2014 Report Year

NTD

National Transit Database

National Transit Summary & Trends

Office of Budget and Policy

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Federal Transit Administration
U.S. Department of Transportation

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Introduction

General Information

Welcome to the National Transit Summaries and Trends (NTST), one of the Federal Transit Administration's (FTA) National Transit Database (NTD) Annual Data Products. The goal of the NTST is to present and summarize transit data in an easy-to-read format and to provide an overview of public transit in the United States. This 2014 NTST discusses data from 2004 to 2014. With the exception of the Rural Transit storyline and where explicitly noted, all data included in the NTST are from urban transit providers, whose data may also include service operated in rural areas.

What is the National Transit Database (NTD)?

The National Transit Database (NTD) is the primary source for collecting information and statistics on transit systems in the United States. Congress requires the NTD to collect financial and service information annually from public transportation agencies that benefit from FTA grants. The NTD also requires larger urban transit providers (Full Reporters) to submit monthly operating and safety data. Each year, the FTA uses NTD data to apportion over $8 billion to urbanized areas (UZAs) and States under funding programs such as §5307 (Urbanized Area Formula grants), §5311 (Formula Grants for Rural Areas), §5329 (Transit Safety & Oversight grants), and §5337 (State of Good Repair grants).

Who reports data to the NTD?

§5307 Program Recipients

Recipients or beneficiaries of the FTA's Urbanized Area Formula Program (§5307) must file annual reports, monthly ridership, and safety and security reports with the NTD. These reporters are also called **Urban Reporters**. Beginning in FY 2011, transit agencies with 30 or fewer vehicles became eligible for reduced reporting requirements, including reporting exemptions for passenger miles, mode-specific capital and operations costs, employee counts, maintenance performance, energy consumption, monthly ridership, and safety data.

§5311 Program Recipients

Recipients or beneficiaries of the FTA's Other Than Urbanized Area Formula Program (§5311) must file annual reports to the rural module of the NTD, also called **Rural Reporters**. States and Indian Tribes report directly to the NTD. States file reports on behalf of their sub-recipient rural transit agencies, who do not report directly to the NTD.

Voluntary NTD Reporters

The FTA accepts voluntary NTD reports from other transit systems, both public and private, that serve both urbanized and non-urbanized areas. Voluntary reporters must provide public transportation services and meet all of the same reporting obligations as mandatory reporters.

Some agencies that do not operate transit service report to the NTD. Build Reporters are agencies that benefit from federal funding and are in the process of building transit infrastructure, but do not yet operate service. Planning Reporters do not intend to operate transit service, but instead receive federal funding and distribute the funds among transit operators in their area.

Because of the difference in reporting requirements for agencies that report as Small Systems, certain exhibits within this document exclude their data for the entire ten-year period. In these cases, exhibits are labeled with a footnote. Unless otherwise noted, all exhibits in the NTST include data from all urban reporters.

What are the modes of transit?

Public transit includes buses, trains, ferryboats, paratransit, and much more. Certain transportation services are specifically excluded, such as intercity bus service, intercity rail service, intra-facility transport (airport people movers), and sightseeing rides.

Different types of vehicles, technologies, and operational characteristics distinguish the 'modes' of transit. The following are public transit modes uniquely identified by the FTA:

- Aerial Tramway (TR) is an electric system of aerial cables powered by centralized motors with suspended powerless passenger vehicles.
- Alaska Railroad (AR) is a public transportation system that shares vehicles and facilities with freight rail operations.
- Bus (MB) includes a variety of rubber-tired passenger vehicles operating on fixed routes and schedules over roadways.
- Bus Rapid Transit (RB) is a fixed-route bus mode that operates frequent service (short headways), has at least 50 percent of its route on exclusive guideway, and includes features that emulate rail transit modes.
- Cable Car (CC) is a street-running railway with individually controlled rail cars propelled by underground cables powered by centralized motors not on board the cars.

- Commuter Bus (CB) is a fixed-route bus mode that primarily connects outlying areas with a central city through bus service that goes at least five miles of closed-door service.
- Commuter Rail (CR) is an electric or diesel propelled railway for urban passenger travel on the general railroad system between a central city and adjacent suburbs.
- Demand Response (DR) includes automobiles, vans, or small buses dispatched by request to pick up passengers and transport them to their destinations.
- Demand Response-Taxi (DT) is a Demand Response function operated through contracted taxicab providers.
- Ferryboat (FB) is a seafaring mode carrying passengers over a body of water using steam or diesel-powered boats.
- Heavy Rail (HR) is an electric railway that operates on exclusive track, with the ability to carry a heavy volume of passengers, and is typically powered by an electrified third rail.
- Hybrid Rail (YR) systems primarily operate light rail-type diesel multiple unit vehicles on the national system of railroads.
- Inclined Plane (IP) is a railway on steep slopes with powerless vehicles propelled by centrally powered moving cables.
- Jitney (JT) includes passenger cars or vans on fixed routes (sometimes with minor deviations according to passenger demand) without fixed schedules or fixed stops.
- Light Rail (LR) is an electric railway that intersects vehicular traffic at grade crossings, and is typically powered by overhead wires.
- Monorail/Automated Guideway (MG) is a group of rail services that operate over exclusive guideway and include monorails and driverless people movers.
- Público (PB) includes passenger vans or small buses operating with fixed routes but no fixed schedules.
- Streetcar Rail (SR) is a rail transit system powered by overhead catenaries, and operating mostly on streets in mixed traffic.
- Trolleybus (TB) is an electric rubber-tire bus system powered by overhead catenaries, and operating on streets in mixed traffic.

- Vanpool (VP) includes vans, small buses, and other vehicles operating as a ride sharing arrangement, transporting at least seven people directly between their home area and a regular destination.

What is an Urbanized Area (UZA)?

The U.S. Census Bureau defines urbanized areas (UZAs) based on incorporated places (e.g., cities, towns, villages) and their adjacent areas. The U.S. Census Bureau considers a densely populated area of 50,000 people or more to be a UZA. There are 498 UZAs according to the 2010 U.S. Census, and while UZAs make up 2.5 percent of United States land area, the populations of UZAs make up 71.5 percent of United States population.

The FTA bases UZA designations on the most current Census. Current FTA reporting is based on designations from the 2010 Census. The NTD reporting system uses a unique number for each UZA that represents its numerical ranking by population. For the purpose of transit grants, the FTA also designates the Virgin Islands and certain areas in Puerto Rico as urbanized areas.

In the NTD, transit providers indicate the primary UZA of service operations as their "primary UZA" along with any secondary UZAs they serve. For analysis purposes, the NTST groups UZAs into the following categories:

- UZAs Over 1 million: population of more than 1 million (42 urbanized areas, 338 agencies, or 32.6 percent of all agencies reporting).
- UZAs Under 1 million: population of more than 50,000 and less than 1 million (456 urbanized areas, 700 agencies, or 67.4 percent of all agencies reporting).

What is a Rural Area?

Rural areas are all areas not included in a UZA. The FTA includes Urban Clusters (2,500 – 50,000 population) in rural areas, while the U.S. Census Bureau considers Urban Clusters a part of urban areas. For this reason, the FTA provides "Other Than Urbanized Area Formula Program" funds to reporters to the rural module of the NTD. In comparison to UZAs, rural areas tend to have large distances between transit destinations and smaller populations.

What data does the NTD collect?

Transit operators report information regarding service provided, service consumed, and service resources, including financial data. Service provided includes information such as Vehicle Revenue Hours (VRH) and Vehicle Revenue Miles (VRM). Service consumed is described in terms of Unlinked Passenger Trips (UPT), the total count of individual vehicle

boardings, and Passenger Miles Traveled (PMT), the total number of miles traveled by passengers. The NTD collects financial data such as Operating Expenses (OE) for each mode operated, and the sources of funds used to support transit service. The NTD also collects resource data related to transit staffing levels and asset data for fleets and facilities.

What is Safety and Security reporting?

NTD safety and security (S&S) reporting requires all reporters to provide the number of safety and security events that involve the transit system's property, along with the number of fatalities and injuries that result from those safety and security events. While the exact reporting timelines and level of detail differ slightly based on agencies' NTD reporting type, a safety or security event is one that meets any of the following criteria:

- A fatality resulting from the event occurs within 30 days;
- Injuries to one or more persons resulting from the event that require immediate transport for medical attention;
- The estimated property damage from the event is at least $25,000;
- Collisions involving transit vehicles that require towing away from the scene;
- An evacuation that is made due to potentially life threatening conditions or to the rail right-of-way;
- Derailments including both mainline and yard derailments as well as non-revenue vehicle derailments;
- Rail transit vehicle collisions at rail grade crossing;
- Rail Transit vehicle collision with an individual on the right of way; and
- Collision between and rail transit vehicle and a second rail transit vehicle or rail transit non-revenue vehicle.

Generally, the NTD requires Full Reporters to provide summary data for all events on a monthly basis. However, these agencies report additional details for more serious safety events. In contrast, §5311 reporters and urban Small Systems provide annual summary totals of safety and security events, fatalities, and injuries.

Rounding and Inflation

Rounding may lead to minor variations in total values from one exhibit to another within this analysis, or may lead to instances where percentages may not add to 100. Due to rounding, percent changes may not exactly match the values calculated using the formatted figures shown in the exhibits.

The NTD has adjusted all exhibits involving dollar amounts to 2014 constant-dollar values, or dollar amounts adjusted in terms of constant purchasing power. In previous versions of the NTST, the NTD obtained correction factors for current year constant dollars from the White House Office of Management and Budget. In order to represent public transit's economic trends, the NTD acquired correction factors for the 2014 version from the National Highway Construction Cost Index (NHCCI). For more information regarding correction factors, please visit this link:

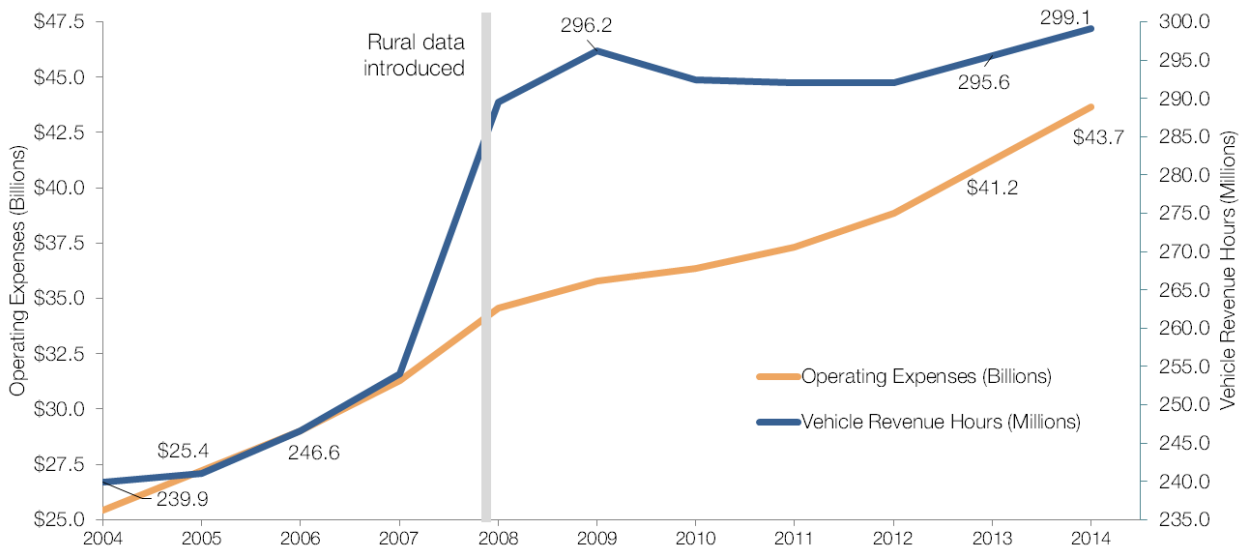
http://www.fhwa.dot.gov/policyinformation/nhcci.cfm

Web Information

For information about National Transit Database publications and training, visit the FTA website at www.fta.dot.gov or visit the National Transit Database website at www.ntdprogram.gov.

Transit Trends in Service Operated, Service Consumed, and Costs

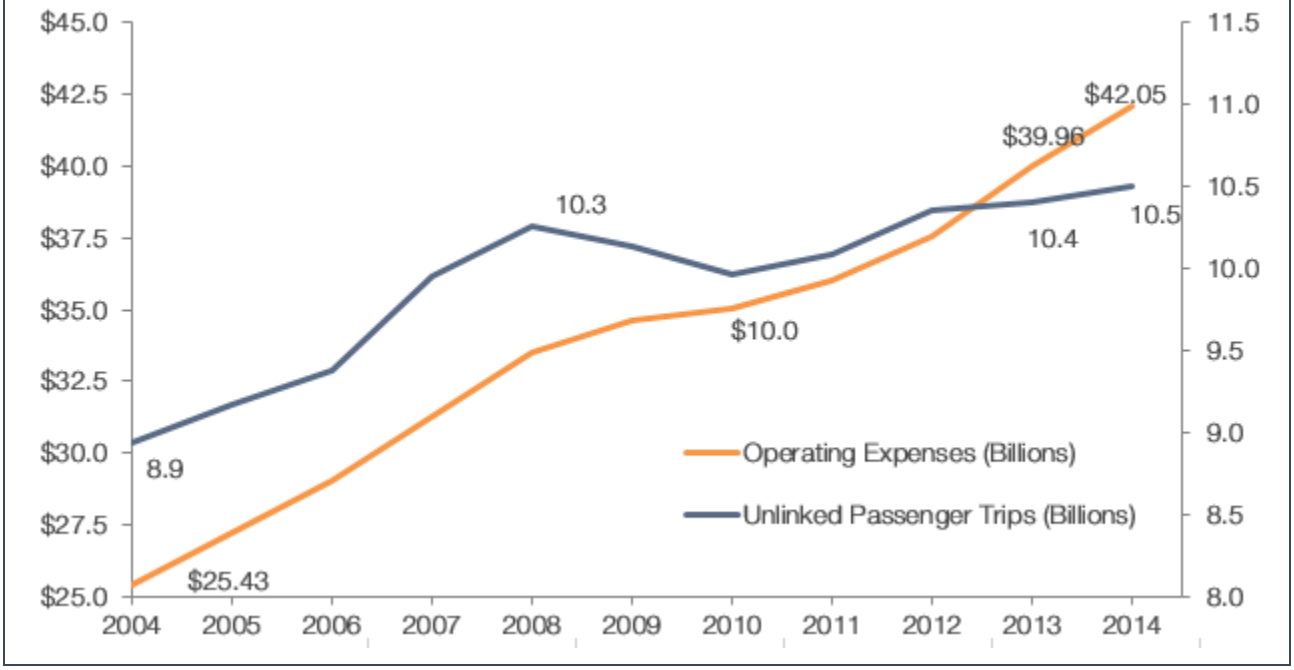
Exhibit 1 — Operating Expenses and Vehicle Revenue Hours: Time Series



Since 2004, use of public transit has increased. We see this increase in terms of service operated, service consumed, and service costs. In 2007, FTA introduced rural service data into the NTD, increasing total transit service data collected. Approximately 9.1% of total VRH was attributed to rural service in 2014.

Since the introduction of rural data, unlinked passenger trips have increased 7 percent (9.9 billion to 10.6 billion), vehicle revenue hours increased 17.8 percent (254 million hours to 299.1 million hours), and operating expenses increased 39.6 percent ($31.3 billion to $43.7 billion).

Exhibit 2 — Urban Operating Expenses and Unlinked Passenger Trips: Time Series



Following the US recession from 2007-2009, public transit passenger trips dropped 2.7 percent from 2008 to 2010 (10.4 billion trips to 10.1 billion trips). In response to reduced trip demand, transit operating expenses plateaued briefly, while transit service hours dropped 1.4 percent from 296.2 million revenue hours in 2009 to 292 million revenue hours in 2011.

Report Year 2014 Service and Cost Ratios

Service is provided, consumed, and financed differently for every transit mode. Service factors and expenses depend on the limitations and opportunities of different vehicles, and the operating environment of different areas. For example, the average operating cost per vehicle revenue hour is highest for ferries (FB, $1,588.95). However, the mode provides an average of 180 trips per hour on large boats, thus the final cost per boarding (UPT) is relatively low ($8.83).

Exhibit 3 — 2014 Cost Per Vehicle Revenue Hour

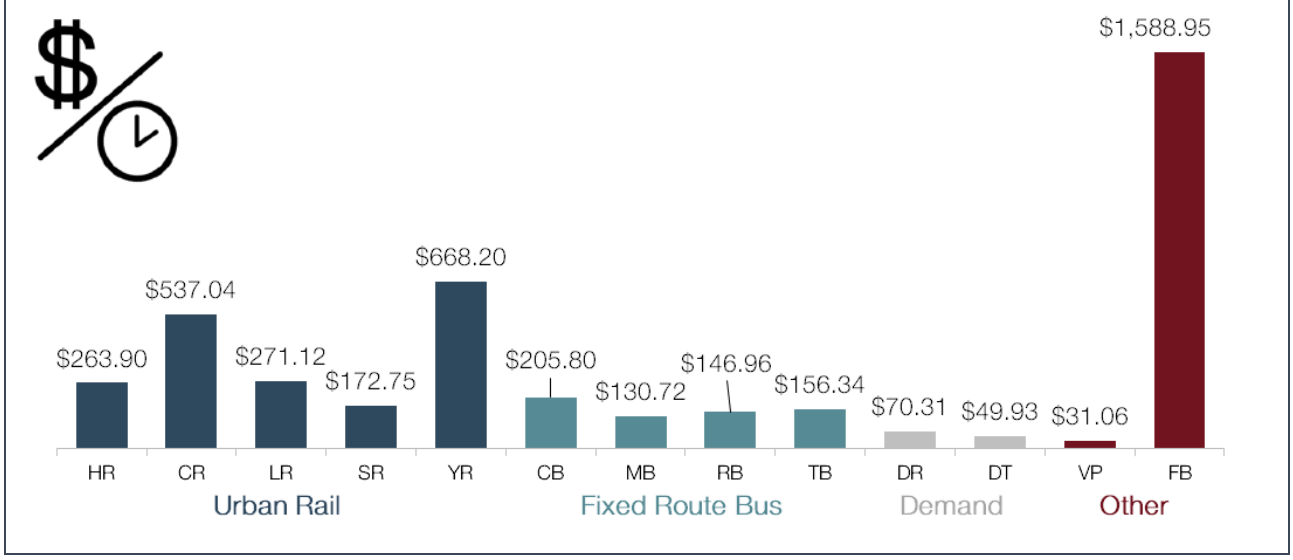
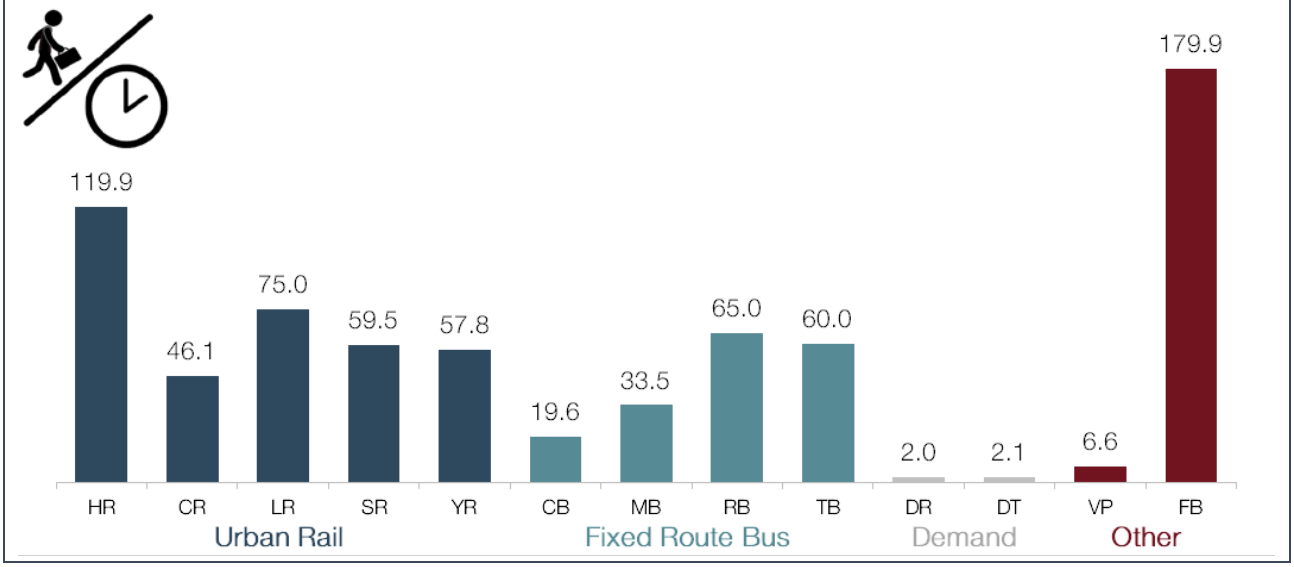
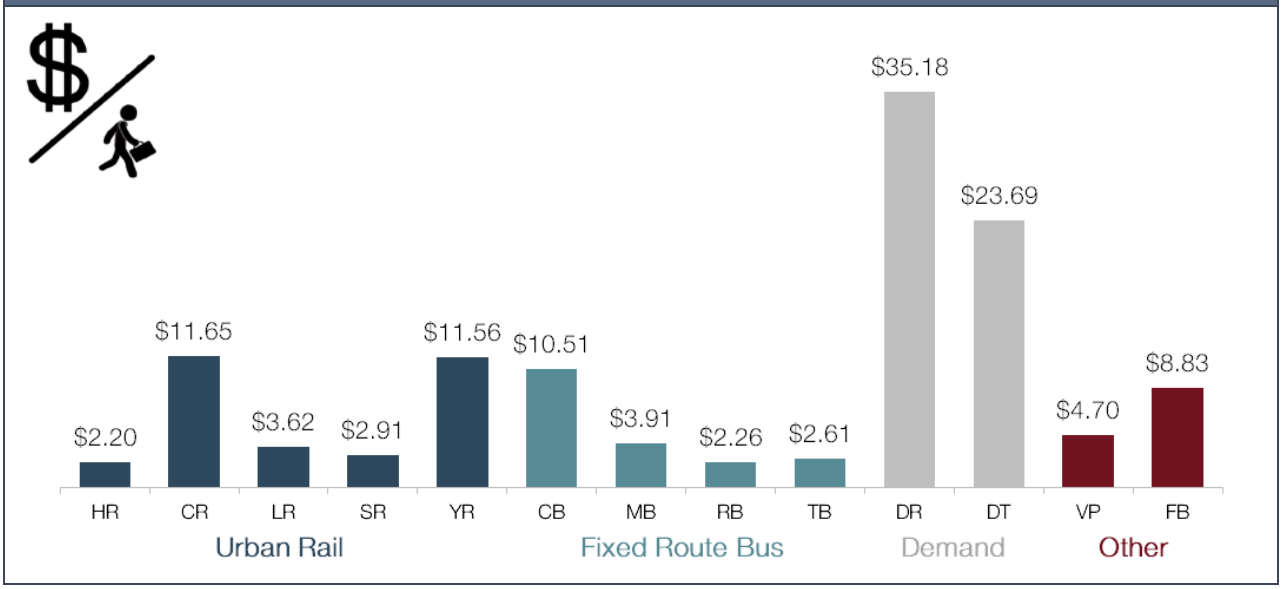


Exhibit 4 — 2014 Unlinked Passenger Trip per Vehicle Revenue Hour



Demand modes (demand response (DR) and demand response taxi (DT)) are very inexpensive per vehicle hour. However, these modes frequently provide single-passenger trips for individuals meeting the requirements of the Americans with Disabilities Act (ADA). Due to the fewer trips per hour, the ultimate cost per unlinked trip on these modes is higher than other transit modes.

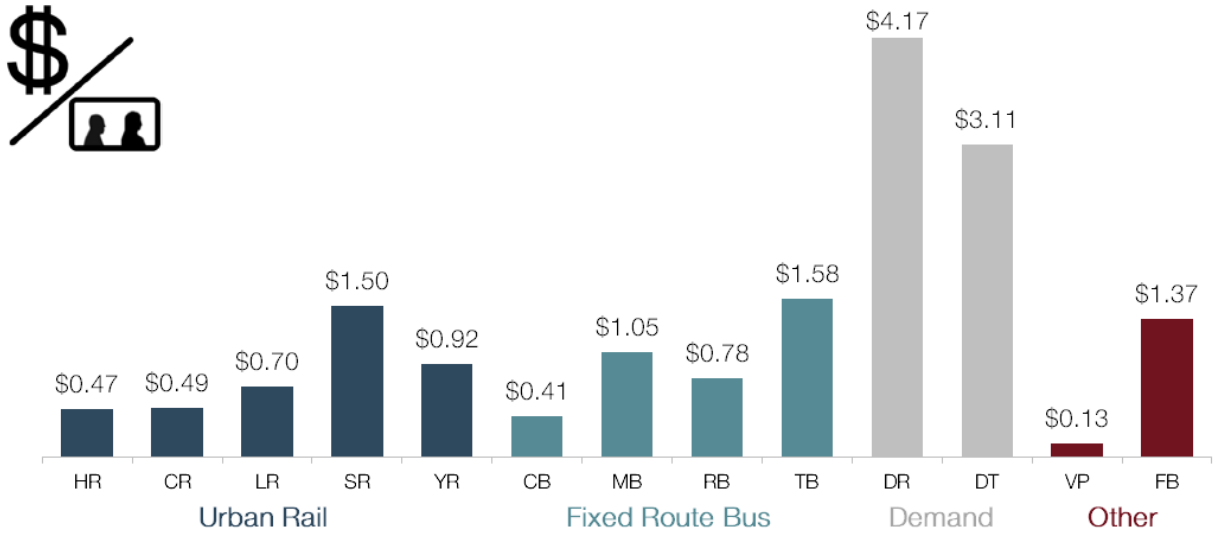
Exhibit 5 — 2014 Cost per Unlinked Passenger Trip



Urban rail modes split further into transit rail (heavy rail (HR), light rail (LR), and streetcar (SR)) and commuter rail (commuter rail (CR) and hybrid rail (YR)). Typically, transit rail passengers use these services for shorter trips, while commuter rail services carry passengers for longer trips on the FRA-regulated general railroad system. Transit rail has among the highest number of trips per hour among all modal categories. Therefore, even though cost per hour is higher than fixed route services, the ultimate operating cost per trip is comparable.

Unlinked Passenger Trips are only a part of service consumed; the goal of transit service is to transport passengers from one place to another, and a measure of that distance is Passenger Miles Traveled (PMT). With this more complete picture of service consumed, the operating cost per passenger unit is slightly different. Vanpool (VP) service, for example, may carry fewer people, but it carries them a consistently longer distance per trip. The opposite is true of trolleybuses (TB) and streetcars (SR), which carry many people in dense urban settings, but not very far.

Exhibit 6 — 2014 Cost per Passenger Mile



Transit Service Providers: Organization Type

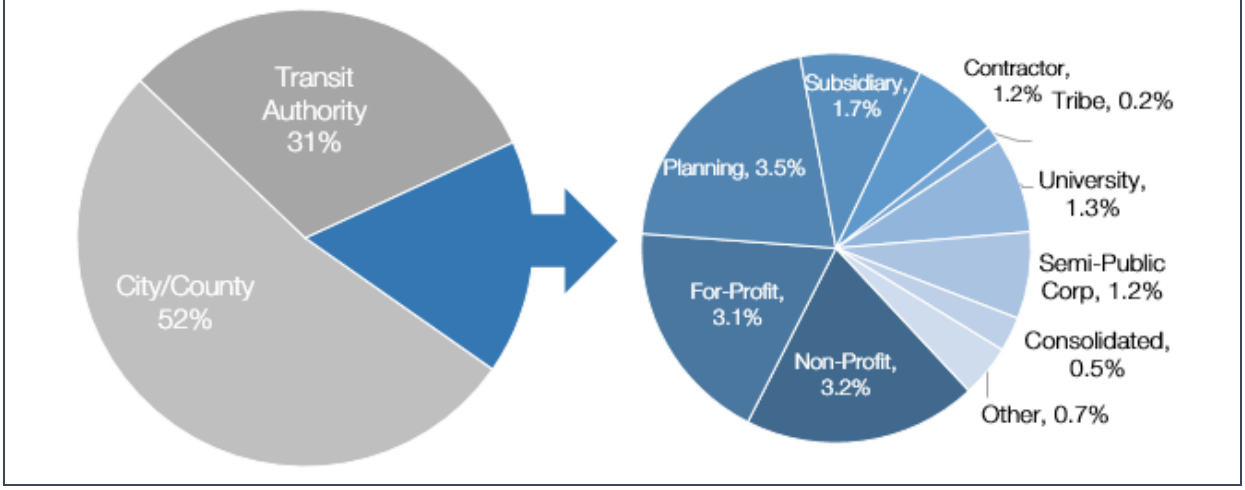
Transit providers indicate their organization type on the NTD Annual Report. The totals in Exhibit 7 do not include systems such as the Roosevelt Island Tramway in New York City and other systems that do not benefit from FTA funds and do not report to the NTD. Some NTD reporters, called Consolidated Reporters, submit a single report on behalf of multiple agencies. Exhibits 7 and 8 include individually re-classified constituent transit operators of Consolidated Reporters. NTD requires other large transit providers to separate into multiple reporters of differing services, which are re-incorporated here to represent a single transit provider.

Exhibit 7 — Transit Providers by Type

Organization Type	Count
City/County	**458**
Transit Authority	**257**
Other Types	**131**
Non-Profit	27
For-Profit	40
State Gov	20
University	10
Semi-Public Corp	16
Contractor	10
Other	6
Tribe	2
Total Transit Providers	**846**

City and county organizations are departments of local government, while Transit Authorities are independent public agencies led by boards focused on providing public transit. These two types of local government subsidiaries make up 84 percent of all public transit. The remaining portion of public transit is operated by private For-Profit companies, Non-Profit companies, contractors, and semi-public corporations (9.8 percent); state governments and departments of transportation (1.3 percent); Universities (1.3 percent); Native American Tribes (0.2 percent); and other transit operators who did not complete a report to the NTD due to a reporting waiver or a failure to report (0.9 percent).

Exhibit 8 — 2014 Transit Provider Organization Types

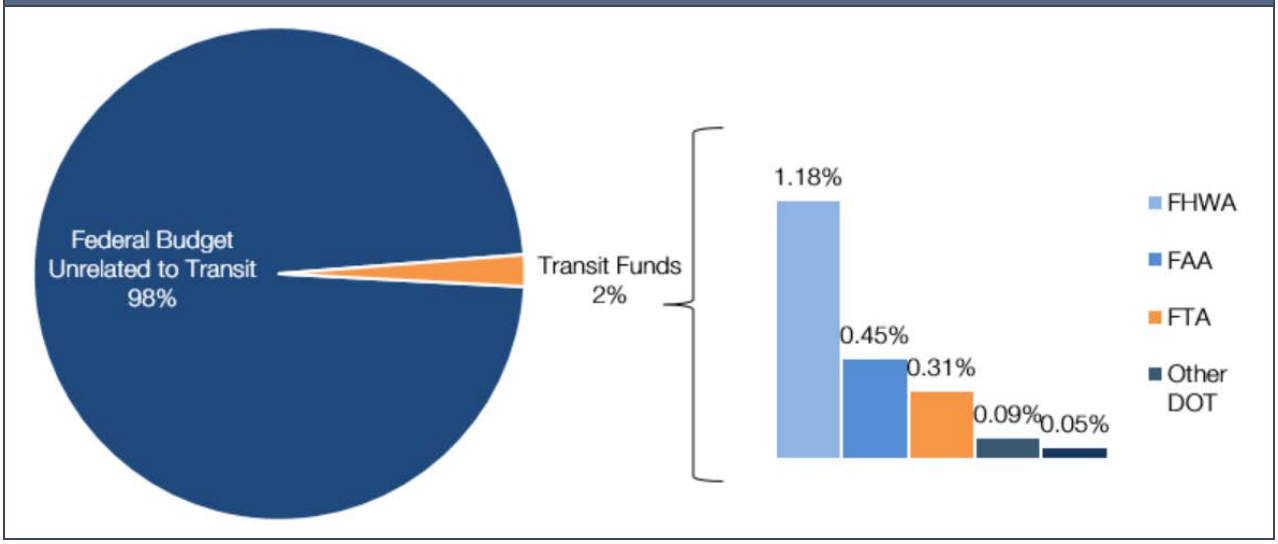


Federal Funding

The Federal Transit Administration's Annual Budget

The FTA budget is a small portion of the U.S. federal government's total annual budget. During 2014, Congress appropriated two percent ($72.8 billion) of the total federal budget ($3.5 trillion) for transportation needs for the entire country. Nearly $11 billion goes to the FTA, or one-third of one percent (0.3%) of the total federal budget.

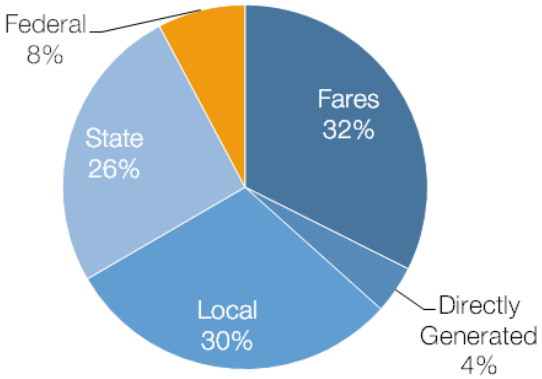
Exhibit 9 — 2014 Transportation as a Percentage of the Total Federal Budget



Operating Expense Funding Sources

On average, passenger fares fund one-third of public transit operations in the United States, with another 4 percent generated directly by the transit operator. Local and State sources each fund about one quarter of all operations; federal government sources fund the remaining eight percent.

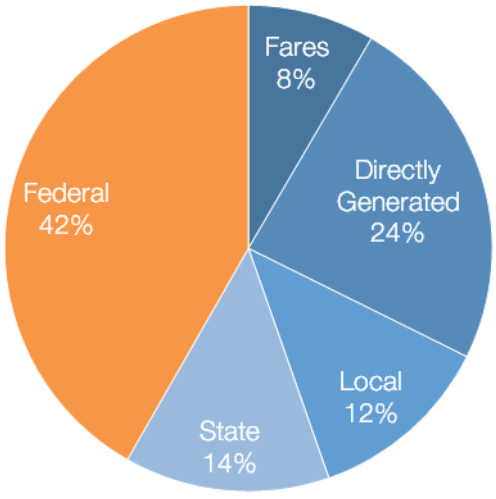
Exhibit 10 — 2014 Funding Sources for Transit Operations



Capital Expenditure Funding Sources

Transit operators spend resources not only on operations, but also on constructing, acquiring, and improving the systems and equipment used to operate transit service. These improvements are called Capital Expenses.

Exhibit 11 — 2014 Funding Sources for Capital Expenses



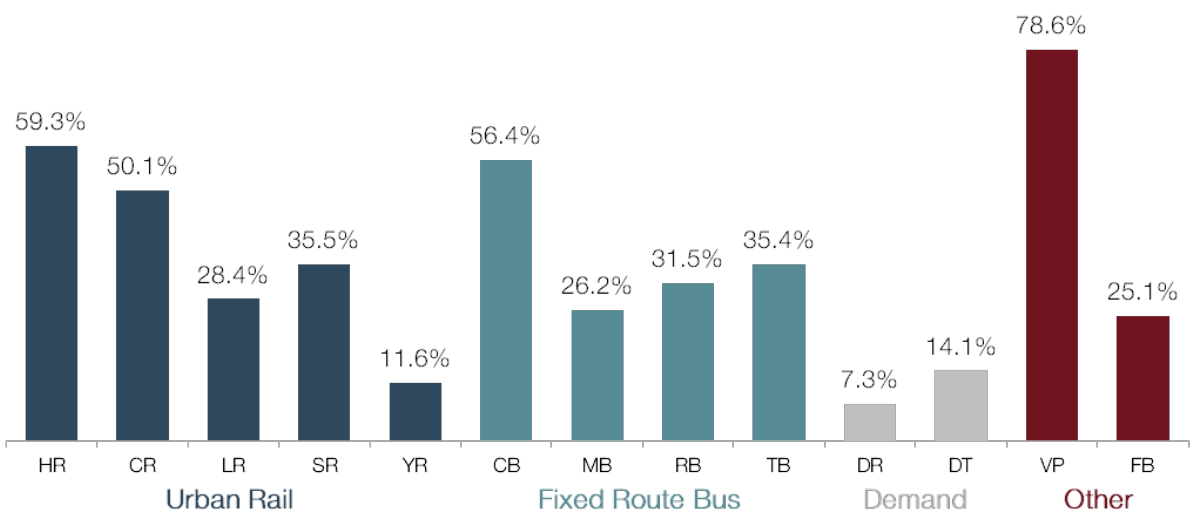
The funding support for capital expenses differs from operational expenditures. In 2014, 42 percent of all capital funds came from federal sources. Recently, transit agencies and local and state governments have increased their funding to replace and rehabilitate aging infrastructure. Fares and directly generated funds from transit agencies now account for one quarter of all capital purchases. Local and state governments make up the remaining third of capital funding.

Fare Box Recovery

Average Fare per Operating Expense (Fare Box Recovery Ratio)

Transit agencies do not establish passenger fares simply based on the cost of each trip. For each dollar spent in operating costs per trip across all modes and all transit systems, 36 cents are recovered through fares. The fare box recovery ratio is the percent of a trip's operating costs recovered through passenger fares. This ratio varies by mode and each transit operator. It is typical to see low recovery ratios on demand response services (DR and DT) that often serve the needs of customers who cannot use conventional modes of transportation and frequently have no alternative means of transportation. Vanpool transit operates by scheduling passengers ahead of time, one of the passengers drives the van, and the passengers travel together to and from the destination. This amount of scheduling ahead, unpaid drivers, and simplicity of technology results in a high fare box recovery ratio (78.6% in 2014).

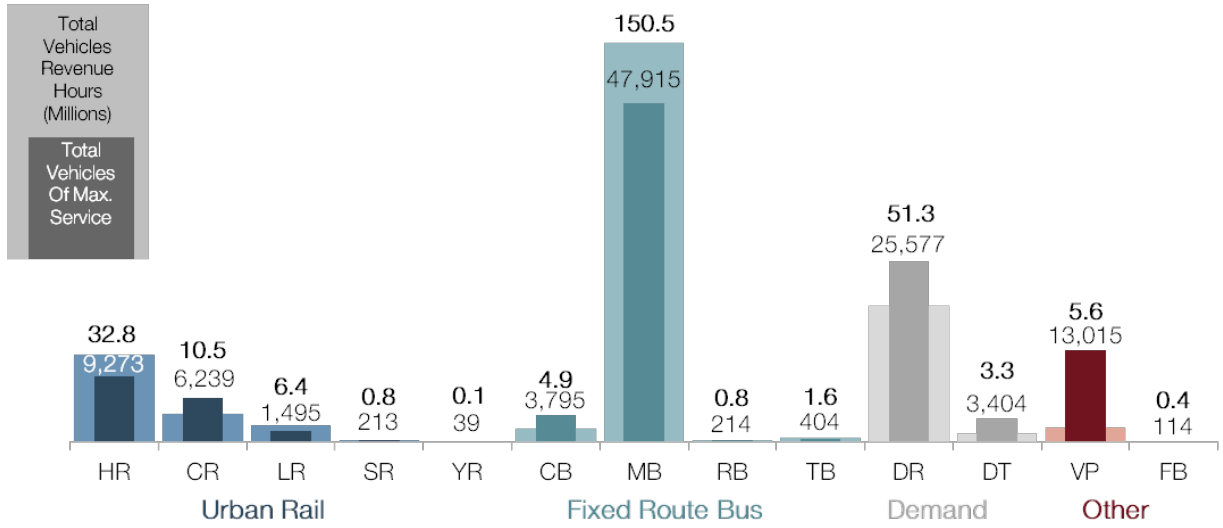
Exhibit 12 — 2014 Fares as a proportion of Operating Costs



Modal Differences

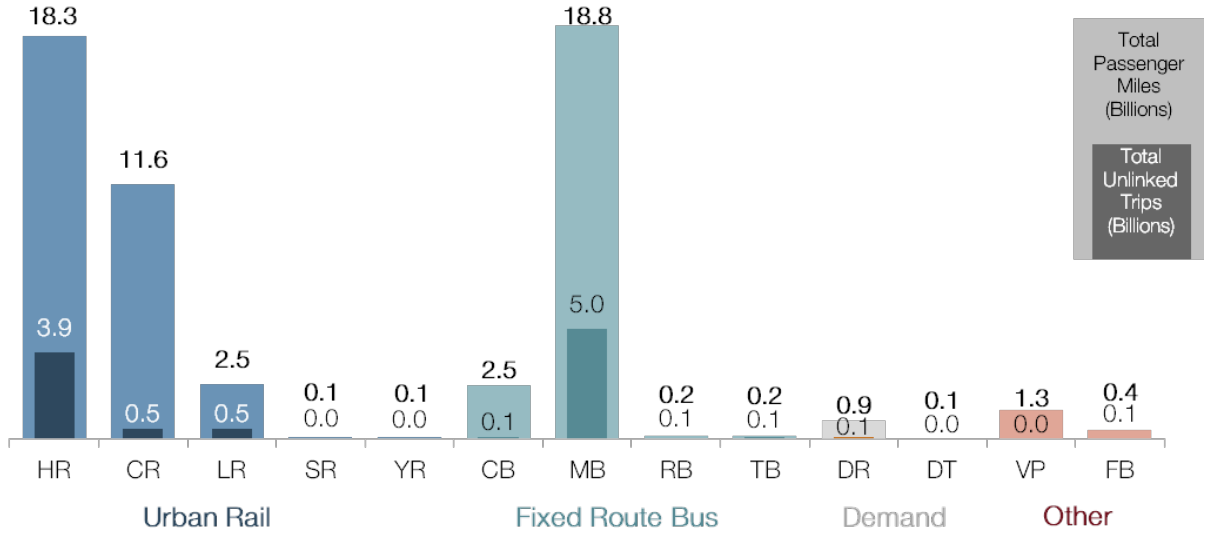
Service Size

Exhibit 13 — 2014 Service Provided Size



FTA divides transit service into many different modes, as noted previously. Modal differences are clearly visible in graphs that compare and analyze transit service. For example, Exhibit 13 above demonstrates that fixed route bus (MB) systems are the most common form of public transit in the United States. With over 48 million vehicles operated in peak service (VOMS) operating nearly 152 billion revenue hours (VRH) of service, MB is typically the most cost effective method of providing public transit in an urbanized area where building the necessary infrastructure for a rail network is impractical. Demand response (DR) is the second largest transit service type (52 million VOMS and 25 billion VRH) and is the main provider of service in rural and sparsely populated areas. Fixed route bus or rail service often uses DR as a support mode. Among rail modes, heavy rail (HR) systems are the most used (33 million VOMS and over 9 billion VRH), with commuter (CR) and light rail (LR) falling closely behind in terms of service provided.

Exhibit 14 — 2014 Service Consumed Size



The bus (MB) mode provides the most service and carries the most passengers the farthest. Heavy rail (HR), however, operates less service than demand response (DR), but carries passengers almost as far as MB service. This is due to the high density of passengers during peak service on HR modes. Demand transit modes operate significant amounts of service, but carry comparatively few passengers.

Service Data by Factor

Exhibit 15 — 2014 Passenger Miles per Unlinked Passenger Trip (Average Trip Length)

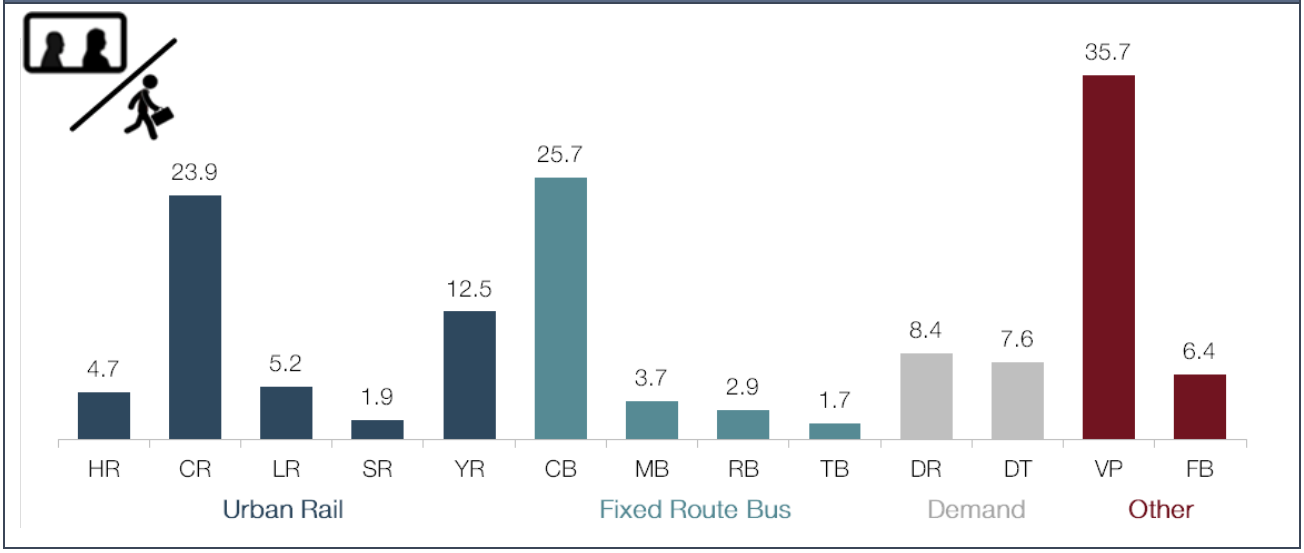
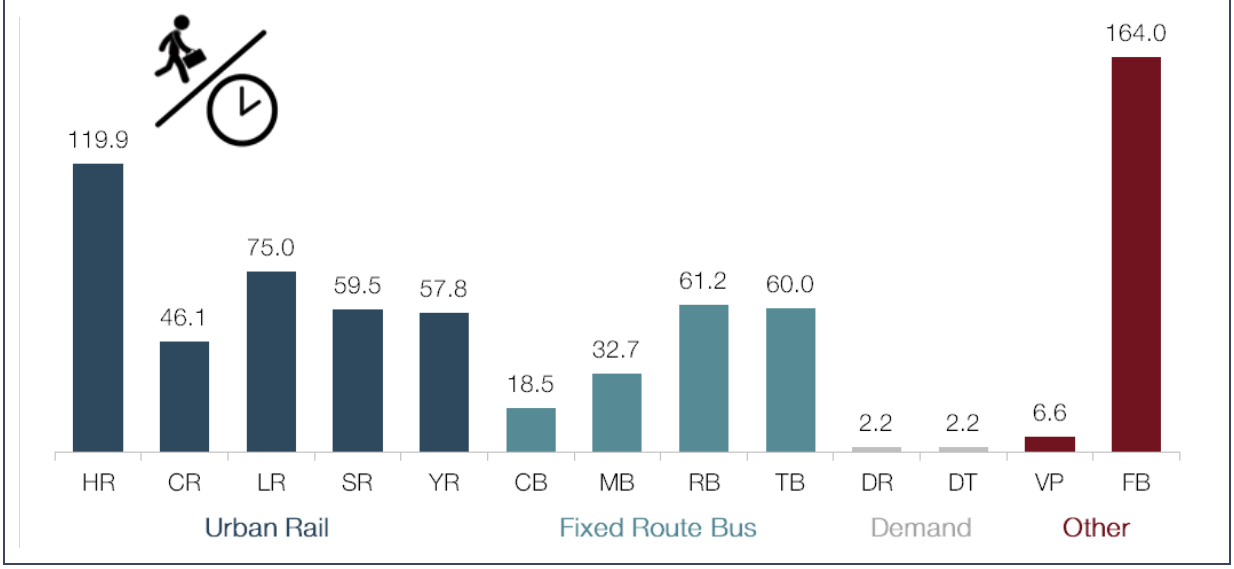


Exhibit 16 — 2014 Unlinked Passenger Trips per Vehicle Revenue Hour



Figures 15, 16, and 17 compare transit operation statistics separated by transit modes. Average trip length (passenger miles per trip) estimates the average distance a passenger travels when using a certain mode of public transit, and trips per vehicle revenue hour indicates the volume of passengers moved in an equivalent period on a vehicle. Passenger Miles Traveled per Vehicle Revenue Mile estimate the average number of passengers per vehicle at any given time.

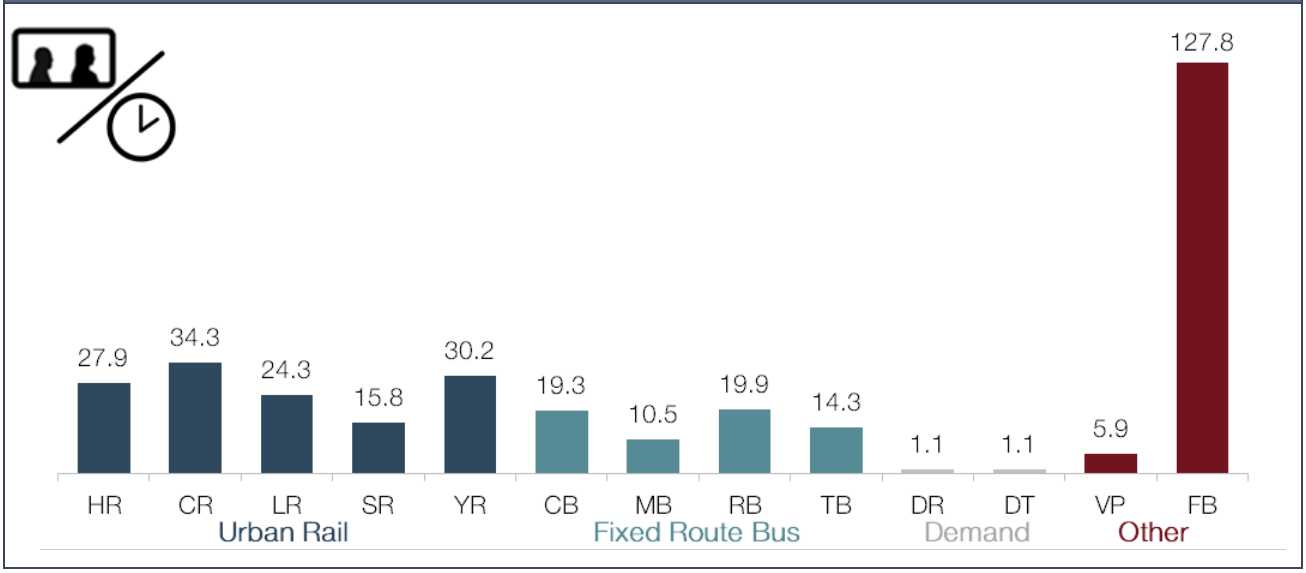
Comparing average trip length and average trips per hour demonstrates how many passengers are on a transit vehicle and how far they travel, respectively. Demand modes take small passenger loads a relatively long distance to meet the requirements of the ADA, and ferry boats move the largest number of passengers often a very short distance across a waterway. Commuter rail (CR), hybrid rail (YR), commuter bus (CB), and vanpool (VP) all transport a comparatively smaller load of typically commuters a longer distance per trip.

Intensive city transit modes such as heavy rail (HR), light rail (LR), streetcar rail (SR), bus rapid transit (RB), trolleybus (TB), and bus (MB) all tend to provide a larger number of trips for a much shorter distance compared to long distance commuter-related modes. These intensive city transit modes also often include multiple transfers on a passenger's journey between vehicles of the same mode and among multiple modes. To get to work, for example, a passenger might take a bus trip to get to the underground train, ride the train for three stops, and walk from the train station to their workplace. In this example, this single commuter represents two unlinked passenger trips, one on bus and one on rail.

Ferryboats are capable of carrying more passengers at a single time than any other mode, an average of 126 passengers. Demand modes often assist disabled passengers as a part

of the ADA and respond to single passenger trip requests, dropping their load factor to nearly one passenger at a time. For nearly all other modes that run on schedules instead of requests, load factor does not take into account peak travel, such as rush hour, which can be more than twice the number of passengers in off-peak times.

Exhibit 17 — 2014 Passenger Miles per Vehicle Mile (Average Number of Passengers per Vehicle)



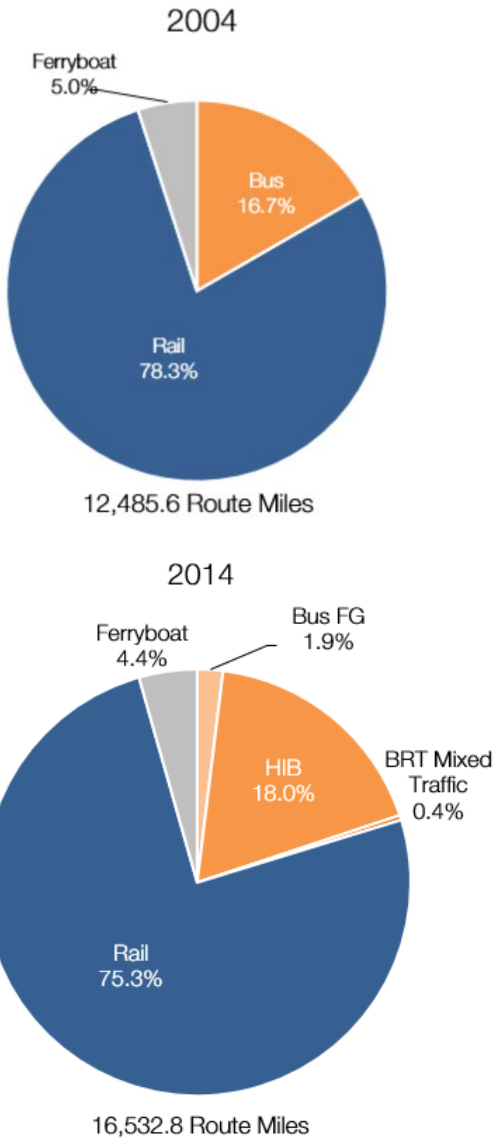
Fixed Guideway and High Intensity Busway

Fixed Guideway Route Miles from 2004 to 2014

Public transit often operates on fixed guideway. The NTD separates fixed guideway into two categories: exclusive fixed guideway (FG) and high intensity busway (HIB). FG is a facility that uses separate right-of-way (ROW) or rail exclusively for public transportation. FG may be a fixed catenary system useable by multiple forms of public transit (e.g., trolleybus, lightrail, etc.). HIB is roadway that is either:

- Exclusive at all times (24 hours, 7 days per week) as a High Occupancy Vehicle (HOV) lane or transit-way; or
- Controlled access, which is exclusive for part of the time, but is otherwise available to general traffic.

Exhibit 18 — FG Route Miles, 2004-2014



All rail, catenary and ferryboat (FB) systems operate over FG. Bus systems may operate over FG, HIB, or publicly available roadway (mixed traffic ROW).

The NTD counts FG, HIB, and mixed traffic ROW by directional route miles. Directional route miles is the total mileage in each direction that public transportation vehicles travel in revenue service. For example, if a transit provider operates one mile of revenue service in two directions, the NTD counts this as two directional route miles.

Congress introduced HIB lanes during 2012 in the "Moving Ahead for Progress in the 21st Century Act," or MAP-2 legislation. In 2004, over 2,000 bus directional route miles qualified

for funding as bus fixed guideway; after MAP-21, only 320 directional route miles qualify as bus fixed guideway, with the remainder being reclassified as either HIB lanes or bus rapid transit (BRT or RB) mixed traffic.

Since 2004, public transit agencies have added 2,877 new miles of rail FG routes. In 2014, rail transit modes accounted for 77 percent of all directional route miles of fixed guideway, down about 1 and a half percent from 2004. This high proportion of rail is due in part to the growth of light rail (LR) and streetcar rail (SR) modes in growing urban areas.

Fixed Guideway Concentration

Building separate infrastructure for public transit is costly, and dedicated rail transit only makes sense in high density areas with congested transportation and high demand for separate alternatives. As a result of this, only the most developed and congested cities in the US have the demand and resources to build and maintain fixed guideway transit. The densest metropolitan areas in the 2010 census were New York, San Francisco, Los Angeles, Honolulu, Chicago, San Jose/Santa Clara, Boston, and Philadelphia, according to the US Census Bureau. As each grew, dedicated rail became a viable transit solution.

Exhibit 19 —Metropolitan Area Density, 2010 Census

	City Population			Population Density (Pop per Sq Mi)				
Metropolitan Area	1830	1890	1900	1940	1970	1990	2000	2010
New York city, NY	202,589	1,515,301	3,437,202	24,933	26,343	23,705	31,684	31,251
San Francisco, CA	n/a	298,997	342,782	14,227	15,764	15,502	12,438	12,145
Los Angeles, CA	n/a	n/a	102,479	3,356	6,073	7,427	12,442	12,114
Honolulu, HI	n/a	n/a	n/a	n/a	3,872	4,411	10,977	11,548
Chicago, IL	n/a	1,099,850	1,698,575	16,434	15,126	12,252	9,830	8,613
San Jose-Santa Clara, CA	n/a	n/a	n/a	n/a	3,273	4,567	8,300	8,418
Boston, MA	61,392	448,477	560,892	16,721	13,936	11,865	7,912	7,980
Philadelphia, PA	80,462	1,046,964	1,293,697	15,183	15,164	11,736	8,064	7,773

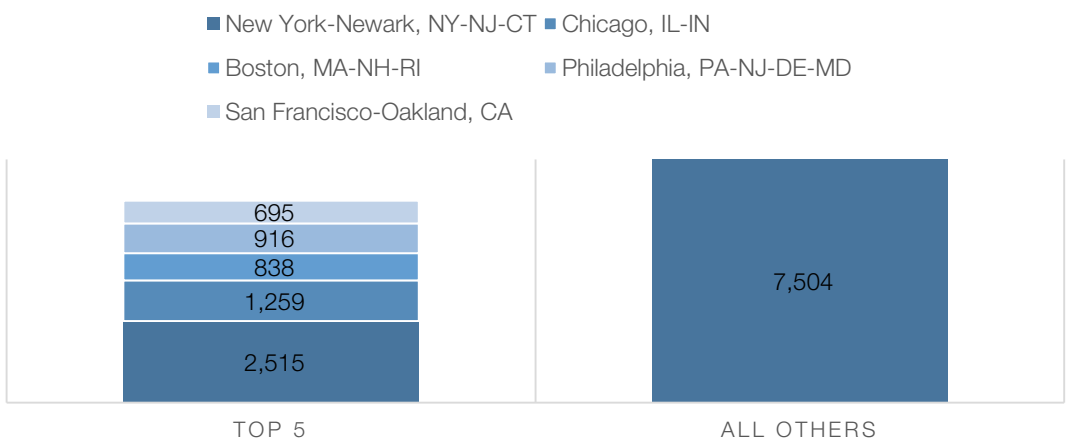
Approximate start of public rail transit service

In 2014, the 5 urbanized areas with the most directional route miles of fixed guideway account for nearly 45 percent (6,223 miles) of all fixed guideway route miles, and average of 1,245 FG miles per UZA. These systems have some of the longest histories with more

Exhibit 20 — High Density City Rail Transit Start Dates

time for development and gradual investment of resources towards infrastructure. The remaining 88 urbanized areas (and rural Alaska) account for 7,504 fixed guideway miles, an average of 85 FG miles per UZA.

Exhibit 21 — UZAs with Most Directional Route Miles



However, simply having FG route miles is the not the same thing as implementing them efficiently. Philadelphia had 838 FG route miles in 2014, which provided 1.2 billion passenger miles, an average of 1.4 million passenger miles per FG route mile. In comparison, Antioch, CA has 8.3 FG route miles and provided 66 million passenger miles, an average of 7.9 million passenger miles per FG route mile.

Safety and Security

Safety and Security (S&S) events include vehicle collisions on the roadway, assaults on transit property, train derailments, slips and falls, damage from fallen trees, and more. The NTD requires large transit agencies to report any safety or security events that meet any of the following thresholds:

- A fatality resulting from the event occurs within 30 days;
- Injuries to one or more persons resulting from the event that require immediate transport for medical attention;
- The estimated property damage from the event is at least $25,000;
- Collisions involving transit vehicles that require towing away from the scene;
- An evacuation that is made due to potentially life threatening conditions or to the rail right-of-way;
- Derailments including both mainline and yard derailments as well as non-revenue vehicle derailments;
- Rail transit vehicle collisions at rail grade crossing;
- Rail Transit vehicle collision with an individual on the right of way; and
- Collision between and rail transit vehicle and a second rail transit vehicle or rail transit non-revenue vehicle.

Any of these events is a ‘Major Event’ that the agency must report within 30 days to help FTA better address safety and security issues in public transit.

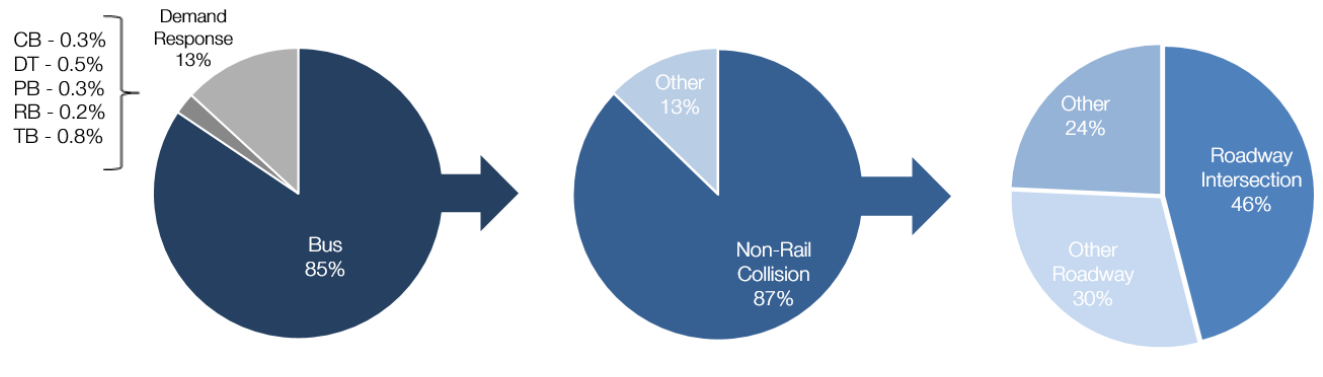
Exhibit 22 — 2014 Safety and Security Major Event Rates by Mode

Mode Avg.	S&S Events per 100M VRM	Fatalities per 100M VRM	Injuries per 100M VRM	Fatalities per 100 Events	Injuries per 100 Events
HR	92.9	14.3	81.1	15.4	87.3
LR	357.8	39.0	387.0	10.9	108.2
SR	1,030.6	16.9	1,824.7	1.6	177.0
YR	154.1	51.4	205.5	33.3	133.3
CB	33.5	3.2	75.8	9.5	226.2
MB	237.4	4.8	436.0	2.0	183.6
RB	514.9	0.0	1,235.7	0.0	240.0
TB	445.1	0.0	617.7	0.0	138.8
DR	87.8	1.3	125.5	1.5	142.9
DT	84.2	2.1	115.0	2.4	136.6
VP	4.5	0.0	8.6	0.0	190.0
FB	31.0	0.0	31.0	0.0	100.0
Total Avg.	**164.0**	**6.3**	**270.8**	**3.8**	**165.1**

Demand response modes (DR – demand response, DT – demand response taxi) and commuter modes (CB – commuter bus, VP – vanpool) all operate primarily in less dense areas where intensive transit is not available. There are fewer cars, pedestrians, and complicated traffic conditions in these less dense areas, making fewer opportunities for accidents. Heavy rail (HR) transit operates primarily underground, which also reduces the opportunity for collisions with vehicles and pedestrians.

Bus Collision

Exhibit 23 — Non-Rail Event Categories



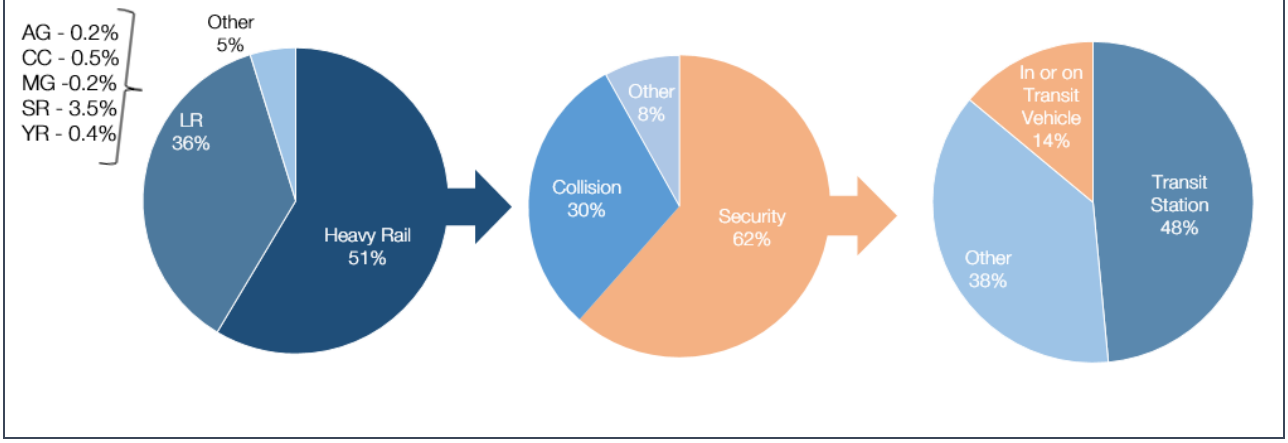
Between 2008 and 2014, transit agencies reported 38,621 major events, 61 percent of which were not on rail transit. Out of these non-rail events, 85 percent were on bus (MB) modes.

Eighty-seven percent of MB events were collisions, and of those MB collisions, 76 percent occurred in the roadway, nearly two-thirds of which were at an intersection or a grade crossing.

Rail Security Events

Between 2008 and 2014, urban transit agencies reported 6,943 rail safety and security events to the NTD, 51 percent of which were on heavy rail (HR) modes.

Exhibit 24 — Rail Events by Mode

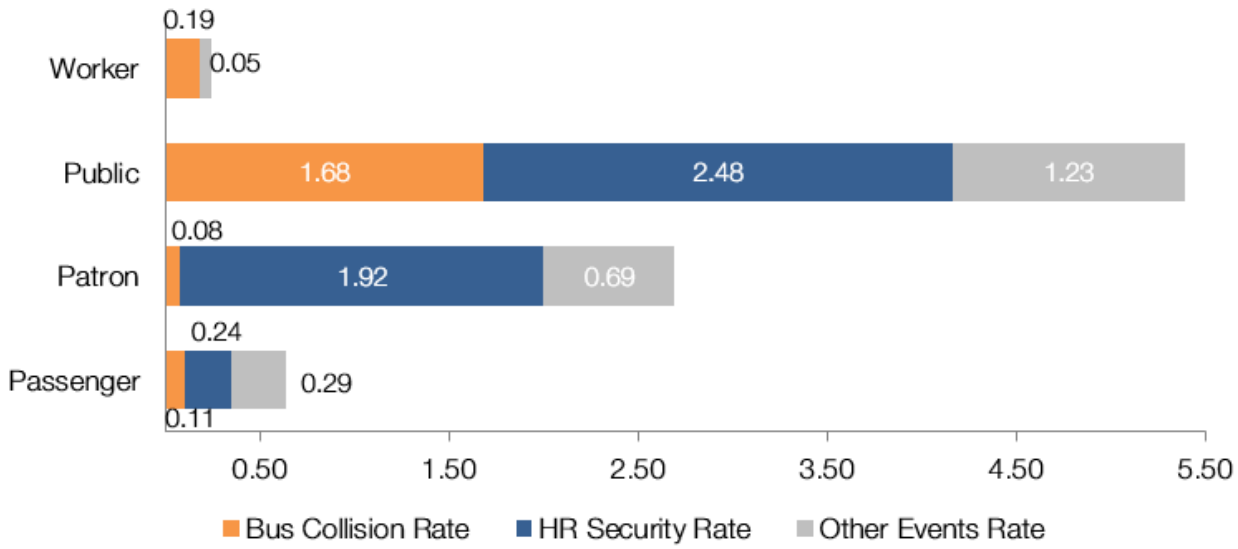


Out of heavy rail events, 62 percent were security-related events, 48 percent of which occurred within a transit station. Rail transit operations are extremely safe since the vehicles interact far less often than bus modes with general traffic and passenger walkways.

Fatality Rates

In 2014, public transit had a total average rate of 7.4 fatalities per 100 million vehicle revenue miles. The majority of these fatalities are members of the public (frequently trespassers and suicides), not passengers, patrons, or workers. Passenger fatalities occur at a rate of 0.15 per 100 million Unlinked Passenger Trips. To put this into perspective, in 2014 the odds of a passenger on public transit dying were 1 in 20,583,036. By comparison, there was a 1 in 12,263,733 chance of dying from a lightning strike in the US in 2014.

Exhibit 25 — Fatality Rates per 100 million Vehicle Revenue Miles by Person Type

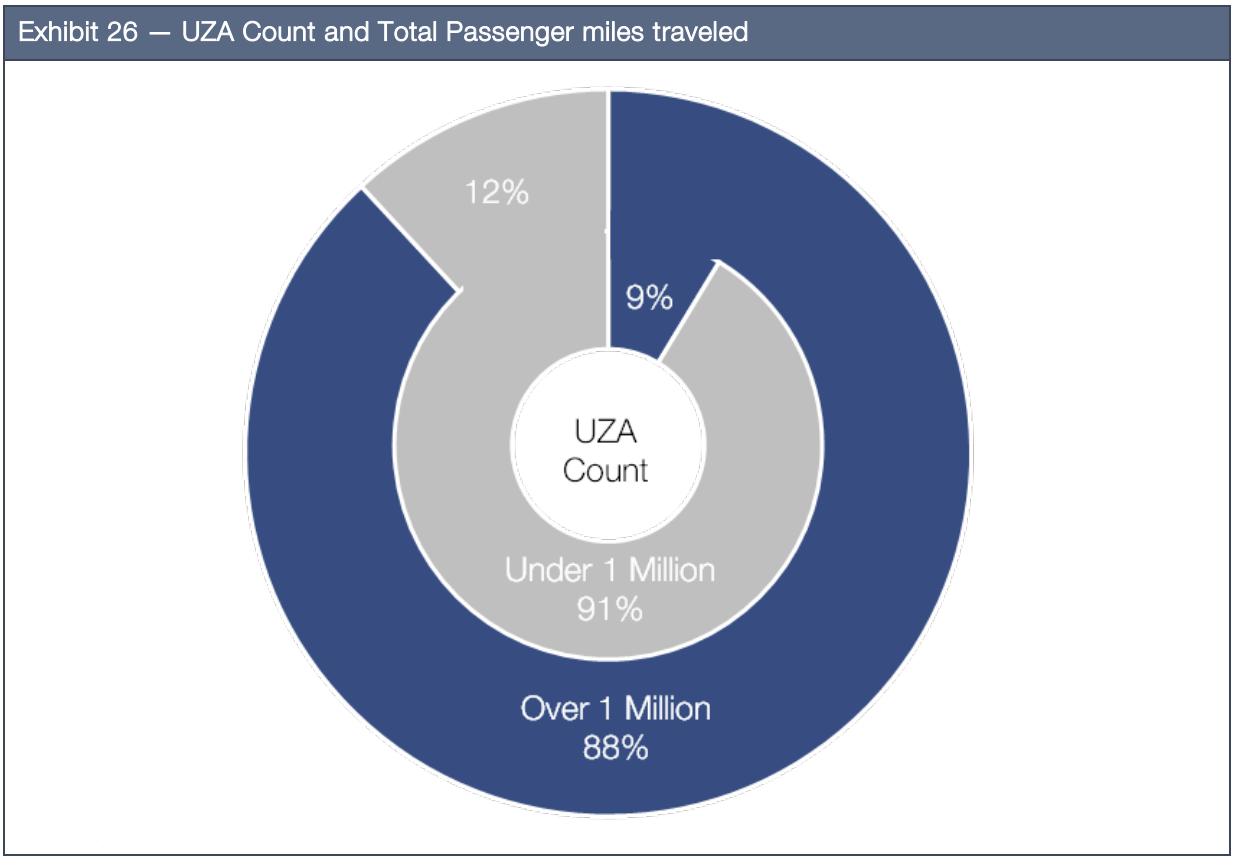


Urbanized Areas Over and Under 1 Million People

Population and Transit Agencies

Nine percent of all UZAs defined by the 2010 Census have over 1 million people. That nine percent of UZAs provides 88 percent of all transit passenger miles traveled. Transit agencies serving such large metropolitan areas are providing public transit service to a much larger population, and the operations environment is different. This density of population and ridership makes individual trips less expensive, but brings a higher risk of safety and security events.

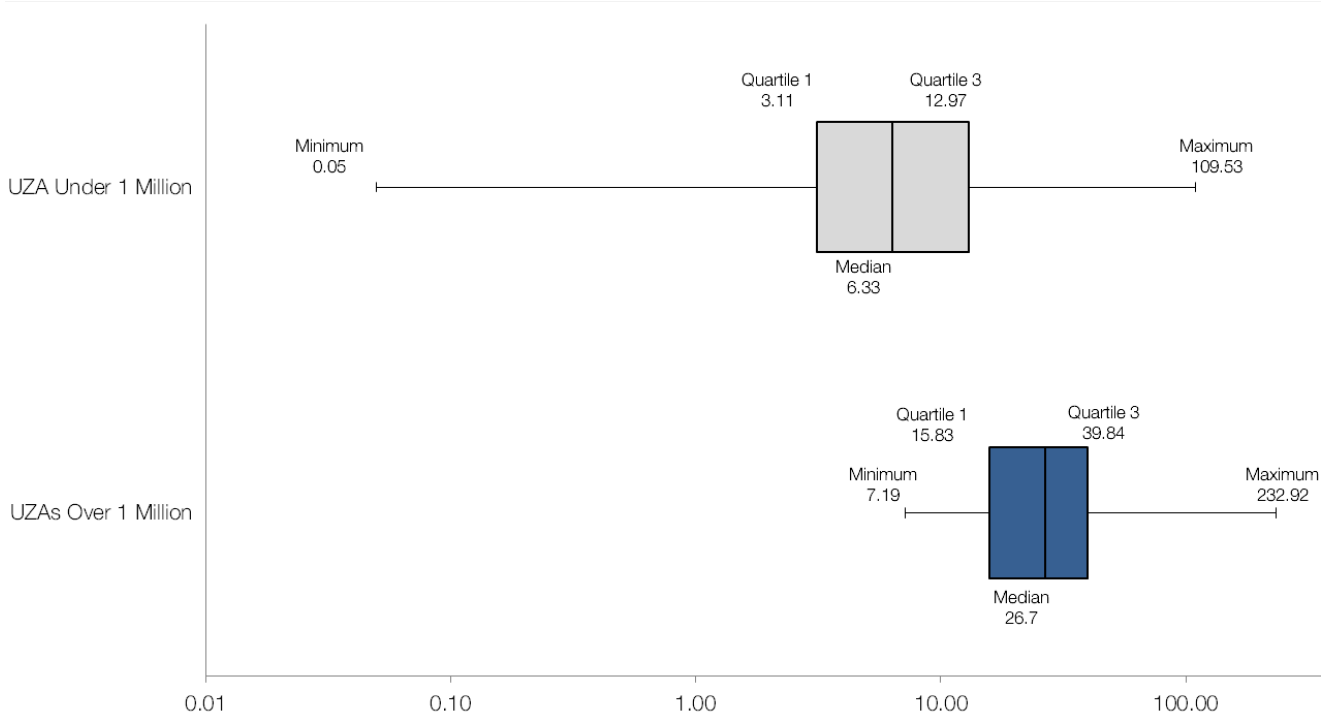
Exhibit 26 — UZA Count and Total Passenger miles traveled



Trips Per Capita

Despite higher population denominators, UZAs over 1 million have more trips on public transit per capita. The median ridership density for UZAs under 1 million in 2014 is 6.33 trips per capita, whereas the median for UZAs over 1 million is 26.73. Owning and driving your own vehicle in a dense urbanized area is both expensive and inconvenient. Choosing public transit over private cars, bicycles, motorcycles, or walking is called a discretionary trip, and indicates a personal choice that is not out of necessity, medical or otherwise.

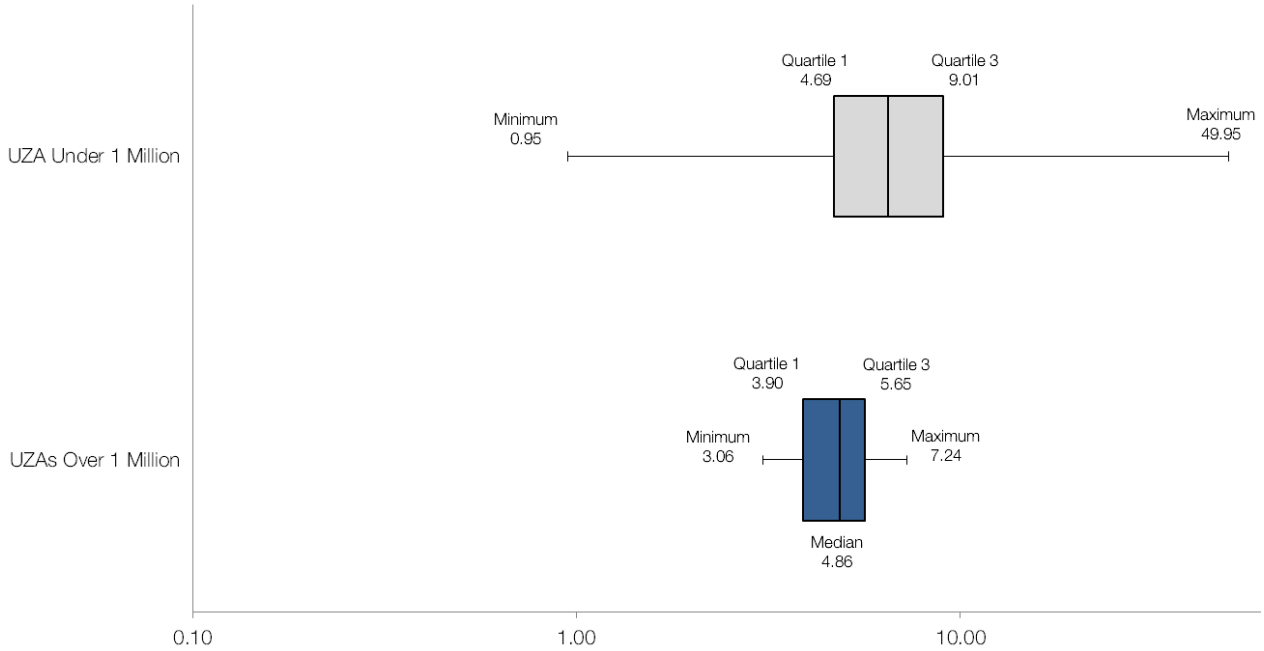
Exhibit 27 — 2014 Ridership Density (Passenger Trips per Capita)



Operating Cost per Passenger Trip

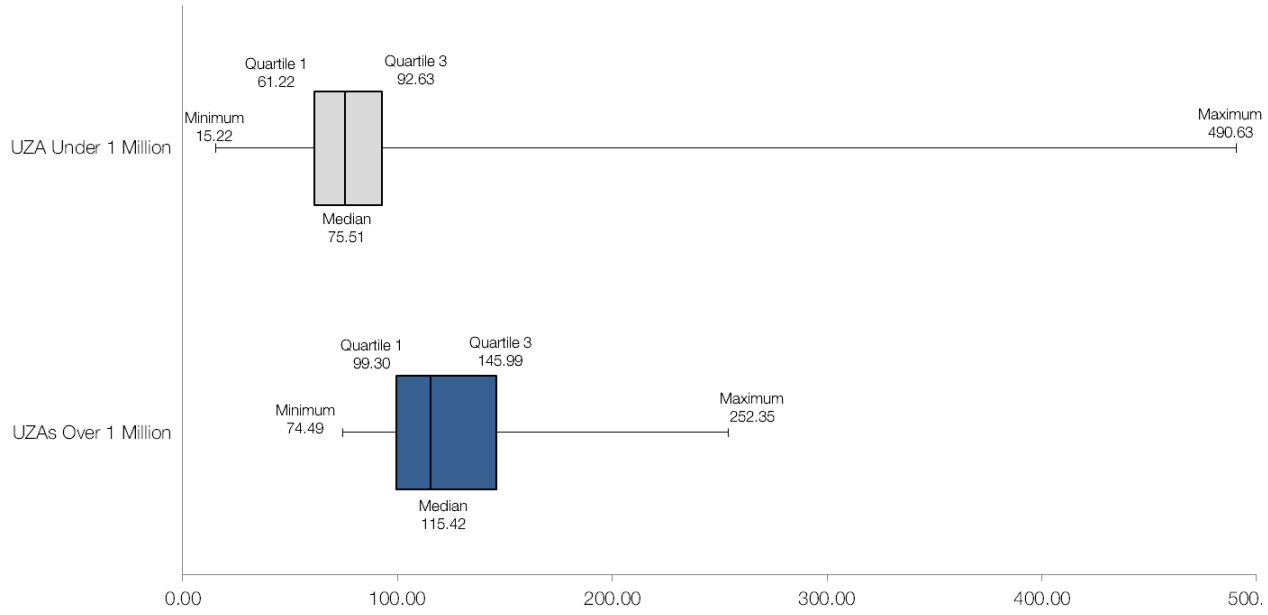
Cost per trip varies widely in UZAs under 1 million, from $1. to over $20. In UZAs over 1 million, the range is narrower, between $3 and just over $7 per trip. There is less difference between the median cost per trip between UZA size categories (a difference of 61¢), suggesting that there are more rural demand response services (comparatively expensive) in UZAs under 1 million. These rural demand response services on average carry the fewest number of passengers per trip. UZAs over 1 million more often have extensive fixed-route and fixed-guideway systems which carry more passengers per trip, dramatically dropping the average cost per trip.

Exhibit 28 — Operating Cost per Passenger Trip



UZAs over 1 million have a slightly lower cost per trip but a higher average cost per hour. The lowest average cost per hour in UZAs over 1 million is $74.49, the middle of the pack (median) for UZAs under 1 million is $75.46. Intensive urban transit carries significantly more passengers at a time, requiring more workers, equipment, and space. Additionally, prices are higher in dense cities, which raise wages, property cost, and general supply prices.

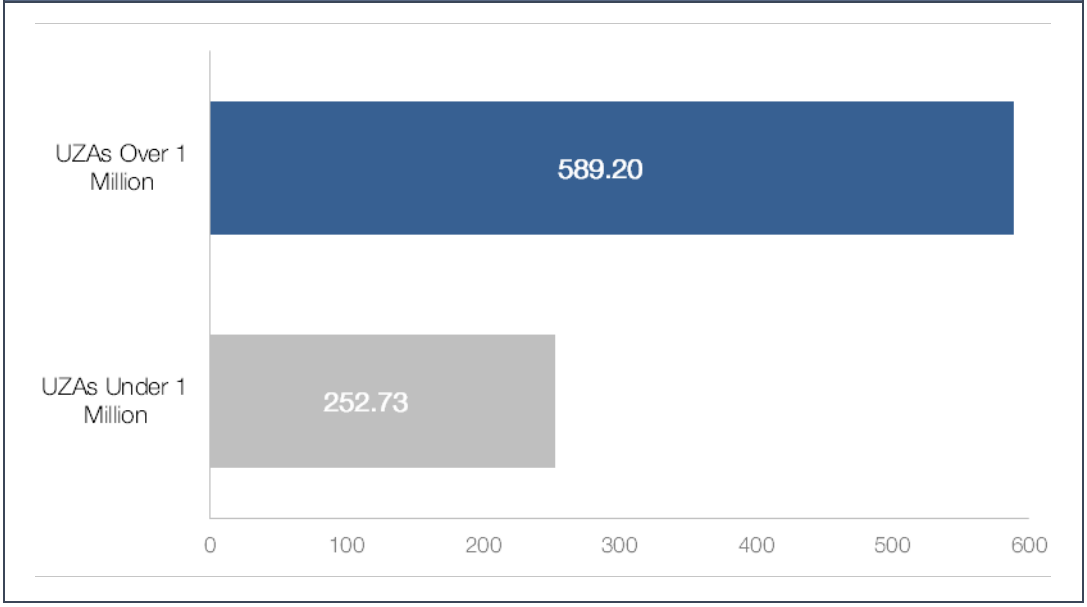
Exhibit 29— Operating Cost per Vehicle Revenue Hour



Event Rate Comparison

UZAs with populations over 1 million mean many people in a small area, making safety and security (S&S) events more likely and possibly more damaging to the dense vehicle and pedestrian traffic around them. Based on the 2010 Census, UZAs over 1 million have an average of 3,229 people per square mile, while UZAs under 1 million have an average of 1,901 people per square mile. In UZAs over 1 million there were an average of 589.2 S&S events per 100 million Vehicle Revenue Miles in 2014, compared to 252.7 for UZAs under 1 million.

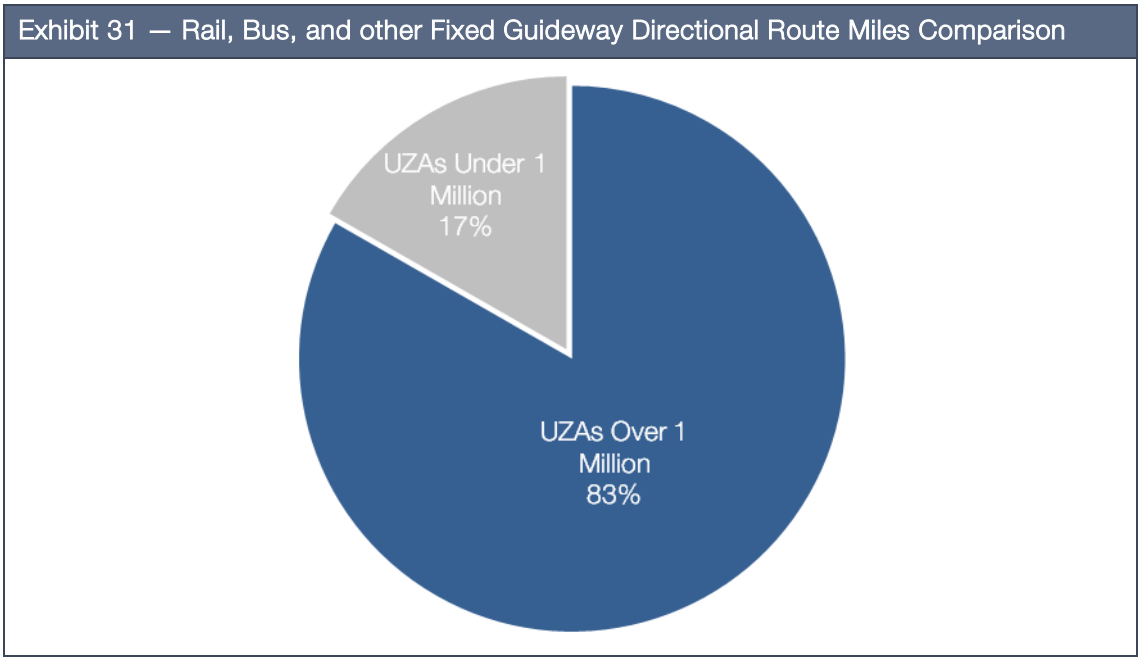
Exhibit 30 — Total S&S Event Rate Comparison



Fixed Guideway Comparison

UZAs with populations over 1 million operate over 83 percent of all fixed guideway directional route miles. Each directional route mile is a mile of transit operation space where private transportation cannot operate. For example, New York City Subway operates on rail track unavailable to Amtrak, CSX, and any other private trains. The Boston Silver Line is bus rapid transit with dedicated right of way, meaning that it operates similar to rail transit in that car traffic cannot trespass on the roadway reserved exclusively for the Silver Line.

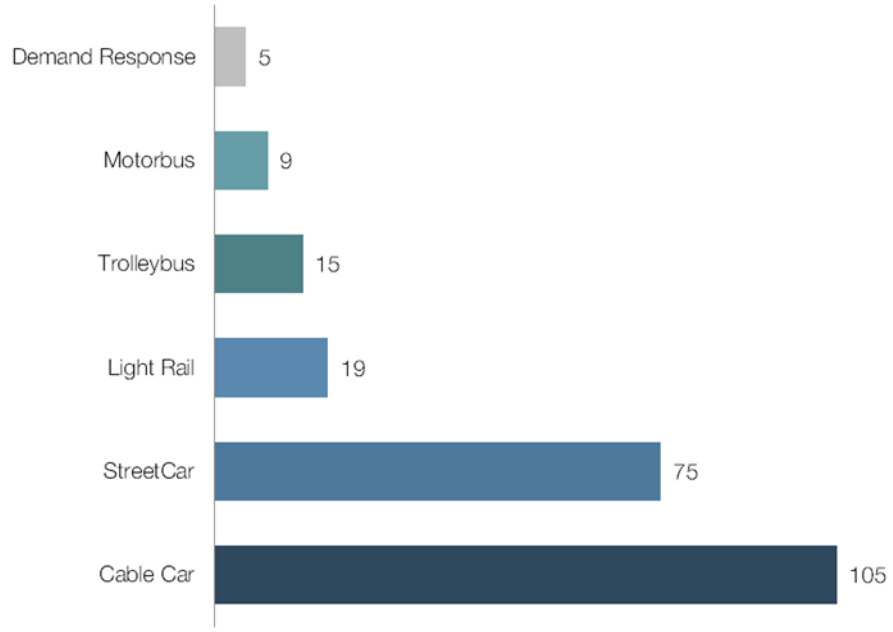
Exhibit 31 — Rail, Bus, and other Fixed Guideway Directional Route Miles Comparison



San Francisco Municipal Railway

San Francisco Municipal Railway (MUNI) is a subsidiary of the regional San Francisco Metropolitan Transit Authority. MUNI operates one of the most historic transit systems in the nation with a diverse range of modes, including the only Cable Car service in the US. Many fleet vehicles have been in operation since Cable Car service began in 1873.

Exhibit 32 — Average Fleet Age in Years



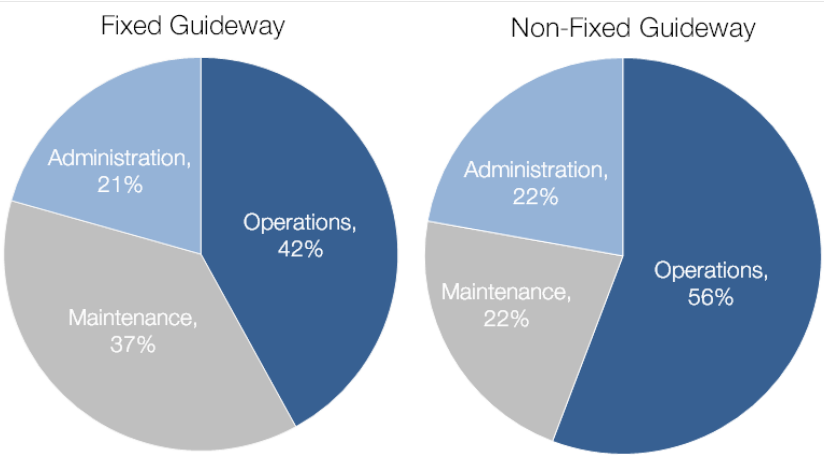
In 1906, San Francisco experienced a terrible earthquake. The earthquake did a great deal of damage to the cable car infrastructure and allowed another mode to move into the scene, the electric streetcar. These streetcars were faster and cheaper to operate, but were not powerful enough to climb the steep hills of San Francisco, leaving a niche for the cable car. In 1947 the Committee to Save the Cable Cars proposed Measure 10 to continue funding the Cable Cars, which became a broad-based campaign that ultimately passed by a wide margin. Cable Cars are a distinct novelty of San Francisco that tourists admire, but they serve the unique needs of urban density and the hilly landscape, and therefore Cable Cars are still experiencing a high level of success.

Fixed Guideway Maintenance Expenses

MUNI operates seven distinct modes, four of which operate on fixed guideway: Cable Car (CC), Light Rail (LR), Streetcar Rail (SR), and Trolley Bus (TB). As a result of fixed guideway areas being dedicated solely to transit vehicles, maintenance includes the entire space and

infrastructure in addition to the vehicles, and maintenance costs are higher for these modes in comparison to non-fixed guideway modes.

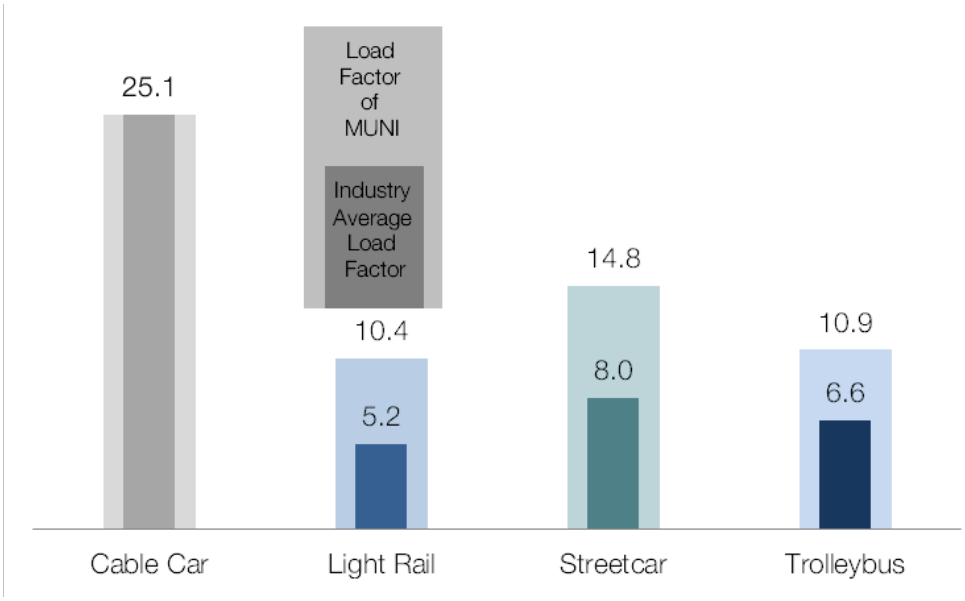
Exhibit 33 — 2014 Expenses by Fixed Guideway and Non-Fixed Guideway



Load Factor

The high cost of operating fixed guideway service means transit agencies only construct fixed guideway in areas where it will have the greatest impact. One way to measure the effectiveness of these systems is by computing Load Factor. Load Factor is the measure of the number of passengers traveling on revenue service at any given time.

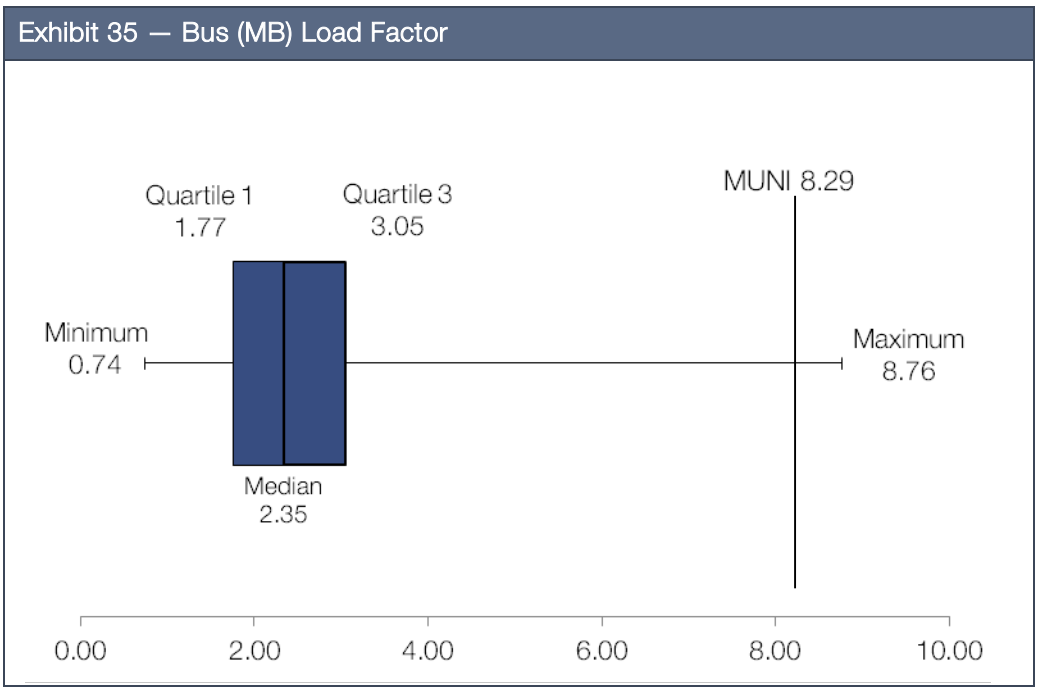
Exhibit 34 — 2014 MUNI Fixed Guideway Load Factors



All four fixed guideway modes operated by MUNI are greater than or equal to the average 2014 Load Factor for medium and large urbanized areas (population greater than 200,000). Despite the high maintenance costs of fixed guideway modes, MUNI services remain highly utilized.

MUNI also operates a highly utilized bus (MB) mode in comparison to its peers operating in large urbanized areas. The load factor for MUNI's bus mode is the second highest in the nation, behind only New York City Transit.

Exhibit 35 — Bus (MB) Load Factor

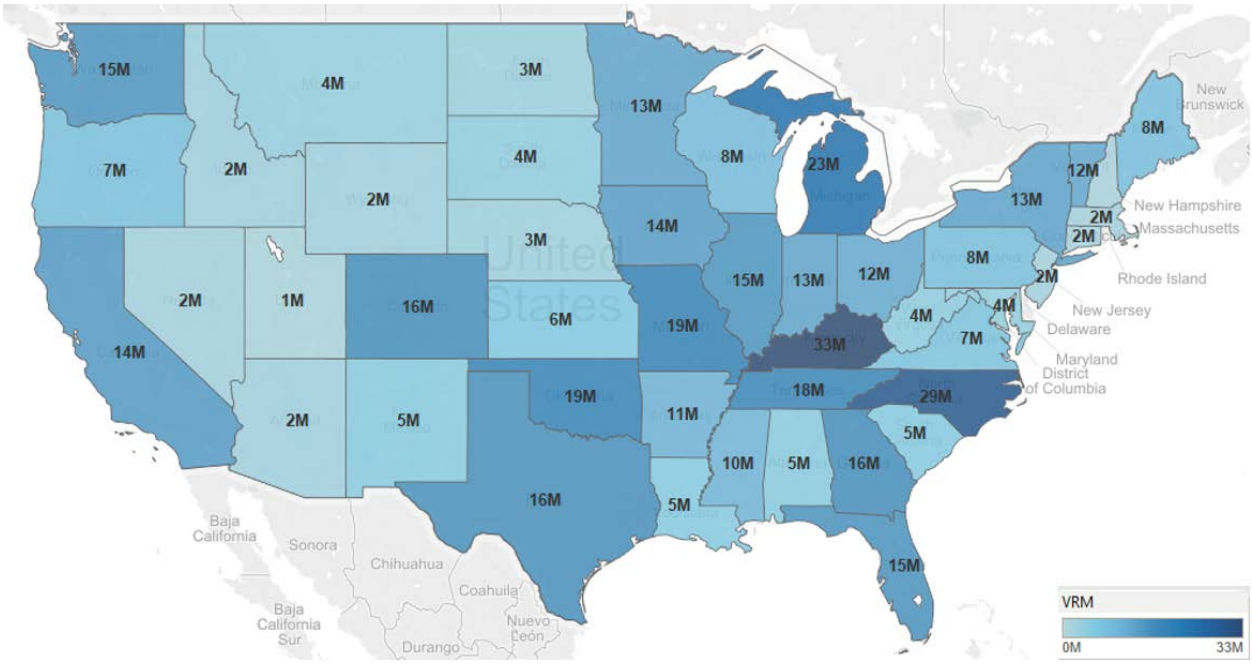


Colorado Department of Transportation

Recipient and Rural Sub-Recipients

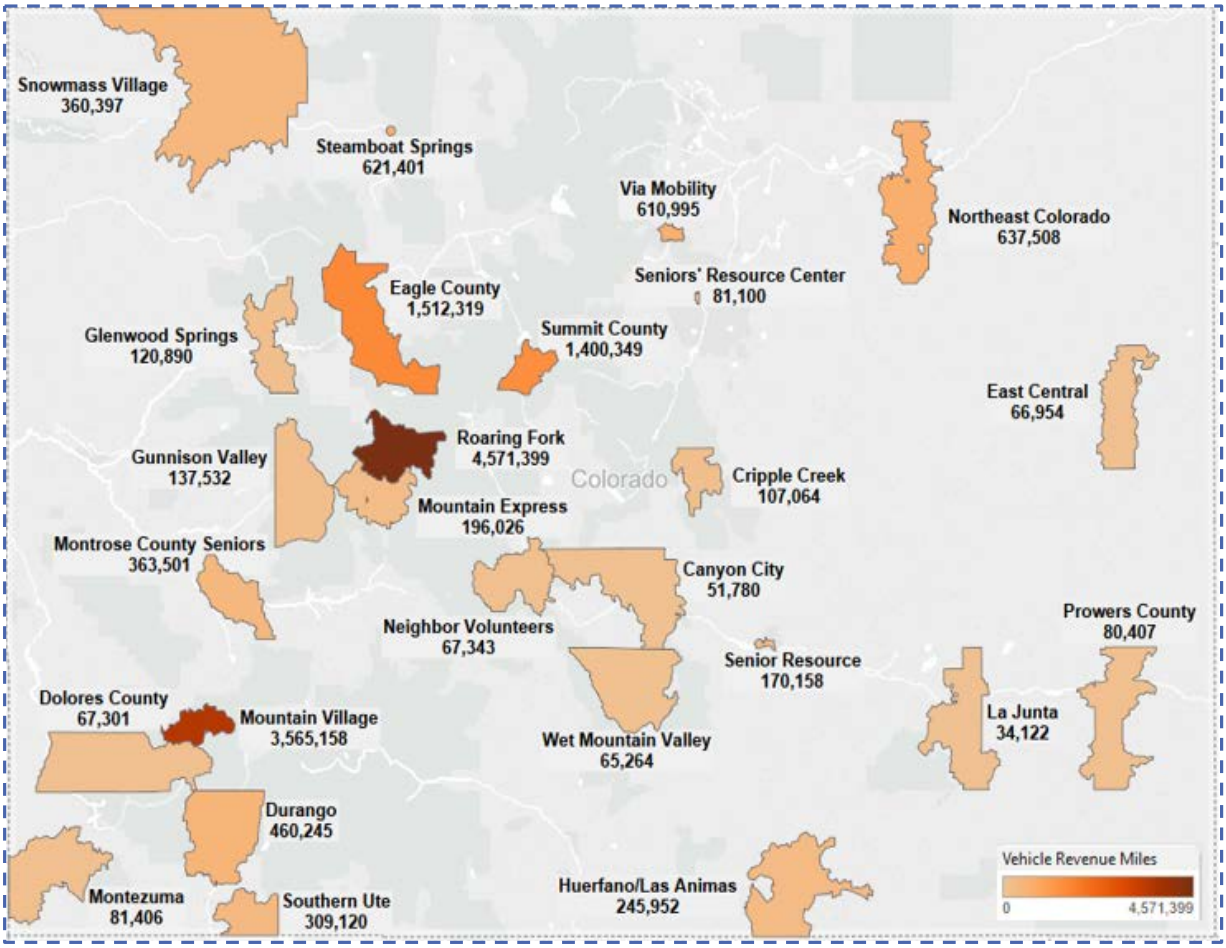
State DOTs receive funding from the FTA through the Other Than Urbanized Area Formula Program (§5311) and distribute those funds to rural transit providers. These providers are commonly referred to as rural sub-recipients. States must complete an annual NTD report for each rural sub-recipient. Demand Response and Bus are the most commonly operated modes among sub-recipients, generating approximately 88% of all rural sub-recipient unlinked passenger trips.

Exhibit 36 — 2014 Rural Sub-Recipient VRM by State



The Colorado Department of Transportation (CDOT) distributes FTA 5311 Rural Formula funds to 28 rural general public transit sub-recipients that provide public transportation in non-urbanized areas across the entire state.

Exhibit 37 — 2014 Colorado Sub-Recipient VRM by Zip Code

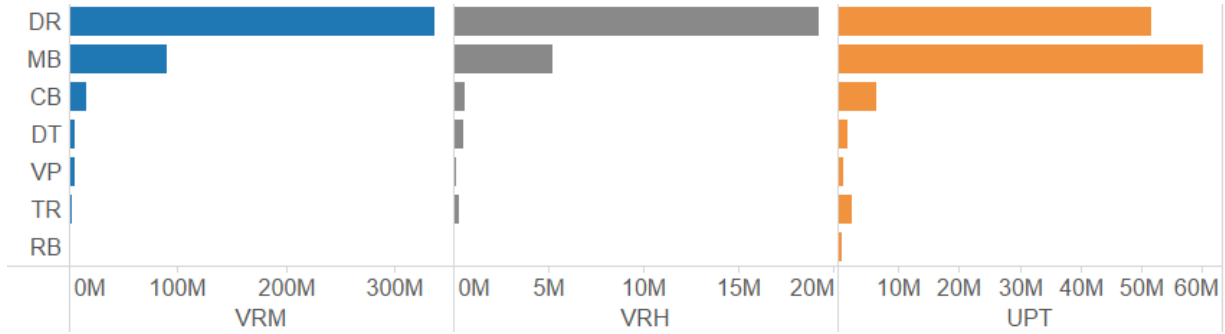


Service Provided and Consumed

Rural sub-recipients in Colorado provide transit via six different modes: Bus (MB), Commuter Bus (CB), Bus Rapid Transit (RB), Demand Response, Vanpool (VP), and the only Aerial Tramway (TR) mode operated by a rural sub-recipient.

As is the trend in most States, Bus (MB) mode accounts for the majority of rural transit service, and carries the majority of rural transit trips. Unlike other states, the aerial tramway in Mountain Village, one of only two that report to the National Transit Database, generates 20% of Colorado's total VRM.

Exhibit 38 — 2014 Colorado Rural Sub-Recipient Service Data



The Statewide total of vehicle revenue miles has risen over 48% since 2008, and is currently (2014) at an all-time high. Ridership has risen with the increased service provided, and Colorado is currently second to only Utah in terms of Unlinked Passenger Trips per Vehicle Revenue Mile. Colorado sub-recipients carried over 14 million unlinked passenger trips in Report Year 2014 – approximately equal to three trips for every resident in the State of Colorado.

Exhibit 39 — 2014 Highest Average Rural UPT per VRM by State

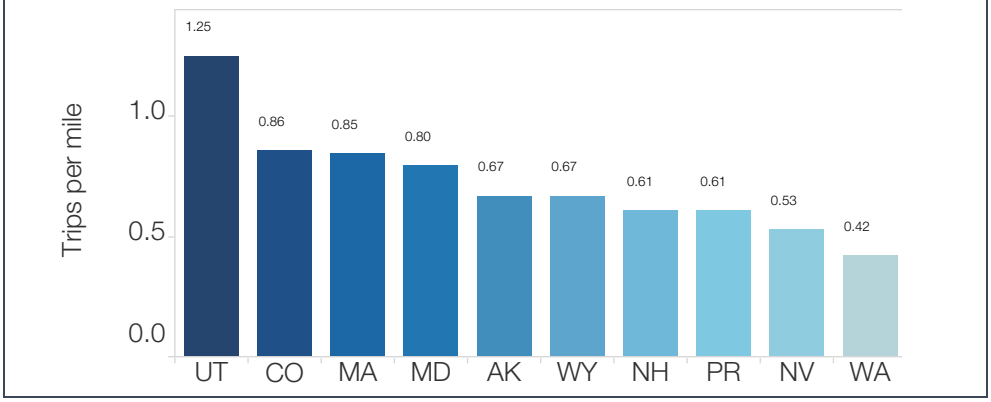
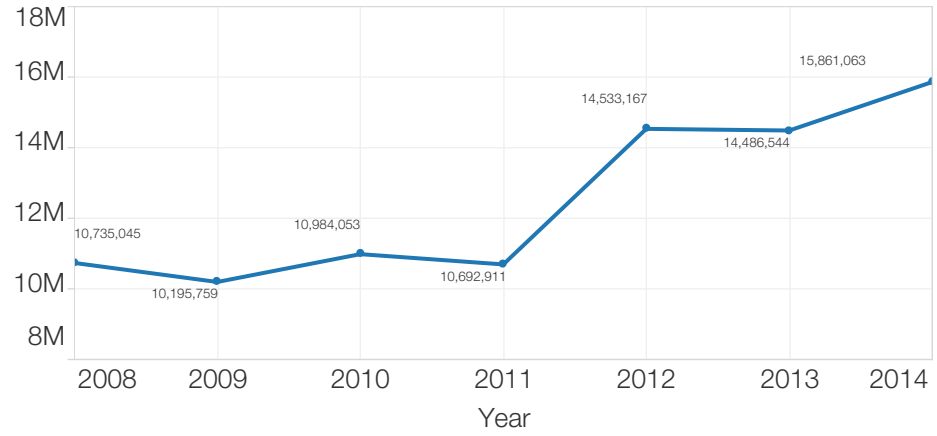


Exhibit 40 — Colorado Rural Vehicle Revenue Miles



Capital Expenses and Assets

From 2012 to 2013, sub-recipient capital expenditures in Colorado rose 333%. The materialization of this investment is evident in 2014, as Colorado reported a 63% increase in total fleet vehicles and 64% increase in maintenance facilities owned by service providers. These vehicle and facility growth rates exceeded the 2014 national rural sub-recipient averages (4.5% and 28.2% respectively).

Exhibit 41 — Colorado Sub-Recipient Capital Expenses

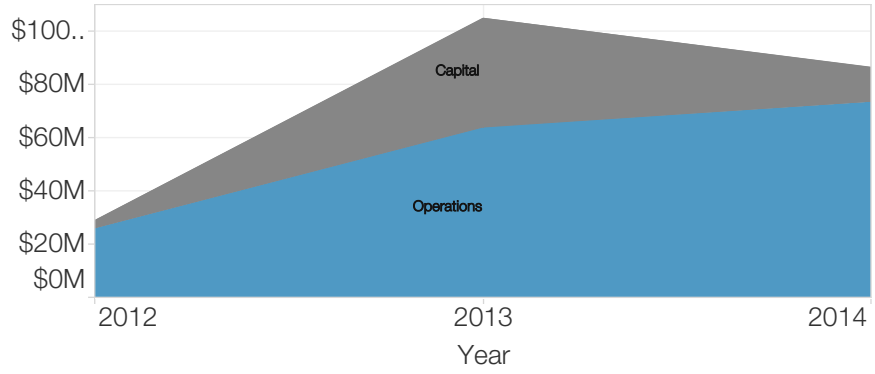


Exhibit 42 — Increase in Assets

Colorado	2012	2013	2014	Change
Total Vehicles	235	241	382	**63%**
Total Facilities	11	16	18	**64%**

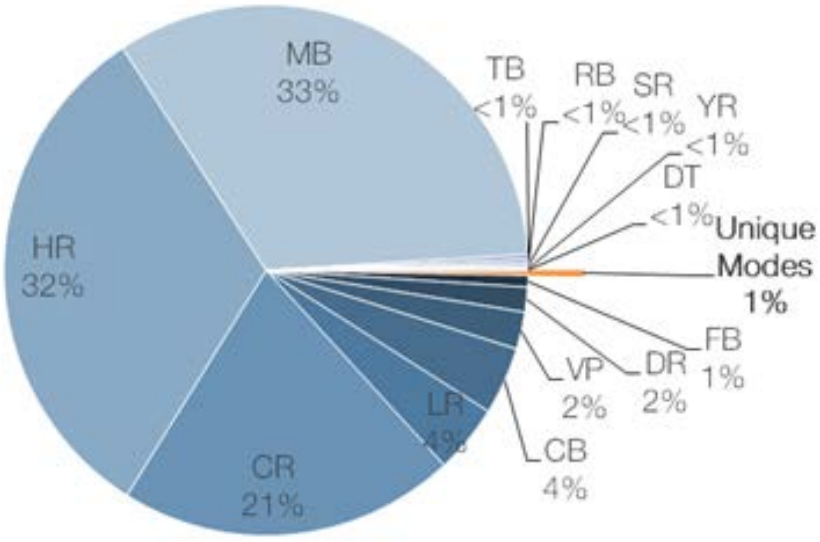
Rural Total	2012	2013	2014	Change
Total Vehicles	22,225	22,018	23,127	**4.5%**
Total Facilities	485	473	622	**28.2%**

Unique Transit Modes

More modes were described in the Introduction than were included in most exhibits. This is because some modes are so rare and unique in their service characteristics that they appear as outliers in comparison to all other modes.

Passenger Miles Traveled (PMT) provides insight into the use of public transit services. The majority of PMT is concentrated in three transit modes: MB, HR, and Commuter Rail (CR) (Exhibit 40). About 86 percent of the PMT are on these three modes. The remaining modes are responsible for about 14 percent of transit service across the United States, of which the unique modes subset accounts for approximately 1 percent. The NTD includes the following under unique modes of service:

Exhibit 43 — Full Reporters' Passenger Miles Traveled, 2014



- Aerial Tramways (TR)
- Alaska Railroad (AR)
- Cable Car (CC)
- Inclined Plane (IP)
- Monorail/Automated Guideway (MG)
- Públicos (PB)

Aerial tramways, cable cars, inclined planes, and automated guideway systems are unique because of the technology required to run these systems. The Alaska Railroad services the widest area of any rail system in the country, using more than 500 miles of track across Alaska. The Público system is the largest transit system in Puerto Rico, and each driver operates as a separate business unit.

Aerial Tramway

Aerial tramway (TR) is a transit mode where vehicles shuttle along suspended cables between two tram terminals at differing heights. In most cases, one or two fixed cables support the vehicle while the vehicle's electrically-powered wheels roll up and down a third cable, or haulage rope. This propulsion method and cable setup enables aerial trams to move forward or backwards as needed.

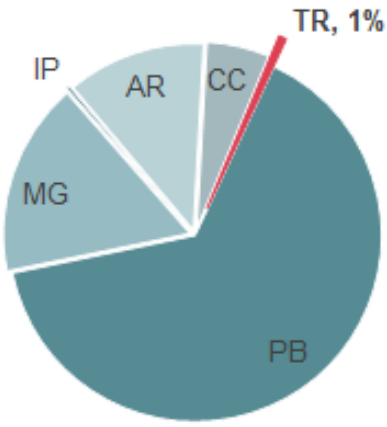
Exhibit 44 — Portland Aerial Tram

Source: http://commons.wikimedia.org/wiki/User:Another_Believer

Different variations of tramways have been in use for hundreds of years, especially for industrial cargo and in mountainous regions to carry ore in mining operations. As time passed, aerial trams began to carry passengers instead of exclusively cargo.

However, as electric power became more widely used in transit services in the 1930 – 1940s, aerial tramways became obsolete. Since then, tramways have been largely used for recreational purposes such as ski lifts. However, there has been a recent interest in operating tramways in the urban market. There now are two aerial tramways that provide mass transit service in the country. The Roosevelt Island Tramway connects Roosevelt Island to the upper east side of Manhattan in New York City, does not benefit from federal funding, and was featured in the 2002 film *Spider-Man*.

Exhibit 45 Aerial Tramway PMT



The City of Portland is the only NTD reporter that reports aerial tramway service. The Portland Aerial Tram opened in 2006, and operates a two-vehicle line service which can carry 78 passengers per cabin. The tramway connects the Oregon Health & Science University (OHSU) campus with the South Waterfront district of Portland.

While an aerial tramway does not operate on rails or roadway, it operates in exclusive air space. For the purposes of NTD reporting, the NTD considers aerial tramway a non-rail, fixed route mode operating exclusively on fixed guideway.

Alaska Railroad

Alaska railroad (AR) is a transit mode designated solely for the Alaska Railroad Corporation. This railroad provides both freight and passenger services and uses more than 500 miles of track across the state of Alaska.

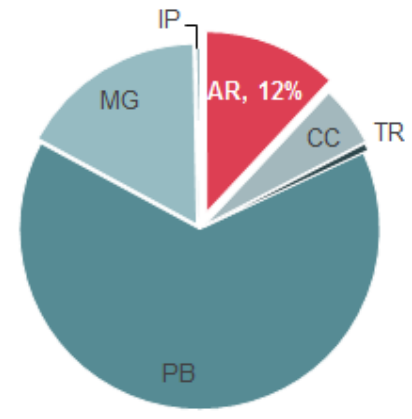
Exhibit 46 — Alaska Railroad Corporation

Source: Alaska Railroad Corporation http://www.alaskarailroad.com

This railroad has been in operation since the early 1900s. The Alaska Central Railway constructed the railroad to provide an all-weather route to take advantage of the natural resources in the interior of the Alaska Territory. Alaska Central Railway began laying the first railroad in Seward, Alaska in 1903, which eventually extended 50 miles north. In 1914, Congress approved the construction of 470 miles of track to Fairbanks that was completed in 1923.

During World War ll, the railroad played an important role in the war effort by hauling military and civilian supplies and materials to and from Whittier, a military port and fuel depot. Due to the heavy use of the railway, Congress approved a $100 million rehabilitation program after the war.

Exhibit 47 —Alaska Railroad PMT



The Alaska Railroad experienced another challenge in the mid-1960s when an earthquake caused $30 million in damage. The 9.2 magnitude earthquake, known as the Great Alaskan Earthquake, is the strongest recorded in North America and the second strongest in recorded history.

In 1984, Governor Sheffield signed legislation creating the Alaska Railroad Corporation. Shortly thereafter, the State of Alaska purchased the railroad from the federal government. The Alaska Railroad continues to provide freight and passenger services today.

The Alaska Railroad Corporation provided 20,479,961 passenger miles of service in Report Year 2014. This service accounted for approximately 12 percent of the total unique mode PMT.

Cable Car

Exhibit 48 — San Francisco Cable Car

Source: http://de.wikipedia.org/wiki/San_Francisco_Cable_Cars

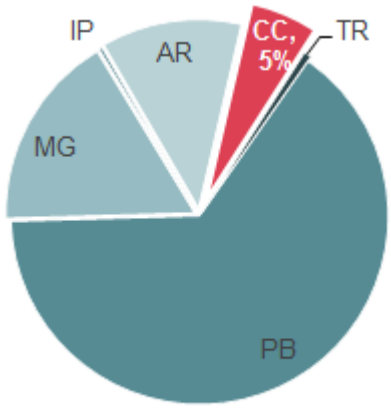
The cable car (CC) mode operates on a railway propelled by underground cables. While several cities operated cable cars in the past, the San Francisco cable car system is the last system in operation in the country today, and has received recognition as a National Historic Landmark. This system is one of two National Historic Landmarks that move — the other is New Orleans' St. Charles Streetcar line.

Andrew Smith Hallidie created the first cable railway in San Francisco known as the Clay Street Hill Railroad. Clay Street provided the template for San Francisco's cable car system that exists today.

Prior to cable cars, people used horses to move passengers and supplies up and down San Francisco's steep streets. Throughout the late 1800s, San Francisco converted from horse operations to cable cars, reaching 23 operating lines by 1890. There are three cable car lines still in operation today: Powell-Mason, Powell-Hyde, and California.

San Francisco's cable cars move using centralized, powerful electric motors that replaced the original steam powered engines. These engines move large wheels that pull the underground cables through the streets. Each car requires two operators on board in order for the cable car to move safely and efficiently — a grip operator and a conductor.

Exhibit 49 —Cable Car PMT



170 Million Total Unique Modes PMT

The cable car system employs "grips" that extend through the vehicle and directly clench and release the cable underground. This gripping action is performed by grip operators, or gripmen, through a ratchet lever. This procedure allows the cars to coast over crossing cables and brake whenever necessary. Conductors are responsible for fare collection, boarding management, and control over the rear wheel brakes. The San Francisco Municipal Railway operates the cable cars and reports the data to the NTD. In Report Year 2014, San Francisco's cable cars provided 9,247,927 passenger miles of service, making up 5 percent of total unique modes PMT.

Inclined Plane

An incline plane (IP), commonly referred to as a funicular railway, is a mode of transit that operates on a railway over steep slopes and grades. Moving cables power the vehicles, which have the ability to move both up and down the grade. An incline plane differs from a cable car in that the cable is permanently attached to the inclined plane vehicle.

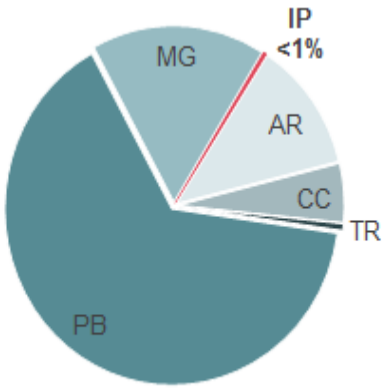
There are three NTD reporters that provide information for inclined planes: Cambria County Transit Authority (CCTA), Port Authority of Allegheny County (PAAC), and Chattanooga Area Regional Transportation Authority (CARTA).

Exhibit 50 — Monongahela Incline

Source: http://en.wikipedia.org/wiki/Monongahela_Incline

PAAC owns and operates the Monongahela Incline, also known as the 'Mon Incline', which is the oldest continuously operating incline plane in the country. John Endres built the incline plane in 1870 in response to the rapid expanse of Pittsburgh. As the factories and mills grew on flats near the river, people built houses nearby on top of Mount Washington. The construction of the incline facilitated further development and accessibility to the area.

Exhibit 51 —Inclined Plane PMT



CCTA owns and operates the Johnstown Inclined Plane, another transit service rich in history. This incline is 118-years-old and carries nearly 100,000 riders each year.

Lookout Mountain Incline Railway is the inclined plane operated by CARTA. Located in Chattanooga, Tennessee, this incline began operation in 1895 and today, is one of the word's steepest passenger railways.

Inclined planes operate using two cars that attach to a cable. This cable runs through a pulley at the top of the grade. The two cars run simultaneously, one car moves up the incline while the other moves down. This procedure allows the cars to counterbalance, therefore minimizing the energy required to propel the car going up the incline.

The inclined plane mode generates the smallest amount of passenger miles traveled of all NTD transit modes. During Report Year 2014, the IP passengers traveled 492,649 miles.

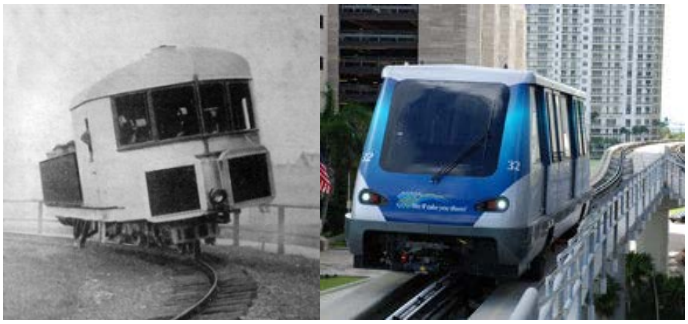
Monorail/Automated Guideway

Automated Guideway (MG) is a type of public transit system where trains operate over a single electric rail. Automated guideway systems are typically above grade, or elevated, and may either operate over or suspend from the central beam. Many airports utilize automated guideway systems for transferring passengers to and from terminals.

Henry Palmer invented and patented one of the earliest monorail designs in 1821. Since that time, many engineers experimented with a single rail system as a cheaper alternative to existing rail transport.

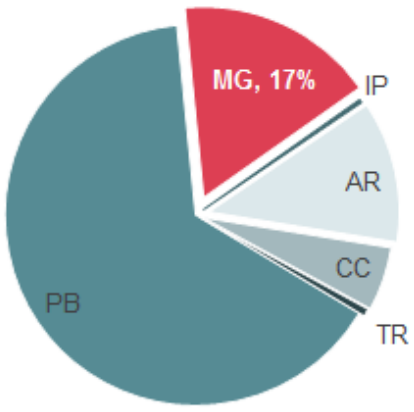
In 1903, Louis Brennan patented a gyroscopically-balanced monorail, or gyrocar, as shown in Exhibit 49. While he intended to use this system for military purposes, it did not move past the prototype stage.

Exhibit 52— Louis Brennan's Gyrocar & Miami-Dade Metromover



Sources: http://en.wikipedia.org/wiki/Monorail / www.miamidade.gov/transit/metromover.asp

Exhibit 53 —Monorail PMT



170 Million Total Unique Modes PMT

Since then, automated guideway systems have become significantly more modern. Today's automated guideway systems straddle center beams that support and guide the

train, and use pneumatic, or air-filled, rubber tires. The electric motors use third rails or contact wires that power the straddle beam to propel the trains forward.

Automated guideway systems benefit from being elevated above normal traffic, allowing them to operate free of congestion and pedestrians. Additionally, monorail systems are typically quiet and environmentally friendly due to their electrical propulsion, and costs tend to be lower than tunneling options.

There are six agencies that reported data for MG services to the NTD: Seattle Center Monorail Transit, Morgantown Personal Rapid Transit, Miami-Dade Transit, Detroit Transportation Corporation, Jacksonville Transit Authority, and Las Vegas Monorail Company.

Públicos

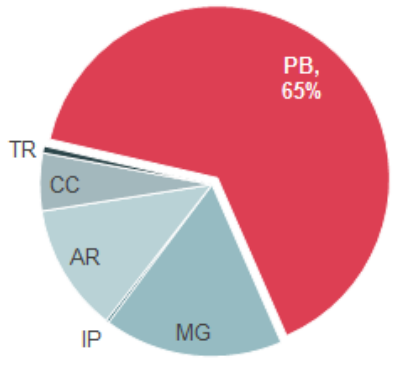
The Público system (PB) is a transit mode unique to Puerto Rico, and provides fixed route services predominantly in Puerto Rico's urbanized areas. The Público system is the largest public transportation system in Puerto Rico.

Exhibit 54— Público

Públicos are similar to informal transport systems operated in developing countries. The biggest distinction between the Público service and other transit modes is the way in which Públicos operate. Drivers own their vehicle and are given exclusive rights to the route where they provide service. The drivers, or route owners, are responsible for their service and operate as independent business units. Besides maintaining the vehicles and routes, drivers must determine their schedule and supply the funds to run the service.

Puerto Rico Highway and Transportation Authority (PRHTA) manages the Público service and grants permission to potential drivers. Before a driver can begin operation, they must obtain permission from PRHTA for the route. PRHTA surveys the area and determines if there is a need for transit. If approved, PRHTA franchises the rights for that particular route to the prospective operator.

Exhibit 55 — Público PMT



There are currently over 2,800 operators providing Público service. In some cases, drivers may have rights to multiple routes and employ others to operate the service on their behalf.

The drivers operate entirely from revenues earned from passenger fares. PRHTA does not provide drivers with operating or capital assistance.

Drivers collect and report their financial and service data to PRHTA, who subsequently reports it to the NTD under the Público mode.

Públicos account for 65 percent of the passenger miles traveled by unique transit modes in the U.S. This translates to 110,546,671 PMT out of the 170 million unique modes' PMT.