passenger rail cars. Commuter rail is a regional service that primarily operates between a city center, the suburbs, and commuter towns or other locations that draw large numbers of commuters. The Federal Rail Administration allows the operation of commuter rail vehicles on active freight lines with appropriate safety measures in place.

Type of Service Provided:
Medium and long distance trips

Type of Station:
Platform

Spacing Between Stations:
2 miles to 5 miles or more

Examples:
SunRail, Orlando, FL (pictured); Denver, CO; Long Island, NY; Chicago, IL

Operating Speeds: 30-60 MPH

Capacity: (passengers/hour) 600-4,500+

Corridor Width: 40-100 FT

Turning Radius Required: 140-460 FT

HIGH SPEED RAIL

High Speed Rail operates significantly faster than traditional rail transit. It is designed to travel long distances at high speeds to connect major urban centers and therefore has few stations and specialized tracks dedicated to the service.

Type of Service:
Very long distance trips

Type of Station:
Platform

Spacing Between Stations:
Intercity (one station per major urban area)

Examples:
Germany Intercity Express (pictured); California (planned)

Operating Speeds: 90-150 MPH

Capacity: (passengers/hour) 600-2,400+

Corridor Width: 100 FT

Turning Radius Required: 1-2 MILES

Average speed information based on project examples and provided by the American Public Transit Association; Vehicle seated capacity based on manufacturer specifications, references available upon request; Corridor width and turning radii based on project examples as provided by the Federal Transit Administration and manufacturer specifications, references available upon request.

WATER FERRY

Photo Credit: ABC Action News

Water Ferry is used to shuttle passengers between destinations separated by large water bodies. Vessels vary in size from small water taxis to large high speed ferries and carry passengers and/or automobiles and cargo. Service typically consists of only point-to-point trips with no stops in between. This form of transit is affected by weather and sea conditions and may not be able to operate during fog, high winds, or choppy conditions.

Type of Service:
Medium and long distance trips

Type of Station:
Dock or slip

Spacing Between Stations:
Varies greatly, generally more than 1 mile

Examples:
Tampa/St. Petersburg, FL (pictured); Boston, MA; New York, NY; Newport, RI

Operating Speeds: 10-45 MPH

Capacity: (passengers/hour) 320-1,200

Corridor Width: 30 FT

Turning Radius Required: NOT APPLICABLE

AERIAL CABLE TRANSIT


Photo Credit: Terri Oda

Aerial Cable Transit consists of passenger cabins suspended on cables. The fixed cables provide support for the cabins while an electric motor moves the cable. This form of transit is not a continuous corridor but instead is limited to the footprint of the cable support poles and station areas. Alignments are linear or straight with direction changes occurring at stations and/or special angle mechanisms.

Type of Service Provided:
Local trips

Type of Station:
Elevated platform

Spacing Between Stations:
Generally 1/2 mile to 1 mile

Examples:
Portland, OR (pictured); New York, NY; Telluride, CO; La Paz, Bolivia; Medellin, Columbia

Operating Speeds: 10-45 MPH

Capacity: (passengers/hour) 320-1,200

Corridor Width: 30 FT

Turning Radius Required: 0 FT

Average speed information based on project examples and provided by the American Public Transit Association; Vehicle seated capacity based on manufacturer specifications, references available upon request; Corridor width and turning radii based on project examples as provided by the Federal Transit Administration and manufacturer specifications, references available upon request.