TARTA Next

Comprehensive Operations Analysis

Peer Review

November 2021

NELSON NYGAARD

Photo: Don Johnson 395 (Flickr)

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1 INTRODUCTION

TARTA's Comprehensive Operations Analysis (COA), branded as TARTA Next, is a comprehensive and detailed look at TARTA's transit services with the goal of strengthening public transportation services in the Toledo area. The COA process will ultimately develop recommendations that help TARTA fulfill their desired goals that include creating a balanced, equitable and efficient network of services.

As a first step, the COA examines TARTA's existing system's performance and how it compares with other similar sized and positioned transit agency, or agency peers. The goal of this analysis is to identify where TARTA excels, or falls short, and potential opportunities for service improvements. TARTA Next also includes best practices from peer agency programs and policies across the country that not only educate the planning process, but inspire TARTA to consider future service improvements.

KEY FINDINGS

- With a population of about 375,000 residents, TARTA's service area is among the smallest when compared with the peer agencies. However, **the region's population density is higher or on par with the peers**, suggesting a relatively strong market for transit services.
- Among the peer agencies, the Toledo region is at the low end of transit investment. As an agency, **TARTA spends less on transit service than all but one of the selected peer agencies**. TARTA also provides less service by comparison, as measured by transit service hours per capita. Finally, **TARTA carries the lowest number of riders** among all agencies – as measured in terms of total ridership and riders per capita.
- **TARTA under-invests in transit service relative to the peer agencies.** TARTA has the second-lowest operating expenses ($27.2 M) and the lowest capital expenses ($1.3M) of the peer agencies.
- **TARTA has the lowest cost per revenue service hour** compared to peer agencies, meaning TARTA is efficient with its service delivery.
- **In terms of cost per rider, however, TARTA is more expensive to operate compared to peer agencies.** This suggests that that TARTA is not doing a good job attracting riders to the network. Likewise, TARTA serves notably fewer passengers per revenue hour than its peers.

- The peers offer different ideas in terms of best practices. Some of the highlights for consideration by TARTA include:
  - **Bus Rapid Transit** – The Rapid, in Grand Rapid, Michigan offers an example of a small system bus rapid transit (BRT) line that provides fast, direct, and frequent service on one the region's most important corridors.
  - **Same-day on demand service** (microtransit) to serve low density high need areas. Several peers, including COTA, use microtransit to provide a convenient transit service where fixed route service is not feasible.
  - **Fare discounts to low-income riders** – Three peer agencies have implemented fare-capping systems, which removes the fare penalty for low income riders who pay per trip rather than purchase a monthly pass.
  - **Partnerships with other mobility providers** – At least one peer agency collaborates with local and regional mobility partners, including bike share and electric scooter share to site and manage services.

2 PEER AGENCIES

OVERVIEW

TARTA Next stakeholders set out to identify transit agencies that could support a constructive comparison of service performance and characteristics as well as offer ideas for best practices and new ideas. The process for selecting peers first included establishing an evaluation framework and using a combination of stakeholder and consultant team input together with National Transit Database (NTD) datasets to identify potential peers. Potential peers were considered in light of the evaluation framework to create the recommended peers.

The peer review evaluation framework considered four factors:

- **Population.** The service area population is a strong indicator of similar employment/activity centers, commute patterns, and access to funding.
- **Urban Form.** Having a similar urban form is another important indicator of similar density and street network. Several Ohio peer regions were prioritized for this reason. Newer regions in the west, for example, were not selected due to more auto-oriented land use patterns and lower density. Other factors considered include natural features, such as large bodies of water or other geography that impacted how the region developed.
- **Recent Service Redesign.** Because this COA is taking a broad and detailed look at TARTA's services, communities that recently went through this process were prioritized.
- **Utilization of Innovative Services.** Similarly, this COA is considering new and innovative approaches to meeting mobility needs in the Toledo region. As such, peer agencies that are providing innovative services were prioritized.

TARTA PEER AGENCIES

A total of 17 possible peer agencies were evaluated using this screening process and five transit agencies were selected that best satisfied the evaluation criteria used (see Figure 1).

In addition to the five selected peers, this peer analysis presents "case studies" from other similarly sized agencies throughout the country that have been especially innovative in their approach to transit service delivery. The innovations could include elements such as enhanced transit services (e.g., Bus Rapid Transit), innovative vehicle technologies (e.g., electric, or non-diesel vehicles), emerging mobility (e.g., microtransit or mobility on demand services), and partnerships with other transportation providers (e.g., transportation network companies like Uber or Lyft). Based on a review of industry leaders in these areas, as well as suggestions from TARTA staff, the "case study" agencies included in this peer review include Lane Transit (Eugene, OR), San Joaquin RTA (Stockton, CA), StarTran (Lincoln, NE), Metro Transit (Madison, WI) and PSTA (St. Petersburg, FL).

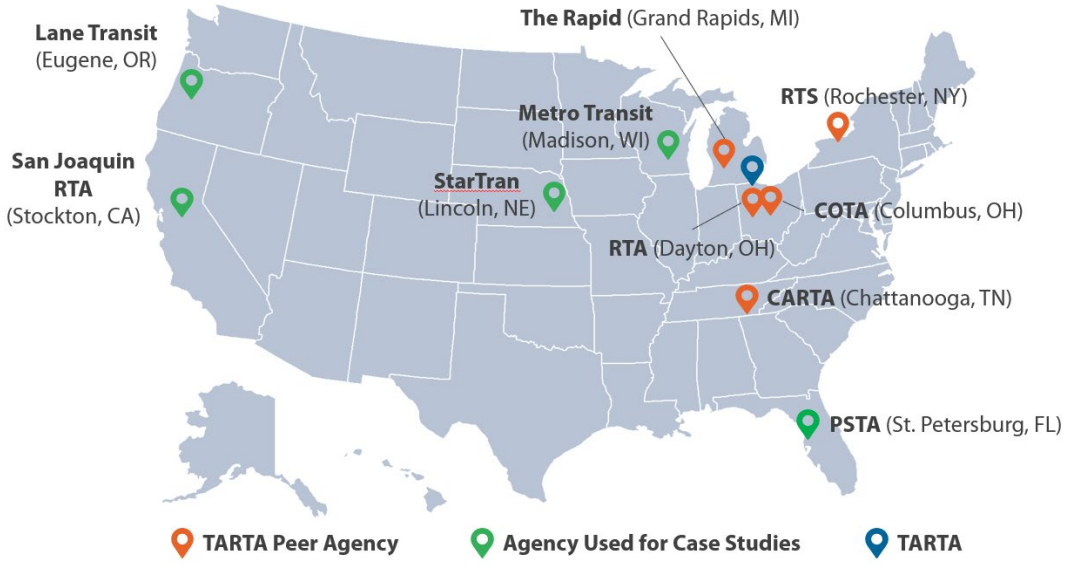
The selected peers, four of which are located throughout the Midwest and Great Lakes region and the other in the South, include:

- **Greater Dayton Regional Transit Authority (RTA)** – the primary transit provider in the Dayton, OH area.
- **Central Ohio Transit Authority (COTA)** – the primary transit provider in the Columbus, OH area.
- **Chattanooga Area Regional Transportation Authority (CARTA)** – the primary transit provider in the Chattanooga, TN area.
- **Interurban Transit Partnership (The Rapid)** – the primary transit provider in the Grand Rapids, MI area.
- **Rochester-Genesee Regional Transportation Authority (RTS)** – the primary transit provider in Rochester, NY area.

Best Practice Peers

In addition to the five selected peers, this peer analysis presents "case studies" from other similarly sized agencies throughout the country that have been especially innovative in their approach to transit service delivery. The innovations could include elements such as enhanced transit services (e.g., Bus Rapid Transit), innovative vehicle technologies (e.g., electric, or non-diesel vehicles), emerging mobility (e.g., microtransit or mobility on demand services), and partnerships with other transportation providers (e.g., transportation network companies like Uber or Lyft). Based on a review of industry leaders in these areas, as well as suggestions from TARTA staff, the "case study" agencies included in this peer review include Lane Transit (Eugene, OR), San Joaquin RTA (Stockton, CA), StarTran (Lincoln, NE), Metro Transit (Madison, WI) and PSTA (St. Petersburg, FL).

Figure 1 TARTA Peer Agencies



The following section provides a short summary of each of the peer agencies, including TARTA. This information is intended to provide context and understanding to support interpretation of the peer review findings. It includes summary tables at the end of the section that show an overview of directly operated services (see Figure 2) and a breakdown of operating revenue sources (see Figure 3) and capital revenues (see Figure 4).

Toledo Area Regional Transit Authority (TARTA)

TARTA provides service to the Toledo region through a combination of fixed-route, complementary paratransit, and general public demand-response service (in three distinct zones throughout the area). TARTA's fixed-route network is largely radial with the system focused on providing access to and from downtown Toledo.

TARTA is funded through a variety of federal (FTA) and state grants, as well as passenger fares. The Ohio Department of Transportation's (ODOT) provides a small amount of general revenue funds (Urban Transit Program) that support TARTA's operations (1.7%). The remainder of TARTA's funds are generated through property tax revenues from the City of Toledo and partner municipalities. TARTA also partners with the University of Toledo to provide seasonal services focused largely on the UT campus. TARTA's governing body consists of a Board of Trustees, comprised of 13 members from local jurisdictions as well as representatives from Lucas and Wood Counties.

Greater Dayton Regional Transit Authority (RTA)

The Greater Dayton Regional Transit Authority serves Montgomery County and parts of Greene County. RTA's provides fixed-route services in both counties and operates one of the country's remaining electric trolley bus networks. Additionally, the

agency operates on-demand service to the public (zone-based) as well as complimentary paratransit. Most fixed-route services serve or pass through Downtown Dayton as this is largely a radial network. A system map can be found here: http://www.i-riderta.org/schedules/rta-system-map. The RTA is funded through a combination of grants, a regional sales tax levied in Montgomery County, service contracts, and passenger fares. While the operating budget relies heavily on local funds (61%), federal funds (21%) and passenger fares (15%), the capital program is primarily funded with federal (77%) grants and local contributions (19%).

A Board of Trustees, which includes nine members that represent the Dayton area, provides oversight for the agency for planning, capital investments, personnel, and finance. A second body, the Customer Advisory Group consists of selected members (through applications) that advise RTA staff to help improve the bus system, promote RTA responsiveness to riders, and recommend possible solutions to staff.

Central Ohio Transit Authority (COTA)

The Central Ohio Transit Authority serves the Columbus metropolitan area with fixed route bus service, ADA paratransit service and general-public demand response service (branded as COTA//Plus). COTA also operates CMAX bus rapid transit (BRT) on Cleveland Avenue. COTA is largely a radial system but also operates several cross-town services that do not serve downtown and begin to form a grid network. A system map can be found here: https://moovitapp.com/index/public-transit-maps/?map=cotasystemmap.pdf

COTA is funded through a combination of federal grants and local revenues, with local funds raised through a permanent 0.25% sales plus a 10-year 0.25% sales tax. The operating program largely relies on local funds (64%) plus passenger fares and revenues generated through service contracts and advertisements. The capital program is supported through federal grants and local matching funds, plus a small amount of passenger fares. COTA is governed by a Board of Trustees comprised of 13 individuals that represent the City of Columbus, Franklin County, and neighboring suburban communities.

Chattanooga Area Regional Transportation Authority (CARTA)

The Chattanooga Area Regional Transportation Authority (CARTA) provides transit service for the City of Chattanooga, Hamilton County, and the surrounding areas. CARTA is also the parking authority for the City of Chattanooga, which includes operations and management for more than 4,300 parking spaces. Transit services include a combination of fixed-route bus services, ADA paratransit and general-public demand response services. CARTA has a radial bus network with all routes (aside from Dial-A-Ride services) terminating in or serving downtown Chattanooga. A system map can be found here: https://www.gocarta.org/routes-schedules/. Special services include the downtown and parking shuttles and an incline railway, a historic passenger railway that connects downtown Chattanooga with Lookout Mountain.

CARTA is funded through a combination of federal and state grants, local contributions, passenger fares and revenue generated through parking operations and the Lookout Mountain service. CARTA is somewhat unique among the peers in that nearly half (47%) of its operating funds are raised through directly generated revenues, including passenger fares but also parking revenues. CARTA's capital program relies heavily on federal (83%), and state (9%) grants plus local (8%) revenue.

CARTA has a Board of Directors who are appointed by the Mayor of Chattanooga (10 seats) and Hamilton counties (1 seat).

Interurban Transit Partnership (The Rapid)

The Interurban Transit Partnership was formed in 2000 to provide public transit services for the Grand Rapids metropolitan area. The Rapid services include fixed-route bus services, including a single BRT line (the Silver Line), ADA paratransit and demand response services. It also manages the regional vanpool program. The system is largely a radial network, however, there are

elements of a grid system, for example, crosstown services south of downtown Grand Rapids. A system map can be found here: https://www.ridetherapid.org/assets/files/16u/sm-10.4.21.pdf

The Rapid is funded through a combination of federal and state grants, plus local revenues raised through a property tax (millage) and passenger fares. Operating funds are largely raised by state (32%) and local (42%) funds, while the capital program is largely funded through federal (80%) and state (20%) grants.

The Rapid is governed by a 15-member Board of Directors that represent six municipalities.

Rochester-Genesee Regional Transportation Authority – Regional Transit Services (RTS)

The Rochester-Genesee Regional Transportation Authority (RTS) is a collective of services that include the City of Rochester plus the surrounding counties of Livingston, Monroe, Ontario, Orleans, Seneca, Wayne, and Wyoming. The focus of the peer review is on the urbanized portion of the network, Regional Transit Services (RTS), which serves the City of Rochester and Monroe County.

The RTS provides fixed route service, plus ADA paratransit and an on-demand service available throughout the service area. The fixed-route system is a radial network. A system map can be found here: https://www.myrts.com/Portals/0/Schedules/RTS%20System%20Map.pdf?ver=2021-07-29-115546-013&timestamp=1629122051006

The agency is funded through a combination of federal and state grants, plus contributions from local governments and passenger fares. Operating expenses are primarily funded through state funds (51%) plus fare revenue and directly generated revenues (28%) with federal grants and local contributions accounting for about 10% each. The capital program is funded through federal (28%) and state (63%) grants plus some local funds.

The RTA is governed by a 14 member Board of Commissioners, including four commissioners appointed by Monroe County (including the City of Rochester), plus one commissioner from each of the member counties.

Figure 2 Directly Operated Agency Services

Peer Agency	Fixed-Route	Bus Rapid Transit	ADA Demand Response	Demand Response and On Demand	Other Services
TARTA	■		■	■	
RTA	■		■		Trolley Bus
COTA	■	■	■	■	Downtown Circulators
CARTA	■		■	■	Passenger Incline Parking Services Downtown Circulators
The Rapid	■	■	■	■	
RTS	■		■	■	

Source: National Transit Database (NTD), 2019

Figure 3 Peer Agency Operating Revenues by Source (Percentages) – All Services

Funding	TARTA	RTA	COTA	CARTA	The Rapid	RTS
Total Operating Expense	$27,208,759	$76,585,826	$169,304,679	$21,282,774	$47,555,016	$81,627,093
Operation Funding Sources						
Federal Contributions	29.6%	21.2%	0.3%	16.6%	5.1%	10.7%
State Contributions	1.1%	2.7%	0.0%	12.3%	32.4%	51.3%
Local Contributions	46.5%	61.1%	63.5%	24.4%	42.2%	10.2%
Fares and Directly Generated Contributions	22.8%	15.0%	36.3%	46.7%	20.2%	27.8%

Source: National Transit Database (NTD), 2019

Figure 4 Peer Agency Capital Revenues by Source

Funding	TARTA	RTA	COTA	CARTA	The Rapid	RTS
Total Capital Expense	$1,313,968	$40,101,967	$53,519,707	$3,566,291	$33,312,812	$11,091,636
Capital Funding Sources						
Federal Contributions	99.3%	76.9%	46.7%	83.1%	80.0%	28.4%
State Contributions	0.0%	3.8%	0.0%	9.0%	20.0%	63.3%
Local Contributions	0.0%	19.3%	47.9%	7.9%	0.0%	8.2%
Fares and Directly Generated Contributions	0.7%	0.0%	5.4%	0.0%	0.0%	0.0%

Source: National Transit Database (NTD), 2019

3 PERFORMANCE METRICS

The study team compared and contrasted TARTA fixed route services with fixed route services at the identified peer agencies. This process was designed to understand and analyze the efficiency and effectiveness of TARTA's existing fixed route service relative to the five peer agencies. Fixed route services were analyzed as part of this peer review because demand responsive services, while important to TARTA's services, are not a focus of the comprehensive operations analysis.

The analysis included:

- Individual transit agency **service area characteristics**, factors like current ridership, annual budgets, service area size and population and employment density.
- An evaluation of the region's investment in transit service and the impact of this investment relative to the underlying service area population. These metrics considered peers terms of **per capita investment and impact**.
- **Performance indicators and metrics** commonly used in the transit industry that measure cost efficiency, cost effectiveness and service effectiveness.

Data used to support the analysis includes the National Transit Database (NTD) for 2019. All data, therefore, reflects costs and ridership measured before the COVID-19 pandemic.

This analysis reveals that relative to its peers, TARTA is cost-efficient (in terms of operating cost per revenue hour) but that TARTA is less cost-effective (operating cost per passenger). This contrast is largely due to lower productivity (passengers per revenue hour) and lower ridership per capita compared to the peer agencies. Of course, there are no perfect comparisons and the findings gleaned through this process are intended only to demonstrate potential areas of opportunities for improvement at TARTA.

SERVICE AREA CHARACTERISTICS

Peer agencies used in this analysis were selected because they share similar characteristics with the Toledo metropolitan area or TARTA. That said, there are no series of communities that are exact twins.

In terms of service area population, TARTA is most like The Rapid in Grand Rapids, Michigan. The Rapid's service area population is larger by about 45,000 people. Both the RTA (Dayton) and RTS (Rochester, NY) have more residents than the TARTA service area, while COTA's service area is more than double. In terms of population density, TARTA's service area is

similar to The Rapid and RTS and only COTA serves an area with higher population density. TARTA carries the fewest passengers among the peers, although Chattanooga is only slightly higher than TARTA (see Figure 5).

In terms of system size – as measured by operating expense – TARTA's annual operating budget is larger than only CARTA. The Rapid spends almost double (86%) as compared with TARTA and the Greater Dayton RTA spends nearly 150% more on annual transit operations than TARTA.

Figure 5 Peer Agency Overview (Fixed Route)

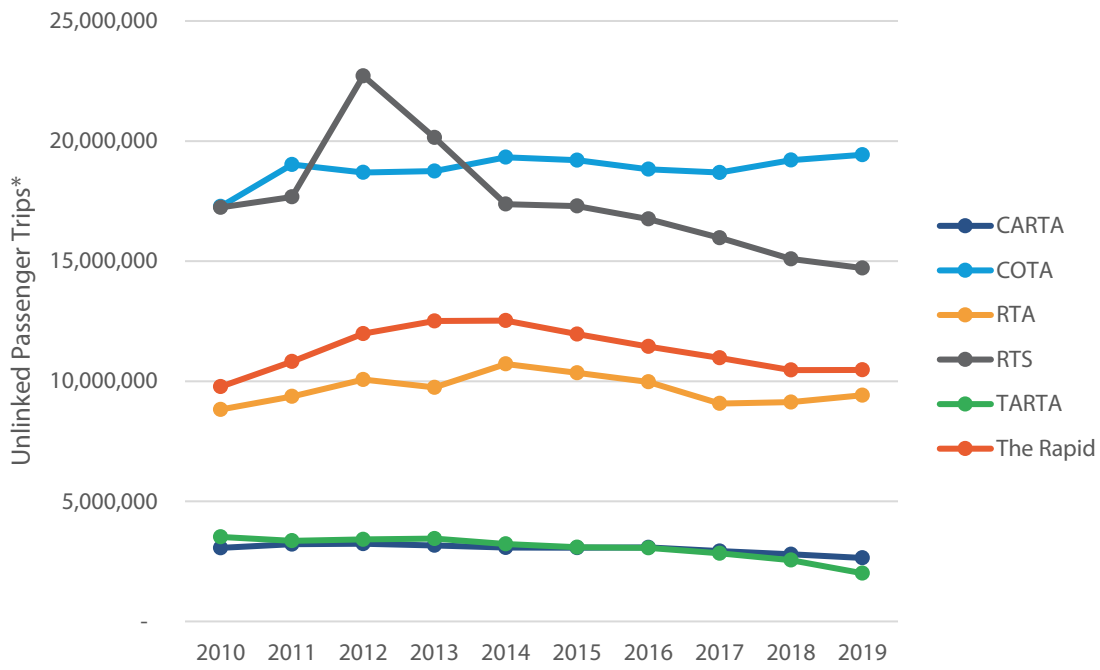
Agency	Location	State	Passenger Trips	Revenue Hours	Service Area Population	Service Area Population Density (sq. mi)	Total Operating Expense
Toledo Area Regional Transit Authority (TARTA)	Toledo	OH	1,736,208	252,334	374,213	2,635	$19,946,413
Greater Dayton Regional Transit Authority (RTA)	Dayton	OH	7,146,375	355,462	559,062	2,040	$49,120,935
Central Ohio Transit Authority (COTA)	Columbus	OH	19,141,454	1,159,200	1,060,666	3,274	$158,164,925
Chattanooga Area Regional Transportation Authority (CARTA)	Chattanooga	TN	2,095,796	176,500	167,674	580	$16,631,235
Interurban Transit Partnership (The Rapid)	Grand Rapids	MI	10,093,127	464,964	417,978	2,697	$38,953,718
Rochester-Genesee Regional Transportation Authority (RTS)	Rochester	NY	14,472,203	454,227	694,394	2,370	$72,915,528

Source: National Transit Database (NTD), Fixed Route Services Only, 2019

The study team also evaluated ridership over the past ten years of available NTD data (2010-2019) to better understand trends (Figure 6). With the exception of COTA, which has seen modest ridership gains, all other agencies (including TARTA) either had stagnant or declining ridership starting in 2014/2015. This is a national phenomenon that can partially be attributed to Transportation Network Companies (TNCs) such as Uber and Lyft, but also lower costs associated with owning a vehicle (gas, insurance, etc.) as well as the widespread expansion and convenience of online shopping.

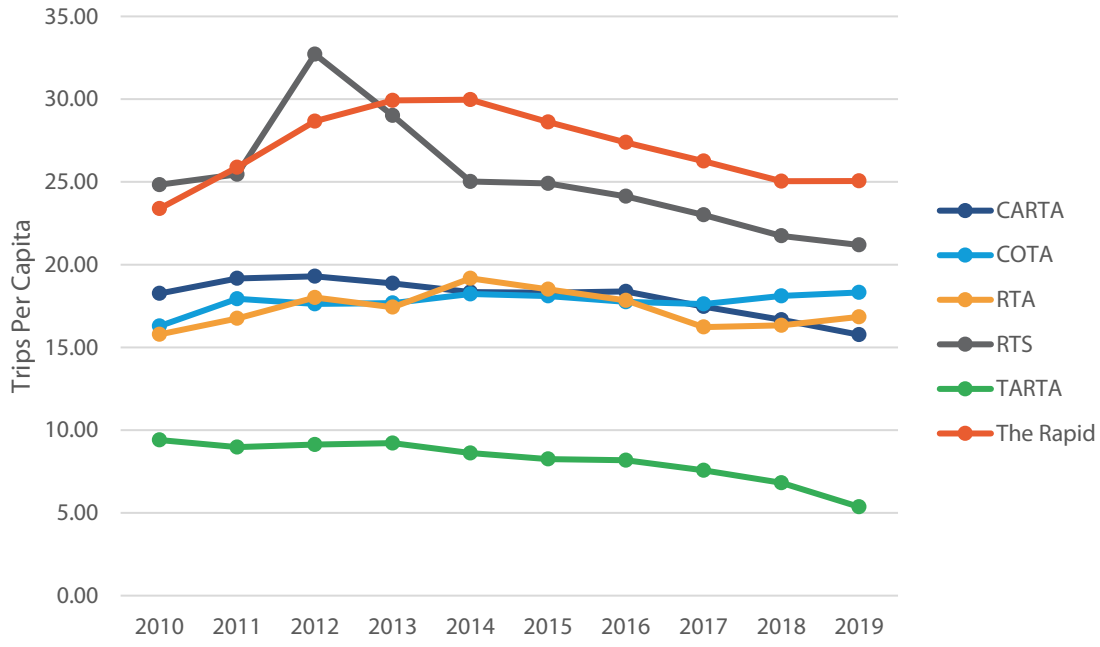
To normalize this information, Figure 7 shows ridership per capita (using 2019 service area population data). While it is understood that service area populations vary by year, normalizing the ridership trends this way shows how the peer agencies compare in terms of utilization. These data illustrate that TARTA is lagging in terms of attracting riders to the system when compared to the peer agencies.

Figure 6 Unlinked Passenger Trips (2010-2019)



*All Services

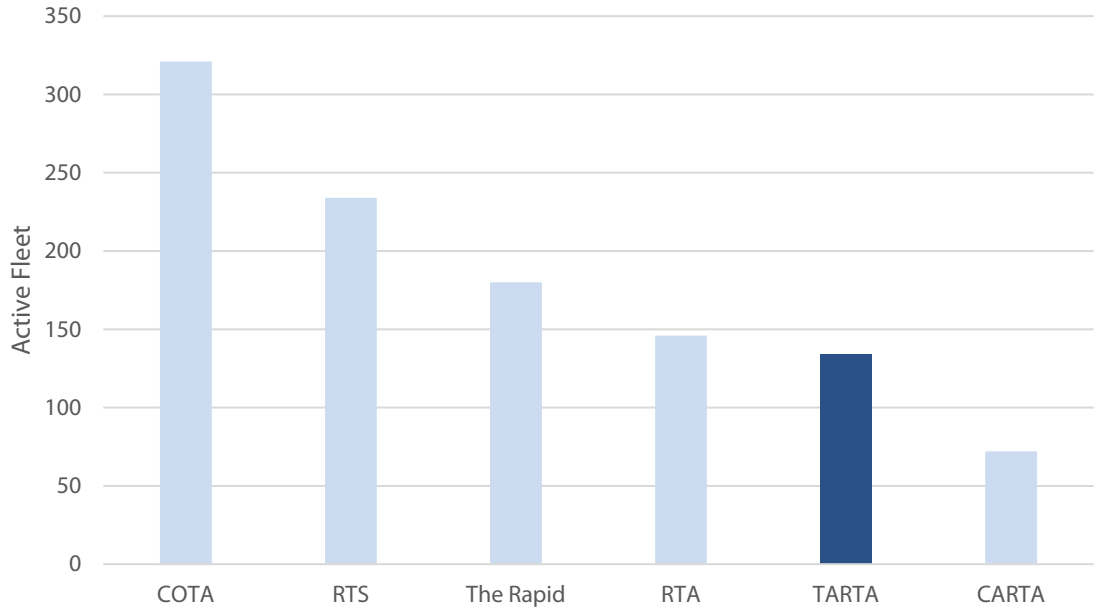
Figure 7 Unlinked Passenger Trips Per Capita (2010-2019)



Unlinked Passenger Trips/Service Area Population

Figure 8 compares the peer agencies in terms of total fleet, which shows that TARTA has a similar number of vehicles compared to agencies that carry many more passengers (e.g., RTA). It should be noted that in 2019 when these data were collected, TARTA operated school tripper services, which has since been discontinued.

Figure 8 Active Fleet



*Includes BRT vehicles for The Rapid

PER CAPITA INVESTMENT AND IMPACT

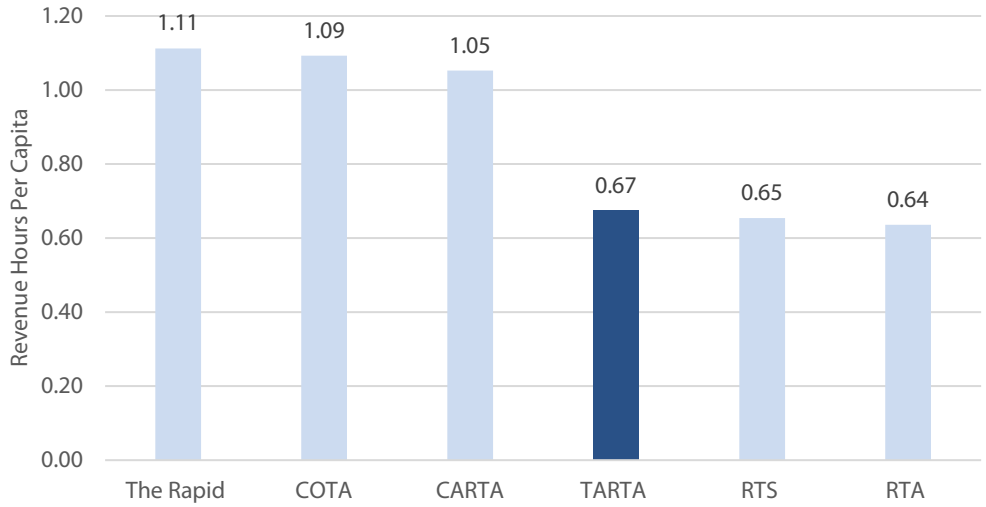
One of the key differentiators between transit agencies – and their relative performance – is the amount of service available. As part of this peer review, the study team measured service availability in terms of how much service is available relative to the underlying population (revenue hours per capita) and how well the service is used (trips per capita). These metrics both describe the investment and impact of peer agency's services.

Relative to its peers, the Toledo Region invests less in transit service and - by far - serves fewer individuals. It suggests that there are opportunities make future investments in transit service in the Toledo area as well as make services more useful to residents in the region.

Revenue Hours Per Capita

Revenue hours per capita is an indicator of the overall investment of transit in a region. As seen below in Figure 9, TARTA operates 0.67 revenue hours per person, which is similar to RTS and RTA but well below COTA, CARTA, and The Rapid that operate more service per person – with 1.05 to 1.11 revenue hours per capita.

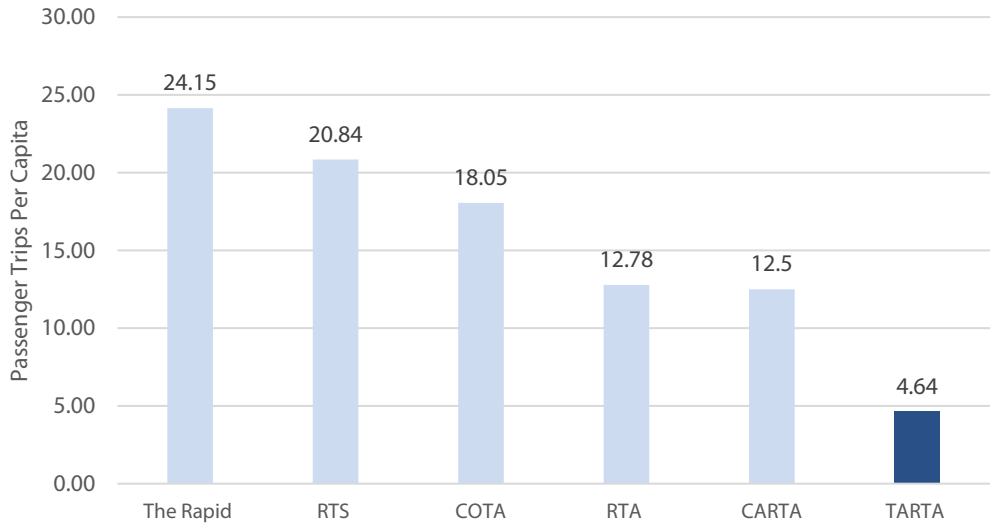
Figure 9 Revenue Hours per Capita



Passenger Trips Per Capita

Passenger trips per capita simply measures the utilization of an agency's services compared to service area population. This measure normalizes the utilization of transit services in the Toledo region compared to peer agencies and is an indicator of transit's market share in the region. As shown below in Figure 10, passenger trips per capita among TARTA is significantly lower (4.64) and is an outlier when compared to its peers. The Rapid (24.15) and RTS (20.84) have the highest number of passenger trips per capita.

Figure 10 Passenger Trips per Capita



Source: National Transit Database (NTD)

PERFORMANCE INDICATORS AND METRICS

An important part of the peer review involved benchmarking TARTA's performance with other agencies as a strategy to understand the agency's relative performance and evaluate its strengths and weaknesses. This analysis focused on a combination of service inputs (costs), outputs (revenue service hours and miles) and consumption (ridership and farebox revenue). Performance data is then expressed in terms of three performance indicators commonly used in the transit industry:

- **Cost efficiency** – measures the ratios of service inputs to service outputs, and the efficiency of resource allocation within the agency. This includes metrics like operating cost per revenue hour.
- **Cost effectiveness** – considers the ratio of service inputs to service consumption and measure how well the service is utilized by the community. This includes measures like operating cost per passenger and farebox recovery ratio.
- **Service effectiveness** – evaluates service consumption to service outputs and measure how well the capacity of service is being utilized by the consumer. This includes measures such as passengers per revenue hour or mile.

In general, relative to its peers, TARTA scores well in terms of its cost efficiency and low in terms of cost effectiveness. This finding is consistent with the per capita comparison described above. In short, it suggests that TARTA uses its resources well, but that the services are not sufficiently attractive to riders to be cost effective.

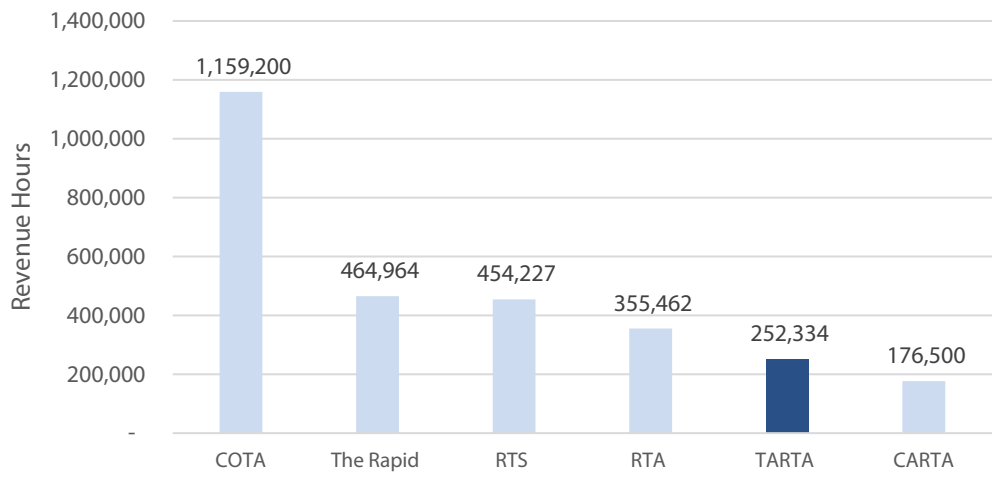
Cost Efficiency

Cost efficiency measures how efficiently resources are used by the transit agency. It reflects a combination of factors outside of agency control, such as prevailing wage rates as well as considerations within an agency's influence, like staffing practices and assignments, and resources not used in revenue service (i.e., deadhead hours).

Revenue Hours

Revenue hours are the scheduled hours and/or the actual hours of travel while a bus is in service and on-route (including layover). Revenue hours can be used to understand an agency's overall investment in transit services, and it's cost efficiency. TARTA's total revenue hours in 2019 was lower than four of its peers, while CARTA provided significantly fewer revenue hours than the peers, including TARTA (see Figure 11).

Figure 11 Revenue Hours

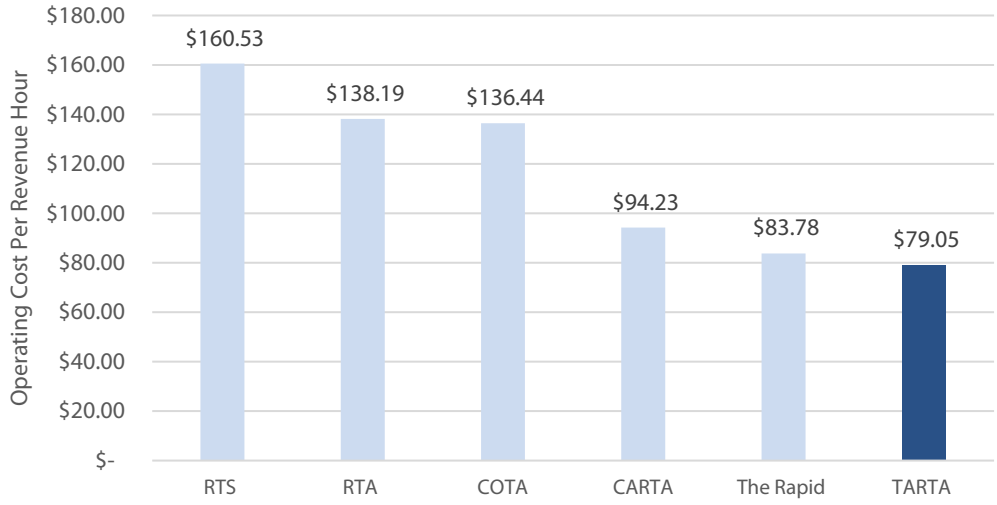


Source: National Transit Database (NTD), 2019

Operating Cost per Revenue Hour

Among the peers, three agencies (RTS, RTA and COTA) have higher cost structures than the other three agencies (CARTA, The Rapid and TARTA) (see Figure 12). Among the six peers, TARTA's average operating cost per revenue hour was $79.05 in 2019, making it the most efficient service to operate per revenue hour amongst the peers.

Figure 12 Operating Cost per Revenue Hour



Source: National Transit Database (NTD), 2019

Cost Effectiveness

Cost effectiveness measures how well the service is used by the community and because the measures consider ridership, the measure starts to capture the usefulness or the value of the service to the community. Unless it has a high-cost structure, a transit agency that attracts a lot of riders for example, should score high in measures of cost effectiveness.

Operating Cost per Passenger

Operating cost per passenger is an agency's total operating cost divided by the total number of passengers carried per year and is a basic measure of cost effectiveness. As shown in Figure 13, TARTA compares less favorably in this category, which is largely a function of low ridership compared to the peers. In other words, given the investment in transit in the Toledo region, there is a significantly lower return in terms of ridership as compared to the peer agencies. The Rapid is the most efficient service amongst the peers, costing the agency an average of $3.86 per passenger.

Figure 13 Operating Cost per Passenger

Source: National Transit Database (NTD), 2019

Fares

Fares are an important revenue source for transit agencies, including the agencies included in this peer review. In all cases, the peer agencies received fare revenues directly from passengers using a combination of cash fares, passes, or pre-paid tickets. Fare revenue reflects a combination of the number of rides provided (passengers) and the amount charged for each fare, recognizing that transit agencies receiving federal funding are required to offer half-fares to older adults and people with disabilities. Many transit agencies also have other reduced fare and bulk discount fare programs. It should be noted that TARTA's fare structure is in line with peer agencies but is the only one that doesn't offer a day pass.

TARTA charges $1.50 for an adult one-way full cash fare. COTA, CARTA and The Rapid charge more than TARTA, whereas RTS charges less and the RTA is the same. All the peers except RTS offer monthly or 31-day passes, while several peer agencies offer single day passes (see Figure 14).

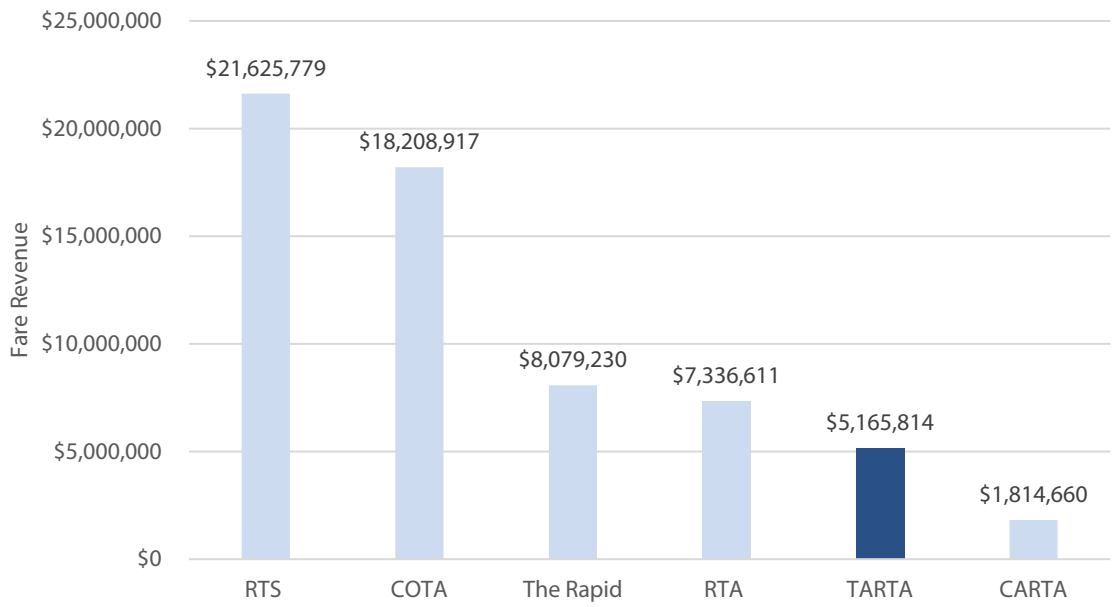
Figure 14 Peer Agency Fixed-Route Fare Structure

	TARTA	RTA	COTA	CARTA	The Rapid	RTS
Single Ride						
Adult	$1.50 or 1 token	$1.50 or $2.00 (cash)	$2.00	$2.00	$1.75	$1.00
Discounted	$0.75	$0.75 or $1.00 (cash)	$1.00	$0.75	$0.85	$0.50
Passes						
One-Day						
Adult	N/A	$3.00	$4.50	$1.00	$3.50	$3.00
Discounted	N/A	$1.50	$2.25	N/A	$2.25	$1.50
Monthly or 31-Day						
Adult	$60.00	$30.00	$62.00	$57.00	$47.00	N/A
Discounted	$30.00	$15.00	$31.00	N/A	$30.00	N/A

Source: Agency websites

During 2019, TARTA and its peers all collected passenger fares to help fund services (shown in Figure 15). TARTA's fare revenues is also near the bottom of the peers, likely reflecting a combination of low ridership overall. Amongst the peers, RTS had the greatest fare revenue, while CARTA had the lowest.

Figure 15 Fare Revenue

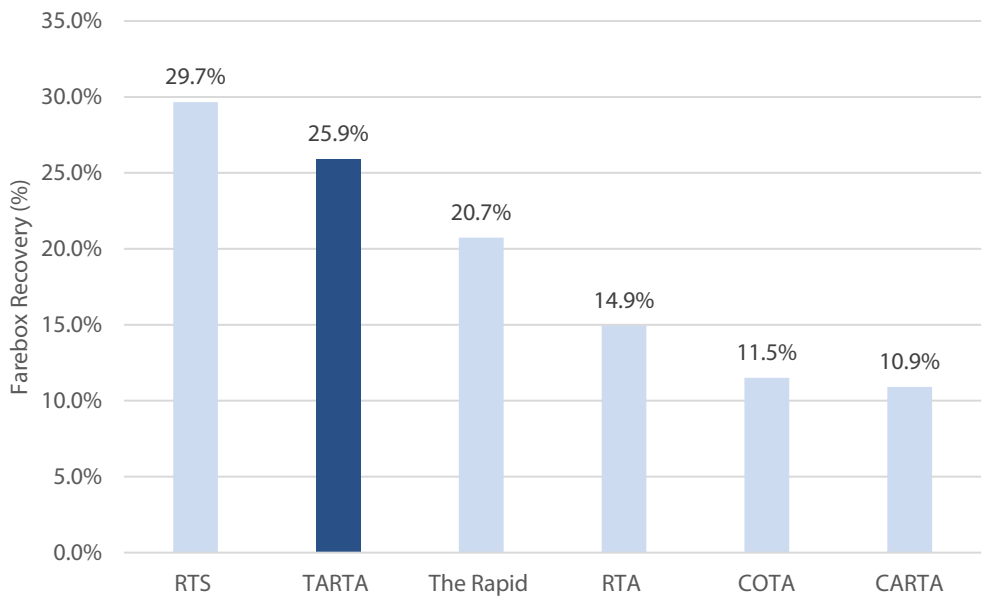


Source: National Transit Database (NTD), 2019. Fares from bus and bus rapid transit services.

Farebox Recovery Rate

Farebox recovery is measured to understand how much of an agency's operating costs are recovered from fares and is another way to measure cost effectiveness. The farebox recovery rate amongst the peers ranged from 10.9% to 29.7% (see Figure 16). TARTA's farebox recovery ratio is amongst the highest of the peers (25.9%), whereas CARTA has the lowest (10.9%). While overall ridership on TARTA is low compared to the peers, TARTA's high farebox recovery can largely be explained by the fact that riders had to pay for each segment of their trip, even if transfers were involved.

Figure 16 Farebox Recovery



Source: National Transit Database (NTD), 2019

Service Effectiveness

This performance metric (also referred to as "productivity") measures how well the service is being used in relation to the amount of service available. It includes both how much transit service is available and how well the existing service is being used.

Passengers per Revenue Hour

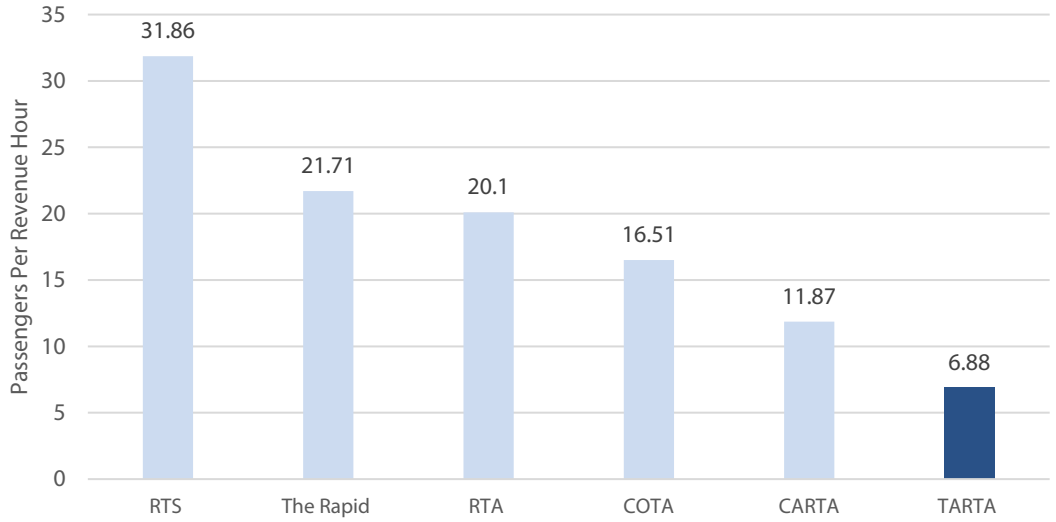
Passengers per revenue hour ranged from 6.9 to 31.9 among the peers, as shown in Figure 17. RTS is an outlier among the peers, carrying roughly 50% more riders per revenue hour than the next highest transit agencies (The Rapid and RTA). RTS, with nearly 32 passengers per revenue hour, has a very high productivity rate even compared to much larger regions. TARTA's passengers per revenue hour is the lowest among the six agencies and significantly lower (6.88) than the number of passengers per revenue hour achieved by the closest peer (CARTA).

Two of the peer agencies – RTS and RTA – provide similar amounts of service relative to the underlying population (Revenue Hours per Capital). These two agencies also serve areas with similar levels of underlying population density, suggesting some similarities. RTS and RTA, however, invest significantly more in transit service and are successfully attracting more riders to their services.

There are a variety of potential lessons from this analysis – TARTA's service levels may be too low to attract riders to their services and/or TARTA's services are not well aligned with the

underlying market needs. TARTA Next will consider both potential explanations as the process looks to improve and strengthen transit services.

Figure 17 Passengers per Revenue Hour



Source: National Transit Database (NTD), 2019

4 BEST PRACTICES

INTRODUCTION

In addition to looking at peer agency performance, the study team also considered innovative approaches and practices that the individual agencies used to strengthen their services, attract riders and increase relevance with their communities. This review resulted in a handful of categories of innovations and best practices, which are broadly grouped into four main categories:

1. **Transit Service Delivery Models / Travel Markets**
2. **Fare Policy and Fare Technology**
3. **Partnerships**
4. **Technology**

TRANSIT SERVICE DELIVERY MODELS/TRAVEL MARKETS

Each of TARTA's peers – like TARTA - operate fixed-route and demand response services. Several of the peers also operate additional services designed to meet specific market needs. The tailored service models included efforts to provide higher capacity, faster services like bus rapid transit as well as more flexible demand response services in high need lower density areas. Other services included traditional commuter services, like vanpools and carpools and shuttles and circulators. Examples of these service models include:

- **Bus Rapid Transit (BRT)** – both The Rapid and COTA operate a single BRT line on major regional corridors. The two agencies define BRT differently in both cases the BRT is designed to provide fast, direct, limited stop service.
  - The Rapid's BRT line, called Silver Line, operates on Grand Rapid's north-south primary corridor (Division Avenue) with a loop through downtown. The BRT is 9.6 miles long and operates with 15 minute service on weekdays and 30 minute service on weekend days. BRT elements include limited stops, level boarding, off-board fare payment, and upgraded stations.
  - COTA's BRT service, branded as CMAX, connects downtown Columbus and Westerville along Cleveland Avenue. For most of its alignment (downtown to SR-

161), it provides 10 minute service during peak periods and 15 minute service at other times, including weekend days. The northern end of the corridor past SR-151 provides 30 minute service all day. BRT elements include limited stops, traffic signal priority, upgraded stations and dedicated lanes for part of its alignment.

- **Downtown and Parking Shuttles** – several peers operate shuttle services that are specifically oriented around serving downtown areas.
  - The Rapid operates branded shuttle services (DASH) that connect downtown attractions and parking lots. Service operates on weekdays only, is free and open to the public.
  - COTA's CBUS is a circulator that connected downtown Columbus' major destinations and neighborhoods. Prior to the pandemic the service was free of charge and available 7 days per week with a bus arriving every 10-15 minutes. Hours of operation were between 7:00 AM and 10:00 PM Monday through Thursday and slightly longer hours on Friday and Saturday and shorter hours on Sunday.
  - CARTA operates the Downtown Electric Shuttle, a free service serving Downtown Chattanooga, primarily operating along Market and Broad Streets. It operates 7 days a week with approximately 15-minute service. The service operates weekdays from 6:30 AM to 10:00 PM, Saturdays from 9:30 AM to 11:00 PM, and Sundays from 9:30 AM to 8:30 PM.[1]
- **Serving high need low density areas** – the peer agencies use different strategies to serve lower density areas where there is a demand and need for transit services. Some of the peers continue to use traditional dial-a-ride type services that require reservations, while others are transitioning to on demand services that offer same day service booked through a mobile app.
  - COTA's services include COTA//Plus, an on-demand service available in four neighborhoods in COTA's service area (Grove City, Westerville, Northeast Columbus, and South Side). It operates slightly differently in each community about fares, days, and hours of service.
  - RTA Connect-On-Demand, is an On-Demand service available in defined zones. These areas have less or no fixed-route transit service. Using Connect-On-Demand, people may make door-to-door intra-zonal trips. They may also go to or from specific transfer points within their zone which have fixed-route transit service. RTA has partnered with Lyft and Uber to provide this service. People may also reach out to RTA Customer Service to book a trip.[2]
  - The Rapid offers Passenger Adaptive Suburban Service (PASS). It is a shuttle service connecting people who live over 1/3 of a mile from a bus route to a bus stop. This is not an on-demand service as service must be scheduled at least the previous

[1] https://www.gocarta.org/using-carta/services/downtown-shuttle/

[2] http://www.i-riderta.org/rta-connect/on-demand

day and people need to register to use it. Trips are $3.50 and transfer cost is included.[3]

- **Shared Mobility** – currently only one of the peer agencies – the RTA – actively participate in the operation of shared mobility programs, like bikeshare and scootershare, most of the peers do participate in the implementation of the programs.
  - RTA is actively involved in providing bikeshare and scootershare services by carring for fleets and balancing the systems.[4]
    - Link Dayton Bikeshare was developed by RTA, City of Dayton, Miami Valley Regional Planning Commission, and Bike Miami Valley, a nonprofit agency.[5] These local agencies are working with Drop Mobility, a private micro-mobility provider, to implement and manage the service.[6]
    - Electric scooters in Dayton are provided by Spin, but the RTA is under contract to maintain the fleet and keep the system balanced. [7]

[3] https://www.ridetherapid.org/additional-services/pass

[4] https://www.apta.com/dayton-rta-experience/

[5] https://www.apta.com/dayton-rta-experience/

[6] https://www.linkdayton.org/

[7] https://www.apta.com/dayton-rta-experience/

BRT Case Study

Operating a BRT line (or network of lines) is one service strategy TARTA could employ to enhance ridership on key corridors. The following communities of comparable size are either in the process or have implemented BRT services that could be a model for TARTA.

Metro Transit (Madison, WI)

Madison's Metro Transit is in the process of developing a new BRT service as part of a more extensive system restructuring. The new BRT will connect key destinations in Madison, including downtown, the state capitol, the University of Wisconsin – Madison, jobs and shopping centers. A locally preferred alternative has been approved and the existing design of the service is around 15-miles long. The project is now part of the FTA Small Starts Program.

San Joaquin RTD (Stockton, CA)

San Joaquin RTD began operating Bus Rapid Transit in 2007 and now has 5 total BRT lines. Hybrid and electric buses operate on these routes, which utilize pre-paid off-board fares and enhanced stop amenities (such as nicer shelters, boarding platforms, fare vending machines and schedule information).

Source: San Joaquin RTD

In 2018, San Joaquin RTD became the first transit agency in the nation to operate an all-electric bus rapid transit route, and aims to have a fully electric fleet by 2025. The electric buses use Proterra overhead rapid charging technology at its main stations that can fully charge an electric bus in ten minutes. This allows for almost continuous use of electric buses despite a range of approximately 40 miles, or 2 hours, per charge.

Lane Transit (Eugene, OR)

The Emerald Express (EmX) is a BRT system in the Eugene/Springfield area. The first line opened in 2007 and today they report an average of 12,000 weekday boardings. EmX connects the major destinations in the region including downtown Eugene, the University of Oregon, and Sacred Heart Medical Center at RiverBend, downtown Springfield and Gateway Mall. Weekdays, BRT service operates every 10 to 15 minutes and every 15 to 30 minutes evenings and weekends. The service uses features such as dedicated bus lanes, fare machines at all stations, and level platforms. EmX is somewhat innovative in the transit industry in that both directions of travel shared a single lane in some sections (to reduce the capital costs as well as fit in tight rights-of-way). This has been challenging from a scheduling and operational standpoint as the system has expanded.

Source: Agency websites

FARE POLICY AND FARE TECHNOLOGY

Fare Technology

The transit industry generally has modernized fare payment and fare collection systems to make it easier to use transit. Traditional fare collection methods include cash fares and monthly passes, while new fare payment methods include online purchases (including mobile ticketing) of fares and monthly passes. Other fare technologies include fare boxes that accept credit cards and debit cards (including contactless payments), stored value tickets and ticket vending machines that allow transit riders to purchase their transit fares before boarding.

Another important fare technology is fare capping, a strategy designed to make fare payment easier for low income riders who may not be able to afford the full cost of a 30-day pass. Fare capping allows these passengers to pay for trips one at a time until they spend the cost of a 30-day pass, after which time remaining trips would be free.

Innovative fare technologies used by the peers include (see also Figure 18):

- **Mobile ticketing** - TARTA, RTA, and RTS have mobile ticketing, which allows riders to use their smartphones to purchase for transit fares and passes.
- **Fare capping** – RTA, RTS and The Rapid enabled fare-capping, limiting the amount customers pay if they tend to buy single ride tickets if the customer pays the amount of a monthly pass overtime.

Figure 18 Fare Payment Options

Peer Agency	Cash (On-Board)	In-Person at agency office or retail location	Ticket Vending Machine (TVM)	Mobile App	Online Purchase
TARTA	■	■		■	
RTA	■	■	■	■	■
COTA	■	■		■	
CARTA	■	■			■
The Rapid	■	■			■
RTS	■	■	■	■	

Fare Policies

Transit agencies use their fare policies to encourage and incentivize different types of riders, such as discounts for multiple day or monthly passes. Per FTA requirements, all transit agencies offer reduced fares for seniors and riders with disabilities (see Figure 19). Most transit agencies also offer reduced fares for children and students. A partial list of innovative practices include:

- Expanded fare discount programs for seniors as young as 55 years old, high school students and for low-income riders (CARTA).
- Free transit for downtown workers. COTA's C-Pass program gives participating workers in downtown Columbus free access to transit services. The program is like a university-pass program, where the costs are shared between downtown employers and COTA with the overall objective of encouraging people to take transit instead of driving. C-Pass also includes a guaranteed ride home.
- Offering day (or 24-hour) passes. Day passes are typically priced at a single round trip but encourage riders to use transit more often in a single day.
- Transfer policies. Most of the peer agencies allow riders to transfer between routes for free within a certain time limit. Some agencies, like The Rapid, limit free transfers to smart card holders.

Figure 19 Peer Agency Reduced Fare Policy

Peer Agency	Reduced Fare Policy
TARTA	TARTA discount policies vary by service type. On fixed-route service, TARTA offers reduced fares to seniors (65 years and older), people with disabilities. Discounted monthly and weekly passes are also available on fixed-route service for people with disabilities and seniors ($30.00/$7.50 discount) Call-A-Ride trips are available for a premium service fee ($3.00) Children under the age of six may ride fare free (with an adult) on all service types. Tokens are sold in quantities of 25 for $34.00
RTA	Monthly passes are available for Red High School ($30.00) and Grey High School students ($40.00) Paratransit trips are $1.50 per boarding, with a daily cap of $3.00 and a monthly max of $30.00 Children under the age of 12 may ride fare free (with an adult) on all service types.
COTA	Reduced Fares and Unlimited Access are available to students at Ohio State University ($13.50 per semester), Capital University, and Columbus City Schools; and Summer Youth program participants ($62.00). Half fares are available for seniors 65 and older.
CARTA	Low-Income fares are available based on eligibility ($1.25 per trip) Half fares are available for seniors 55 and older. K-12 students ride for free in the CARTA service area. Additional student passes are available for 6-month periods ($80 per semester)

Peer Agency	Reduced Fare Policy
The Rapid	Reduced fares are available for youth, partners, riders with disabilities, and seniors. Pay-as-you-go Wave Cards can be purchased online Riders that pay using cash will not receive transfer or a change card
RTS	Persons aged 65 and over, persons with a disability, and Medicare card holders, can ride Link Transit fixed route buses for reduced fare On-demand services are available for all RTS riders; Curb to Hub ($1.00) or Curb to Curb ($3.00). On-demand reduced fares are halved for seniors and persons with disabilities. Children 5 and under may ride for free when accompanied by a fare-paying adult.

PARTNERSHIPS

Partnerships are an important way for transit agencies to expand access to funding and enhance regional mobility through technology and local community initiatives. Several of the peer transit agencies partner with outside organizations to expand their services to make the customer experience better, but also to better leverage local funds. Examples of transit agency partnerships include strategies to improve transit systems and mobility within the communities that they serve:

Toledo Area Regional Transit Authority (TARTA)

- **Ohio Loves Transit:** In 2021, the Partnership with the Ohio Public Transit Association and other Ohio Transit agencies signed a pledge that would allow agencies to focus on providing more opportunities to the Toledo Region and showcase to the public why public transit is important for the economy and improving quality of life[8]
- **Share-A-Van:** In 2018, TARTA partnered with Enterprise to provide Vanpool services to local businesses. Employers work with their employees to establish a group of employees that live within proximity to each other and work the same shift to ride together. [9]
- **Toledo Zoo:** In 2020, TARTA began providing direct service to the Toledo Zoo. This service provides safe public transportation options for access to the Zoo on Mondays with the goal of keeping the community connected.[10]

[8] Toledo Area Regional Transit Authority (TARTA). 20 July 2021. 2021 Ohio Loves Transit Partnership Pledge Form. Ohio Public Transit Association (OPTA). https://tarta.com/wp-content/uploads/2021/01/OLT-Pledge-Form-final.pdf

[9] Toledo Area Regional Transit Authority (TARTA). 2018. TARTA Share-A-Van. https://tarta.com/tarta-share-a-van

[10] Toledo Area Regional Transit Authority (TARTA). 10 July 2020. Toledo Zoo and TARTA Enter New Partnership. Toledo Blade https://www.toledo.com/news/2020/07/10/daily-dose/toledo-zoo-and-tarta-enter-new-partnership/

- **University of Toledo:** TARTA began managing UT's bus shuttle services in 2018, continuing the same on-campus routes, and provides free access to all TARTA bus routes for every UT student, faculty, and staff member with their Rocket ID card.[11]

Greater Dayton Regional Transit Authority (RTA)

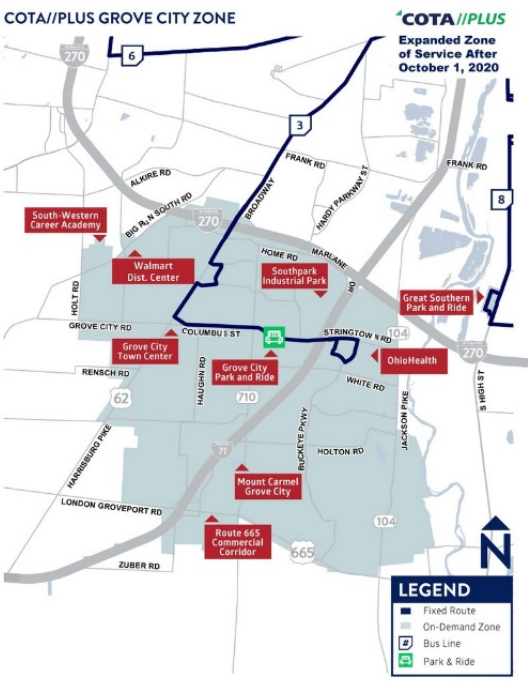
- **Spin E-Scooters:** In 2019, RTA partnered with Spin, an LA-based micro mobility company to work towards solving first-mile, last mile challenges. RTA handles daily pickups, charging, and drop-offs. The e-scooters are unlocked using the Spin app and charge a rider per minute of use. RTA worked with the City of Dayton to establish "no-ride zones" and guidelines for use in the city.[12]
- **Ford's GoRide Health Paratransit:** Ford GoRide Health was started in 2019 to provide non-emergency medical transportation service in Dayton. RTA was GoRide's first venture into a partnership with a public transportation provider
- **T-CETRA and Masabi:** RTA partnered with Masabi (tech company) in 2020 to develop and install JustRide Validators (JRVs) that support account-based mobile ticketing so that riders can reduce the number of physical interactions with on-board payment equipment. In addition to the JRVs, RTA has partnered with T-CETRA retail locations (software company), so that riders can use cash to purchase tickets. While RTA does have mobile ticketing, they do not want to exclude those who may not have access to banking services.[13]

[11] Cunningham, M. 16 April 2018. UT Partners with TARTA to run campus transit services. University of Toledo. http://news.utoledo.edu/index.php/04_16_2018/ut-partners-with-tarta-to-run-campus-transit-services

[12] Greater Dayton Regional Transit Authority (RTA). 21 August 2019. Greater Dayton RTA partners with e-scooter company Spin. http://www.i-riderta.org/news/greater-dayton-rta-partners-with-e-scooter-company-spin

[13] Greater Dayton Regional Transit Authority (RTA). 20 November 2020. Greater Dayton RTA partners with T-CETRA, Masabi to launch new mobile contactless experience for customers. Mass Transit. https://www.masstransitmag.com/technology/fare-collection/mobile-applications/press-release/21163649/greater-dayton-rta-greater-dayton-rta-partners-with-tcetra-masabi-to-launch-new-mobile-contactless-experience-for-customers

Central Ohio Transit Authority (COTA)



- **Via Transportation:** In 2020, COTA partnered with Via, a mobility solutions company to provide innovative full-time on-demand service in Central Ohio communities seven days a week. COTA//Plus Bus On-Demand transports customers who hail a transit vehicle at the nearest transit stop through the COTA//Plus app. The new partnership has decreased transit wait times by 30 – 40 mins in areas that were previously operated by fixed-route service. [14]
- **Lyft Inc.:** In early 2021, Lyft and COTA partnered to provide local public transit information in-app so that riders can see all of their transit options while using the app. This allows riders to see upcoming departures for COTA's nearby fixed-route service, transit lines, and approaching vehicles on the map.[15]
- **Columbus City Schools: Columbus City Schools (CCS)** and COTA collaborated with the Mid-Ohio Regional Planning Commission and Capital Crossroads Special Improvement District in 2021, to provide supplemental transportation services for CCS students in grades 8-12. COTA distributed 8,000 passes to students that qualify for additional transportation services, that can be accessed using a QR code on their cellphone. Students that do not have access to a cellphone were provided a physical card. Students are able to use transit passes for extracurricular activities, internships, other enrichment experiences such as summer programs, or to get to and from school.[16]

Chattanooga Area Regional Transportation Authority (CARTA)

- **Signal Centers:** In 2021, CARTA has partnered with Signal Centers, a non-profit that provides services focusing on disabilities, early childhood education, and self-

[14] Via Transportation. 14 October 2020. COTA and Via partner to provide innovative on-demand service in Central Ohio communities. https://ridewithvia.com/news/cota-and-via-partner-to-provide-innovative-on-demand-service-in-central-ohio-communities/

[15] Central Ohio Transit Authority. 13 May 2021. Lyft and COTA Partner to Add Trip Options In-App for Columbus Customers. https://www.cota.com/blog/lyft-and-cota-partner-to-add-trip-options-in-app-for-columbus-customers/

[16] Columbus City Schools. 3 March 2021. Columbus City Schools and COTA Partner on New Transit Resource For Students. https://www.ccsoh.us/site/default.aspx?PageType=3&DomainID=1643&ModuleInstanceID=125&ViewID=6446EE88-D30C-497E-9316-3F8874B3E108&RenderLoc=0&FlexDataID=31689&PageID=2383

sufficiency to create the "Accessible Travel and Mobility Training" program. The partnership/program is intended to help who are blind or visually impaired to travel on public transportation easier.[17]

- **Department of Intellectual and Developmental Disabilities (DIDD), City of Chattanooga, CARTA, Orange Grove Center, and AbleLink Smart Living Technologies LLC:** In 2020, a joint initiative intended to support people with cognitive disabilities in Hamilton County was designed to navigate public transportation using mobile-application based enabling technology called "Wayfinder". The Wayfinder mobile app is designed for people with disabilities to navigate CARTA's transit system allowing individuals to ride CARTA's fixed route buses to get to work and access their community without having to depend on others for rides or needing to schedule paratransit.[18]

Rochester-Genesee Regional Transportation – Monroe County (RTS)

- Greater Rochester Black Agenda Group (BAG): In 2020, RTS partnered with the BAG to provide safe mobility, access, frequency, and reliability to the community that their transit system serves, which is predominately black. Through this effort, RTS has endorsed BAG's declaration that "Racism is a Public Health Crisis". RTS will continue to work with BAG to address racism and actively engage in anti-racist and racial justice work.[19]
- HOPR: Recently, RTS partnered with HOPR, a mobility solutions company, to provide pedal bikes, e-bikes, and e-scooters to the City of Rochester. HOPR launched 500 shared vehicles in partnership with RTS and the City of Rochester. The bikes and scooters were placed at transit hubs, parks, and commercial centers.[20]

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[17] Aguilar, K. 6 February 2021. CARTA partners with Signal Centers for training program to help visually impaired riders. WRCBtv. https://www.wrcbtv.com/story/43301758/carta-partners-with-signal-centers-for-training-program-to-help-visually-impaired-riders

[18] Kumari, C. 28 February 2020. Program supports people with disabilities to use technology to navigate public transportation. Department of Intellectual and Developmental Disabilities. https://www.tn.gov/didd/news/2020/2/28/media-release--didd--carta--and-orange-grove-center-unveil-groundbreaking-transportation-initiative.html

[19] Perez-Diaz, A. 1 July 2020. RGRTA Endorses Black Agenda Group Declaration that Racism is a Public Health Crisis Rochester-Genesee Regional Transportation – Monroe County (RTS). https://www.myrts.com/blog/Article/305/RGRTA-Endorses-Black-Agenda-Group-Declaration-that-Racism-is-a-Public-Health-Cr

[20] Gorbman, R. 4 June 2021. A new bike and scooter share program rolls out in Rochester. WXXI News. https://www.wxxinews.org/post/new-bike-and-scooter-share-program-rolls-out-rochester

Partnerships Case Studies

TARTA could also partner with private providers to improve mobility options in areas that may not support fixed route or Call-A-Ride service. The following case study from PSTA provides an example of partnerships with other transportation providers that are designed to enhance access to employment sites or to provide first/last mile connections.

PSTA (St. Petersburg, FL)

TD Late Shift

Pinellas Suncoast Transit Authority's TD Late Shift Program provides 25 free trips via Uber, Taxi, or Care Ride to people traveling to and or from work. The program is for people within low-income households without consistent access to a ride who are traveling to and from work at night and into the early morning. A requirement for the program is: "Have a job that begins or ends between 9 p.m. – 6 a.m. any day of the week." The total cost to program participants is $20 a month. To participate in the program, participants need to purchase a monthly transit pass ($11)* in addition to the cost of participating in the TD Late Shift Program ($9). This program is largely funded by the state of Florida.

*The $11 monthly pass is at a reduced cost.

Direct Connect

Direct Connect is a first-mile/last-mile service offered by PSTA. PSTA partnered with Uber, Lyft, United Taxi, and Wheelchair Transport to provide discounted trips to and from PSTA's 26 direct connect locations. At a direct connect location, people can connect to a bus. Uber, Lyft, and United Taxi trips are discounted by $5.00. Wheelchair Transport trips are discounted by $25.00. People may use Direct Connect every day from 5:00 AM until midnight.

TECHNOLOGY

Peer agencies are utilizing a variety of modern and innovative technology to improve the rider experience, reduce emissions, and expand service, often through partnership:

RTA Electric Trolley in Dayton.

Source: © 2014 Darius Pinkston

- **Real-time passenger information**: several peers, including TARTA and COTA, use different strategies to provide real-time passenger information for their riders. TARTA, for example, uses Passio Go!. This system allows passengers to track bus movements on a web browser or mobile phone app. Riders on the COTA system can use a mobile phone app to track bus movements and CMAX stations have real-time bus arrival screens.
- **Electrification**: several of the peers, including the RTA, CARTA and RTS are taking steps to electrify their transit fleets.
- **Data Sharing:** COTA and The Rapid have recently upgraded their data collection and sharing capabilities, and riders can now access real-time data on the location of buses.[21] COTA is also participating in a grant program to consolidate data across agencies and prepare for potential future uses of data.[22]
- **Wi-Fi on Buses**: CTA offers free passenger Wi-Fi on all its buses. This allows passengers to check email, access social media or watch a movie while they ride the bus.

[21] COTA. Short Range Transit Plan 2017-2021. April 2017. https://www.cota.com/static/e6badbfbb2671e0909559f131e900bbd/COTA-SRTP.pdf

[22] Miller, B., Central Ohio, Startup Plan Huge Transportation Data Project. 11 December 2020. Government Technology. https://www.govtech.com/biz/central-ohio-startup-plan-huge-transportation-data-project.html

Technology Case Studies

New technologies are quickly transforming the transit industry. TARTA could benefit from enhanced technologies that make it easier for passengers to get information, as presented in the case study from PSTA and StarTran. And while autonomous vehicles are far from widespread use, the example from PSTA shows the commitment to this new technology in its infancy.

PSTA (St. Petersburg, FL)

Autonomous Vehicle Advantage

PSTA introduced a three-month autonomous vehicle pilot in Dunedin, Florida. It is provided by PSTA and Beep. The pilot operates along a fixed route, utilizes a co-pilot, and the vehicle is electric. One of the goals of the pilot it to learn what people think of autonomous vehicles for transit. The pilot period has concluded but PSTA continues to evaluate and plan for future deployment of autonomous vehicle technology..

Source: PSTA Twitter

Wifi

PSTA passengers have access to Wi-Fi onboard PSTA buses and at their Park Street and Grand Central Station terminals.

StarTran (Lincoln, NE)

BUSLNK

BUSLNK is an app providing people with real-time information about StarTran stops and schedules. Using the app, riders can easily see when the next bus is arriving, figure out what route to take, and learn about changes to service.

Token Transit

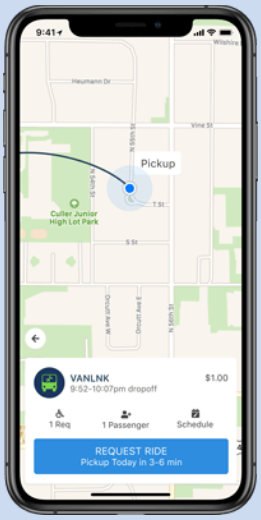
TokenTransit is an app people may use to purchase, store, and present their transit tickets. Tickets must be activated to be used. There is a 90-minute window to use an activated ticket.

Autonomous Vehicle Study

The City of Lincoln, in partnership with the University of Nebraska at Lincoln, received a grant to study and test an autonomous shuttle in the downtown and university area. While some support for the technology remains, no shuttle has not been deployed to date and the project has stalled.

Emerging Mobility Case Studies

Emerging mobility like microtransit may also be a new strategy TARTA could implement to provide service in low density areas similar to the Call-A-Ride areas currently in place. The difference with these services would be the interface with passengers, as well as making these services on-demand with short response times (generally less than 30 minutes).



Source: City of Lincoln

StarTran (Lincoln, NE)

In April 2020, StarTran launched VanLNK in response to the COVID-19 pandemic. VanLNK is a service that offers on-demand, door-to-door trips within Lincoln. VanLNK vehicles are accessible (by lift or ramp) and all trips are requested through an app (similar to Uber or Lyft). All trips are $5.00 and must be paid through the app. The service is available weekdays from 7:00 AM to 2:00 PM and again from 4:00 PM to 8:30 PM and Saturdays from 7:00 AM until 6:45 PM. It should be noted that some trips on VanLNK may be shared and StarTran utilizes the same vehicles and operators for VanLNK that they use for their ADA paratransit services. Some scheduling difficulties have been noted by passengers.

Lane Transit District (Eugene, OR)

LTD Connector is an on-demand shuttle service being piloted in Cottage Grove (south of Eugene). It is available weekdays from 9:00 AM until 4:00 PM and passengers access the service via the LTD Connector app (or by calling to request a trip). The service is available to the general public and advertises wait times of less than 30 minutes for a vehicle to arrive. All trips on the service cost $1.00.