

# Chapter 3: Current Transit Conditions

## Introduction

Public transportation in the North Front Range is operated by a wide variety of non-profit and for-profit agencies. Municipalities fund and operate fixed-route and demand-response services in Berthoud (Berthoud Area Transportation System), Fort Collins (Transfort), Greeley/Evans (Greeley-Evans Transit), and Loveland (City of Loveland Transit). Additional volunteer services are operated by non-profit organizations in the Berthoud Fire Protection District (Berthoud Rural Alternatives for Transportation), Fort Collins and Loveland (Senior Alternatives in Transportation), and Weld County (Senior Resource Services). Paratransit and taxi services in Larimer and Weld counties are provided by for-profit companies like Heart&SOUL Paratransit and Yellow Cab.

The three service types the *2045 RTE* includes are: fixed-route, demand-response, and volunteer transportation. The following definitions were obtained from the Federal Transit Administration's (FTA) National Transit Database (NTD)<sup>1</sup>:

- **Fixed-route** - Services provided on a repetitive, fixed schedule along a specific route with vehicles stopping to pick up and deliver passengers to specific locations and each fixed-route trip serves the same origins and destinations
- **Demand-response** - A transit mode comprised of automobiles, vans, or small buses operating in response to calls from passengers, or their agents, to the transit operator, who then dispatches a vehicle to pick up the passengers and transport them to their destinations.

- **Paratransit** - Types of passenger transportation that are more flexible than conventional fixed-route transit, but more structured than transit involving the use of private automobiles. Paratransit includes demand-response transportation services, and shared-ride taxis. Most often refers to wheelchair-accessible, demand-response service and is required by the Americans with Disabilities Act (ADA).
- **Taxi services** - A private, for-profit company that utilizes passenger vehicles that are for hire by the riding public.
- **Transportation Network Companies** - An organization that pairs passengers via websites and mobile apps with drivers who provide such services
- **Vanpooling** - Transit service operating as a ride sharing arrangement, providing transportation to a group of individuals traveling directly between their homes and a regular destination within the same geographical area.
- **Volunteer transportation** - Services where individuals who drive vehicles in revenue service to transport passengers are not employees of the provider and are not compensated for their labor.

This Chapter focuses on the municipal operators and their trends and performance over the past five years. A summary of other regional, volunteer, and private transit agencies follows. The Chapter concludes with a brief overview of other relevant transit studies and plans.

## Municipal Operators

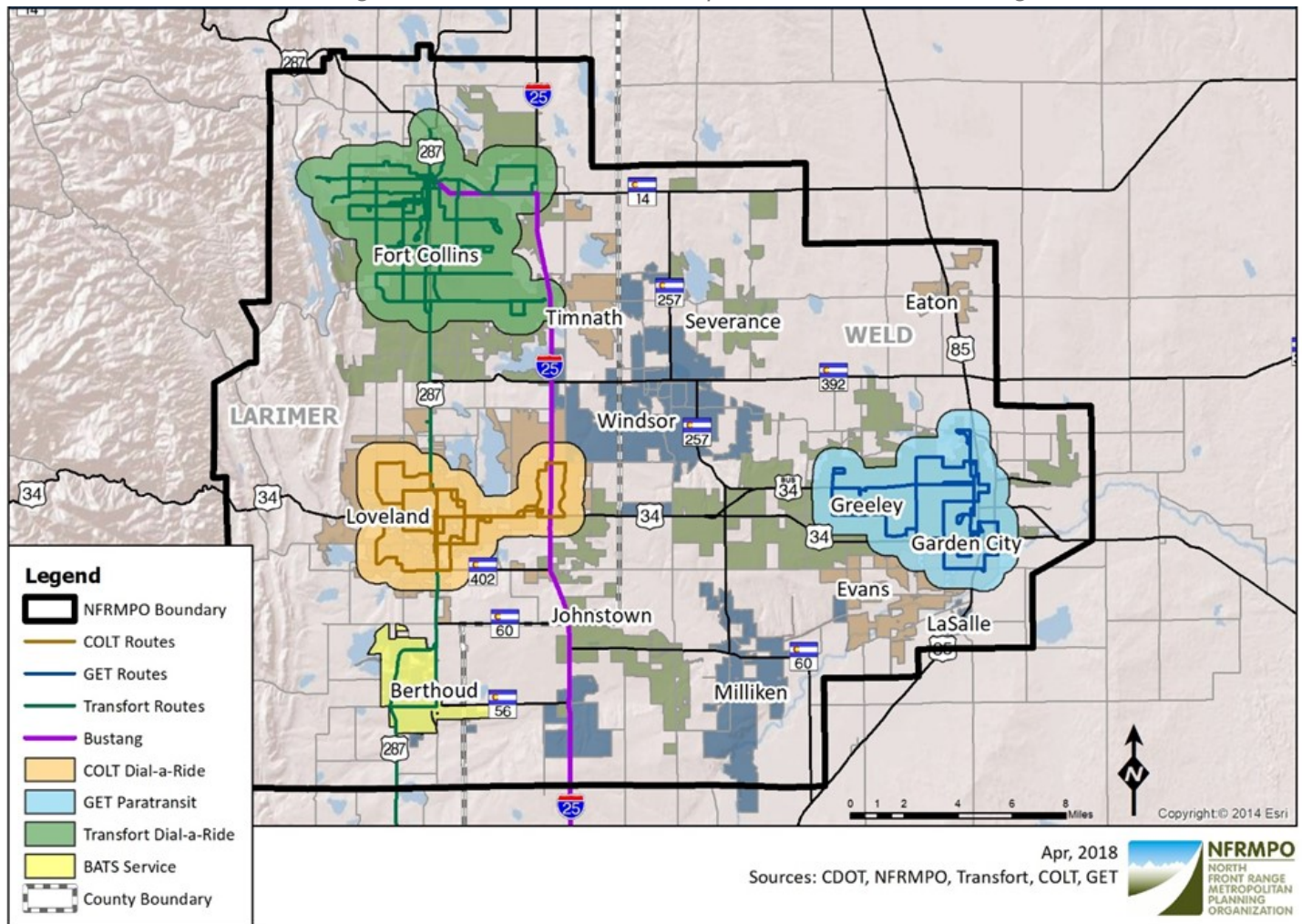
The NFRMPO region includes four municipal transit providers: Berthoud Area Transportation System, City of Loveland Transit, Greeley-Evans Transit, and Transfort. **Figure 3-1** shows the municipally-operated transit available in the NFRMPO region, including fixed-route and paratransit services. The FLEX Regional Route is a fixed-route service which provides service between cities, but is operated by Transfort with funding from multiple partners.

### Berthoud Area Transportation System (BATS)

BATS is a municipally-operated demand-response transportation service for residents of the Town of Berthoud. BATS mainly provides rides within the Town boundary, but operates trips to Longmont and Loveland. The predominant service area is shown in **Figure 3-2**. BATS prioritizes medical trips, followed by employment trips, and finally education trips. BATS provides service outside of the Town limits throughout the week. On Mondays, BATS transports riders to Longmont on

Monday between 8:00 a.m. and 11:30 a.m. From Tuesday through Thursday, BATS transports riders to Loveland between 8:00 a.m. and 11:30 a.m. with additional service to Loveland provided on Thursday between 11:30 a.m. and 3:00 p.m. BATS has a diverse funding stream made up of fares, donations, and other sources. Riders over age 60 are not required to pay, but are encouraged to donate. Riders under 60 years of age are charged \$1.00 per trip in-town and \$4.00 per trip out-

Figure 3-1. Available Public Transportation in the NFRMPO Region



of-town. Other sources of funding include funding from the Town, the Larimer County Office on Aging, and City of Fort Collins sales tax dollars.

BATS service was reduced in 2013 due to budget cuts, leading to a reduction in ridership; however, service has been supplemented by Rural Alternatives for Transportation (RAFT). **Table 3-1** below shows the trends in ridership, vehicle miles, vehicle hours, cost, and fares between 2012 and 2017. **Table 3-2** shows the performance measures produced from the data in **Table 3-1**.

More information about BATS is available on the BATS website:

<http://www.berthoud.org/departments/berthoud-area-transportation-system-bats>.

Figure 3-2. BATS Area

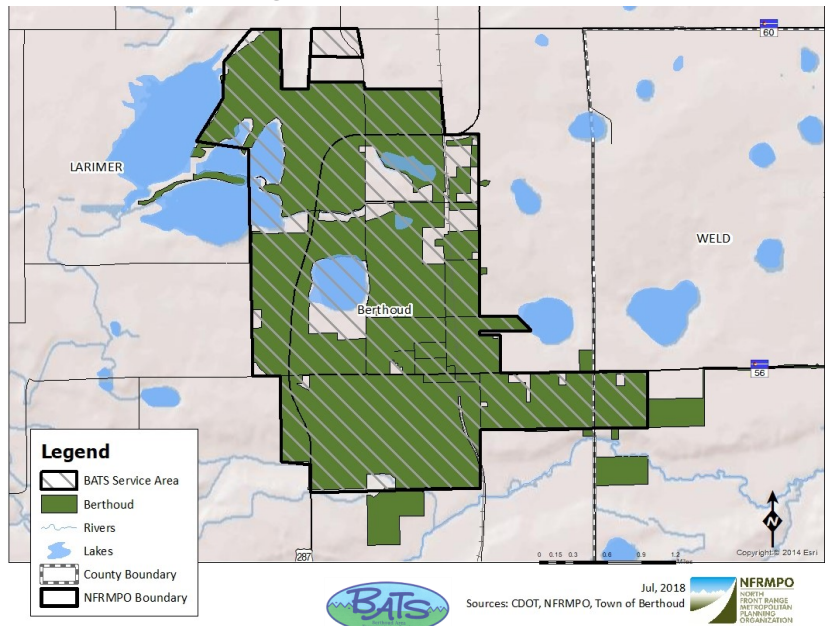


Table 3-1. BATS Transit Trends

Year	Ridership	Annual Vehicle Miles	Annual Vehicle Hours	Annual Operating Cost	Annual Fare Revenues
2012	9,739	82,731	5,222	\$210,324	\$20,613
2013	4,715	23,596	2,250	\$125,346	\$8,103
2014	3,322	11,413	4,604	\$120,743	\$4,461
2015	4,351	13,352	1,853	\$111,253	\$5,861
2016	4,700	14,000	1,917	\$116,620	\$5,761
2017	5,471	15,097	2,002	\$134,857	\$5,654

Source: Town of Berthoud, 2018

Table 3-2. BATS Performance Measures

Performance Measures	Total
Cost per Operating Hour	\$37.36
Passengers per Operating Hour	2.73
Cost per Passenger Trip	\$24.65
Subsidy per Passenger Trip	\$23.62
Farebox Recovery	4.19%
Ridership per Capita	0.88
Cost per Capita	\$21.60

Source: Town of Berthoud, 2018

BATS Transit Trends and Performance

## City of Loveland Transit (COLT)

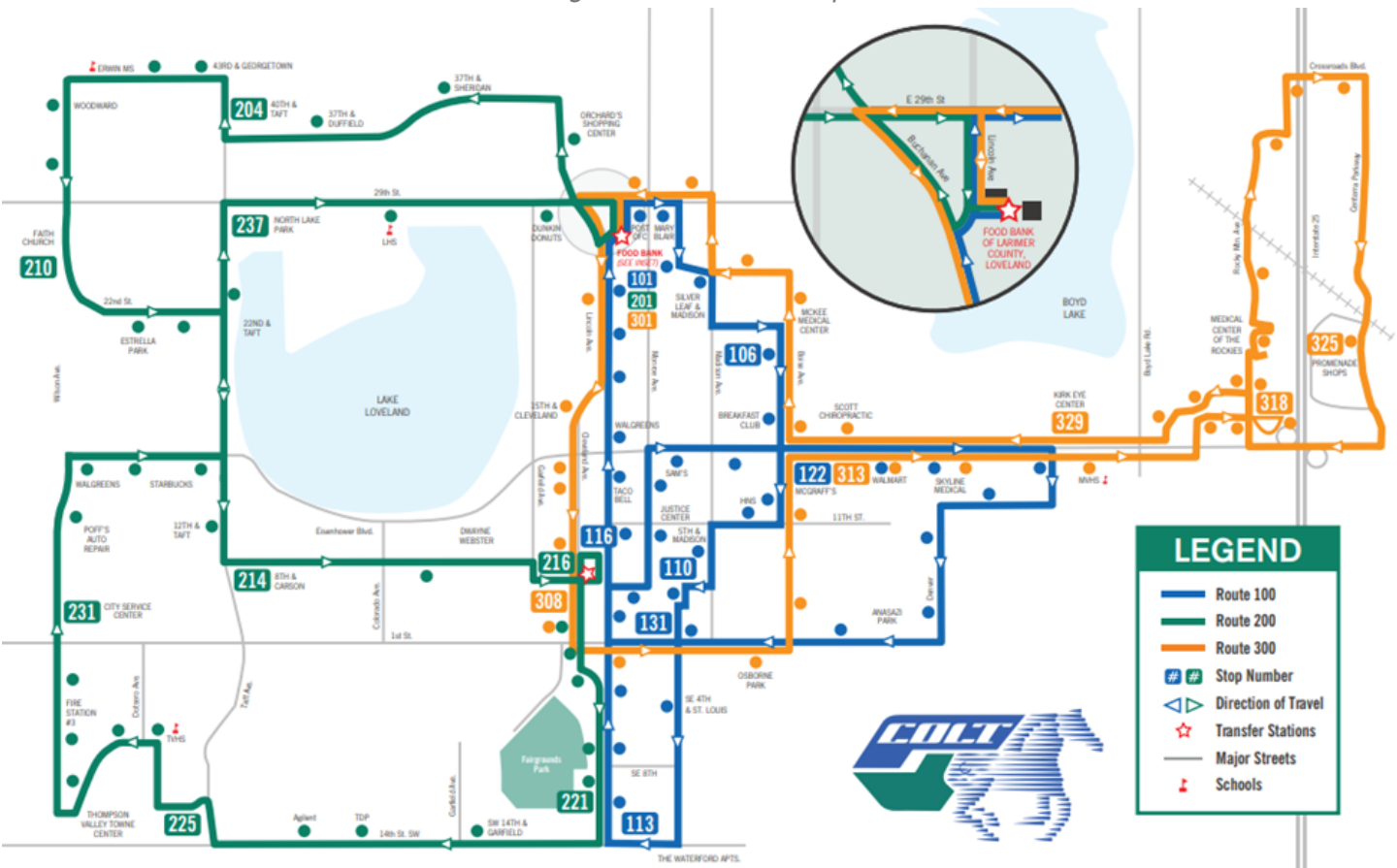
The Loveland Public Works Department operates a fixed-route system and a paratransit service with service running between 6:38 a.m. and 6:37 p.m. Monday through Friday, and between 8:48 a.m. and 5:37 p.m. on Saturdays. No service is operated on Sundays or holidays. Each of the three routes operates on hourly headways. In April 2018, COLT added a commuter express route on US34, running hourly between Group Publishing in west Loveland to Foxtail Drive near Centerra. A map of the three fixed routes is shown in **Figure 3-3**.

Fixed-route service costs \$1.25 per ride for adults, \$0.60 per ride for seniors or individuals with disabilities, and \$0.50 for youth between six years and 18 years old. Children under five ride free. Adult annual passes cost \$180, though this is reduced to \$25 for ADA-eligible riders, seniors, and students. Ten-, 20-, and 31-day passes are also available.

Paratransit service transitioned from a municipally-run service to a contracted Dial-a-Ride service in April 2018. Prior to this transition, COLT directly provided paratransit service using COLT drivers and vehicles for the entire Loveland Growth Management Area (GMA). Following this transition, paratransit users within ¼-miles of a fixed-route service may use Dial-a-Ride or Dial-a-Taxi service. Dial-a-Ride users pay \$2.00 per ride, must book the ride between 14 days and 24 hours in advance, and must be ADA Paratransit eligible. Dial-a-Taxi is a program using FTA §5310 funds to provide ADA Paratransit-eligible users the ability to use a taxi for eligible rides inside and outside of the COLT service area.

COLT has faced difficulties with declining ridership and higher costs. Changes to the paratransit system are expected to streamline service and free some funding for allocation to overall system improvements. **Table 3-3** shows the trends in ridership, vehicle miles, vehicle

Figure 3-3. COLT Bus Map



Source: City of Loveland, 2018



## Loveland Transit Plan Update

Loveland adopted the City of Loveland Transit Plan Update in August 2009. The City is currently in the process of updating the Transit Plan and expects it to be completed in 2019.

hours, cost, and fares between 2012 and 2017. **Table 3-4** shows the performance measures produced from the data in **Table 3-3**. More information about COLT is available through the COLT website: <http://cityofloveland.org/transit>

*Table 3-3. COLT Transit Trends*

Year	Ridership	Annual Vehicle Miles	Annual Vehicle Hours	Annual Operating Cost	Annual Fare Revenues
2012	142,144	214,414	14,092	\$1,150,000	\$108,368
2013	142,803	220,916	14,085	\$1,142,916	\$82,208
2014	139,199	229,116	14,512	\$1,238,840	\$88,481
2015	130,488	233,987	14,275	\$1,363,634	\$86,209
2016	116,964	238,217	15,128	\$1,440,374	\$49,849
2017	105,917	236,905	15,033	\$1,775,662	\$71,670

Source: National Transit Database and City of Loveland, 2018

*Table 3-4. 2017 COLT Performance Measures*

Performance Measures	Total
Cost per Operating Hour	\$118.12
Passengers per Operating Hour	7.05
Cost per Passenger Trip	\$16.76
Subsidy per Passenger Trip	\$16.09
Farebox Recovery	4.0%
Ridership per Capita	1.58
Cost per Capita	\$26.56

Source: City of Loveland, 2018

COLT Transit Trends and Performance

## Greeley-Evans Transit (GET)

The City of Greeley operates transit on behalf of itself, the City of Evans, and the Town of Garden City through purchase of service agreements. GET operates a variety of services, including fixed-route, paratransit, and Call-n-Ride.

GET updated its route structure in January 2016, with routes switching from loops to linear routes and route names from colors to numbers. As of January 2016, GET has seven routes, including the UNC Boomerang. Depending on the route, service is generally provided between 6:00 a.m. and 8:17 p.m. on weekdays, and from

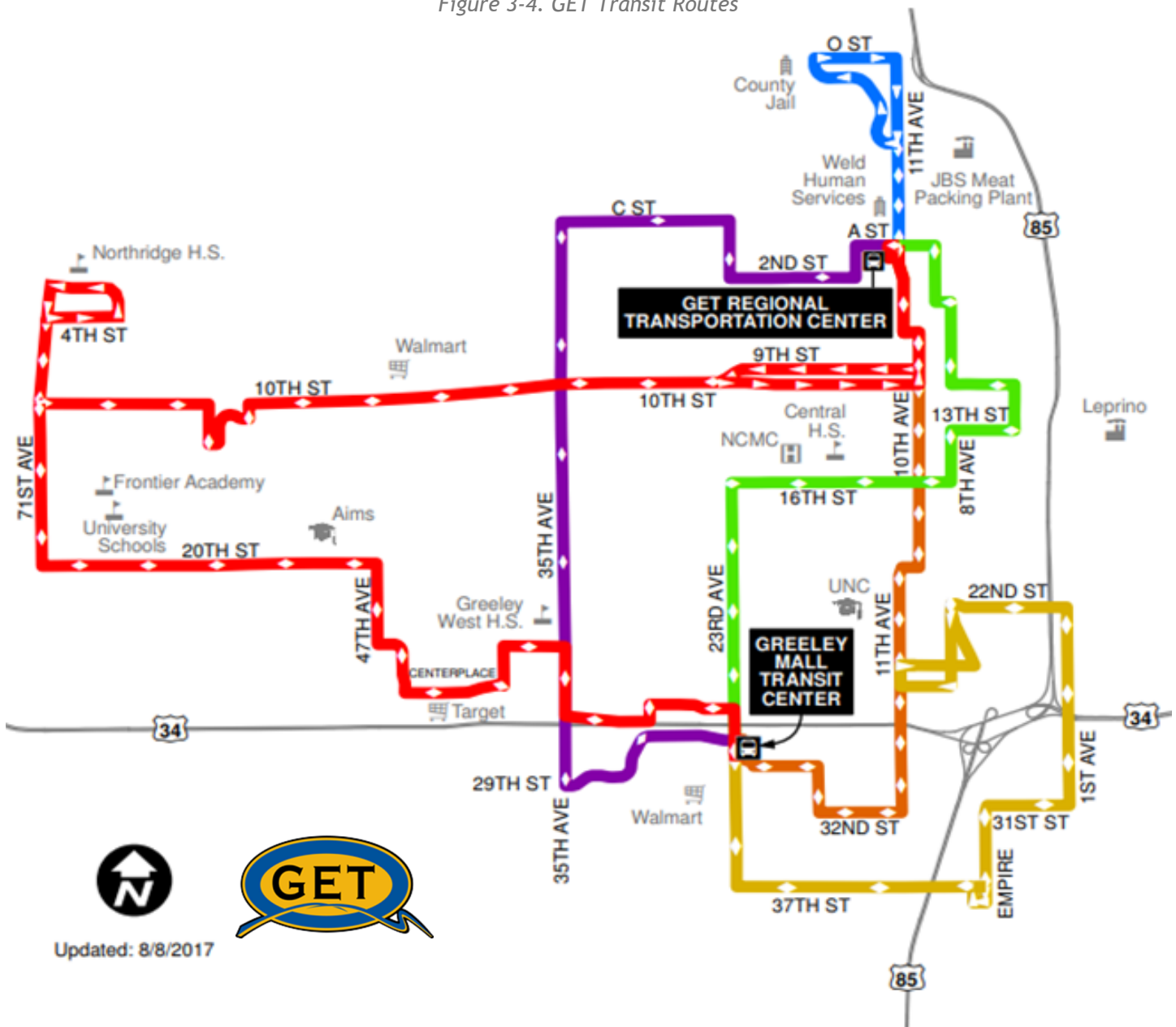
6:45 a.m. to 6:27 p.m. on Saturdays. No fixed-route service is available on Sundays. **Figure 3-4** shows the GET routes.

Fixed-route service costs \$1.50 per ride and \$4.50 for a Day Pass. 20-ride passes, 31-day passes, and 90-day passes are also available. An Adult Annual Pass costs \$240. Seniors pay \$0.75 per ride, \$2.25 for a Day Pass, and receive discounts on the 20-ride, 31-day, and 90-day passes. The GET *Ride Free with ID!* program provides no-cost rides to those 18 and under who have a state-issued or current school year student ID. University of North

Colorado (UNC) students may also ride GET for no cost as a part of the purchased services agreement for the Boomerang. Paratransit service provides door-to-door service for persons who qualify under the ADA. Service is provided Monday through Friday, 6:00 a.m. to 7:00 p.m., and Saturdays from 7:00 a.m. to 5:00 p.m. Rides cost \$3.00 per trip. Outside of these hours, GET provides a Call-N-Ride service Monday through Saturday, after regular fixed-route service ends, until 9:00 p.m. and on

Sundays from 7:45 a.m. to 1:45 p.m. Costs are the same as paratransit. The expansion of the *Ride Free with ID!* program and the route redesign has further increased ridership on the system. **Table 3-5** shows the trends in ridership, vehicle miles, vehicle hours, cost, and fares between 2012 and 2017. **Table 3-6** shows the performance measures produced from the data in **Table 3-5**. More information about GET is available at the GET website: <https://greeleyevanstransit.com/>

Figure 3-4. GET Transit Routes



Source: City of Greeley—GET, 2018

Table 3-5. 2017 GET Transit Trends

Year	Ridership	Annual Vehicle Miles	Annual Vehicle Hours	Annual Operating Cost	Annual Fare Revenues
2012	538,034	571,1576	44,568	\$2,633,583	\$481,126
2013	550,193	586,791	46,182	\$3,010,244	\$560,372
2014	555,975	559,065	45,880	\$3,360,878	\$429,327
2015	615,365	586,530	45,467	\$3,652,921	\$478,204
2016	667,532	676,983	54,989	\$3,775,278	\$484,044
2017	774,651	680,660	54,194	\$3,955,716	\$479,763

Source: City of Greeley—GET, 2018

Table 3-6. 2017 GET Performance Measures

Performance Measures	Total
Cost per Operating Hour	\$72.99
Passengers per Operating Hour	14.29
Cost per Passenger Trip	\$5.11
Subsidy per Passenger Trip	\$4.49
Farebox Recovery	12.13%
Ridership per Capita	6.51
Cost per Capita	\$33.22

Source: City of Greeley—GET, 2018

**Poudre Express Regional Route Study**

GET led the study of a transit route between Greeley (UNC and Aims Community College), Windsor, and Fort Collins (CSU). A significant number of faculty, students, and staff of the three colleges travel between these communities each day. Currently, no route operates between Larimer and Weld counties. Though the route is still being studied, it could provide an intraregional transit connection. The *Greeley-Windsor-Fort Collins Regional Route Study* is based on the recommendation from the *2040 RTE* for a transit connection between these three jurisdictions.

**GET Transportation Center**

GET received funding from the FASTER program to construct a new transportation center at its headquarters in downtown Greeley. The new facility creates a local and

intercity transit hub with upgraded facilities, including an indoor waiting area with restrooms, vending machines, and improved customer service areas. The new facility opened in September 2017.

**GET 5-10 Year Strategic Plan**

Throughout 2016, GET drafted their *5-10 Year Strategic Plan*, which identified goals, objectives, and strategies to meet the needs of Greeley and Evans’ growth. The *5-10 Year Strategic Plan* discusses the needs for investment and possible funding opportunities to implement identified strategies. Additionally, the Plan includes several performance measures GET will track against baseline data in the plan.

## GET 5-10 Year Strategic Plan Performance Measures

- Annual service hours per capita
- Boardings per service hour
- Number of revenue miles between preventable accidents
- On-time performance
- Density of population and jobs within ¼-mile of transit
- Number of bikes carried annually per total annual boardings
- Number of regional services connecting with GET
- Households within ¼-mile of transit
- Housing & Transportation Affordability Index
- Percent of schools with a bus stop within ¼-mile
- Percentage of jobs within ¼ mile of transit and associated service frequency
- Number of private providers with formal or informal service agreements with GET
- Number of cost-sharing agreements in place
- Percent of riders of choice using GET
- Non-SOV mode split
- Percent of surveyed residents that identify transit benefits
- Percent of surveyed residents that identify GET as a valuable community resource
- Number of valid complaints per 100,000 boardings

## Transfort

Transfort is the largest transit service provider in the NFRMPO region, providing local and regional fixed-route services, bus rapid transit (BRT), CSU-subsidized routes, and paratransit. Transfort/Parking Services is part of Fort Collins' Planning, Development, and Transportation Service Area.

In 2014, Transfort redesigned its route system with the opening of the MAX BRT. The redesign accompanied additional funding to expand frequency and hours of service for certain routes. Additionally, Transfort has expanded partnerships with CSU, both the student Associated Students of Colorado State University and the University as a whole, to add new routes and increase frequency of routes serving the campus and neighborhoods with higher student densities. These partnerships, with the addition of funding from City Council, have led to the introduction of Sunday and holiday service, dubbed "365 service". Transfort's fixed-route system is shown in **Figure 3-5**. Currently, Transfort operates 22 routes spanning 5:23 a.m. to 12:13 a.m. Monday through Friday, 5:48 a.m. to 12:16 a.m. on Saturdays, and 8:03 a.m. to 7:26 p.m. on Sundays and

holidays. Some routes operate for school trips or late-night service only. Route 33 is funded by ASCSU and is contracted to a third party operator

Fixed-route trips cost \$1.25 per trip, though seniors, individuals with disabilities, and Medicaid recipients only pay \$0.60 per trip. Individuals under 17 years of age ride at no additional cost and CSU students may ride Transfort through their student transportation fees. Day Passes cost \$3.00 and can be purchased on the bus, at transit centers, or through ticket vending machines (TVMs) at MAX stations. An Adult Annual Pass is available for \$154 and Annual Senior, Disabled, and Medicaid passes are \$25. Transfort also offers the Passfort program, allowing businesses to purchase passes in bulk, at reduced prices.

Paratransit service is contracted through the Dial-a-Ride program. The Dial-a-Ride program provides door-to-door paratransit to individuals who, because of a disability, are prevented from using Transfort's fixed route system. Dial-A-Ride offers the same level of service as fixed route. Service is provided from 6:00 a.m. to 11:00 p.m. Monday through Saturday and 8:00 a.m. to 7:00 p.m. on Sundays

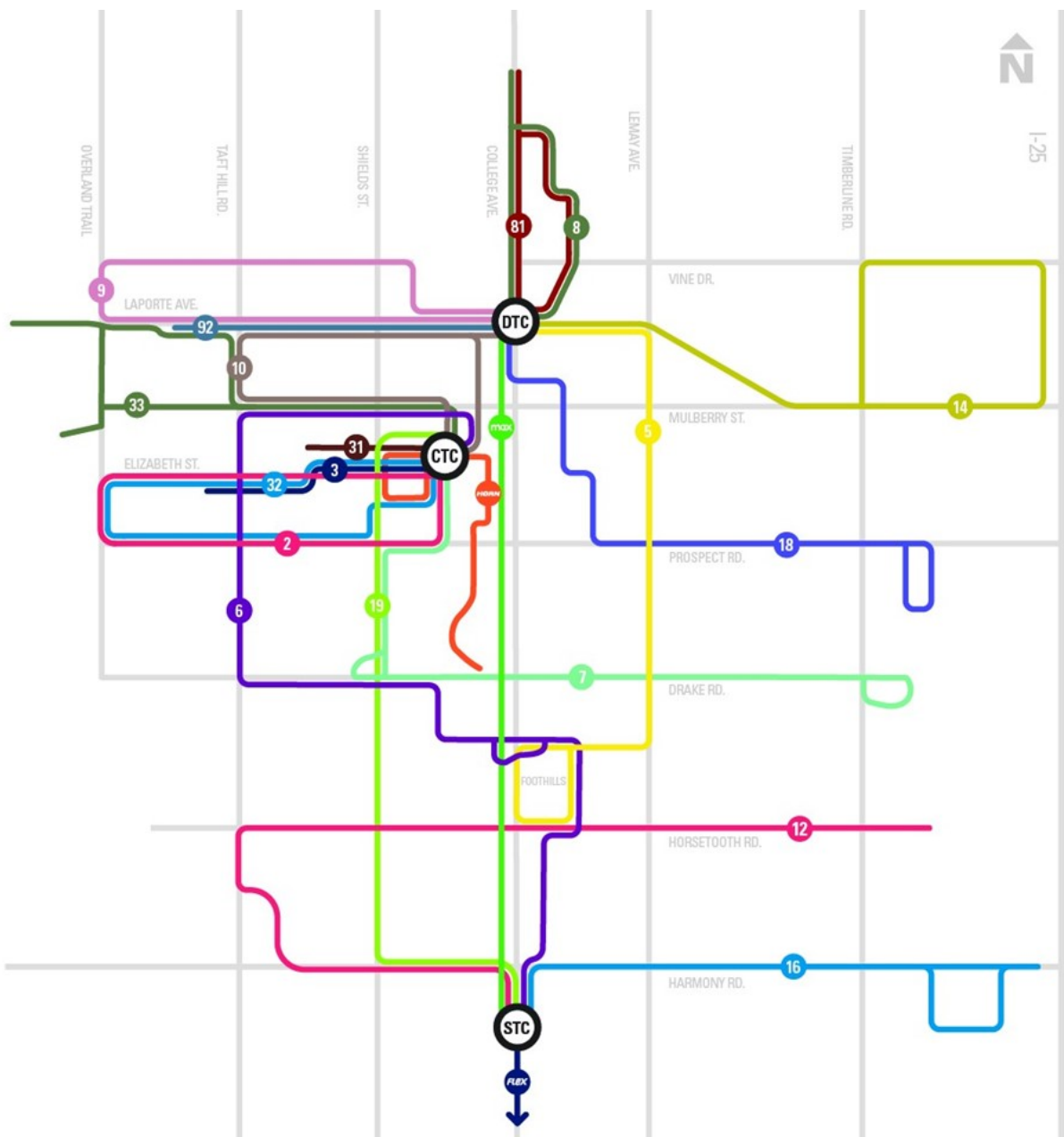


and Holidays. Riders pay \$2.50 per one-way trip. Rides can be booked between 24 hours and 14 days in advance.

In addition to Dial-a-Ride, Transfort Dial-a-Ride users can use Dial-a-Taxi. Similar to the program in Loveland, Dial-a-Taxi uses FTA \$5310 funds to provide ADA Paratransit-eligible riders the ability to use a taxi for eligible rides both inside and outside of the service area.

Additional funding from the City of Fort Collins, CSU, and other partners has enabled Transfort to invest in transit improvements. This, coupled with the introduction of MAX BRT service in 2016, has led to fast growth in the system as shown in **Table 3-7**, which shows the trends in ridership, vehicle miles, vehicle hours, cost, and fares between 2012 and 2017. **Table 3-8** shows the performance measures produced from the data in **Table 3-7**. More information about Transfort is available at the Transfort website: <http://ridetransfort.com/>.

Figure 3-5. Transfort Transit Routes



Source: City of Fort Collins–Transfort, 2018

**Table 3-7. Transfort Transit Trends**

Year	Ridership	Annual Vehicle Miles	Annual Vehicle Hours	Annual Operating Cost	Annual Fare Revenues
2012	2,271,732	1,028,405	78,551	\$7,303,399	\$955,073
2013	2,270,148	1,188,513	96,512	\$8,739,326	\$1,155,348
2014	2,646,225	1,505,405	120,875	\$11,453,778	\$1,599,907
2015	3,297,091	1,706,151	137,071	\$13,710,996	\$2,323,294
2016	4,112,808	1,810,797	143,942	\$15,217,405	\$2,675,593
2017	4,340,929	1,768,045	136,646	\$16,547,390	\$2,503,379

Source: National Transit Database and City of Fort Collins, 2018

**Table 3-8. 2017 Transfort Performance Measures**

Performance Measures	Total
Cost per Operating Hour	\$121.10
Passengers per Operating Hour	33.35
Cost per Passenger Trip	\$3.81
Subsidy per Passenger Trip	\$3.24
Farebox Recovery	15.1%
Ridership per Capita	30.12
Cost per Capita	\$109.83

Source: City of Fort Collins Ridership Report, 2018

## FLEX

Transfort operates the FLEX service along US287 in Larimer and Boulder counties. The FLEX service has two routes; the first runs from the South Transit Center in Fort Collins to Loveland, Berthoud, and Longmont with local stops along the way. In 2015, Transfort partnered with Boulder County and received a Congestion Mitigation and Air Quality (CMAQ) grant from the Denver Regional Council of Governments (DRCOG) to expand the FLEX from Longmont to the University of Colorado Boulder (CU Boulder) campus. This new service is in addition to the existing service, adding five express FLEX

runs between downtown Fort Collins and the CU Boulder campus. **Figure 3-6** shows the jump in ridership after the Flex routes to Boulder were added.

In addition to the CMAQ grant, the FLEX to Boulder receives funding from the cities of Boulder and Longmont, Boulder County, CSU, and CU-Boulder. The FLEX service charges the same fare as local Transfort services, and all Transfort passes and RamCards are accepted. In addition, riders can use RTD EcoPass and CollegePass and COLT passes. Transfers are free between FLEX and Transfort or COLT, but paid transfers are

required to and from RTD. The Fort Collins to Longmont FLEX service is funded through a partnership between Fort Collins, Loveland, Berthoud, Longmont, and Boulder County. Service between Fort Collins and Longmont is operated Monday through Saturday on an hourly frequency. Additional service is provided on weekdays during the peak hours. Northbound service begins around 6:45 a.m. and ends around 8:00 p.m. while southbound service begins around 5:45 a.m. and ends around 6:45 p.m. On weekends, service is provided hourly southbound from 6:24 a.m. to 7:22 p.m. and northbound from 6:48 a.m. to 8:19 p.m. Saturday service

operates primarily between South Transit Center and the Loveland Food Bank, with four runs to Longmont in each direction. FLEX between Fort Collins and Boulder operates Monday through Friday, with four southbound services at 6:00 a.m., 1:15 p.m., 3:25 p.m., and 5:20 p.m., and five northbound services at 7:09 a.m., 8:09 a.m., 3:15 p.m., 5:30 p.m., and 7:20 p.m. No service is provided on Saturdays or Sundays. **Table 3-9** shows the ridership, annual vehicle mile, and annual vehicle hour trends for FLEX between 2012 and 2017. **Table 3-10** shows the performance measures Transfort uses for the FLEX.

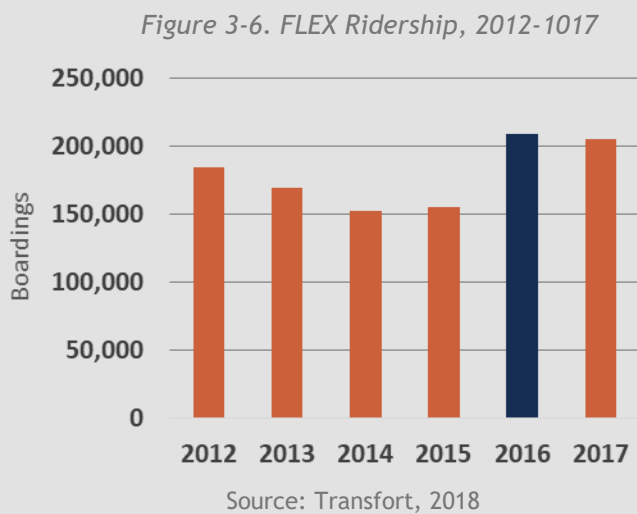


Table 3-9. 2017 FLEX Trends

Year	Ridership	Annual Vehicle Miles	Annual Vehicle Hours
2012	184,649	204,418	9,197
2013	169,205	203,949	9,161
2014	152,211	185,438	8,415
2015	154,879	174,230	8,094
2016	209,245	292,129	12,723
2017	205,753	300,733	12,831

Source: Transfort, 2018

Table 3-10. 2017 FLEX Performance Measures

Performance Measures	Total
Passengers per Operating Hour	16.04
Passengers per Revenue Mile	0.7

Source: Transfort, 2018

### Transfort Sunday and Holiday Service

Through partnerships with CSU and the Associated Students of Colorado State University (ASCSU), and with additional funding from the Fort Collins City Council, Transfort expanded five routes and the MAX to 365-day service, which includes all holidays and Sundays. The five routes primarily provide service on West Elizabeth Street (Route 2 and 3), East Mulberry Street (Route 14), North College Avenue (Route 8), and Harmony Road (Route 16). The MAX runs along the Mason Corridor.

### Game Day Service

In 2017, CSU opened a new stadium on its campus to replace the off-campus Hughes Stadium. The new stadium plan required alternative transportation to reduce the need to build and provide additional parking on campus. To do this, CSU and Transfort partnered to provide shuttles and additional service on certain routes. In 2017, GET provided additional buses and drivers to assist with game-day service. The additional investment has led to a high percentage of attendees arriving by bus. In 2017, over 85,000 rides were taken as a result of game day service.

## Dial-a-Taxi Program

Using FTA §5310 funds, Transfort has expanded the reach of its Dial-a-Ride program by introducing the Dial-a-Taxi program. This program expanded to Loveland on April 2, 2018. In this program, eligible Dial-a-Ride customers can call Transfort for a voucher to use a taxicab outside of

the Dial-a-Ride area. The voucher covers the first \$20 of the taxicab ride; the customer is responsible for any additional fare. The program has been successful, with most of the limited vouchers being reserved early in the day.

## Windsor Senior Rides Program

The Windsor Senior Ride Program is available to Windsor residents aged 55 and above who are unable to drive themselves or do not have alternative transportation. Other Windsor residents may be eligible based on availability and are evaluated on a case-by-case basis. Rides are focused on medical appointments, but local appointments like grocery shopping and other errands may be eligible. The Windsor Senior Ride Program provides service Monday through Thursday, primarily between 8:00 a.m. and 3:00 p.m. though Wednesday service is only provided through 1:00 p.m. Monday through Wednesday, riders can be taken to appointments in Greeley, Fort

Collins, Loveland, and Windsor. On Thursdays, only rides within Windsor are provided. Rides must be booked at least 24 hours in advance, but the Town recommends at least a week's notice. Rides are scheduled through the Community Recreation Center and requests can be made Monday through Sunday.

Fees for rides vary depending on distance. In-town rides cost \$4.00 per stop – each additional stop adds \$4 to the cost – and out-of-town rides cost \$6.00 per trip. Fees must be paid at time of pickup and can be paid in cash or check.

## Regional Trends

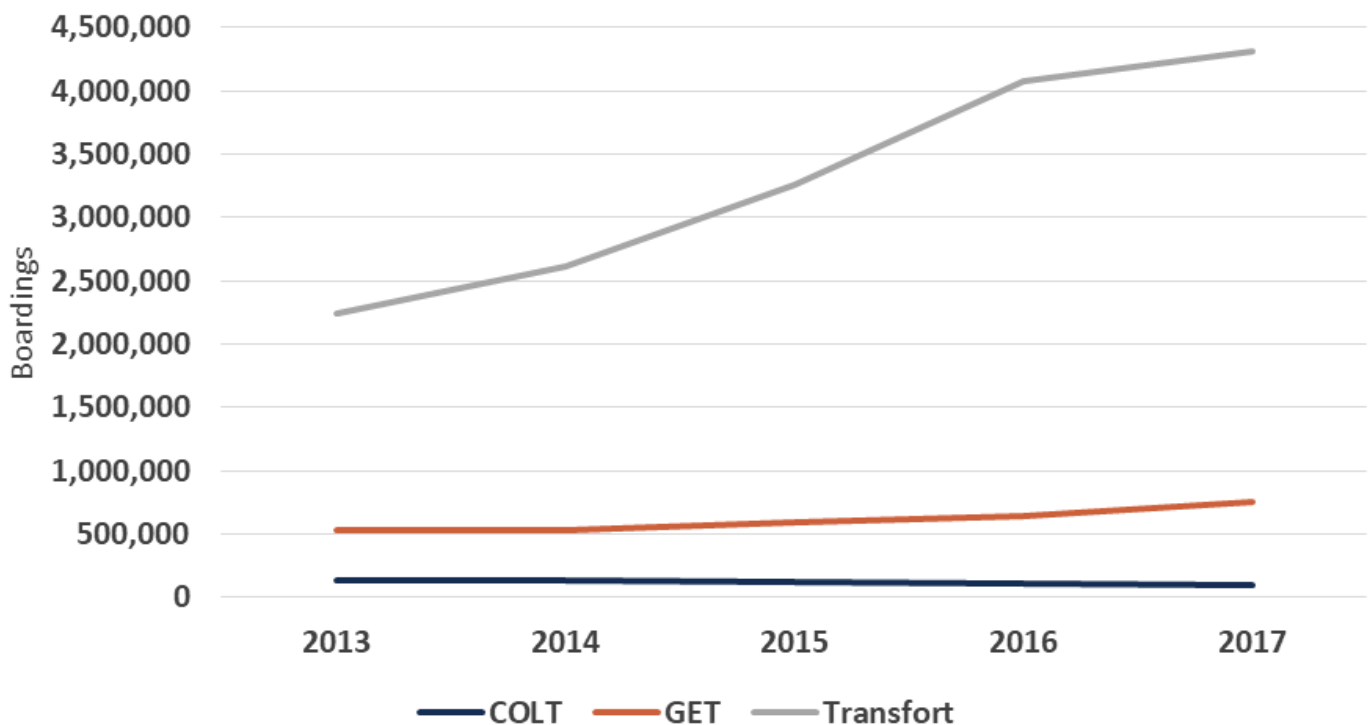
The following sections serve to visualize and summarize the trends presented in the tables from the previous sections, allowing a comparative analysis of transit providers in the region.

### Fixed-Route Trends

Significant transit investment on the part of the City of Fort Collins and the City of Greeley may be partially responsible for the ridership, vehicle miles driven, and vehicle hours driven trends shown in **Figures 3-7, 3-8, and 3-9** respectively. As shown in **Figure 3-7**, fixed-route ridership has grown in both Fort Collins and Greeley between 2013 and 2017. Transfort's fixed-route ridership has grown by 92.6 percent while GET has grown by 43.1 percent. COLT has not experienced similar growth, instead ridership decreased by 28.4 percent over the

same time period. **Figure 3-8** shows the trends for vehicle miles driven have increased in all three communities. Transfort has seen the largest increase at 56.0 percent, while GET has seen a 25.5 percent increase. COLT has seen a 2.2 percent increase over the five-year period. Similarly **Figure 3-9** shows the trends for vehicle hours driven. Transfort increased by 64.4 percent, GET by 28.8 percent, and COLT by 2.6 percent. Increased vehicle hours correlates to increased buses on the road, allowing people more options for mobility.

Figure 3-7. Fixed-Route Ridership, 2013-2017



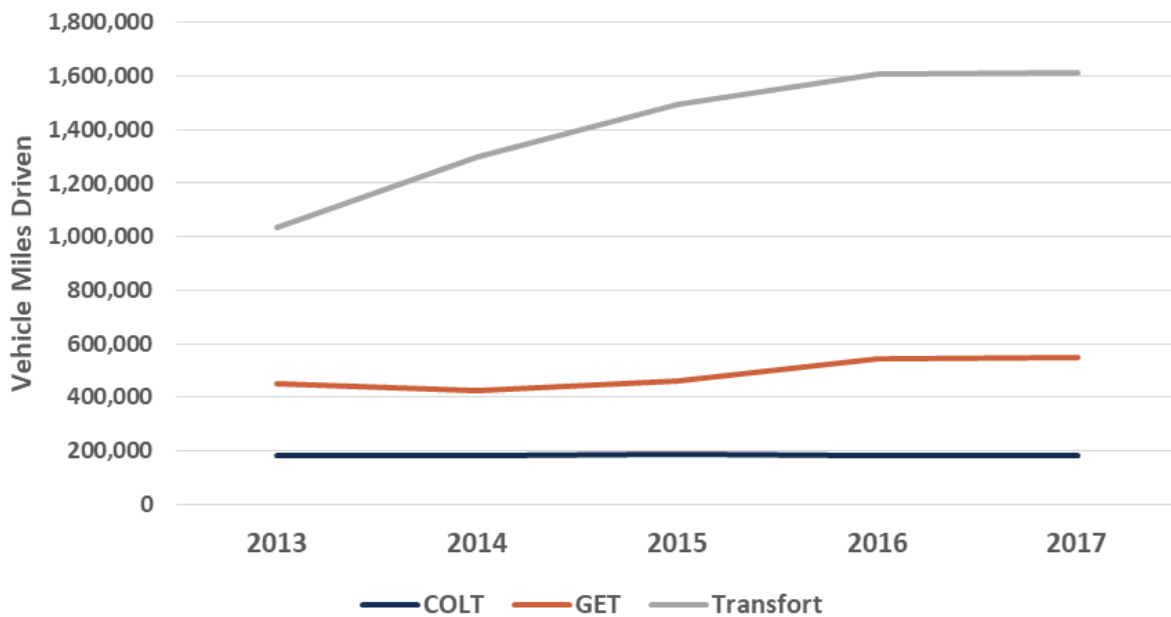
Source: COLT; GET; Transfort; 2018



As shown in **Figure 3-10** on the following page, operating expenses have increased for all three transit agencies. Transfort operating expenses increased significantly with the addition of MAX in 2014 and have continued to increase over time, though at a slower rate. GET's restructured bus system also led to increases in operating expenses. Although COLT made comparatively fewer investments in its transit system over the time period,

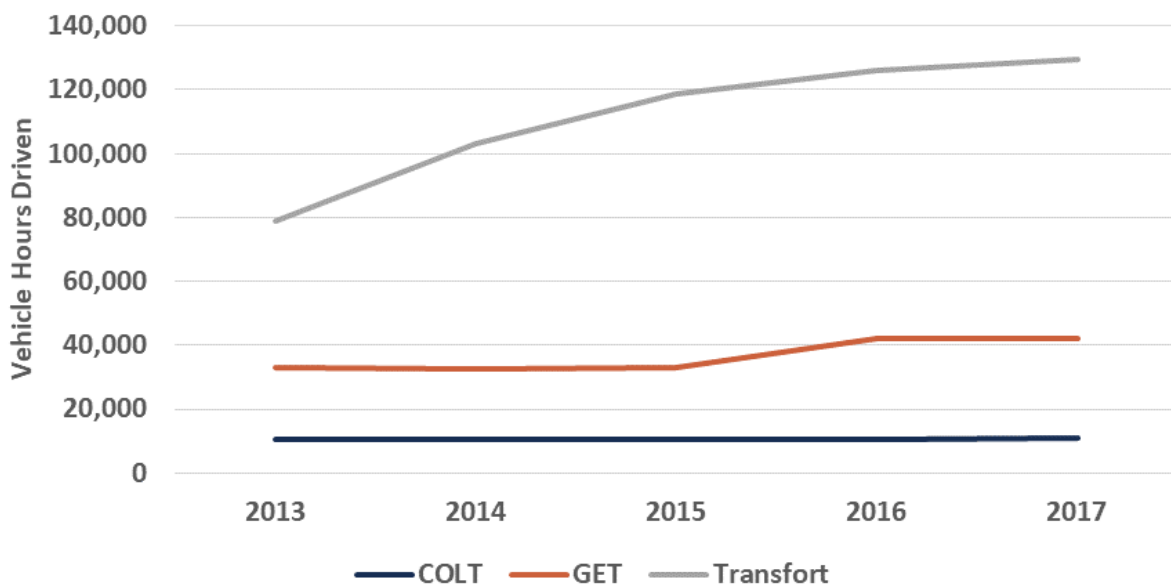
COLT's operating expenses increased the most, by 101.8 percent. Transfort's increased by 92.7 percent and GET's by 42.7 percent over the same time period. Finally, **Figure 3-11** shows the fare revenue from fixed routes over the same period. Transfort had the highest increase at 139 percent, followed by COLT at 10.8 percent. GET saw a decrease in fare revenue of 17.8 percent.

Figure 3-8. Fixed-Route Vehicle Miles Driven, 2013-2017



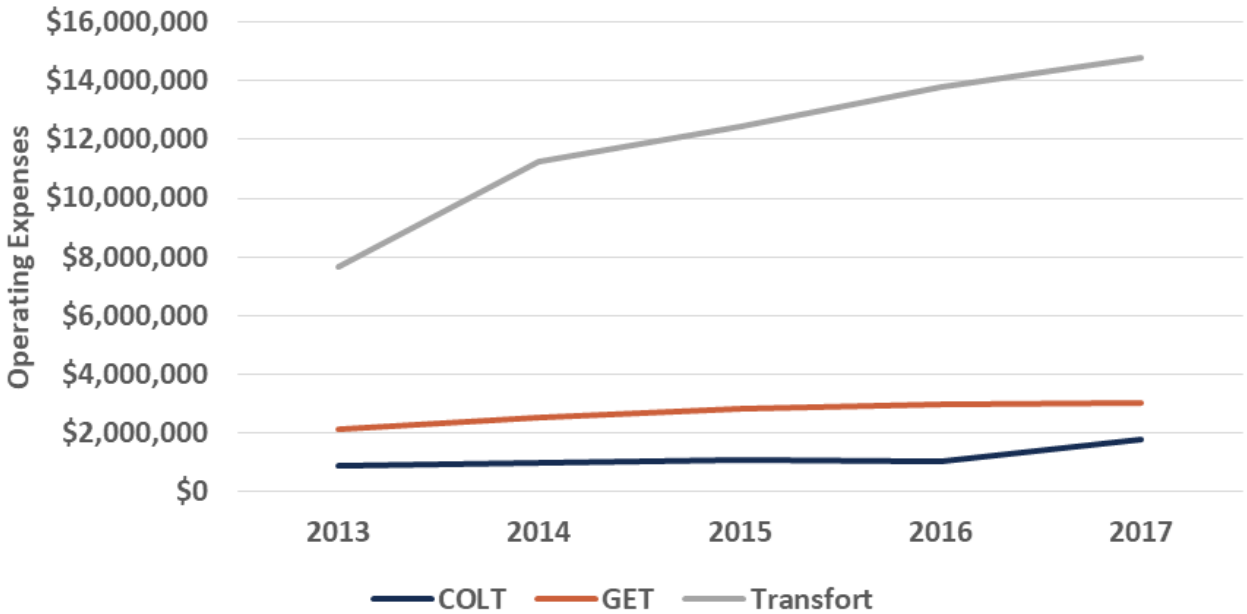
Source: COLT; GET; Transfort; 2018

Figure 3-9. Fixed-Route Vehicle Hours Driven, 2013-2017



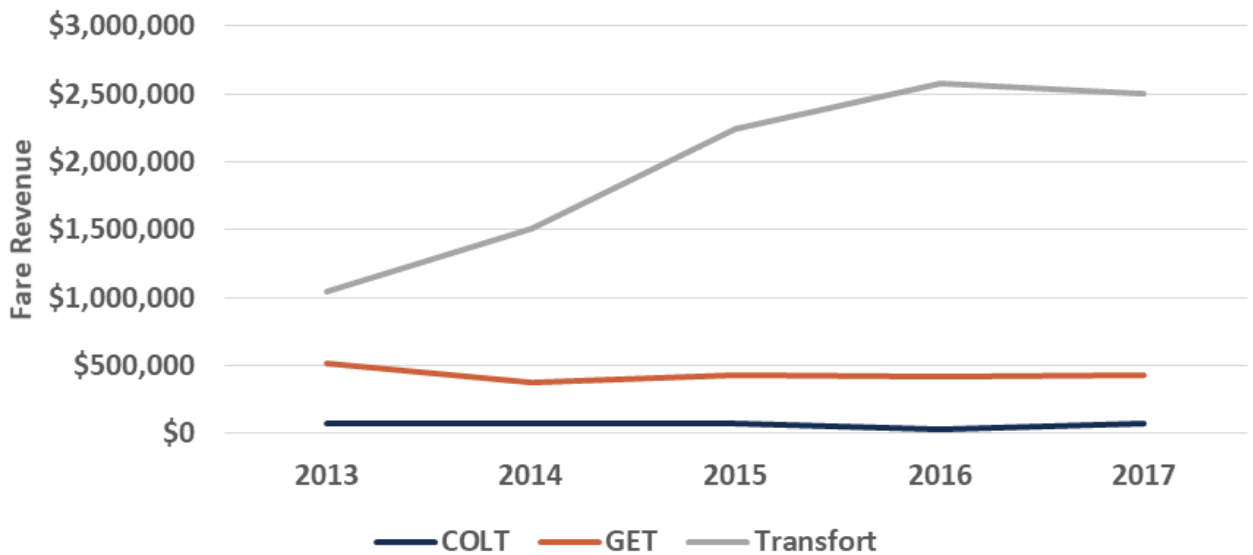
Source: COLT; GET; Transfort; 2018

Figure 3-10. Fixed-Route Operating Expenses, 2013-2017



Source: COLT; GET; Transfort; 2018

Figure 3-11. Fixed-Route Fare Revenue, 2013-2017



Source: COLT; GET; Transfort; 2018

### Demand Response Transit Trends

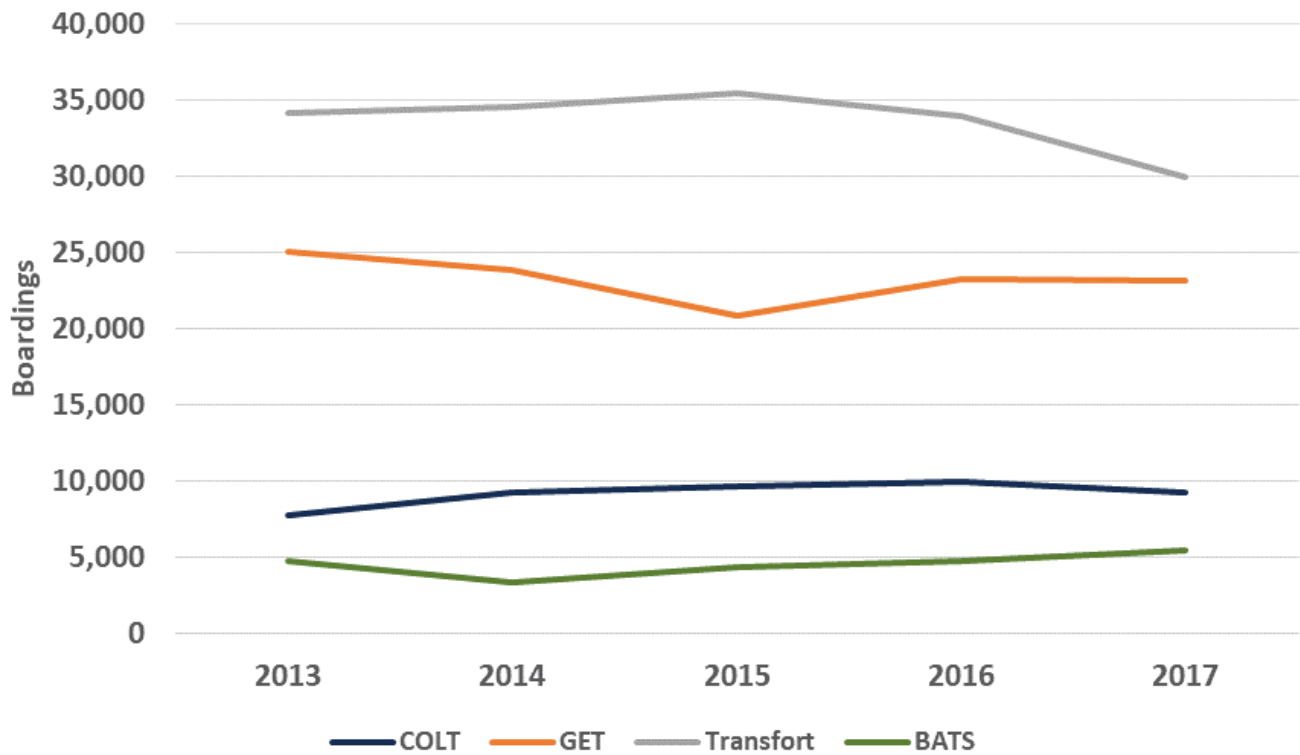
This section compares publicly-funded demand-response systems and shows the trends for the different types of transit in the region. Unlike fixed-route trends, paratransit ridership has not seen as significant of an increase. Transfort’s Dial-a-Ride ridership decreased by

12.2 percent. COLT increased its ridership by 19.6 percent, and GET decreased by 7.5 percent. BATS increased ridership by 16.0 percent. These trends are shown in **Figure 3-12**. As shown in **Figure 3-13**, vehicle miles traveled (VMT) for demand response vehicles

have decreased for GET, Transfort, and BATS. BATS experienced the largest decrease at 36.0 percent, followed by Transfort at 9.8 percent, and GET at 5.5 percent. COLT increased demand response VMT by 2.2 percent. **Figure 3-14** shows the trends for the vehicle

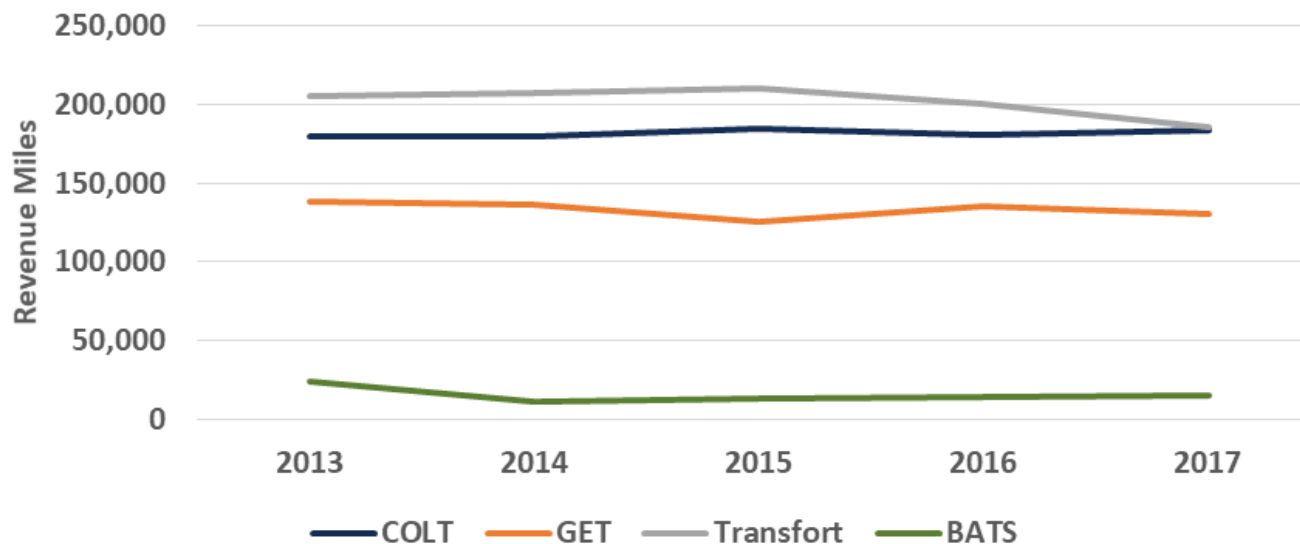
hours driven. COLT increased by 18.8 percent, the only transit agency to see an increase. BATS decreased by 11.0 percent, GET by 9.1 percent, and Transfort by 9.0 percent. As shown in **Figure 3-15**, BATS and COLT each saw an increase in operating expenses from 2013 to

Figure 3-12. Demand Response Ridership, 2013-2017



Source: COLT; GET; Transfort; BATS 2018

Figure 3-13. Demand Response Miles Driven, 2013-2017

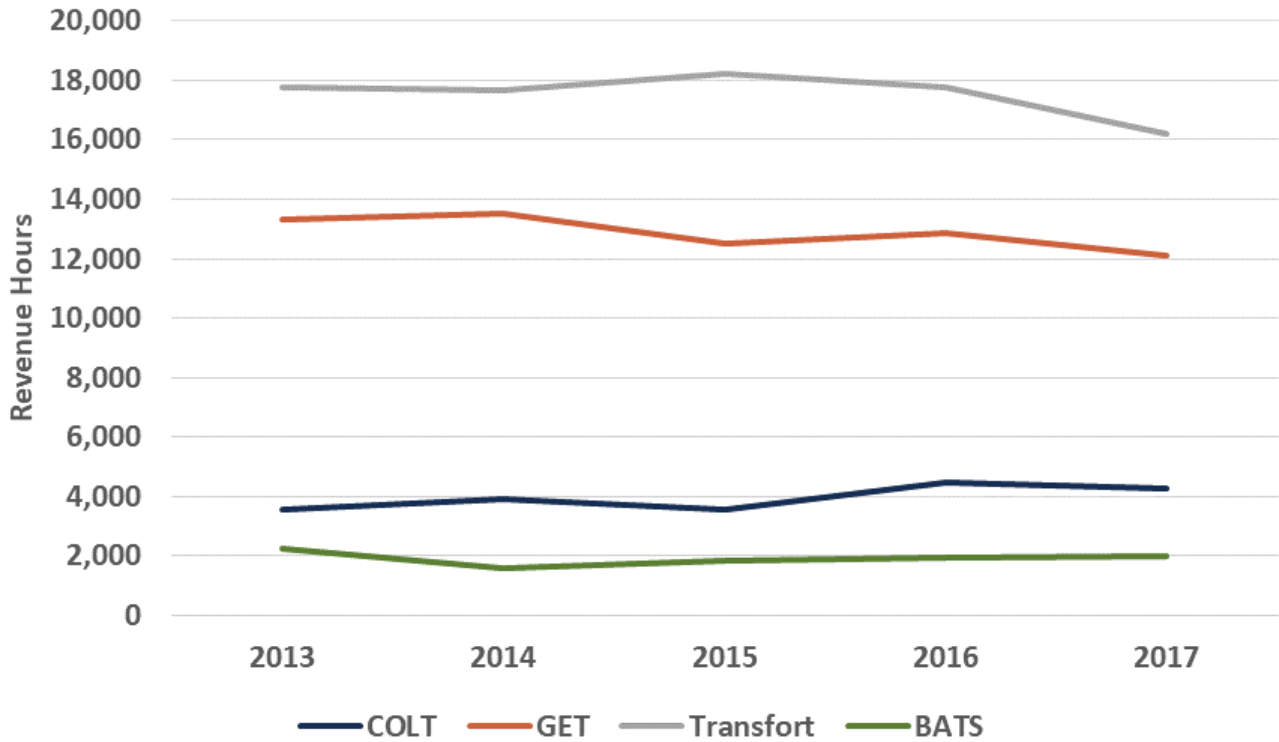


Source: COLT; GET; Transfort; BATS 2018

2017, while GET and Transfort saw a decrease. BATS increased by 7.6 percent and COLT by 71.2 percent. GET and Transfort saw decreases of 5.6 percent and 2.9 percent respectively. **Figure 3-16** shows the fare revenue

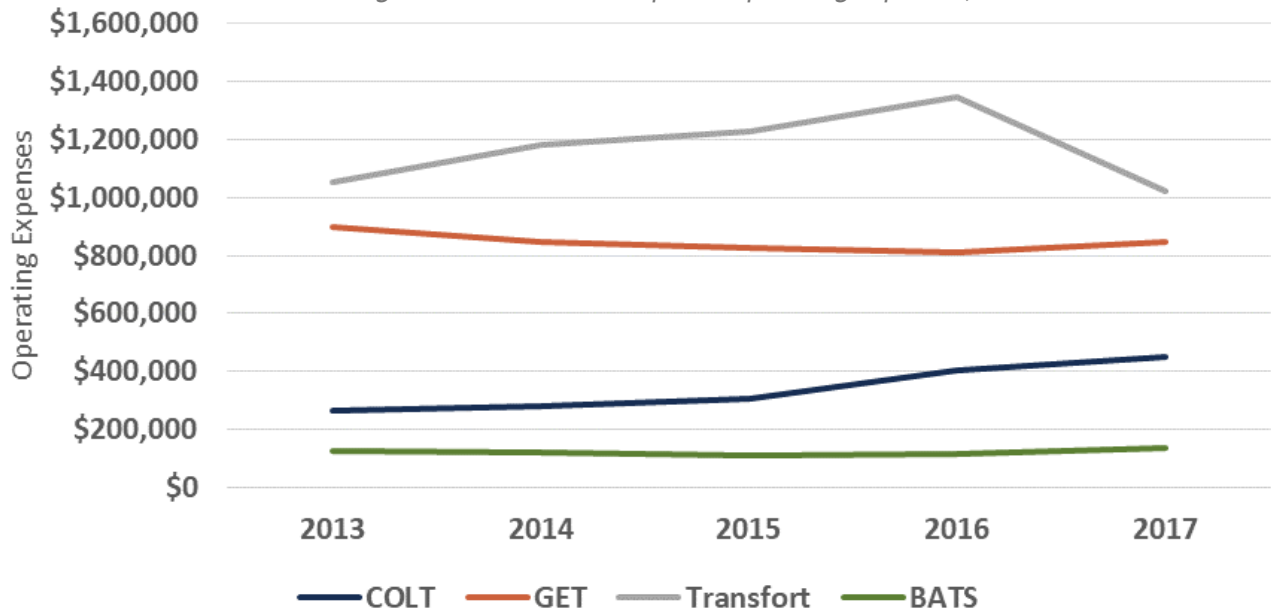
from demand response systems over the 2013-2017 period. Transfort saw a large decrease of 49.8 percent and BATS saw a decrease of 30.2 percent. GET increased by 27.6 percent and COLT by 11.0 percent.

Figure 3-14. Demand Response Vehicle Hours Driven, 2013-2017



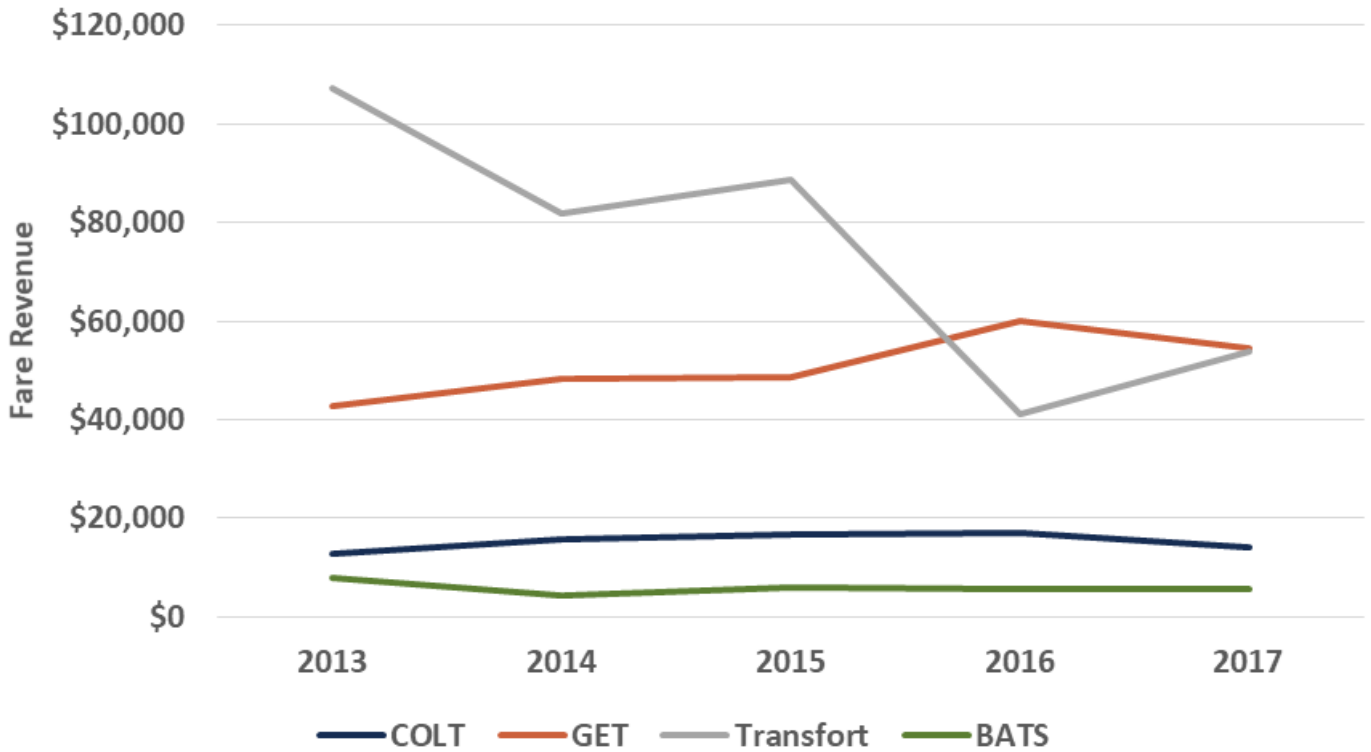
Source: COLT; GET; Transfort; BATS 2018

Figure 3-15. Demand Response Operating Expenses, 2013-2017



Source: COLT; GET; Transfort; BATS 2018

Figure 3-16. Demand Response Fare Revenue, 2013-2017



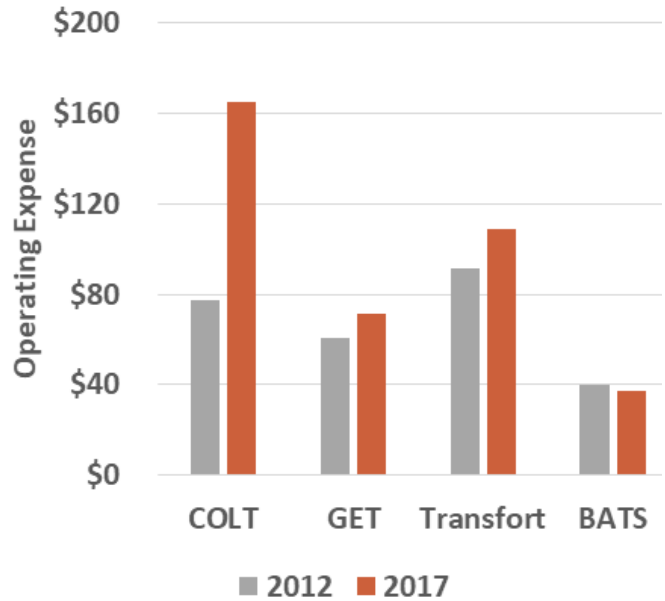
Source: COLT; GET; Transfort; BATS 2018

### Performance Measures

Performance measures for the municipally-run systems, including BATS, were tracked as part of the 2040 RTE. Below is a comparison of 2012 data to the 2017 data presented in previous sections of this Chapter. These performance measures do not take into account the cost of providing paratransit or demand-response services, with the exception of BATS.

As shown in **Figure 3-17**, COLT, GET, and Transfort have all seen increases in operating expenses per vehicle revenue hour, while BATS saw a slight decrease. GET and Transfort both invested in new service, raising both the revenue hours for the transit vehicles and increasing the operating expense. BATS saw a slight decrease in this performance measure which may be related to the reduction in service, matching costs with productivity.

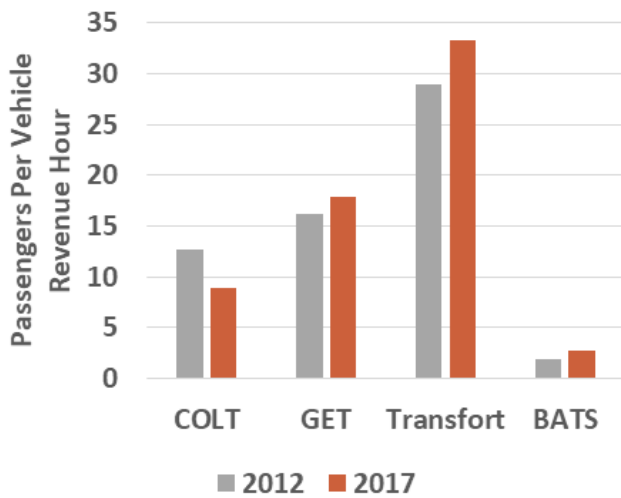
Figure 3-17. Operating Expenses per Vehicle Revenue Hour



Source: COLT; GET; Transfort; BATS 2018



Figure 3-18. Passengers per Vehicle Revenue Hour

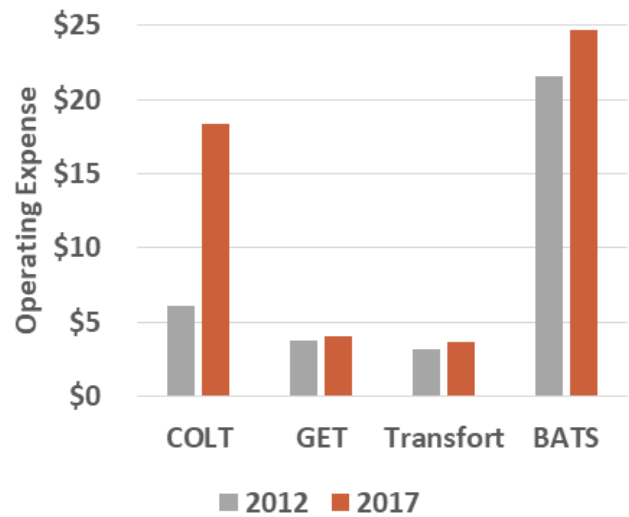


Source: COLT; GET; Transfort; BATS 2018

As shown in **Figure 3-18**, GET, Transfort, and BATS have seen an increase in the number of passengers per vehicle revenue hour. For GET and Transfort, this could be related to the investment in additional service attracting more riders and increasing the efficiency of each transit trip. COLT saw a decrease, which is related to the decrease in ridership. BATS, similar to the operating expense per vehicle revenue hour, may have become more efficient by rightsizing their service levels.

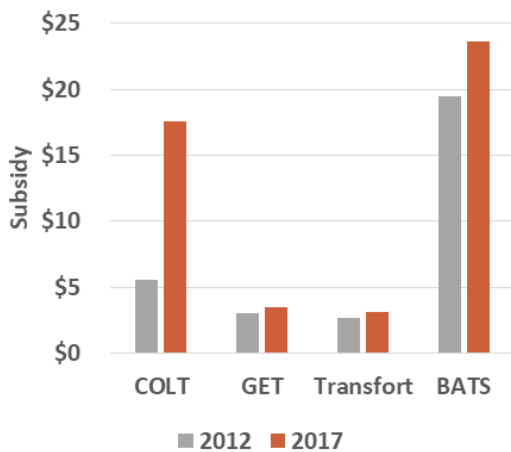
**Figure 3-19** shows that operating expenses per passenger trip have increased between 2012 and 2017 for all four agencies, though the increases for GET and Transfort were mitigated by accompanied increases in ridership. COLT has seen a decrease in ridership exacerbating the impacts of increasing operating expenses. BATS provides demand response service, which tends to have higher operating expenses than fixed-route services. These increased with an overall decrease in ridership.

Figure 3-19. Operating Expenses Per Passenger Trip



Source: COLT; GET; Transfort; BATS 2018

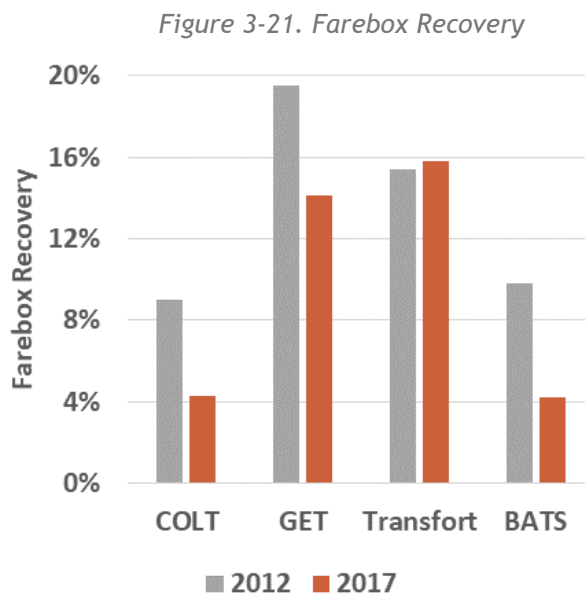
Figure 3-20. Subsidy per Passenger Trip



Source: COLT; GET; Transfort; BATS 2018

Subsidy per passenger trip is shown in **Figure 3-20** and refers to the additional funding needed beyond farebox recovery to cover operating expenses. As mentioned with the other performance measures, GET and Transfort have increased service and had increased ridership, providing more revenue hours and miles. This has increased operating expenses despite fares not increasing to cover the additional expenses. Similar issues, with decreased ridership, have caused a higher subsidy for COLT and BATS.

Farebox recovery is shown in **Figure 3-21** and refers to the amount of operating expenses covered by fare revenue. With low fares (ranging from \$1.25 to \$1.50 for fixed-route service), ridership does not cover more than 16 percent of expenses in 2017. Farebox recovery has decreased across all four agencies, but farebox recovery might not be the best performance measure for local agencies. BATS is provided as a social service for residents, with a focus on individuals with disabilities and older adults. Transfort and GET have partnerships with CSU and UNC, respectively, which helps to cover some expenses. All four agencies also receive funding from their respective jurisdictions, federal and state grants, and other



## Intercity Services

Intercity bus service connects communities in the NFRMPO region to destinations within Colorado and Wyoming. Intercity services include Bustang, Express Arrow, El Paso-Los Angeles Limousine Express, and VanGo Vanpooling.

### Colorado Department Of Transportation (CDOT) Bustang

CDOT introduced the Bustang service in summer 2015. Currently, three routes operate out of Denver Union Station. The North Line connects the Downtown Transit Center and Harmony Road Transfer Center in Fort Collins and the Loveland/Greeley Park-n-Ride to Downtown Denver. The West Line provides service to and from Glenwood Springs, while the South Line serves Colorado Springs and Monument. **Figure 3-22** shows the three Bustang routes.

Bustang is a product of the Funding Advancements for Surface Transportation and Economic Recovery (FASTER) Act of 2009. FASTER funding allows CDOT to support and expand transit, in addition to providing funding for bridge repair and roadway safety. Higher farebox recovery rates have allowed CDOT to expand service on Bustang with increasing ridership making FASTER funding go further.

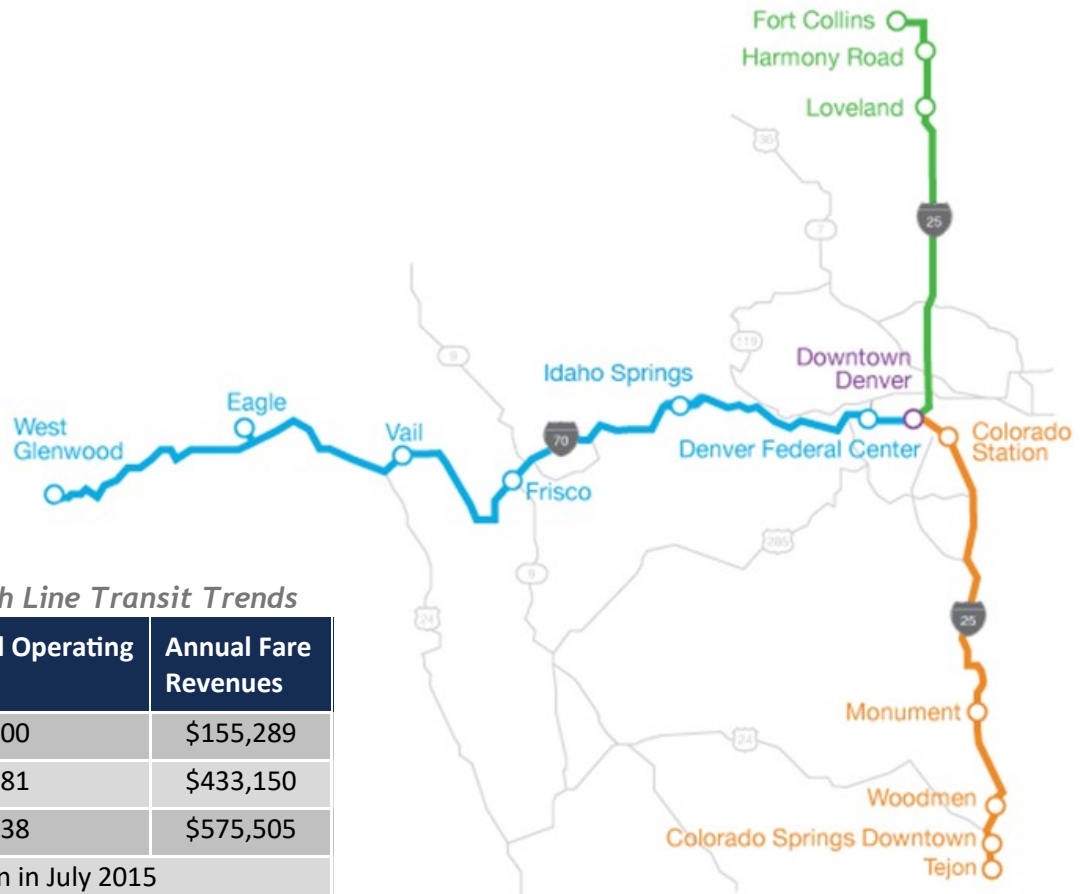
The North Line runs daily: seven round trips Monday through Friday; the RamsRoute, which runs when CSU is in session with a trip from the CSU Transit Center to

downtown Denver on Fridays and returning on Sundays; and two roundtrips per day on Saturdays and Sundays. Intraregional service is not available, meaning riders must ride between Northern Colorado and Denver.

One-way and multiple-trip tickets are available to ride Bustang and are available through the Ride Bustang app, through a mobile website, and via purchase on the bus. A one-way trip from Fort Collins to Denver costs \$10 per trip and \$9 from the Loveland-Greeley Park-n-Ride. Ten-, 20-, and 40-ride tickets are available at discounted rates. Children between two and 11 pay half fare and seniors and individuals with disabilities pay 75 percent fares.

CDOT's Bustang system has seen increased ridership consistently since its inception, as shown in Table 3-11. The North Line has seen the highest ridership of the three routes. Because of this high ridership, CDOT has added an additional daily route, for a total of seven trips operating Monday through Friday, and two round trips on Saturdays and Sundays. Bustang operates the

Figure 3-22. Bustang



Source: CDOT

Table 3-11. Bustang North Line Transit Trends

Year	Ridership	Annual Operating Cost	Annual Fare Revenues
2015*	18,266	\$427,400	\$155,289
2016	55,398	\$943,681	\$433,150
2017	75,191	\$996,938	\$575,505
* Bustang began in July 2015			

Source: CDOT, 2018

RamsRoute between CSU and Denver Union Station headed south on Fridays and returning north on Sundays; and Bustang to Broncos for two games in the 2017-2018 season.

Conceptual plans for the future include adding service along Berthoud/SH56, Longmont SH119, and Broomfield/Thornton/SH7. The additional stops for Bustang were included as part of CDOT’s Senate Bill (SB) 228 Transit Projects Working List. Additionally, the North I-25 Express Lanes project between Fort Collins and Johnstown includes funding to build a new Park-n-Ride at Kendall Parkway. This new Park-n-Ride will replace the existing Park-n-Ride currently located at US34 and I-25.

### Express Arrow

Express Arrow provides service between Buffalo, Wyoming and Denver. The route travels through Greeley, providing daily service between Greeley and Denver,

Cheyenne, Casper, and Buffalo. The service leaves Greeley going north at 2:15 p.m. and heads south at 3:00 p.m. Tickets between Greeley and Denver and between Greeley and Cheyenne cost \$16 each way. More information is available at [www.expressarrow.com](http://www.expressarrow.com).

### El Paso - Los Angeles Limousine Express

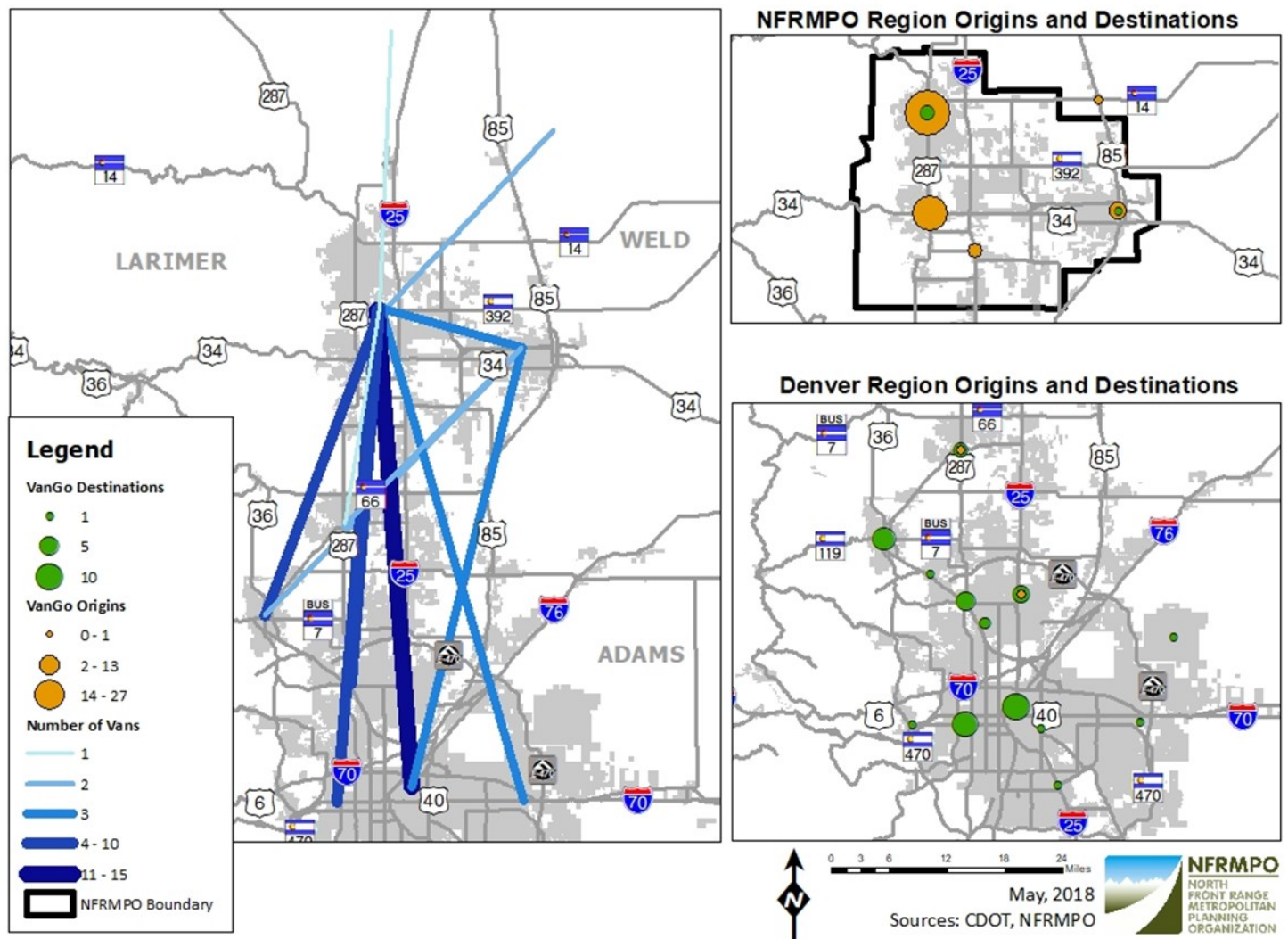
The El Paso-Los Angeles Limousine Express, Inc., operates in the US85 corridor and has two departures per day from Greeley to Denver. The ultimate destination for these services are Albuquerque, New Mexico, and El Paso, Texas. The charge for a one-way fare is \$15.00 for adults and \$10.00 for children. The scheduled departures from Greeley are at 5:45 a.m. and 5:00 p.m. The Greeley terminal is located at 2410 8th Avenue in the Agency Boutique Seis Rosas. The Denver terminal is located at 2215 California Street, a few blocks from the Denver Bus Station. More information is available at [www.eplalimo.com](http://www.eplalimo.com).

## VanGo™ Vanpools

VanGo™ is an NFRMPO program in which commuters beginning and ending in similar locations share a van. Vanpool members pay a monthly fee which covers the costs of the administration of the program, fuel, maintenance, and insurance. Tolls and parking are covered by the commuters themselves. VanGo™ operations are funded mainly through fares. Fares range from \$98 to \$362 per month depending on the distance between zones and where the vanpool originates and terminates. The program has a reduced schedule option

allowing vanpoolers who ride fewer than three days per week to pay a reduced fare. As of April 2018, VanGo™ operates at a 90 percent occupancy with 269 passengers on 50 routes. Routes operate primarily from Fort Collins, Loveland, and Greeley to downtown Denver, Lakewood, Interlocken, and Boulder County. Routes, origins, and destinations are shown in **Figure 3-23**. More information and available vanpools are available at [www.vangovanpools.org](http://www.vangovanpools.org).

Figure 3-23. VanGo Origins and Destinations



Source: NFRMPO Staff

## Volunteer Services

Volunteer services are small-scale transit services offered at low or no cost, typically to seniors and adults with disabilities. Seniors are typically adults over 60, while adults with disabilities are those over 18. Volunteer drivers typically provide door-through-door service, taking riders to and from essential destinations. There are three primary volunteer-driven transit services serving the North Front Range: Rural Alternatives for Transportation (RAFT), Senior Alternatives in Transportation (SAINT), and Senior Resource Services (SRS). See **Figure 3-24** for a map of Volunteer Service coverage.

### RamRide

RamRide provides students with a safe ride from CSU's main campus to a home address, not including a college dormitory. The service relies on student volunteers to run the program. Those needing rides request a ride through the RamRide App or call in to request a ride. Service is provided Thursdays to Saturdays, from 10:00 p.m. to 3:00 a.m. (2:00 a.m. on Thursdays).

### Rural Alternative For Transportation (RAFT)

Berthoud's RAFT initiated service in January 2014 due to the reduction in service for BATS. In 2013, BATS reduced the service area to the Town boundary, which removed service for residents of the rural area around Berthoud. RAFT formed as a volunteer transportation non-profit offering door-to-door, on-demand services to eligible seniors (60+) and adults (18+) with disabilities. The program operates under Berthoud Golden Links, Inc., a charitable organization.

Reservations are taken Monday through Friday from 9:00 a.m. to 4:00 p.m. at least three days prior to the requested trip and must be within the current month or the next month. Rides are offered 8:00 a.m. to 4:00 p.m., Monday through Friday. Drivers are allowed a 10 minute window before and after the scheduled pick-up time. A Para van is available for users requiring a wheelchair-accessible vehicle. Otherwise, volunteer drivers use their own vehicles.

RAFT does not charge for services, but donations are encouraged. The program is partially funded through

service contracts; individual, business, and corporate donations; a grant from the Larimer County Office on Aging; support from the Senior Corps Retired Senior Volunteer Program (RSVP); and Community Foundation of Northern Colorado-Berthoud Community Fund. More information about RAFT is available at their website: <http://berthoudraft.org>.

### Senior Alternatives in Transportation (SAINT)

SAINT is a volunteer transportation service within, but not between, Fort Collins and Loveland. SAINT drivers use their own vehicles to provide mobility to seniors over 60 and adults (18+) with disabilities. SAINT staff recruits volunteers, schedules rides, and provides a mileage allowance and extra insurance to drivers.

SAINT operates from 8:15 a.m. to 4:00 p.m. Monday through Friday. Reservations must be made at least three days in advance and must be scheduled for the current or following month. Schedulers are available between 8:00 a.m. and 12:00 p.m., Monday through Friday.

Donations are accepted with typical donations around \$1.00 per ride. Additional funding for the program is provided by grants. Grantors include: United Way of Larimer County, the Larimer County Office on Aging, the City of Fort Collins, the City of Loveland, and the Community Foundation of Northern Colorado. More information about SAINT is available at their website: <http://saintvolunteertransportation.org>



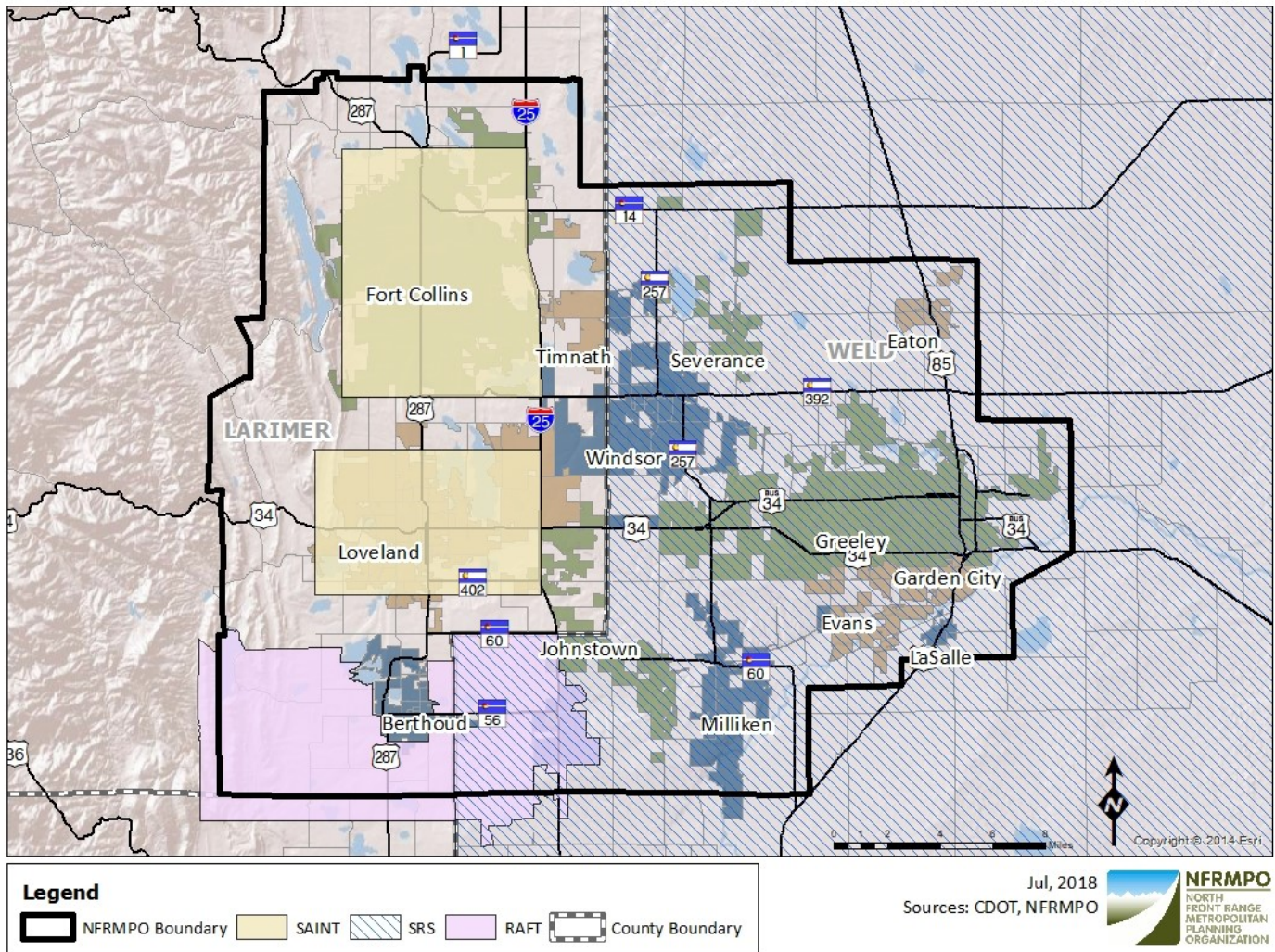


## Senior Resource Services (SRS)

SRS is a volunteer transportation service in Weld County. SRS drivers use their own vehicles to provide mobility to seniors over the age of 60. SRS staff recruits volunteers, schedules rides, and provides a mileage allowance and extra insurance to drivers. SRS operates from 9:00 a.m. to 4:00 p.m. Monday through Friday. Reservations should be made at least 14 days in advance, with the exception of minivan transportation to non-medical appointments in the Greeley-Evans area being accepted up to 3:30 PM

the day before the requested ride, space allowing. Donations given directly to SRS are accepted, but rides are provided free of charge to registered clients. Grants provided by the Daniels Fund, the Northern Colorado Medical Center (NCMC) Foundation, A.V. Hunter Trust, United Way of Weld County, Virginia Hill Foundation, and the Weld County Area Agency on Aging help fund the program. Information about SRS is available at their website: [www.srsweld.com](http://www.srsweld.com).

Figure 3-24. Volunteer Service Coverage



Source: NFRMPO Staff

## Private Transportation Services

Private transportation services include a much broader scope of transit service, ranging from paratransit to taxi and shuttle services. Private transportation services often help fill in mobility gaps across a region.

### Campus Shuttles

CSU is served by private buses shuttling students from The Outpost, The Cottages, and Ramblewood Apartments every 30 minutes throughout the school year. The apartment complexes are geared toward students, but are located longer distances from campus. With the number of developments in Fort Collins, this type of transit may increase into the future.

### Heart&SOUL Paratransit

Heart&SOUL Paratransit is a family-owned and operated transportation service specializing in transportation for seniors and adults with disabilities. Heart&Soul serves Larimer and Weld counties with service that runs between cities and most locations in between. Drivers for Heart&SOUL Paratransit work directly for the company and are not independent contractors.

All drivers receive over 50 hours of training before being permitted to drive. Training consists of defensive driving, Passenger Service and Safety (PASS) training, wheelchair securement, First Aid & CPR, dementia education, Travel Transfer Training, 30 hours of hands-on practical training, and continuous monthly education seminars. All drivers must pass a pre-employment drug screening, physical, and extensive background checks. Heart&SOUL provides customized transportation, including door-through-door service and works with numerous hospices, living facilities, InnovAge, as well as major local hospitals. They are able to provide transportation to and from procedures requiring anesthesia and a reliable escort.

Heart&SOUL operates from 5:00 a.m. to 12:00 a.m., seven days a week. Reservations should be made at least 24 hours in advance, but may be scheduled the same day if the ride is urgent. Schedulers are available between 8:00 a.m. and 5:00 p.m., seven days a week.

Fees include a \$10 pick-up fee and \$2.50 per mile. There are no additional fees for extra riders, and meters are not used at this time. Wheelchairs and a portable safety ramp are available for a \$25 fee. More information about Heart&SOUL Paratransit is available at their website: [www.heartandsoulparatransit.com](http://www.heartandsoulparatransit.com).

### Green Ride

Green Ride Shared Ride Airport Shuttle is an airport shuttle service, with two main hubs at the Harmony Transfer Center and the Northern Colorado Regional Airport. Green Ride serves southern Wyoming and the Fort Collins/Loveland area. Service between Fort Collins and Denver International Airport (DIA) begins at 2:20 a.m. and runs through 11:30 p.m., offering trips approximately every 70 minutes. Service from DIA to Fort Collins begins at 4:30 a.m. and runs through 1:00 a.m.

The lowest standard fare with pick-up from one of the two stops in Fort Collins (CSU Transit Center, Harmony Transportation Center) is \$33.00. An adult fare with hotel pick-up is \$49.00 and children 13 and under are \$10.00. Door-to-door pick-up is also available and prices vary by service zone. In Fort Collins, Loveland, Windsor, and



Timnath the price is \$49.00. In Wellington, Severance, and West Loveland zone, the fare is \$55.00. Green Ride also offers a \$5.00 off Senior Fare Discount for adults 65 years and over. This reservation-based operation uses minivans, 11- & 14-passenger Ford Transits, and 25-50 passenger buses.

### Taxi Services

Yellow Cab is the predominant taxicab service in Northern Colorado, serving the entire NFRMPO region. Currently, there are more than 50 taxicabs operated by Yellow Cab in Northern Colorado. Yellow Cab is owned by Transdev North America, which operates transportation services throughout the US. Yellow Cab provides the Mobility Plus service, which caters to medical patients, elderly passengers, and individuals with disabilities. The Mobility Plus service includes a large fleet of wheelchair-accessible taxis, providing service to cancer treatments, dialysis, and many other medical appointments. Yellow Cab is a registered Non-Emergency Medical Transportation (NEMT) provider for Larimer and Weld counties. Information about Yellow Cab is available at the Yellow Cab website: [www.fortcollinstaxi.com](http://www.fortcollinstaxi.com).

### Non-Emergency Medical Transportation (NEMT)

NEMT is provided by Veyo in a nine county region along the Front Range, which includes Larimer and Weld counties. According to the Colorado Department of Health Care Policy and Financing (HCPF), NEMT is transportation to and from covered non-emergency medical appointments or services, and is only available when a Health First Colorado (Colorado's Medicaid

Program) member has no other means of transportation. Veyo is the State Designated Entity for Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Larimer, Jefferson, and Weld counties. Veyo requires at least 48-hours advance notice to schedule rides, but urgent care and after-hours service may be provided based on Health First Colorado eligibility. To schedule a ride, the rider must have the Health First Colorado ID number, name, and date of birth; address for pick up; doctor's name, address, and contact information; and the date and time of the medical appointment. Reimbursement rates for Veyo are mandated at the State-level of \$0.38 per mile. Information about Veyo is available at the Veyo website: [www.medicaidco.com](http://www.medicaidco.com).

### Transportation Network Companies

The Federal Highway Administration (FHWA) defines transportation network companies (TNCs) as "provid[ing] prearranged and on-demand transportation services for compensation, which connect drivers of personal vehicles with passengers. Smartphone mobile applications facilitate booking, ratings (for both drivers and passengers), and electronic payment."<sup>2</sup> In the NFRMPO region, Uber operates within the entirety of Larimer and Weld counties, while Lyft primarily operates within the NFRMPO region, and does not extend into all unincorporated parts of Larimer and Weld counties. Fares for TNCs are based on distance, time of day, and demand and are subject to change. More information about Uber is available at [www.uber.com](http://www.uber.com) and Lyft is available at [www.lyft.com](http://www.lyft.com).





## Transit Studies and Related Plans

The following sections provide information about plans and studies that have occurred since the 2040 RTE was adopted by the NFRMPO Planning Council in 2015, or are currently in progress.

### Fort Collins City Plan Update

The City of Fort Collins is in the process of updating its *Comprehensive Plan*, *Transportation Master Plan*, and *Transit Master Plan*. These plans will include a strong focus on the community's transit strategy and operations. Key goals of the Plan updates include refining a community transit vision that addresses the opportunities, challenges, and tradeoffs of serving areas of high ridership potential (productivity) and providing community-wide accessibility (coverage). In addition, the Plan updates seek greater alignment between transit planning and the community's land use framework and how transit can continue to support community goals for convenient, affordable, safe, and accessible transportation options. The Plan will include regional transit recommendations.

As part of their Transportation Plan Update, the City of Fort Collins will re-evaluate their Enhanced Travel Corridors (ETC), which seek to prioritize corridors for investment to facilitate safe, multimodal transportation. The City will also identify transit corridors, which will specifically prioritize corridors for transit investment.

### NFRMPO Coordinated Plan

The NFRMPO adopted the *2017 Coordinated Public Transit/Human Services Transportation Plan* in December 2017 and provided strategies to increase education and collaboration, and increase investment in both rural and urban communities. The *Coordinated Plan's* main focus is on older adults and people with disabilities and acts as the short range regional transit plan for the NFRMPO region.

### Larimer County Senior Transportation Needs Assessment

Though Larimer County does not plan to operate transit itself, staff in the Larimer County Office on Aging and the Larimer County Engineering Department partnered to

study the mobility needs of older adults living in unincorporated Larimer County. As a result of feedback from focus groups and a statistically-valid survey, the Senior Transportation Needs Assessment recommended 10 strategies for improving mobility for older adults living in the unincorporated portions of the County. A Work Group has formed to identify how to implement these recommendations, which may be done in partnership with the Partnership for Age-Friendly Communities (PAFC) of Larimer County.

### Rail Studies

Multiple efforts to study rail have been undertaken for the North Front Range region. In December 2011, CDOT reached an agreement with FHWA on the North I-25 Final Environmental Impact Statement (EIS) Record of Decision (ROD). As part of the ROD, CDOT recommended investment in express buses, commuter rail, and commuter buses along the I-25 corridor. Though the EIS does not expect full build-out of the corridor until 2075, some investments have progressed.

In 2012, Northern Colorado Commuter Rail published the *Connecting Northern Colorado by Rail* document, which recommended passenger rail along major rail corridors in Larimer and Weld counties.

CDOT undertook the *Interregional Connectivity Study*, which was published in 2014. In May 2015, CDOT completed the *North I-25 EIS Commuter Rail Update*, a nine month study that developed up-to-date cost estimates related to right-of-way (ROW), commuter rail operating plans, and cost estimates. The *Commuter Rail Update* estimates the expansion of commuter rail from 162nd Avenue in Thornton to the South Transit Center in Fort Collins along the BNSF Railway ROW would cost \$1.2B. The *Commuter Rail Update* recommends dividing the project into three phases: a planning phase,

construction phase, and start-up phase. No funding has been identified for any of these phases as of the writing of the *2045 RTE*. The *North I-25 EIS Commuter Rail Update* can be downloaded from the CDOT website.

In 2017, CDOT published the *Interoperability Evaluation Report*. In 2017, the Colorado Legislature formed the Southwest Chief and Front Range Passenger Rail

Commission (SC&FRPRC), which maintains the mission to facilitate the future of passenger rail along the I-25 corridor in Colorado. The NFRMPO has a member on the SC&FRPRC. Additionally, conversations to initiate studies of rail options along the Great Western Railway tracks in Fort Collins, Greeley, and Loveland have been underway in 2018.

## The Highlights

- COLT, GET, and Transfort are the three major fixed-route transit providers in the NFRMPO planning boundary
- Transit infrastructure and ridership growth are keeping up with population growth
- BATS, COLT, GET, and Transfort provide paratransit demand-response service to the region
- Private transportation companies help to fill gaps not served by fixed-route and demand-response transit
- Existing regional transit service includes Bustang, FLEX between Fort Collins and Boulder, and VanGo™ Vanpooling

## References

1. National Transit Database 2017 Glossary: <https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/2017%20Glossary.pdf>
2. Shared Mobility: Current Practices and Guiding Principles, FHWA 2016. <https://ops.fhwa.dot.gov/publications/fhwahop16022/fhwahop16022.pdf>