

## A. Roadway Network

The roadway network provides the backbone for the transportation system in the North Front Range region. In addition to serving vehicular traffic, such as cars and trucks, it also provides infrastructure for transit service and nonmotorized users.

## Functional Classification

The roadway network is comprised of a hierarchy of facilities defined by how they serve the mobility and access needs of the users. Mobility is the efficient movement of people and goods, while access is the movement of people and goods to and from specific locations. As mobility increases on a roadway, access decreases; and conversely, as access increases, mobility decreases.

The functional classification of each roadway reflects the level of mobility and access provided by the roadway and its role in the regional system. There are three functional classification systems used in the region:

1) CDOT maintains the functional classification system used to determine federal-aid eligibility of roads based on the Federal Highway Administration's (FHWA) Highway Functional Classification Concepts, Criteria and Procedures. ${ }^{2}$
2) Many local governments maintain a functional classification system to plan for access, ultimate number of lanes, and/or right-of-way (ROW) requirements.
3) The 2015 Regional Travel Demand Model (RTDM) identifies a facility type for each road, which is similar to functional

[^0]classification. The facility type is used to look up speed, capacity, and volume delay parameters. Local roads are not specifically identified in the model. Rather, traffic on local roads is represented through centroid connectors, which link neighborhoods to the modeled street system.

Each of the roadway facility types used in the 2015 RTDM are identified in the following section.

## Interstate

All routes which comprise the Interstate Highway system are considered Interstate highways. Interstates are designed with mobility and longdistance travel in mind. I-25 is the only Interstate highway in the North Front Range region.

## Freeway and Expressway

Freeways and expressways have directional travel lanes, which are usually separated by some type of physical barrier, and their access and egress points are limited to on- and off-ramp locations or a very limited number of at-grade intersections. Freeways and expressways are designed and constructed to maximize their mobility function, and abutting land uses are not directly served by them.

## Principal Arterial

Principal Arterials serve major activity centers, the highest traffic volume corridors, and longest trip demands. Principal Arterials interconnect and provide continuity for major rural corridors to accommodate trips entering and leaving urban areas and movements through the urban area. They serve demand for intra-area travel
between the central business district and outlying residential areas.

## Minor Arterial

Minor arterials collect and distribute traffic from principal arterials, freeways, and expressways to streets of lower functional classification and, in some cases, allow traffic to directly access properties. They serve secondary traffic generators such as community business centers, neighborhood shopping centers, multifamily residential areas, and traffic between neighborhoods. Access to land use activities is generally permitted, but should be consolidated, shared, or limited to larger-scale users. Minor arterial street spacing is recommended to be at half-mile intervals.

## Collector

Collectors serve traffic circulation in residential and commercial/industrial areas. They distribute and channel trips between Local Roads and Arterials. The cross-section of a collector street
may vary widely depending on the scale and density of adjacent land uses and the character of the local area. Left turn lanes sometimes occur on collector streets adjacent to nonresidential development. Collector streets are generally two lanes, but sometimes have fourlane sections.

## Ramp

Ramps connect controlled-access highways to the surrounding roadway network.

## Frontage Road

Frontage roads are similar to minor arterial or collectors but serve a specific purpose in providing local access adjacent to a freeway or expressway. Table 2-1 summarizes these classifications and provides examples of roads within the North Front Range region. The lane mileage provided represents the lane mileage included in the 2015 RTDM and does not include all of the lane miles in the region.

Table 2-1: Facility Type in the NFRMPO Model

| Functional Class | Lane Mileage (2015) | Regional Examples |
| :--- | :---: | :---: |
| Interstate | 109 | Interstate 25 (I-25) |
| Freeway and Expressway | 204 | US Route 85 (US85) |
| Principal Arterial | 618 | State Highway (SH) 392 |
| Minor Arterial | 746 | SH14 east of I-25 |
| Collector | 1,173 | Weld County Road 52, Larimer County Road |
| Ramps | 14 |  |
| Frontage Road | 60 | I-25 Entrance and Exit Ramps |
| Total | $\mathbf{2 , 9 2 8}$ | I-25 Frontage Road |

Source: North Front Range 2015 Base Year Regional Travel Demand Model

## Existing Daily Traffic Volumes

Figure 2-1 shows the 2015 daily traffic volumes modeled by the 2015 RTDM. The highest traffic volumes are located along the major routes within the region. I-25, Harmony Road, US34,
and US287 have the highest traffic volume in the region with over 45,000 daily trips respectively. Most collectors have fewer than 10,000 trips per day.

Figure 2-1: 2015 Average Daily Traffic Volumes


## Roadway Surface Condition

CDOT assesses pavement condition annually in terms of Drivability Life, which measures how long a highway segment will have acceptable driving conditions based on an assessment of pavement smoothness, surface cracking, rutting, and safety. ${ }^{3}$ There are three categories: High Drivability Life will have acceptable driving conditions for more than 10 years; Moderate Drivability Life will have acceptable driving conditions for four to 10 years; and Low Drivability Life will have acceptable driving conditions for fewer than four years.

The Drivability Life on CDOT's system is shown in Figure 2-2. As of 2018, 34.3 percent of the state highway system in the region had a high drivability life, 52.4 percent had a moderate drivability life, and 13.3 percent had a low drivability life. A variety of construction projects have improved roadway surface condition since 2015, including projects on US85, US287, SH56, and SH60. Additional projects have improved surface condition that are not yet reflected in the 2018 Drivability Life ratings, such as the SH14 resurfacing project completed in 2018.

Figure 2-2: 2018 State Highway Drivability Life


[^1]https://www.codot.gov/library/AnnualReports/2014-annual-transportation-deficit-report.pdf

## Special Roadway Corridors

Roadways are categorized by their regional and national significance and by their scenic or historic value. Multiple roadways within the NFRMPO region are included as part of the National Highway System (NHS) due to their significance and one highway is considered scenic and historic.

## National Highway System (NHS)

The NHS consists of roadways important to the nation's economy, defense, and mobility, including interstate highways and portions of the principal arterial system. Approximately 132 miles of NHS roadways are located within the NFRMPO region, as shown on Figure 2-3. FHWA has designated High Priority Corridors as a focus for improvements to enhance mobility for trade
(both domestic and international) and to promote economic development. Camino Real, the High Priority Corridor in the North Front Range region, extends from Mexico to Canada via I-25 through Colorado.

## Scenic and Historic

The State of Colorado has identified more than 2,000 miles of roadway as Scenic Byways. The Cache la Poudre: North Park (SH14 and US287) is the only designated Scenic Byway within the NFRMPO region. Approximately seven miles of this byway are within the northern portion of the region. The route follows US287 from the Cache La Poudre River northwest as shown in Figure
2-3.

Figure 2-3: National Highway System and Scenic and Historic Byways


Hazardous and Nuclear Materials
Due to safety reasons, the transportation of hazardous and nuclear materials is limited to designated roadways.

Figure 2-4 illustrates the roadways in the region the State of Colorado has designated for the
transportation of hazardous and nuclear materials. As shown, four routes are designated for transporting hazardous materials (I-25, SH14, US34, and US85), while one route is designated for transporting nuclear materials (I-25). Federal and State regulations prohibit these materials from being transported using other routes.

Figure 2-4: Hazardous and Nuclear Materials Routes


## Bridge Conditions

Major strides have been made to fix and repair bridges within the State using federal, State, and local funding. The Funding Advancements for Surface Transportation Economic Recovery Act (FASTER) program designates State funds for safety improvements, bridge repairs, and transit
expansion. Working with CDOT, local governments within the region have invested a variety of resources and funds into fixing bridges.

FHWA produces an annual National Bridge Inventory (NBI), which is the result of surveying
the condition of bridges across the country. Bridges are rated as Good, Fair, or Poor. Of the 503 bridges located within the North Front Range region, 221 are rated Good (43.9 percent), 252 are rated Fair ( 50.1 percent), and 30 are rated

Poor (6.0 percent). Figure 2-5 displays bridges by their condition rating in the North Front Range region as of 2017. Additional information on bridge condition on NHS facilities is available in the System Performance Report (Appendix C).

Figure 2-5: Bridge Condition


## B. Regionally Significant Corridors

The concept of Regionally Significant Corridors (RSCs) was first used in the 2030 RTP to focus limited transportation dollars on the corridors most significant to the region. Corridors were updated, affirmed, and carried forward in successive RTPs. The criteria used to identify RSCs were updated in this RTP, resulting in slight modifications to the RSCs. Since the 2045 RTP is corridor-based, the RSCs set the stage for the overall Plan.

An RSC in the North Front Range Metropolitan Planning Organization (NFRMPO) is defined as:

> An important link in a multi-modal, regional network comprised of existing or new transportation corridors that connect communities and/oractivity centers by facilitating the timely and safe movement of people, goods, information, and services.

The following criteria were used to identify RSCs:

1. Includes all Interstates, US Highways, and State Highways

- Colorado Department of Transportation (CDOT) requires a corridor vision be developed for all state highways as part of the regional transportation plan. Since

[^2]this is required by CDOT, and most state highways, US highways, and Interstate highways are regional in nature, this was established as the first criteria.
2. Includes all other roadways that meet the following criteria:
a. The roadway is eligible to receive federal aid $^{4}$
b. The roadway goes through more than one governmental jurisdiction or connects to an activity center ${ }^{5}$ by 2045
c. It is anticipated that by 2045 all segments of the roadway designated as an RSC will be built and paved
d. The roadway serves regional traffic as determined by local knowledge

The RSCs are organized by alpha/numeric order from Interstate, US Highway, State Highway, Larimer County Road (LCR), Weld County Road (WCR), and then the remaining corridors. Table 2-2 describes the 28 RSCs whose numbers correspond to the locations in Figure 2-6. A vision plan for each RSC, Regional Transit Corridor (RTC), and Regional Non-Motorized Corridor (RNMC) is included in Chapter 3.
${ }^{5}$ Activity Centers include higher education main campuses, all major medical centers, regional airports, major business and industrial parks, and major commercial centers and corridors.

Table 2-2: Regionally Significant Corridors

| RSC | Name | Description |
| :---: | :---: | :---: |
| 1 | 1-25 | Northern MPO boundary to southern MPO boundary |
| 2 | US 34 | Western MPO boundary to eastern MPO boundary |
| 3 | US 34 Business Route | US 34 MP 102 on the west to US 34 MP 115.5 on the east |
| 4 | US 85 | Weld CR 70 on the north to Weld CR 48 on the south |
| 5 | US 85 Business Route | US 34 on the south to US 85 on the north |
| 6 | US 287 | Northern MPO boundary to southern MPO boundary, includes Berthoud Bypass |
| 7 | SH 1 | Northern MPO boundary to US 287 on the south |
| 8 | SH 14 | US 287 on the west to eastern MPO boundary |
| 9 | SH 56 | US 287 on the west to the RSC 14 extension on the east |
| 10 | SH 60 | US 287 on the west to the southern MPO boundary |
| 11 | SH 257 | SH 14 on the north to SH 60 on the south, includes offset in Windsor |
| 12 | SH 392 | US 287 on the west to US 85 on the east |
| 13 | SH 402 / Freedom Parkway | Larimer CR 17 on the west to US 85 on the east |
| 14 | Larimer County Road (LCR) 3 / Weld County Road (WCR) 9.5 | Crossroads Boulevard on the north to southern MPO boundary |
| 15 | LCR 5 | SH 14 on the north to US 34 on the south |
| 16 | LCR 7 / LCR 9 / Timberline Road | Vine Drive on the north to SH 60 on the south |
| 17 | LCR 17 / Shields Street / Taft Avenue | US 287 on the north to SH56 on the south |
| 18 | LCR 19 / Taft Hill Road / Wilson Avenue | US 287 on the north to US 34 on the south |
| 19 | WCR 13 | SH 14 on the north to southern MPO boundary |
| 20 | WCR 17 | Crossroads Boulevard Extension on the north to southern MPO boundary |
| 21 | WCR 27 / 83rd Avenue / Two Rivers Parkway | SH14 on the north to SH 60 on the south |
| 22 | WCR 35 / 35th Avenue | O Street on the north to US 85 on the south |
| 23 | WCR 74 / Harmony Road | LCR 17 on the west to the eastern MPO boundary |
| 24 | 8th Street | US 85 on the west to the eastern MPO boundary |
| 25 | 59th Avenue / 65th Avenue | SH 392 on the north to 54th Street on the south |
| 26 | Crossroads Boulevard / O Street | I-25 on the west to US 85 on the east |
| 27 | Mulberry Street | LCR 19 on the west to Riverside Avenue (SH 14) on the east |
| 28 | Prospect Road | US 287 on the west to LCR 5 on the east |

Figure 2-6: NFRMPO 2045 Regionally Significant Roadway Corridors


## C. Transit System

The NFRMPO region is home to three municipally-operated fixed-route systems, one regional route operated by CDOT, one municipally-operated demand response system, and several private and/or non-profit services.

These services are explored in more detail in the 2045 Regional Transit Element (RTE). Figure 2-7 shows the relation of fixed-route and paratransit systems operated and/or funded by municipalities.

Figure 2-7: Public Transportation Providers in the NFRMPO Region


## Regional Trends

Transit trends vary throughout the region, as Berthoud Area Transportation System (BATS), Greeley Evans Transit (GET) and Transfort saw increases in ridership between 2013 and 2017, while City of Loveland Transit (COLT) saw decreases. Figure 2-8 shows the ridership trends for each publicly-funded transit service in the region between 2013 and 2017. Operating expenses for the publicly-funded transit systems are shown for the same time period in Figure

## 2-9.

Trends between increased operating expenses and ridership are correlated. Transfort saw a large increase ( 82 percent) in operating expenses due to investments in the MAX corridor, FLEX, and CSU routes. GET saw an increase of 28 percent due to additional service after the 2016 service redesign, and COLT saw a 21 percent
increase. BATS saw the smallest increase at eight percent.

Fare revenue decreased for all agencies except Transfort. Transfort saw a steady growth in fare revenue between 2013 and 2017 (116.7 percent). COLT had a 12.8 percent decrease, GET had a 14.4 percent decrease, and BATS had a 30.2 percent decrease.

As shown in Figure 2-10, fares did not increase for any of the agencies between 2013 and 2017, so decreases in ridership may account for less revenue at COLT. BATS does not have a required fare for older adults, instead operating on a donation basis for riders over 60 - an increase in older adult riders may decrease overall fare recovery. Additional trends are explored in more depth in the 2045 RTE.

Figure 2-8: Ridership Trends on Publicly-Funded Transit Systems 2013-2017


Note: BATS is also considered a publicly-funded transit system; annual boardings were too few to accurately display here.

Figure 2-9: Operating Expenses Trends on Publicly-Funded Transit Systems 2013-2017


Note: BATS annual operating expenses were too few to accurately display here. Source: NTD, City of Loveland Transit, City of Greeley - GET, Transfort, 2018

Figure 2-10: Fare Revenue for Publicly-Funded Transit Systems 2013-2017


Note: BATS fare revenue expenses were too few to accurately display here. Source: NTD, City of Loveland Transit, City of Greeley - GET, Transfort, 2018

## BATS

BATS provides demand-response service outside of the Berthoud town limits throughout the week and operates fixed trips on certain days of the week. On Mondays, BATS transports riders to Longmont between 8:00 a.m. and 11:30 a.m. 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 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). System performance measures are shown in Table 2-3.

Table 2-3: 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

## COLT

COLT provides fixed-route service and paratransit within Loveland. The Loveland Public Works Department operates the fixed-route system, which runs between 6:38 a.m. and 7:48 p.m. Monday through Friday, and between 8:38 a.m. and 5:48 p.m. on Saturdays. No service is operated on Sundays or holidays. Prior to November 2018, there were three routes, each with hourly headways. As of November 2018, service operates on five routes, one running to
each quadrant of the City and one operating along US287. Two of these routes now operate every half-hour, and the remaining three continue to operate on one-hour headways.

Paratransit service transitioned from a municipally-run service to a contracted Dial-aRide 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 $3 / 4$-miles of a fixed-route service may use Dial-a-Ride or Dial-aTaxi service. Dial-a-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 Federal Transit Administration (FTA) §5310 funds to provide ADA Paratransiteligible users the ability to use a taxi for eligible rides inside and outside of the COLT service area.

In 2017, COLT carried 105,917 passengers on the fixed-route system, which is a decrease from 142,803 in 2013. The system has a productivity of 7.1 passengers per hour, which is a decrease from 2012 ( 10.3 riders per hour). System performance measures are shown in Table 2-4.

Table 2-4: 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: NTD, 2018.

## 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 eight 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.

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 pm., 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 fixedroute 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. System performance measures are shown in Table 2-5.

## Table 2-5: 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: NTD, 2018

## Transfort

Transfort is the largest transit service provider in the NFRMPO region, providing local and regional fixed-route services, bus rapid transit (BRT),
school-subsidized routes, and paratransit. 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. Some routes operate for school trips or late-night service only.

Paratransit service is contracted through the Dial-a-Ride program. The Dial-a-Ride program provides door-to-door paratransit to individuals who meet minimum service requirements of the ADA. 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. Like the program in Loveland, Dial-a-Taxi uses FTA $\S 5310$ funds to provide ADA Paratransit-eligible riders the ability to use a taxi for eligible rides both inside and outside of the service area.

In 2017, Transfort carried more than 4.33M passengers on the fixed-route system, which increased from 2.27 M passengers in 2013 . The system has a productivity of 29.8 riders per hour, which is a slight increase over 2012 (29.2 riders per hour). Overall, riders are made up of CSU students (57 percent), older adults and individuals with disabilities ( 12 percent), and youth (4 percent); the remaining riders do not fall into a special category. System performance measures are shown in Table 2-6.

## Table 2-6: 2017 Transfort Performance Measures

| Performance Measures | Total |
| :--- | :---: |
| Cost per Operating Hour | $\$ 108.60$ |
| Passengers per Operating Hour | 29.78 |
| Cost per Passenger Trip | $\$ 3.65$ |
| Subsidy per Passenger Trip | $\$ 3.07$ |
| Farebox Recovery | $15.8 \%$ |
| Ridership per Capita | 30.12 |
| Cost per Capita | $\$ 109.83$ |

Source: NTD, 2018

## Regional Service

Transit is provided on two key Regionally Significant Corridors (RSC): US287 (FLEX) and I25 (Bustang). Both services have been successful and continue to see investments. Ridership trends for these two services are shown in Figure
2-11. Because Bustang began service in July 2015, no data is available prior to then.

## FLEX

Transfort operates the FLEX service along US287 in Larimer and Boulder counties. The FLEX service has two routes:

- Fort Collins to Longmont, which runs from the South Transit Center (STC) in Fort Collins to Loveland, Berthoud, and Longmont with local stops along the way; and
- Fort Collins to Boulder, which runs from the Downtown Transit Center in Fort Collins along the MAX guideway to the STC, then makes express stops to Loveland, Longmont, and along the Diagonal Highway (SH119) to Boulder.

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 the South Transit Center and the Loveland Food Bank, with four trips to Longmont in each direction.

FLEX between Fort Collins and Boulder began in 2016 and operates Monday through Friday, with four southbound trips at 6:00 a.m., 1:15 p.m., 3:25 p.m., and 5:20 p.m., and five northbound trips 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.

FLEX ridership generally increased between 2013 and 2017, with the extension to Boulder being a contributor. The additional services connected two major universities (CSU and CU-Boulder), extended the route farther into Fort Collins, and provided additional services.

## Bustang

CDOT introduced the Bustang service in July 2015. Currently, three routes operate out of Denver Union Station. The North Line connects the Downtown Transit Center (DTC) 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 Grand Junction, while the South Line serves Colorado Springs and Monument. Bustang Outrider provides additional services from some cities to smaller and more rural towns and cities. Currently, no Bustang Outrider services are available from the NFRMPO region.

The North Line runs daily: six 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.

Figure 2-11: Regional Transit Ridership 20132017


Sources: CDOT, Transfort, 2018.

## Transit Updates since 2040 RTP

COLT Investments

- Paratransit - COLT's paratransit service contracted its service with Transfort's contractor, reduced service area from the GMA to the federally mandated $3 / 4$-mile buffer from the fixed-route system and reinvested the savings into the fixed-route system.
- Transit System Redesign - COLT redesigned its routes in November 2018, creating five separate routes. The new routes are easier to understand, create easier connections between routes, and allow for more user flexibility.
- New transfer center - The City of Loveland has purchased land to build a permanent transit center at US287 and 37 ${ }^{\text {th }}$ Street. The new transfer facility will feature indoor and outdoor amenities, improving customer experience.


## GET Investments

- Regional Transportation Center - GET built the new Regional Transportation Center at its headquarters north of downtown Greeley. The new facility connects GET buses with Express Arrow buses at a transit center including restrooms, customer service, indoor waiting area, and vending machines.
- Regional Route Study - Greeley led the way to plan for the Poudre Express, a new regional route connecting Fort Collins and Greeley via Windsor. Service is tentatively expected to begin in January 2020 after GET successfully obtained State grants and local funding.
- Ride Free with ID - Greeley expanded its Ride Free with ID program to all youth in Greeley. The success of the program has caused a spike in ridership for GET and has improved students' ability to participate in school events, clubs, and sports.
- Game-day Service - GET has partnered with Transfort to provide buses and drivers for stadium events at CSU's new on-campus stadium.
- Paratransit and Call-N-Ride -A shuttle service was added to connect the Greeley Mall with the new UCHealth Greeley Hospital.


## Transfort Investments

- 365-Day Service - Transfort operates transit on five routes on Sundays and holidays. Additional funding was obtained from the Associated Students of Colorado State University (ASCSU), CSU, and Fort Collins.
- Game-day Service - CSU opened its new, on-campus stadium in 2017 and Transfort has been a large part of its game-day Transportation Demand Management (TDM) plan.
- FLEX to Boulder - Because of a Congestion Mitigation \& Air Quality (CMAQ) grant obtained from the Denver Regional Council of Governments (DRCOG), the FLEX service was extended to Boulder. Service operates between downtown Fort Collins and the University of Colorado-Boulder campus on weekdays. The CMAQ grant expired at the end of 2018, and local community partners agreed to continue funding the service.


## Volunteer, Private, and Specialized Transit

Transit service is provided by services beyond just the municipally-operated services. These services are operated by senior centers, nonprofits, and for-profit agencies. Figure 2-12 shows the boundaries of the major transit services: Heart\&SOUL Paratransit, RAFT, Senior Alternatives in Transportation (SAINT), and Senior Resource Services (SRS). Heart\&SOUL Paratransit and SRS both provide service throughout the entirety of Weld County.

## Heart\&SOUL Paratransit

Heart\&SOUL Paratransit specializes in transportation for seniors and adults with disabilities in Larimer and Weld counties. 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 24hours 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.

## RAFT

RAFT is a volunteer transportation non-profit offering door-to-door, on-demand services to eligible seniors (60+) and adults (18+) with disabilities residing within the Berthoud Fire Protection District (BFPD). Trips are made from the BFPD to Berthoud, Loveland, and Longmont. The program operates under Berthoud Golden Links, Inc., a charitable organization.
Reservations are taken Monday through Friday from 8:00 a.m. to 5:00 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.

## 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.

## SRS

Senior Resource Services (SRS), now known as $60+$ Ride, 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 p.m. the day before the requested ride, space allowing.

Figure 2-12: Volunteer Transit Service Areas


## VanGo ${ }^{\text {TM }}$

VanGo ${ }^{\text {TM }}$ is an NFRMPO program whereby 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. As of April 2019, $\mathrm{VanGo}^{\text {TM }}$ operated 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. The VanGo ${ }^{\text {TM }}$ fares are calculated using a zone system. There is a total of 13,20 -square mile service areas, with VanGo ${ }^{\text {TM }}$ currently serving 10 of the areas. Fares are computed according to the number of zones in the vanpool's route. Fares range between $\$ 98$ and $\$ 362$ per month per rider.

## Intercity Transit

## Express Arrow

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

## 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 destinations 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 24108 th 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.

## Greyhound

Greyhound does not operate its own service within the NFRMPO region. Instead, Greyhound provides information on its website about Bustang (between Fort Collins and Denver) and Express Arrow (between Greeley and Denver, and Greeley and Buffalo, WY). This improves information for riders and can make it easier to book longer distance bus services.

## D. Bicycle and Pedestrian System

## 2016 Non-Motorized Plan

The NFRMPO adopted the 2016 Non-Motorized Plan (NMP) on February 2, 2017. The purpose of the Plan is to:

- Fulfill the federal requirement to address bicycle and pedestrian planning as a component of the RTP;
- Provide a consolidated summary of the existing bicycle and pedestrian infrastructure, data, and design standards throughout the region;
- Provide the NFRMPO's 15 member governments with tools to support their local non-motorized planning and accommodation initiatives; and
- Position the NFRMPO communities to pursue state and federal funding opportunities.

The 2016 NMP updates and affirms the vision established in the 2013 Regional Bicycle Plan (RBP). The 2013 RBP identified existing facilities within the region, as well as 12 regional bicycle corridors which could serve as main routes for bicycle travel between and through local communities as well as connections to areas adjacent to the region. The 2016 NMP refers to these corridors as Regional Non-Motorized Corridors (RNMCs) to acknowledge their capacity to accommodate pedestrian travel as well.

While certain segments of the RNMCs exist today, much of the network remains conceptual. One of the goals outlined in the plan is for the NFRMPO to provide local assistance in the planning and funding of these corridors. Figure 2-13 and Table 2-7 list locations of the 12 RMNCs as outlined in the NMP.

Table 2-7: Regional Non-Motorized Corridors

| Corridor <br> Number | Corridor Name |
| :---: | :---: |
| 1 | South Platte/American Discovery Trail |
| 2 | Little Thompson River |
| 3 | Big Thompson River |
| 4 | Great Western/Johnstown/Loveland |
| 5 | North Loveland/Windsor |
| 6 | Poudre River Trail |
| 7 | Front Range Trail (West) |
| 8 | BNSF Fort Collins/Berthoud |
| 9 | Johnstown/Timnath |
| 10 | Greeley/LaSalle |
| 11 | US 34 Non-motorized |
| 12 | Carter Lake/Horsetooth Foothills Corridor |

Figure 2-13: NFRMPO 2045 Regional Non-Motorized Corridors (RNMCs)


## Existing Non-Motorized Facilities

Facilities identified in the 2016 NMP include sidewalks, off-street shared-use paths, on-street bicycle lanes, and on-street bicycle routes. The following are common definitions of these facilities:

- Sidewalk - an off-street hard surface path designed for foot traffic. These facilities are accessible to pedestrians and sometimes bicyclists and other non-motorized users.
- Shared-Use Path - an off-street hard or soft surface path designed to be used by commuters and recreationalists. These facilities are wider than a typical sidewalk and are accessible to bicyclists, pedestrians, equestrians, and other non-motorized users.
- Bicycle Lane - an on-street bicycle facility delineated by pavement markings and
signage for the use of bicyclists. Typically located on roadways with a classification of collector and above.
- Bicycle Route - an on-street bicycle facility, delineated by signage only. These facilities tend to be located on lower volume residential streets or in semi-rural areas and are typically not included in the official inventory of non-motorized facilities.

The 2019 facilities shown in Figure 2-14, Figure 2-15, Figure 2-16, and Figure 2-17 were identified and updated from the NFRMPO $\underline{2016}$ NMP, local Master Street Plans and Standards, as well as existing local bicycle and pedestrian plans. They were further refined during discussions with individual local governments.
Table 2-8 shows the miles of non-motorized facilities that currently exist in the region.

Table 2-8: Existing Non-Motorized Facility Miles

| Community | Sidewalks | Shared-Use <br> Paths | Bicycle <br> Lanes | Bicycle <br> Routes |
| :---: | :---: | :---: | :---: | :---: |
| Berthoud | 44.2 | 1.5 | 1.1 | - |
| Eaton | 37.4 | 3.1 | - | - |
| Evans | 104.7 | 8.1 | 1.4 | - |
| Fort Collins | $1,044.5$ | 119.8 | 347.7 | 42.5 |
| Greeley | 2.5 | - | - | - |
| Garden City | 514.6 | 47.5 | 116.8 | 26.8 |
| Johnstown | 106.1 | 8.6 | - | - |
| LaSalle | 13.2 | - | - | - |
| Loveland | 660.3 | 19.7 | 159.7 | 16.6 |
| Milliken | 40.7 | 3.3 | - | - |
| Severance | $3,071.6$ | 366.8 | 754.9 | 130.7 |
| Timnath | 28.4 | 6.0 | 0.6 | - |
| Windsor | 273.2 | 42.1 | 48.99 | 45.67 |
| Larimer County (Unincorporated) | 47.4 | 94.04 | 56.9 | - |
| Weld County (Unincorporated) | 22.98 | 4.4 | - | - |
| TOTAL | $\mathbf{3 , 0 7 1 . 6}$ | $\mathbf{3 6 6 . 8}$ | $\mathbf{7 5 4 . 9}$ | $\mathbf{1 3 0 . 7}$ |

Source: NFRPMO Inventory

Figure 2-14: Sidewalks


Figure 2-15: Shared-Use Paths


Figure 2-16: Bicycle Lanes


Figure 2-17: Bicycle Routes


## Non-Motorized Counter Locations

Several agencies and organizations in the NFRMPO region and CDOT document nonmotorized facility performance through permanent counting devices. There are currently 41 devices installed permanently across the nonmotorized network, 24 of which are located on RNMCs. There are also several temporary counters placed periodically at strategic locations to collect short-duration counts.

Monitoring trail usage helps the NFRMPO member agencies understand local and regional non-motorized travel patterns and how they are impacted by factors such as temperature, precipitation, time of day, special events, and weekdays vs. weekends. Many of the counters in the region distinguish between pedestrians and bicyclist and capture direction of travel and speed. Others simply capture total volume.

Currently, staff from Colorado Parks \& Wildlife (CPW), CSU, the cities of Fort Collins, Greeley,
and Loveland, the towns of Eaton, Severance and Windsor, Larimer County, and the NFRMPO all monitor non-motorized travel patterns using permanent and/or temporary counters. CDOT also operates a counter in the region and has purchased access to the Strava Metro dataset of bicycle and pedestrians travel patterns from users of the Strava app. This data is especially helpful in identifying popular routes among recreational cyclists. Additionally, the City of Fort Collins recruits volunteers to conduct manual counts of non-motorized travelers throughout the City.

Figure 2-18 shows the permanent count devices installed along the RNMCs. The ID numbers in Figure 2-18 correspond to those in Table 2-9, which summarizes average daily usage trends at these locations in 2018.

Figure 2-18: 2018 Non-Motorized Counters on Regional Non-Motorized Corridors


Table 2-9: Average Daily Non-Motorized Count Volumes - 2018

| Counter ID | Counter Location | RNMC | Average Daily Volume 2018 |
| :---: | :---: | :---: | :---: |
| 4-1 | Great Western Trail @ Severance Middle School | 4 | 63 |
| 6-1 | Poudre Trail @ Butterfly Bridge | 6 | 287 |
| 6-2 | Poudre Trail @ Taft Hill Road | 6 | 510 |
| 6-3 | Poudre Trail @ Lee Martinez Park | 6 | 452 |
| 6-4 | Poudre Trail @ Lemay Ave | 6 | 310 |
| 6-5 | Poudre Trail @ CSU Environmental Learning Center | 6 | 421 |
| 6-6 | Poudre Trail @ Rigden Reservoir | 6 | 78 |
| 6-7 | Poudre Trail @ River Bluffs Open Space | 6 | 191 |
| 6-8 | Poudre Trail @ Oxbow Natural Area | 6 | 344 |
| 6-9 | Poudre Trail @ SH 257 | 6 | 261 |
| 6-10 | Poudre Trail @ Rover Run Dog Park | 6 | 160 |
| 7-1 | Spring Creek Trail @ Edora Park | 7 | 386 |
| 7-2 | Power Trail @ Horsetooth Rd | 7 | 373 |
| 7-3 | Power Trail @ Southridge Golf Course | 7 | 227 |
| 7-4 | Loveland Rec Trail @ Boyd Lake North End | 7 | 69 |
| 7-5 | Loveland Rec Trail @ Boyd Lake South End | 7 | 360 |
| 7-6 | Loveland Rec Trail @ Fairgrounds Park | 7 | $64 *$ |
| 8-1 | Mason Trail @ Magnolia St | 8 | 389* |
| 8-2 | Mason Trail @ Pitkin St | 8 | 1,798 |
| 8-3 | Mason Trail @ Spring Creek Trail | 8 | 1,471 |
| 8-4 | Mason Trail @ Horsetooth Rd | 8 | 323 |
| 8-5 | Mason Trail @ Harmony Rd | 8 | 220 |
| 8-6 | Long View Trail @ Sunset Vista Natural Area | 8 | 271 |
| 8-7 | Long View Trail @ Trilby Rd | 8 | 161 |
| * = Bicycles Only |  |  |  |

Source: CDOT, CPW, CSU, City of Fort Collins, Town of Windsor, NFRMPO

## E. Freight

FHWA estimates by 2045 the nation's transportation system will handle cargo valued at more than $\$ 39 \mathrm{~T}$, compared to $\$ 19.1 \mathrm{~T}$ in $2015 .{ }^{6}$ Volume, in tons, will increase by more than 42 percent over 2015 levels by 2045 from 17.8B to 25.3B respectively. These large increases in freight movement will place even greater demands on the nation's transportation system. It is critical for transportation planning agencies throughout the country to integrate freight considerations into their long-range planning processes. It is clear a variety of strategies are needed to address the challenges surrounding the projected growth of freight transportation.

## Truck Freight

As part of the State Highway Freight Plan, CDOT identified Colorado Freight Corridors (CFC) throughout the State with input from the freight industry and other key stakeholders. The CFCs represent the routes that are most critical to facilitating the movement of goods into, out of, and within Colorado. Within the region, these corridors are: I-25; US34; US85; US287; and SH14. The corridors are shown in Figure 2-19. A large amount of freight is moved by truck through the region.

Table 2-10 shows the commodity flows in all of Larimer and Weld counties for 2010 and predicted for 2040. Total tonnage moved through the region is expected to increase by 63.6 percent by 2040 . Long-haul freight truck traffic is concentrated on major routes

[^3]Figure 2-19: Colorado Freight Corridors


Table 2-10: Existing Commodity Flows, Larimer and Weld Counties - 2015 and 2045

| Direction | 2015 |  |  | 2045 |
| :--- | :---: | :---: | :---: | :---: |
|  | Tonnage <br> (Millions of <br> Tons) | Value <br> (2015 US Dollars in <br> Billions) | Tonnage <br> (Millions of <br> Tons) | Value <br> (2015 US Dollars in <br> Billions) |
| Inbound | 13.4 | $\$ 13.39$ | 22.25 | $\$ 24.83$ |
| Internal | 8.04 | $\$ 1.96$ | 10.06 | $\$ 3.34$ |
| Outbound | 22.41 | $\$ 8.87$ | 34.2 | $\$ 19.98$ |
| Total | $\mathbf{4 3 . 8 5}$ | $\mathbf{\$ 2 4 . 2 2}$ | $\mathbf{6 6 . 5 1}$ | $\mathbf{\$ 4 8 . 1 5}$ |

Source: Transearch, 2015.

Figure 2-20: Existing Truck Traffic on the Highway System


Source: 2015 NFRMPO RTDM

## Freight Rail

Rail freight in the region is primarily moved on the BNSF Railway and Union Pacific Railroad (UPRR) lines, which carry between two and 17 trains per day. In 2015, freight railroads originated 314,144 carloads of commodities and terminated 474,018 carloads within Colorado.

Railroads are classified according to the annual gross operating revenue from the railroad operations. A Class I Railroad is a railroad that
has an operating revenue of at least $\$ 457.9 \mathrm{M}$ in 2016 dollars. A Class II Railroad, also known as a regional railroad, has an operating revenue between $\$ 36.6 \mathrm{M}$ and $\$ 457.9 \mathrm{M}$.

A Class III Railroad, also known as a regional or shortline railroad, has annual operating revenue of less than $\$ 36.6 \mathrm{M}$ and typically services a small number of towns or businesses or performs short haul trips between larger railroad lines.

Both BNSF Railway and UPRR are classified as Class I Railroads and the Great Western Railway is considered a regional/Class III, or shortline railroad. These railroads are described in more detail in the following section and shown in Figure 2-21.

## Union Pacific Railroad (UPRR):

UPRR is a Class I Railroad which has several rail lines in the North Front Range region. The northsouth line runs from the Denver metro region through the North Front Range to Wyoming, generally following the US 85 Corridor. The majority of the east-west line of the UPRR runs between Milliken and LaSalle, with a switching yard in LaSalle, and from Milliken into Fort Collins. There is an average of 17 trains per day on the UPRR.

## BNSF Railway

BNSF is a Class I Railroad which travels the length of the NFRMPO region, passing through Fort Collins, Loveland, and Berthoud, parallel to US287, with a switch yard in Fort Collins. An average of six trains operate per day on the BNSF line.

## Great Western Railway of Colorado (GWR)

GWR is a shortline railroad. GWR operates a total of 80 miles of track and interchanges with both BNSF and UPRR. The company operates freight between Loveland and Johnstown, with spur lines to Milliken and Longmont. Another line connects north from Kelim (east of Loveland) to Windsor, Greeley, and Fort Collins. GWR also owns a branch line from Johnstown to Welty
(just west of Johnstown). GWR serves a diverse customer base including the Great Western Industrial Park. GWR is managed by OmniTRAX.

## Freight Commodities

Table 2-11 and Table 2-12 show the originated and terminated rail freight in Colorado in 2015. Coal is the largest commodity, making up nearly one third of rail freight in Colorado.

Table 2-11: Colorado Originated Rail Freight (2015)

| Commodity | Percent of <br> Total | Carloads |
| :---: | :---: | :---: |
| Coal | $35 \%$ | 109,400 |
| Other/Unknown | $30 \%$ | 92,900 |
| Intermodal | $14 \%$ | 45,000 |
| Crude Oil | $10 \%$ | 32,600 |
| Glass and Stone | $6 \%$ | 17,800 |
| Food Products | $5 \%$ | 16,400 |
| Sact |  |  |

Source: Association of American Railroads, Rail Fast Facts, 2017.

Table 2-12: Colorado Terminated Rail Freight (2015)

| Commodity | Percent of <br> Total | Carloads |
| :---: | :---: | :---: |
| Coal | $30 \%$ | 140,600 |
| Intermodal | $29 \%$ | 138,700 |
| Nonmetallic | $22 \%$ | 105,400 |
| Transportation | $9 \%$ | 41,100 |
| Glass and Stone | $6 \%$ | 30,100 |
| Other/Unknown | $4 \%$ | 18,100 |

Source: Association of American Railroads, Rail Fast Facts, 2017.

Figure 2-21: Regional Rail by Owner


## F. Intelligent Transportation System (ITS)

ITS strategies use technology to improve mobility, increase safety, and reduce delays. ITS improves the existing roadway system's operations in a cost-effective manner. This Section identifies the plans guiding ITS in the NFR region followed by examples of strategies that are currently being implemented in the region. The guiding document for ITS in the region is the CDOT Region 4 ITS Strategic Implementation $\mathrm{Plan}^{7}$ and its companion document, the CDOT Region 4 ITS Architecture Plan ${ }^{8}$. Both ITS Plans were completed in 2011 through the combined efforts of CDOT, NFRMPO, DRCOG, Eastern Transportation Planning Region, Upper Front Range Transportation Planning Region (UFR TPR), transit agencies, law enforcement and emergency management agencies, and local jurisdictions. The ITS Strategic Implementation Plan identifies the most critical needs, recommended deployment time frames, and potential funding sources. The ITS Architecture Plan is a technical document that addresses federal requirements and describes procedures for carrying out the Strategic Implementation Plan.

CDOT is developing the Smart Mobility Regional Plan and an updated Architecture, which will replace the two ITS Plans currently in effect. The Smart Mobility Regional Plan will identify applications that could be implemented in specific locations or regionwide to improve mobility through technology solutions.
${ }^{7}$ CDOT Region 4 Intelligent Transportation Systems Strategic Implementation Plan, 2011, http://www.cotrip.org/content/itsplans/CDOT\ Re gion\%204\%20ITS\%20Strategic\%20Implementation\% 20Plan 06-30-11.pdf.

Another source for information on the ITS system is the 2019 Congestion Management Process (CMP), which identifies a range of approaches for managing congestion including ITS, TDM, Traffic Incident Management (TIM), and increasing capacity.

Many ITS strategies have been implemented in the North Front Range region. The following is a non-exhaustive list of strategies along with specific examples from the region.

## Adaptive Signal Control Technology (ASCT)

 ASCT dynamically changes signal timing based on volumes and platoons. By receiving and processing data from sensors to optimize and update signal timing settings, ASCT can determine when and how long lights should be green. ASCT help improve the quality of service that travelers experience on our local roads and highways.Example: In 2016, CDOT began using adaptive signals on portions of the US34 Bypass and US85 corridors in Greeley.

## Advanced Traveler Information System (ATIS)

The Advanced Traveler Information Systems applications provide for the collection, aggregation, and dissemination of a wide range of transportation information. The includes traffic, transit, road weather, and work zone data, which can be presented using mobile devices, web portals, 511 systems, and variable message signs.
${ }^{8}$ CDOT Region 4 Intelligent Transportation Systems Architecture Plan, 2011, http://www.cotrip.org/content/itsplans/CDOT\ Re gion\%204\%20ITS\%20Architecture 08-31-2011.pdf.

2045 Regional Transportation Plan Chapter 2, Section 1: Existing Conditions

Example: CDOT's COTRIP website (www.cotrip.org) provides travel alerts, road conditions, speeds, and road work advisories for the entire State. Using this website, residents can use the State's available ITS information to choose the best routes, best mode, or view any detours. CDOT also provides a smart phone app, CDOT Mobile, which provides real-time travel information. Travelers can also sign up for text messages and emails which provide similar updates.

## Fiber-optic Communications

Fiber technology uses pulses of light through an optical fiber to carry information for still and live feed cameras as well as connecting to the permanent Variable Message Signs (VMS). In the future, fiber will enable Vehicle-to-Everything (V2X) connected vehicle technology, allowing communication between connected vehicles and surrounding infrastructure.

Example: CDOT has installed fiber along I-25 and US34 and is continuing to expand the connected vehicle environment along l-25.

## Ramp Metering

Signals at on-ramps dynamically control the number of vehicles entering the freeway to increase efficiency on the freeway.

Example: In 2017, CDOT installed ramp meters at the northbound and southbound on-ramps
to $\mathrm{I}-25$ at SH392 and the southbound on-ramp to I-25 at Harmony Road.

## Road Weather Information Systems (RWIS)

RWIS monitors weather conditions and impacts on pavement conditions. Information can be presented through a public-facing website or mobile application.

Example: CDOT maintains RWIS sensors in several locations in the region and provides current road and weather conditions online at www.cotrip.org and through the 511 information call line.

## Traffic Operations Center (TOC)

A TOC is a central command center which allows traffic engineers to monitor traffic signals, closed-circuit television (CCTV), and remote data sensors to analyze and manage traffic in realtime.

Example: The cities of Fort Collins, Greeley, and Loveland each have a TOC.

## Transit Signal Priority (TSP)

TSP extends traffic signal green time if a transit vehicle is approaching in order to improve operations.

Example: Transfort's MAX BRT has signal priority at some intersections along the Mason Street Corridor.

## G. Transportation Demand Management Program (TDM)

TDM strategies are actions which improve transportation system efficiency by altering transportation system demand rather than through roadway capital expansion.

The following section highlights several types of TDM strategies being implemented in the NFRMPO region, with examples from various communities. Strategies are categorized into
three Tiers, shown in Figure 2-22. Tier 1 includes strategies that most directly reduce congestion by shortening, reducing, or circumventing the need for trips. Tier 2 includes strategies that increase the availability and access to nonmotorized modes and transit. Tier 3 includes auto-oriented TDM strategies that limit Single Occupant Vehicle (SOV) trips during peak travel times.

Figure 2-22: Travel Demand Management Tiers


## Tier 1: Reducing Trip Generation and Shortening Trips

## Telecommuting

Working from home reduces the frequency of employees needing to commute to an employment location. ${ }^{9}$ Many employers across the NFRMPO region offer telecommuting options to their employees.

## Infill Development

A type of redevelopment which optimizes existing infrastructure investments in previously built areas already served by transportation, potable water, wastewater, utilities, etc.

Example: The Foundry development in downtown Loveland is bringing a movie theater, apartments, a hotel, retailers, a community plaza, and parking to an area previously occupied by less-dense land uses.

## Mixed-Use Developments

A development strategy blending two or more use types into a development meant to be pedestrian-friendly. The development could combine residential, commercial, cultural, institutional, and/or industrial uses.

## Example: The Foundry development in

 downtown Loveland (see Infill Development). Transit-Oriented DevelopmentA pattern of development characterized compact, mixed-use, walkable, specifically at a density high enough to support transit.

Example: The City of Fort Collins has developed a Transit-Oriented Development (TOD) Overlay Zone focus growth around the MAX BRT system along the Mason Street corridor.

Tier 2: Encouraging Shift to Transit and Non-Motorized Modes

## Bicycle Infrastructure

Infrastructure improvements such as on-road or separated bicycle facilities encourage bicycle travel by increasing safety. Bicycle infrastructure has been implemented to varying degrees across the NFRMPO region.


[^4]
## Bicycle Share Service

Bicycle share services offer a fleet of bicycles for short-term use, typically through an automated, self-service bike check-out process. Service can require check-out/returns at designated stations (docks) or may allow "dockless" checkout/returns at other locations.

Example: Pace Bike Share operates in the City of Fort Collins with several public and private partners, offering both docked and dockless check-out/returns. UNC's Blue Cruiser Bike Program offers free bike rental to all UNC students.

## Bus Rapid Transit (BRT)

BRT can be thought of as an above ground subway or a rubber-tired light rail system with the added benefit of having greater operating flexibility and lower costs. BRT is "an integrated
system of facilities, equipment, services, and amenities that improves the speed, reliability, and identity of bus transit." ${ }^{10}$ BRT systems often have dedicated right-of-way lanes, signal priority, station platforms level with the bus floor accelerate passenger boarding time and allow wheelchairs and strollers to easily roll on or off the bus.

Example: Transfort MAX has dedicated lanes, frequent service ( 15 -minute headways), raised station platforms, and signal priority at some intersections.

## Car Sharing

Participants pay to rent vehicles on a per-trip basis allowing the costs of operating a vehicle to be spread among many users.

Example: Zipcar operates at several locations around CSU's main campus.


Transfort MAX station. Image credit: City of Fort Collins

[^5]

Complete Streets Diagram. Image Credit: City of Elizabeth, New Jersey

## Complete Streets Policies

Streets designed to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. The adoption of a Complete Streets policy by communities encourages the routine design and operation of the entire right of way to enable safe access for all users.

Example: The City of Fort Collins has a Complete Streets policy ensuring bicycle lanes and sidewalks are a part of newly constructed streets.

## Mobility Hubs

In conjunction with parking pricing, designated parking for carpooling, vanpooling, transit riders, etc. can further incentivize transit and ridesharing by ensuring convenient parking where parking spaces are otherwise limited.

Parking Pricing or Parking Restrictions Parking Management includes time of day restrictions such as before 10:00 a.m. or allows the price for parking to fluctuate to ensure a certain percentage of parking spaces are vacant. Parking pricing is the price associated with the use of a parking space. Parking management and pricing must be used in conjunction with other strategies to prove effective.

Example: CSU offers parking permits and metered parking to discourage students from driving to campus.

## Pay-as-You-Drive Insurance

Vehicle insurance premiums vary according to the number of miles driven. This gives drivers who drive less an opportunity to pay a lower variable cost rather than a higher, fixed-cost insurance.

## Pedestrian Infrastructure

Improving pedestrian infrastructure can enhance safety, ensure ADA compliance, and boost the overall pedestrian experience, encouraging more people to make more trips on foot.

Example: Greeley recently installed a HighIntensity Activated crossWalk (HAWK) beacon at a trail crossing on $20^{\text {th }}$ Street to safely assist pedestrians in crossing the street.


HAWK beacon user guide. Image credit: City of Greeley

## Transit Incentives

Incentives may be offered to students, employees, or residents to help reduce or eliminate the cost of transit to the user through free or discounted public transportation passes, employer-provided subsidies, or pre-tax payroll reductions.

Example: Transfort PassFort allows businesses to receive passes at a bulk rate of $\$ 50,68$ percent savings compared to the $\$ 154$ regular annual pass.

## Transit Service Quality Factors

Service quality factors address transit stop amenities, off-board fare collection, on-board cleanliness, bus scheduling information, station and in-route safety, and customer service.

Example: GET's Route Shout App and Transfort's RideTransfort App help riders find routes, bus arrival times, and other information. COLT is currently developing a similar service.

## Transit Service Quantity Factors

Service quantity factors address increasing service hours including Sunday service, reducing the time between transit vehicles, reducing transfer time, prioritizing transit vehicles at traffic signals, and focusing routes on high density corridors or locations.

Example: In 2017, Transfort added "365
Service" to select routes, creating transit service every day of the year, including Sundays and holidays.

Tier 3: Increasing Vehicle Occupancy and Shifting Travel Times

Carpooling/Vanpooling aka ridesharing Ridesharing is two or more people traveling in a vehicle to their destination.

Example: VanGo ${ }^{T M}$ Vanpool Services accommodates commuters riding to or from similar origins and destinations in the NFRMPO region.


High Occupancy Vehicle (HOV) Lanes
HOV lanes incentivize ridesharing by offering travelers who rideshare a less congested travel lane.

Example: Upon completion, the I-25 Express Lanes will allow North I-25 travelers to enter the Express Lanes free of charge if there are three or more people in the vehicle if they have a switchable HOV transponder.

## Guaranteed Ride Home

Used to supplement an employee's mode choice, the Guaranteed Ride Home service provides a free or inexpensive taxi for emergencies for those employees who rideshare.

Example: VanGo ${ }^{\text {TM }}$ Vanpool Services provides access to transportation when unscheduled emergencies, illnesses, or schedule changes prevent rides from taking their scheduled van home.

## Alternative/Flexible Work Schedules

Flexible work schedules reduce demand during peak-travel periods by allowing workers to commute during off peak hours. Many employers across the NFRMPO region offer flexible work schedules to their employees.

## Congestion Pricing

According to Transit and Congestion Pricing, A Primer, congestion pricing uses the power of the market to reduce waste associated with traffic congestion. Travelers who choose to use the transportation system during peak periods are charged an additional usage fee. Depending on size of the fee, drivers have an incentive to shift their travel time, mode, or route. There are five main types of pricing strategies:

1) Variably priced lanes: Variable tolls on separated lanes within a highway, such as express-toll lanes or High Occupancy Toll (HOT) lanes.
2) Variable tolls on entire roadways: Both on toll roads and bridges, as well as on existing toll-free facilities during rush hours.
3) Zone-based (area or cordon) charges: Either variable or fixed charges to drive within or into a congested area within a city.
4) Area-wide charges: Per-mile charges on all roads within an area that may vary by level of congestion.
5) Pricing that does not involve tolls: This includes innovative parking-pricing strategies (e.g., surcharges for entering or exiting a parking facility during or near peak periods) and a range of parking cash-out policies, in which cash is offered to employees in lieu of subsidized parking.

## H. Aviation Facilities

Two airports categorized in the National Plan of Integrated Airport Systems (NPIAS) currently operate within the NFRMPO region: Northern Colorado Regional Airport and Greeley-Weld County. Each of the two operating facilities is described in more detail in the following sections. Figure 2-23 shows the location of the two regional airports.

## Northern Colorado Regional Airport

The Northern Colorado Regional Airport (FNL) is one of 12 commercially certified airports in the State. This certification establishes minimum operational standards and procedures the Airport is required to follow to safely accommodate commercial airline activities, although the airport does not currently have commercial service. The Airport has two runways and has equipment that allows for aircraft to operate in all weather conditions including times of poor visibility. The FNL Airport operates 24hours a day, seven days a week and is designed to accommodate airline aircraft such as the Airbus A-320, and Boeing 737 series, however it primarily supports general and corporate aviation activities.

The Airport is home to 245 based aircraft including single-engine aircraft, multi-engine aircraft, jet aircraft, and helicopters. On average, the Airport supports 95,000 flight operations including air carrier, private charter, corporate, air ambulance transport, aerial fire suppression, flight training, military, and general aviation usage per year. An estimated 7,000 inbound and outbound flight passengers used the Airport in 2017 via airline charter services. The Airport also hosts diverted airline aircraft intending to land at

Denver International Airport (DIA) when weather conditions temporarily suspend the ability for aircraft to land there safely. According to the CDOT Division of Aeronautics Economic Impact Study conducted in 2013, activity from FNL employed 826 people with a total annual economic impact estimated to be $\$ 129.4 \mathrm{M}$.

In 2007, the Airport Master Plan was completed to evaluate existing and future aviation facilities and demands. The plan is currently in the process of being updated and covers a 20-year time horizon and predicts future aviation and general development needs. Sections of the plan include an inventory of existing conditions, forecasts of aviation activities, capacity analysis and future facility requirements and expansion, a development plan, environmental analysis and impacts, financial impact analysis, and future development needs and layout plans. Plans call for runway $15 / 33$ to be expanded to 9,500 feet in length and 150 feet in width to more safely accommodate the current design aircraft.

The Airport is home to the innovative Remote Air Traffic Control Tower Project. This project is a joint effort between the State of Colorado, the Federal Aviation Administration (FAA), and the Northern Colorado Regional Airport and will provide a cost effective air traffic control system at a lower price than a traditional tower using next generation camera and radar technologies. The new system is expected to be operational and certified by the FAA in 2020.

## Greeley-Weld County Airport

The Greeley-Weld County Airport (GXY) is a Major General Aviation airport with two runways: 10/28 and $17 / 35$. Runway $10 / 28$ is 5,801 feet long and 100 feet wide. This runway has an asphalt
surface and medium intensity runway lighting. Runway $17 / 35$ is 10,000 feet long and 100 feet wide. This runway also has an asphalt surface with medium intensity runway lighting. The airport is equipped with Very High Frequency (VHF) Omni-Directional Range (VOR), Instrument Landing System (ILS), Global Positioning Satellite (GPS), and Non-Directional Radio Beacon (NDB) as navigation aids.

In 2014, the airport had 145,000 annual operations including jet aircraft, helicopter, general aviation, and military usage. According to the CDOT Division of Aeronautics, approximately 23,000 passengers arrive at the airport annually. ${ }^{11}$ In 2013, the airport employed

672 people with a total payroll of approximately $\$ 30.8 \mathrm{M} .^{12}$ The total economic impact of the airport (including direct, indirect, and induced impacts) is estimated to be $\$ 94.1 \mathrm{M}$. The airport also has a total of 224 total based aircraft including single-engine aircraft, multi-engine aircraft, jet aircraft, and helicopters.

In early 2004, a master plan was completed to identify future planning needs and improvements. The plan covers a 20 -year time horizon and includes airport zoning, runway layout and expansion, airport terminal and hangar expansion, land use, noise mitigation, and utility layout plans.

[^6]Figure 2-23: Aviation Facilities



[^0]:    ${ }^{2 h} h t t p: / / w w w . f h w a . d o t . g o v / p l a n n i n g / p r o c e s s e s / s t a t e ~$ wide/related/highway functional classifications/fca uab.pdf

[^1]:    ${ }^{3}$ CDOT 2014 Transportation Deficit Report, 2014.

[^2]:    ${ }^{4}$ Federal-aid-eligible highways include the Interstate System, the rest of the National Highway System (NHS), and all other public roads not classified as local roads or rural minor collectors by the State Department of Transportation (DOT) - 23 CFR $\S 470$

[^3]:    ${ }^{6}$ FHWA Freight Facts and Figures 2017:
    https://www.bts.gov/sites/bts.dot.gov/files/docs/FFF 2017 Full June2018revision.pdf

[^4]:    ${ }^{9}$ Reference Sourcebook for Reducing Greenhouse Gas Emissions from Transportation Sources. Chapter 5 Transportation Demand Management Strategies. U.S. Department of Transportation, Federal Highway Administration. Updated 3/24/15.
    http://www.fhwa.dot.gov/environment/climate chan ge/mitigation
    /publications and tools/reference sourcebook/page 05.cfm\#s1

[^5]:    ${ }^{10}$ TCRP Report 118. Bus Rapid Transit Practitioner's Guide. Transportation Research Board. 2007. Washington, D.C.
    http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp rpt 1 18.pdf

[^6]:    ${ }^{11}$ CDOT Economic Impact Study for Colorado Airports, 2013
    ${ }^{12}$ Airport Data, www.gxy.net/airport-data, 2015

