

# 2040 Regional Transportation Plan

North Front Range Metropolitan Planning Organization

Adopted September 3, 2015

Amended February 2, 2017



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## **2040 REGIONAL TRANSPORTATION PLAN**

**EFFECTIVE DATE: OCTOBER 2015-OCTOBER 2019**

**Prepared by:**

**NFRMPO**

419 Canyon Ave, Suite 300

Fort Collins, CO 80521

**Preparation of this document has been financed in part through grants from the Federal Highway Administration, the Federal Transit Administration, the Colorado Department of Transportation, and the local member communities of the North Front Range MPO.**

**September 2015**



**RESOLUTION NO. 2015-12  
OF THE NORTH FRONT RANGE TRANSPORTATION  
& AIR QUALITY PLANNING COUNCIL  
ADOPTING THE 2040 REGIONAL TRANSPORTATION PLAN (RTP)**

**WHEREAS**, 49 CFR PART 613.100 and 23 CFR 450.322 require the development through the continuing, cooperative, and comprehensive (“3C”) multimodal transportation planning process of a fiscally constrained Regional Transportation Plan (RTP) for Metropolitan Planning Organizations (MPOs); and

**WHEREAS**, pursuant to the aforementioned legislation, the North Front Range Transportation & Air Quality Planning Council (Planning Council) was designated by the Governor of the State of Colorado as the MPO agency responsible for carrying out the transportation planning process, and for developing and amending the RTP; and

**WHEREAS**, the Cities of Fort Collins and Greeley are currently designated as maintenance areas for carbon monoxide (CO) and the North Front Range also is within the Denver-North Front Range 8-hour ozone nonattainment area, and the Planning Council was designated by the Governor of the State of Colorado as the lead Air Quality Planning Agency for Carbon Monoxide; and

**WHEREAS**, the Planning Council is responsible for determining conformity of all of its transportation plans and programs with the Clean Air Act, as amended, 1990, and the State Implementation Plan for air quality. The RTP shall be reviewed and updated at least every four years in air quality nonattainment and maintenance areas; and

**WHEREAS**, the transportation programming process shall address no less than a 20-year planning horizon as of the effective date. The effective date being established by the date of the conformity determination issued by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA); and

**WHEREAS**, the Planning Council approves the 2040 RTP and submits copies for informational purposes to the Governor;

**NOW, THEREFORE, BE IT RESOLVED THAT the North Front Range Transportation & Air Quality Planning Council** finds that the 2040 Regional Transportation Plan (RTP), per Resolution No. 2015-12, is in conformance with the requirements of 49 CFR 613.100 and 23 CFR 450.322.

Passed and adopted at the regular meeting of the North Front Range Transportation & Air Quality Planning Council held this 3<sup>rd</sup> day of September, 2015.

  
Sean Conway, Chair

ATTEST:

  
Terri Blackmore, Executive Director





**Placeholder**  
**FHWA/FTA Conformity Determination Letter**



**COLORADO**  
**Air Quality Control Commission**  
 Department of Public Health & Environment

Dedicated to protecting and improving the health and environment of the people of Colorado

Ms. Terri Blackmore, Executive Director  
 North Front Range Metropolitan Planning Organization  
 419 Canyon Avenue, Suite 300  
 Fort Collins, CO 80521

August 20, 2015

The Colorado Air Quality Control Commission (AQCC) has reviewed your agency's conformity determinations for its Transportation Plan and Transportation Improvement Programs. The AQCC agrees that the North Front Range Metropolitan Planning Organization's 2040 Fiscally Constrained Regional Transportation Plan, FY 2016-2019 Transportation Improvement Program (TIP), Upper Front Range 2040 Transportation Plan, and portion of Colorado FY 2016-2019 Statewide Transportation Improvement Program, as of August 20, 2015, conform to the State Implementation Plans and emissions budgets for ozone precursors and carbon monoxide.

The North Front Range Metropolitan Planning Organization's and the Air Pollution Control Division's analyses indicate that emissions budgets for these pollutants will not be exceeded in any of the project or plan horizon years. Therefore, the AQCC concurs with this conformity determination.

Should you have any questions regarding the AQCC's action please contact Chris Colclasure at the APCD, at 303-692-3269 or at [chris.colclasure@state.co.us](mailto:chris.colclasure@state.co.us).

Sincerely,

John Clouse, Chair  
 Air Quality Control Commission

Cc: Tim Russ, U.S.EPA, Region 8  
 Bill Haas, FHWA  
 Steve Cook, DRCOG  
 Rose Waldman, CDOT  
 Ingrid Hewitson, APCD





RESOLUTION NO. 2015-08  
 OF THE NORTH FRONT RANGE TRANSPORTATION & AIR QUALITY PLANNING COUNCIL  
 ADOPTING CONFORMITY DETERMINATIONS  
 FOR THE NORTH FRONT RANGE METROPOLITAN PLANNING AREA 2040 FISCALLY  
 CONSTRAINED REGIONAL TRANSPORTATION PLAN  
 AND THE FY2016-2019 TRANSPORTATION IMPROVEMENT PROGRAM  
 AND FOR THE NORTHERN SUBAREA OF THE UPPER FRONT RANGE TRANSPORTATION  
 PLANNING REGION 2040 REGIONAL TRANSPORTATION PLAN  
 AND FOR THE NORTHERN SUBAREA OF THE UPPER FRONT RANGE TRANSPORTATION  
 PLANNING REGION PORTION OF THE COLORADO FY2016-2019 STATEWIDE  
 TRANSPORTATION IMPROVEMENT PROGRAM

WHEREAS, 49 CFR PART 613 §450.324 requires development through continuing, cooperative, and comprehensive ("JC.") multimodal transportation planning process of a fiscally constrained Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP) for Metropolitan Planning Organizations (MPOs); and

WHEREAS, the Planning Council as the MPO is the agency responsible for developing and amending the RTP and TIP; and

WHEREAS, portions of the cities of Fort Collins and Greeley are currently designated as maintenance areas for carbon monoxide (CO) for which the Planning Council performs conformity determinations; and

WHEREAS, the Planning Council through a Memorandum of Agreement (MOA) (2008) has agreed to perform ozone conformity determinations for the Northern Subarea of the Denver-North Front Range 8-hour ozone nonattainment area which includes portions of Larimer and Weld counties outside the MPO contained in the Upper Front Range Transportation Planning Region (UFRTPR); and

WHEREAS, Section 93.110(a) of the conformity rule requires conformity determinations based on the most recent planning assumptions in force at the time of conformity analysis; and

WHEREAS, the planning assumptions for the Northern Subarea were updated prior to conformity analysis, updating from forecast year 2035 to 2040; and

WHEREAS, the air quality conformity determinations conducted on the MPO's fiscally constrained 2040 RTP and FY2016-2019 TIP, and the UFRTPR 2040 RTP and the Colorado FY2016-2019 Statewide TIP (STIP) using the 2040 planning assumptions were within the federally approved emissions budgets; and

WHEREAS, the Planning Council received no public comment opposing the finding of conformity during the public comment period or during the public hearing;

NOW, THEREFORE, BE IT RESOLVED BY North Front Range Transportation & Air Quality Planning Council, the fiscally constrained 2040 RTP, FY2016-2019 TIP, 2040 UFRTPR RTP, and the Colorado FY2016-2019 STIP conform to the State Implementation Plan (SIP) demonstrating positive air quality conformity determinations.

Passed and adopted at the regular meeting of the North Front Range Transportation & Air Quality Planning Council held the 9th day of July, 2015.

ATTEST:

Sean Conway, Chair



## Acknowledgements

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### NFRMPO Planning Council

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## List of Acronyms

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**3C** – Continuous, Cooperative, and Comprehensive Planning Process

**AADT** – Annual Average Daily Traffic  
**AADTT** – Annual Average Daily Truck Traffic  
**ACS** – American Community Survey  
**ADA** – Americans with Disability Acts  
**APCD** – Air Pollution Control Division  
**AQCC** – Air Quality Control Commission  
**ASAC** – Airport Security Advisory Committee  
**ASCT** – Adaptive Signal Control Technology  
**ASP** – Airport Security Plan  
**ATMS** – Advanced Traffic Management System  
**ATRI** – American Transportation Research Institute

**BATS** – Berthoud Area Transportation Services  
**BLS** – Bureau of Labor Statistics  
**BNSF** – BNSF Railway (previously Burlington Northern Santa Fe Railway)  
**BOB** – Building on Basics  
**BRT** – Bus Rapid Transit

**CAA** – Clean Air Acts  
**CCTV** – Closed Circuit Television Camera  
**CDBG** – Community Development Block Grants  
**CDOT** – Colorado Department of Transportation  
**CDPHE** – Colorado Department of Public Health and Environment  
**CMAQ** – Congestion Mitigation and Air Quality  
**CMP** – Congestion Management Process  
**CMS** – Congestion Management Systems  
**CNG** – Compressed Natural Gas  
**CNHP** – Colorado Natural Heritage Program  
**CO** – Carbon Monoxide  
**CO<sub>2</sub>** – Carbon Dioxide  
**COLT** – City of Loveland Transit  
**CPW** – Colorado Parks and Wildlife  
**CR** – County Road  
**CRS** – Citizens United for Rail Security  
**CSU** – Colorado State University  
**CTC** – Colorado Transportation Commission  
**CWA** – Clean Water Act

**DHS** – Department of Homeland Security  
**DMS** – Dynamic Message Signs  
**DNR** – Colorado Department of Natural Resources  
**DOLA** – Department of Local Affairs  
**DOT** – Department of Transportation

**DR** – Direct Recipients  
**DRCOG** – Denver Regional Council of Governments

**EA** – Environmental Assessment  
**EAC** – Early Action Compact  
**EEO** – Equal Employment Opportunity  
**EIS** – Environmental Impact Statement  
**EJ** – Environmental Justice  
**EPA** – Environmental Protection Agency  
**ETO** – Emergency Transportation Operations

**FAR** – Federal Aviation Regulation  
**FASTER** – Funding Advancements for Surface Transportation and Economic Recovery Act  
**FEMA** – Federal Emergency Management Agency  
**FHWA** – Federal Highway Administration  
**FLEX** – Fort Collins-Longmont Express  
**FMCSA** – Federal Motor Carrier Safety Administration  
**FNL** – Fort Collins-Loveland Municipal Airport  
**FONSI** – Finding of No Significant Impact  
**FRA** – Federal Railroad Administration  
**FTA** – Federal Transit Administration  
**FY** – Fiscal Year

**GET** – Greeley-Evans Transit  
**GCE** – Gasoline Gallon Equivalent  
**GHG** – Greenhouse Gas Emissions  
**GIS** – Geographic Information Systems  
**GOPMT** – Goals, Objectives, Performance Measures, and Targets  
**GPS** – Global Positioning System  
**GVWR** – Gross Vehicle Weight Rating  
**GWR** – Great Western Railway of Colorado  
**GXY** – Greeley-Weld County Airport

**HOT** – High Occupancy Toll Lanes  
**HSIP** – Highway Safety Improvement Program  
**HTFA** – US Highway and Transportation Funding Act of 2014  
**HUD** – US Department of Housing and Urban Development

**ILS** – Instrument Landing System  
**I/M** – Inspection and Maintenance  
**ISP** – Colorado Integrated Safety Plan  
**ISTEA** – Intermodal Surface Transportation Efficiency Act of 1991  
**ITS** – Intelligent Transportation Systems

**LEP** – Limited English Proficiency  
**LUAM** – Land Use Allocation Model

**MAP-21** – Moving Ahead for Progress in the 21<sup>st</sup> Century (2012)

**MAX** – Mason Express Bus Rapid Transit

**MBTA** – Migratory Bird Treaty Act

**MDSS** – Maintenance Decisions Support System

**MOVES2014** – Motor Vehicle Emissions Simulator 2014

**MPO** – Metropolitan Planning Organization

**MS4** – Municipal Separate Storm Sewer System

**N2O** – Nitrous Oxides

**NAICS** – National Industrial Classification System

**NAAQS** – National Ambient Air Quality Standards

**NBI** – National Bridge Inventory

**NDB** – Non-Directional Radio Beacon

**NEPA** – National Environmental Policy Act

**NFR** – North Front Range

**NFRMPO** – North Front Range Metropolitan Planning Organization

**NFRT&AQPC** – North Front Range Transportation and Air Quality Planning Council

**NHPA** – National Historic Preservation Act

**NHPP** – National Highway Performance Program

**NHS** – National Highway System

**NO<sub>x</sub>** – Nitrogen Oxide

**NPDES** – National Pollution Discharge Elimination System

**NPMRDS** – National Performance Measurement Research Dataset

**NTSB** – National Transportation Safety Board

**OLI** – Operation Lifesaver, Inc.

**OSHA** – Occupational and Safety Health Administration

**PBPP** – Performance Based Planning and Programming

**PCA** – Potential Conservation Areas

**PCMS** – Portable Changeable Message Signs

**PDO** – Property Damage Only

**PEL** – Planning and Environmental Linkages

**PIP** – Public Involvement Plan

**PNR** – Park-n-Ride

**ppb** – Parts per Billion

**PSD** – Poudre School District

**psi** – Pounds per Square Inch

**PWQ** – Permanent Water Quality Mitigation Pool

**QECW** – Quarterly Census of Employment Wages

**RACT** – Reasonably Available Control Technology

**RAFT** – Rural Alternative for Transportation

**RAQC** – Regional Air Quality Council

**RBC** – Regional Bike Corridors

**RFID** – Radio-Frequency Identification

**RICE** – Reciprocating Internal Combustion Engine



**ROCC** – Resource Operations Call Center  
**ROD** – Record of Decision  
**RPP** – Regional Priorities Program  
**RSC** – Regionally Significant Corridors  
**RTC** – Regional Transit Corridor  
**RTD** – Regional Transportation District  
**RTDM** – Regional Travel Demand Model  
**RTE** – Regional Transit Element  
**RTP** – Regional Transportation Plan  
**RVP** – Reid Vapor Pressure  
**RWIS** – Road and Weather Information Service

**SAFETEA-LU** – Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)  
**SAINT** – Senior Alternatives in Transportation  
**SGPI** – Short-Grass Prairie Initiative  
**SH** – State Highway  
**SHSP** – State Highway Safety Plan  
**SIP** – State Implementation Plan  
**SOV** – Single Occupancy Vehicle  
**SPIRS** – Strategic Plan for Improving Roadway Safety  
**SSEPP** – System Safety and Emergency Preparedness Plan  
**SSMP** – System Safety Program Plan  
**STEP-UP** – Strategic Transportation and Environmental Planning Process for Urbanizing Places  
**STIP** – Statewide Transportation Improvement Program  
**STP-Metro** – Surface Transportation Program for metropolitan areas

**TAC** – Technical Advisory Committee  
**TAP** – Transportation Alternatives Program  
**TAZ** – Transportation Analysis Zone  
**TCM** – Transportation Control Measures  
**TDM** – Transportation Demand Management  
**TE** – Transportation Enhancement  
**TEA-21** – Transportation Equity Act for the 21<sup>st</sup> Century (1998)  
**TIGER** – Transportation Investment Generating Economic Recovery  
**TIM** – Traffic Incident Management  
**TIMP** – Traffic Incident Management Plan  
**TIP** – Transportation Improvement Program  
**TMA** – Transportation Management Area  
**TMC** – Transportation Management Center  
**TOC** – Traffic Operations Center  
**TOD** – Transit-Oriented Development  
**TPR** – Transportation Planning Region  
**TSA** – Transportation Security Administration  
**TTI** – Travel Time Index  
**TZD** – Toward Zero Deaths



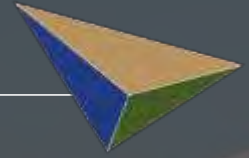
**UFR** – Upper Front Range Transportation Planning Region  
**UNC** – University of Northern Colorado  
**UPRR** – Union Pacific Railroad  
**UPWP** – Unified Planning Work Program  
**US** – United States Highway  
**USACE** – US Army Corps of Engineers  
**USDA** – US Department of Agriculture  
**USDOT** – US Department of Transportation  
**USFWS** – US Fish and Wildlife Service  
**UZA** – Urbanized Area

**V/C** – Volume over Capacity  
**VHF** – Very High Frequency  
**VHT** – Vehicle-Hours Traveled  
**VMS** – Variable Message Sign  
**VMS** – Vehicle Messaging Services  
**VMT** – Vehicle Miles Traveled  
**VOC** – Volatile Organic Compound  
**VOR** – VHF Omni-directional Range

**WASHTO** – Western Association of State Highway and Transportation Officials

# Executive Summary

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## Executive Summary

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This 2040 Regional Transportation Plan (RTP) provides a long-range vision for the North Front Range regional transportation system and guides the implementation of multimodal transportation improvements, policies, and programs in the region. The North Front Range Transportation and Air Quality Planning Council (NFRT&AQPC), also known as the NFRMPO, is responsible for long range regional transportation planning. The North Front Range Metropolitan Planning Organization (NFRMPO) has undertaken this 2040 RTP to extend the planning horizon and to ensure compliance with Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21). The NFRMPO region has two air quality maintenance areas for carbon monoxide (CO): Fort Collins and Greeley. The entire NFRMPO region is also included in the nine county nonattainment area for ozone. Due to this air quality nonattainment status, the NFRMPO is required to update its long range transportation plan every four years.

This planning process was conducted under the direction of the 17-member Planning Council, made up of one elected official from each member community, as appointed by that community, as well as a representative from the Colorado Department of Public Health and Environment's (CDPHE) Air Pollution Control Division (APCD) and the State Transportation Commission. The Planning Council's purpose is to provide local governments with the opportunity to direct regional planning efforts and allocate federal funding to regional transportation priorities. Additionally, the Technical Advisory Committee (TAC) consists of staff from each member community, the Colorado Department of Transportation (CDOT), APCD, and the Regional Air Quality Council (RAQC) who work together to provide technical recommendations to the Planning Council. This 2040 RTP was developed by NFRMPO staff, with technical input from TAC.

As the region moves toward 2040, there will be significant population growth within the region, with 84 percent more residents in 2040 than in 2010. Population and employment growth are occurring fastest in the I-25 sub-region resulting in 183 percent higher population in 2040 than in 2010. Other important demographic changes include:

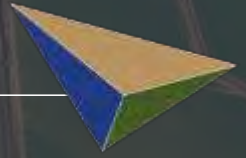
- Employment will increase in the I-25 sub-region at the highest percentage, nearly double that of any other area in the North Front Range. The more developed and built out the sub-region, the less population and employment growth is projected to occur.
- The current population growth rate in the region outpaces the growth rate of jobs, this imbalance will cause even more residents to commute outside of the region for employment.
- The percentage of residents age 65 and over will increase from 18 percent of the population in 2010, to 26 percent of the population by 2040. This demographic shift may mitigate the number of residents traveling outside the region to employment.

It is important to keep these demographic trends, the availability of future transportation funding, the need to maximize the current transportation system, and the future needs of the region's population in mind when planning for the future of the North Front Range's regional transportation system.



# Chapter 1

## Introduction





## Chapter 1: Introduction

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The 2040 Regional Transportation Plan (RTP) is the long range vision for the North Front Range regional transportation system. The Planning Council is a 17-member transportation policy body consisting of elected or appointed officials from the region. The 2040 RTP guides the implementation of multimodal transportation improvements, policies, and programs in the North Front Range Metropolitan Planning Organization (NFRMPO) region.

### A. Background

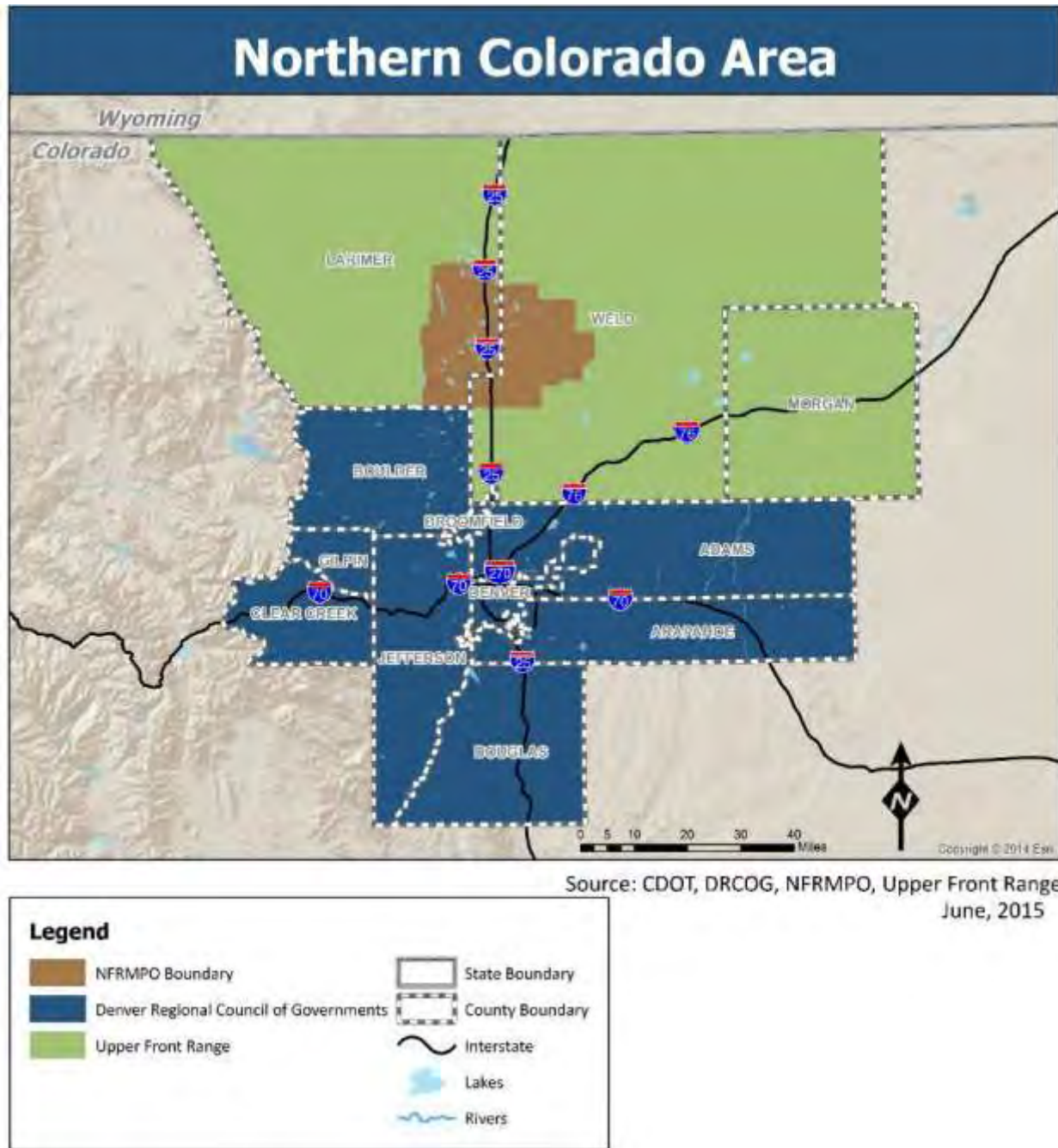
In 1991, Congress enacted the Intermodal Surface Transportation Efficiency Act (ISTEA), directing each state to prepare a multi-modal transportation plan. This directive was continued with the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21), the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), and most recently with Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21), signed into law on July 6, 2012. The Colorado Department of Transportation (CDOT) has divided the State into 15 transportation planning regions (TPRs), including the North Front Range (NFR), each of which is required to prepare a RTP. These RTPs are used as the basis for Colorado's long range *Statewide Transportation Plan*.

The NFR region, shown in **Figure 1-1**, is bordered on the east, west, and north by the Upper Front Range (UFR) TPR and by the Denver Regional Council of Governments (DRCOG) on the south. The NFR region includes 13 incorporated communities, including: the cities of Evans, Fort Collins, Greeley, and Loveland; the towns of Berthoud, Eaton, Garden City, Johnstown, LaSalle, Milliken, Severance, Timnath, and Windsor; and portions of unincorporated Larimer and Weld counties.

The North Front Range Transportation and Air Quality Planning Council (NFRT&AQPC), also known as the North Front Range Metropolitan Planning Organization (NFRMPO), is responsible for long range regional transportation planning. The NFRMPO has undertaken this current effort to extend the 2035 RTP planning horizon to the year 2040. This 2040 plan sets the basis for performance-based planning as required by MAP-21 and will become fully compliant with MAP-21 once the final rules are released. The NFRMPO region has two air quality maintenance areas for carbon monoxide (CO): Fort Collins and Greeley. The entire NFRMPO region is also included in the nine county nonattainment area for ozone. Due to this air quality nonattainment status, the NFRMPO is required to update its long range transportation plan every four years.

This planning process was conducted under the direction of the NFRMPO Planning Council, composed of one representative from each of the 15 member governments, the Colorado Transportation Commission (CTC), and the Colorado Department Public Health and Environment's (CDPHE) Air Pollution Control Division (APCD). A Technical Advisory Committee (TAC), made up of representatives from the jurisdictions within the region, CDOT, APCD, and the Regional Air Quality Council (RAQC), make recommendations to the Planning Council. This 2040 Plan was developed by NFRMPO staff with technical input from the TAC.

Figure 1-1: North Front Range Metropolitan Planning Area



## B. Planning Process

The NFRMPO develops its transportation plans and programs using the continuous, cooperative, and comprehensive (3C) planning process, as required by the Federal Highway Administration (FHWA) in 23 CFR § 450.306 and the Federal Transit Administration (FTA) in 23 CFR § 613.100. MAP-21 legislation is the current comprehensive federal legislation addressing surface transportation and guides the long range planning process.

MAP-21 contains eight planning factors which must be addressed by the 3C metropolitan transportation planning process:

1. Support the **economic vitality** of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
2. Increase the **safety** of the transportation system for all motorized and non-motorized users;
3. Increase the **security** of the transportation system for motorized and non-motorized users;
4. Increase the **accessibility and mobility** of people and for freight;
5. Protect and enhance the **environment**, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
6. Enhance the **integration and connectivity** of the transportation system, across and between modes, for people and freight;
7. Promote **efficient system management and operation**; and
8. Emphasize the **preservation** of the existing transportation system.<sup>1</sup>

This 2040 RTP is corridor-based and the projects included are those analyzed during the determination of conformity with air quality regulations for CO, Volatile Organic Compounds (VOC), and Oxides of Nitrogen (NOx) budgets outlined in the Colorado State Implementation Plan (SIP). The vision plan and financial plan are at the corridor-level, with the exception of the first four years of the plan which includes the adopted FY2016-2019 Transportation Improvement Program (TIP). The TIP is the project programming list which must be included in CDOT's Statewide Transportation Improvement Program (STIP). A corridor-based RTP provides greater flexibility for financial constraint and in project selection at the TIP level.

### C. Values, Visions, Goals, and Objectives

As a part of this Plan, and to comply with the requirements in MAP-21, NFRMPO staff, TAC, and the Planning Council developed Goals, Objectives, Performance Measures, and Targets (GOPMT), adopted on September 4, 2014. A more in-depth discussion of these can be found in **Chapter 4**. The Vision Statement for the 2040 RTP is:

*We seek to provide a multi-modal transportation system that is safe, as well as socially and environmentally sensitive for all users that protects and enhances the region's quality of life and economic vitality.*

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<sup>1</sup>23 CFR 450.306: [http://www.ecfr.gov/cgi-bin/text-idx?SID=ed64c2d38520df874e4096dc246c863b&node=se23.1.450\\_1306&rgn=div8](http://www.ecfr.gov/cgi-bin/text-idx?SID=ed64c2d38520df874e4096dc246c863b&node=se23.1.450_1306&rgn=div8)

## Goals and Objectives

**Goal 1: Foster a transportation system that supports economic development and improves residents' quality of life.**

- *Objective 1:* Conforms to air quality requirement.
- *Objective 2:* Maintain transportation infrastructure and facilities to minimize that need for replacement or rehabilitation.
- *Objective 3:* Investment in infrastructure.

**Goal 2: Provide a transportation system that moves people and goods safely, efficiently, and reliably.**

- *Objective 4:* Reduce number of severe traffic crashes.
- *Objective 5:* Use the Congestion Management Process (CMP) to reduce congestion.
- *Objective 6:* Reliable travel times.

**Goal 3: Provide a multi-modal system that improves accessibility and transportation system continuity.**

- *Objective 7:* Support transportation services for all, including the most vulnerable and transit-dependent populations.
- *Objective 8:* Implement Regional Transit Element, Regional Bicycle Plan, and North I-25 EIS.
- *Objective 9:* Develop infrastructure that supports alternate modes and connectivity.

**Goal 4: Optimize operations of transportation facilities.**

- *Objective 10:* Use Transportation Demand Management (TDM) techniques to reduce congestion and optimize the system.
- *Objective 11:* Implement Intelligent Transportation Systems (ITS).
- *Objective 12:* Enhance transit service in the NFR.
- *Objective 13:* Reduce project delivery timeframes.

## D. Other Plans and Studies

During the development of this 2040 RTP, several regional transportation planning efforts influenced its development. Numerous transportation studies have been or are being prepared by individual counties, cities, and towns within the NFRMPO, all of which served as input for this Plan. Brief descriptions of some of the regional plans and studies follow; however, this is not an exhaustive list.

### **2040 Economic and Demographic Forecast North Front Range Metropolitan Planning Organization (NFRMPO) 2012-2013**

The 2040 Economic and Demographic Forecast North Front Range Metropolitan Planning Organization (NFRMPO) 2012-2013 report projected economic and demographic data to the year 2040. The information developed in the report provides control totals for use in the Land Use Allocation Model (LUAM) which then distributes the data geographically. The allocation model supplies the Transportation Analysis Zone (TAZ) level information to the Regional Travel Demand Model (RTDM). The forecast was brought down to a sub-regional

level consisting generally of Fort Collins, Greeley, Loveland, and the areas outside of the sub-regions, but within the North Front Range modeling boundary (see **Figure 3-1** in **Chapter 3**).

### **Regionally Significant Corridors Report**

The *Regionally Significant Corridors Report* was completed and approved in September 2006 and was used in this Plan. The study process included defining regional significance using specified criteria, corridor grouping, and corridor tier ranking. All of the Regionally Significant Corridors (RSCs) are included in 2015 CMP and receive more in-depth discussion in **Chapter 9**.

### **North I-25 Environmental Impact Statement (EIS)**

The North I-25 Environmental Impact Statement (EIS) began in fall 2003. The study analyzed potential environmental impacts, identified mitigation measures, and prepared the environmental decision document required under the National Environmental Policy Act (NEPA). The study addressed roadway widening, upgrades, new alignments, interchange modifications, and transit alternatives between Denver Union Station and Northern Colorado. A Record of Decision (ROD) was signed by FHWA in December 2011. In October 2014, a public open house was held to discuss additional improvements to the EIS document. A ROD 2 for the North I-25 EIS from SH 14 to SH 392 is anticipated in summer 2015. A ROD 1 reevaluation began in January 2015 to reassess targeting the SH 7 interchange and is anticipated to be completed in late summer 2015.

### **Long Range Transportation Demand Management Plan**

The NFRMPO Planning Council approved the *Long Range Transportation Demand Management Plan* (TDM Plan) in December 2010. The purpose of this Plan was to recommend TDM strategies for implementation through 2035. Supporting these recommendations is an outline for a clear process to select, fund, and evaluate these strategies. The evaluation techniques developed for the Plan were coordinated with the enhancement of the 2010 CMP, which was updated concurrently with the TDM Plan.

### **North Front Range Transit Vision Feasibility Study**

The *North Front Range Transit Vision Feasibility Study* was completed in April 2013. The study was a joint effort by the cities of Fort Collins and Loveland, the Town of Berthoud, Larimer County, and the NFRMPO. The purpose of the Study was to identify feasibility for an integrated regional transit governance; a decision-making model; and a related operational structure for the North Front Range communities involved in the study. The recommendation from the study included moving forward with initial integration of the COLT and Transfort fixed-route and paratransit operations, creating a new regional transit entity through an inter-governmental agreement between the cities of Fort Collins and Loveland.<sup>2</sup>

### **2040 Regional Transit Element (RTE)**

The NFRMPO Planning Council approved the *2040 Regional Transit Element* (RTE) in August 2015. The 2040 RTE replaces the 2035 RTE and is part of this 2040 RTP. The purpose of the 2040 RTE is to guide the development of regional transit in the NFRMPO region.

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<sup>2</sup> North Front Range Transit Vision Feasibility Study, April 2013



## Colorado State Freight and Passenger Rail Plan

CDOT published its *State Freight and Passenger Rail Plan* in March 2012. This plan fulfilled the requirements of the Railroad Safety Enhancement Act of 2008 and was integrated into the *Statewide Long Range Multi-Modal Plan*. Additional information on the study process and conclusions can be found on the CDOT website: <https://www.codot.gov/projects/PassengerFreightRailPlan/StatePassengerRailPlan-Tasks/SPRP-FinalPlanMaster>.

## Freight Policy

Ahead of this 2040 RTP, the NFRMPO Planning Council approved the 2040 RTP GOPMT. These GOPMT specifically address freight through Goal 2 and the 2040 RTP Plan Policy:

- Goal 2: Provide a transportation system that moves people and goods safely, efficiently, and reliably
- 2040 RTP Plan Policy: Support freight performance in partnership with CDOT

In fall 2015, NFRMPO staff will begin work on the first Regional Freight Plan for the North Front Range region. This effort has been included in the FY2016 Unified Planning Work Program (UPWP).

## E. Public Participation Process

The 2040 RTP reflects community input on the issues and concerns for the transportation future of the North Front Range region. Multiple opportunities for feedback were implemented into the 2040 RTP. During the 2040 RTP development, NFRMPO staff used a variety of public involvement tools to gather input, as set out in the NFRMPO's *Public Involvement Plan* (PIP). The NFRMPO reached out to those who live, work, recreate, and/or spend time in the region, and established a regional plan for the future based on feedback received.

Staff divided the outreach process into three phases corresponding to the needs of the Plan. As the 2040 RTP was developed, the outreach methods evolved. The phases included:

- 1) *Plan Development* – staff engaged the public for community concerns, needs, and issues with the existing transportation system. Activities included online and in-person surveys, public meetings, and public events.
- 2) *Public Review* – The public provided feedback as staff completed draft chapters of the 2040 RTP. Activities included posting the draft chapters on the NFRMPO's website, and presenting information at public meetings.
- 3) *RTP Adoption and Conformity Determination* – Upon completion of the plan, it was adopted by the Planning Council. Additionally, the NFRMPO provided a 30-day public comment period leading to a public hearing for the Air Quality conformity determination. Dates of these Planning Council meetings and the conformity determination were posted on the NFRMPO's social media sites and website.

## Public Involvement Strategies

As outlined in the PIP, the public was notified of and involved in the development of the Plan through:

- Posting on the NFRMPO's [website](#), [Twitter](#), and [blog](#);
- Online and in-person [surveys](#);
- Attendance and presentations at local meetings and events throughout the region;
- Publication of events, dates, and updates in the quarterly [On the Move](#) Newsletter;



- Creation of the [2040 RTP website](#); and
- Creation of a [Community Remarks website](#).

The NFRMPO used a variety of online tools to reach out to the public, ensuring up-to-date and interactive tools were made available.

- Events and meetings were posted as they were scheduled and were tweeted on the NFRMPO's Twitter account (@NFRMPO).
- The NFRMPO created a website where draft chapters, meeting schedules, and contact information were made available. The website was updated often to ensure the most current information was available. [www.nfrmpo.org/Projects/2040RTP.aspx](http://www.nfrmpo.org/Projects/2040RTP.aspx)
- The Community Remarks site allowed the public to provide comments on a Google Maps-based website. The tool allowed users to “vote up” and “vote down” comments, which streamlined comments and provided additional interactivity. Those who “vote down” a comment were required to explain their dislike or disapproval, allowing additional input which could be incorporated into the 2040 RTP. [www.communityremarks.com/northfrontrange/](http://www.communityremarks.com/northfrontrange/)

The NFRMPO used two surveys to distinguish the needs of the region in the existing and future transportation systems. Surveys provided staff a direct understanding of regional transportation issues; where, how, and why people commute; and what modes of transportation are impacted by congestion or are used most often. An analysis of these surveys is included in **Appendix A**.

The first survey, open through summer 2014, engaged the public in their understanding of congestion in the region. The second survey, available in winter and spring 2015, requested input on the overall transportation system in the region. The 2040 RTP Survey asked questions meant to engage the public about improvements for, concerns about, and issues related to transportation in the region.

Both surveys took advantage of the partnerships the NFRMPO has formed with community groups. The survey link was sent to the Larimer County and Weld County Mobility Councils, VanGo™ vanpoolers, *On the Move* recipients, members of the Northern Colorado (NoCo) Bike & Ped Collaborative, and multiple senior groups. Paper copies of the survey and business cards with the survey link were also distributed at the events and meetings staff attended.

Staff coordinated public outreach at multiple events and meetings throughout early 2015. To reach a wide audience, the NFRMPO made efforts to attend a diverse group of meetings within the region. When possible, the NFRMPO worked with other agencies and organizations. The events mixed presentations, staffed tables, and face-to-face interactions to both inform the public about the 2040 RTP process and obtain feedback. At these meetings, staff discussed regional transportation issues with the public and community groups. A summary of comments and responses can be found in **Appendix A**.

### Air Quality Conformity

The NFRMPO issued a public hearing notice in regional newspapers and on the NFRMPO website on May 30, 2015 to meet the 30-day notice requirement for air quality conformity. All transportation plans in



nonattainment and maintenance areas are required to demonstrate air quality conformity, including the RTP and TIP. The boundaries and pollutants for air quality conformity in the NFRMPO are detailed in **Chapter 3**.

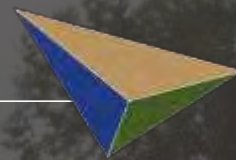
The Planning Council opened the public hearing on July 9, 2015 for public comment, there were no public comments during the hearing. After the hearing, the Council approved **Resolution 2015-08** making a positive air quality conformity determination for the 2040 RTP and FY2016-2019 TIP. The Air Quality Control Commission (AQCC) concurred with the Council adoption on August 20, 2015. FHWA and FTA concurred making the air quality conformity determination effective **September XX, 2015**.

#### F. Summary

The 2040 RTP is the culmination of a regional 3C planning effort. The regional transportation system is intended to strengthen the region's mobility and accessibility for all residents. A system which does not provide this enhancement will not be effective in improving the quality of life for residents and ensuring the economic vitality of the region. NFRMPO staff used a variety of outreach tools from the PIP to collect input from the public about regional transportation priorities and issues. The feedback received was reviewed, categorized, and integrated into the 2040 RTP. The Planning Council Resolutions adopting the 2040 RTP and the Air Quality Conformity Determination are included at the beginning of this document.

## Chapter 2

### Existing Transportation System



Riverside Park in Evans. Image Credit: City of Evans



## Chapter 2: Existing Transportation System

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### A. Regionally Significant Corridors

The concept of Regionally Significant Corridors (RSCs) was used in previous regional transportation plans (RTPs) to focus limited transportation dollars on the corridors most significant to the region. Since this plan is corridor-based, the RSCs set the stage for the overall plan.

Identification and grouping of individual corridors was done in the 2035 RTP. The corridors were updated and affirmed in the 2035 RTP and carried forward in this RTP as ungrouped individual corridors. A 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/or activity centers by facilitating the timely and safe movement of people, goods, information, and services.*

Three criteria were used to identify RSCs:

1. Includes all 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 this is required by CDOT, and most state highways are regional in nature, this was established as the first criteria.
2. Functional Classification
  - ▶ Roadways must have a functional classification of minor arterial or higher, as defined by the appropriate government agency.
  - ▶ The higher the functional classification, the greater the likelihood trips are longer and the roadway connects more than one community or destination.
3. Connectivity
  - ▶ The corridor must go through, or plan to go through, more than one governmental jurisdiction and connect activity centers.

This plan used the Colorado State Parks' [Colorado Front Range Trail Corridor Plan](#), the CDOT [Eastern Colorado Mobility Study](#), and the NFRMPO's [2013 Regional Bike Plan](#) to define the criteria for RSCs. The RSCs are organized by alpha/numeric order from Interstate, US Highway, State Highway, Larimer County Road, Weld County Road, and then the remaining corridors. **Table 2-1** describes the 27 RSCs whose numbers correspond to the locations in **Figure 2-1**. The plan also includes the 12 Regional Bike Corridors (RBCs) from the Bike Plan, **Table 2-2**, whose numbers correspond to the locations in **Figure 2-2**. A vision plan detailing each corridor is included in **Chapter 9**.



Table 2-1: Regionally Significant Corridors

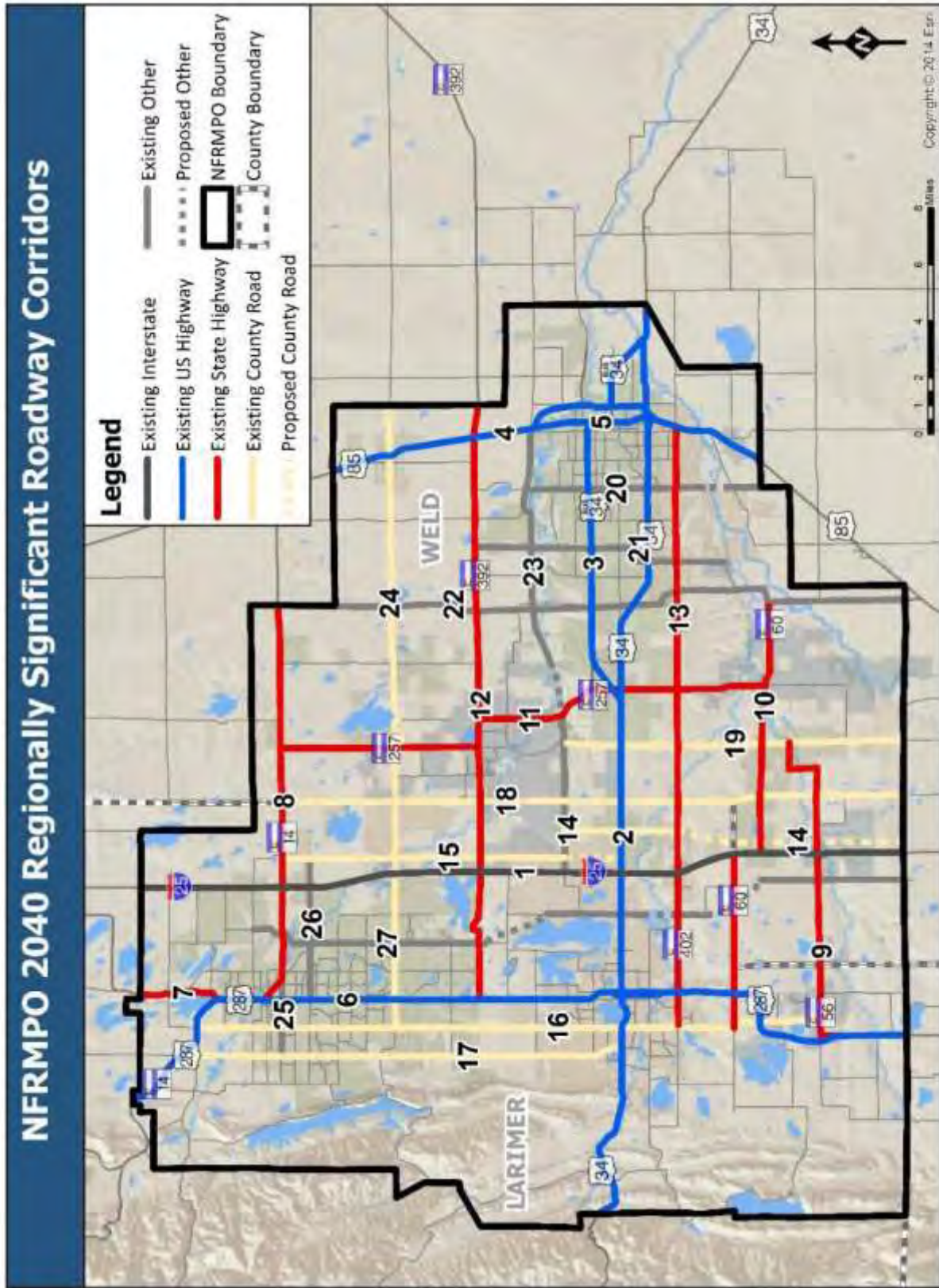
Corridor Number	Corridor Name/Component	Description
1	I-25	Northern NFRMPO boundary to southern NFRMPO boundary
2	US 34	Western NFRMPO boundary to eastern NFRMPO boundary
3	US 34 Business Route	US 34 on the west to eastern NFRMPO boundary
4	US 85	Weld CR 70 on the north to Weld CR 48 on the south
5	US 85 Business Route	US 34 on the west to US 85 on the east
6	US 287	Northern NFRMPO boundary to southern NFRMPO boundary, includes Berthoud Bypass
7	SH 1	Northern NFRMPO boundary to US 287 on the south
8	SH 14	US 287 on the west to eastern NFRMPO boundary
9	SH 56	US 287 on the west to Weld CR 17 on the east
10	SH 60	Larimer CR 17 on the west to Two Rivers Parkway on the east
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	Larimer CR 17 on the west to US 85 on the east
14	Larimer CR 3	Crossroads Boulevard on the north to southern NFRMPO boundary
15	Larimer CR 5	SH 14 on the north to US 34 on the south
16	Larimer CR 17	US 287 on the north to SH 56 on the south
17	Larimer CR 19	US 287 on the north to US 34 on the south
18	Weld CR 13	SH 14 on the north to the southern NFRMPO boundary
19	Weld CR 17	Crossroads Boulevard Extension on the north to southern NFRMPO boundary
20	35 <sup>th</sup> Avenue	O Street on the north to US 85 on the south
21	65 <sup>th</sup> Avenue	SH 392 on the north to 59 <sup>th</sup> Street on the south
22	83 <sup>rd</sup> Avenue	Northern NFRMPO boundary to southern NFRMPO boundary
23	Crossroads Boulevard	I-25 on the west to US 85 on the east
24	Harmony Road	Larimer CR 17 on the west to the eastern NFRMPO boundary
25	Mulberry Street	Larimer CR 19 on the west to Riverside Avenue (SH 14) on the east
26	Prospect Road	US 287 on the west to Larimer CR 5 on the east
27	Timberline Road	Vine Drive on the north to the southern NFRMPO boundary, following Timberline Road to Larimer CR 9E (road approximate) to Weld CR 7



Table 2-2: Regional Bike Corridors	
Corridor 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

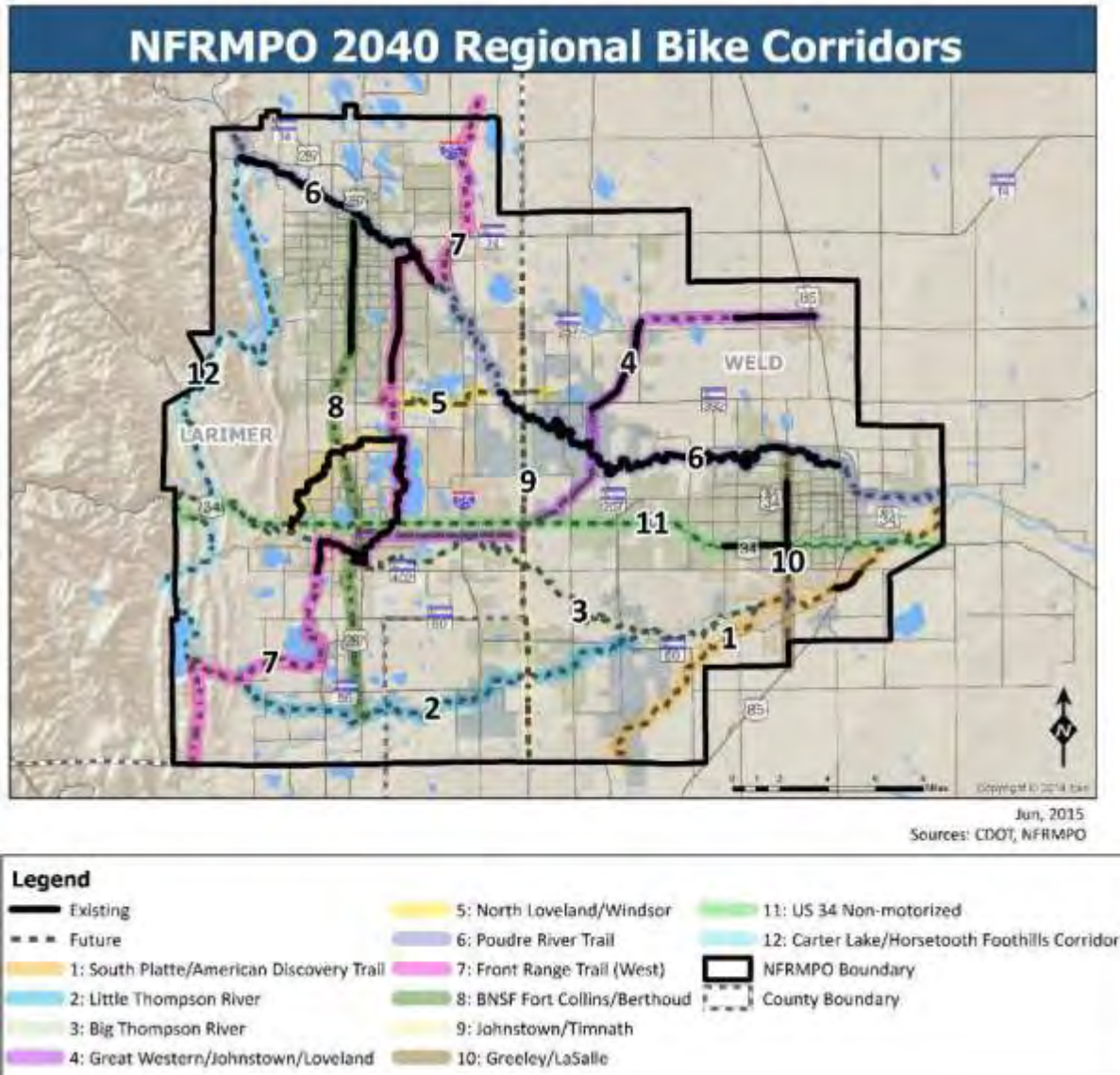


Figure 2-1: NFRMPO 2040 Regionally Significant Roadway Corridors



Jun, 2015  
Sources: CDOT, NFRMPO

Figure 2-2: NFRMPO 2040 Bike Corridors







### B. Roadway System

Currently, the roadway system is the principal transportation component within the region. This network provides a system for vehicular traffic, such as cars and trucks, but it also provides basic infrastructure for transit service and non-motorized traffic.

#### Functional Classification

The roadway network is comprised of a hierarchy of facilities defined by their functional classification and how they serve the mobility and access needs of the users. As mobility increases on a roadway, access decreases; and conversely, as access increases, mobility decreases.

The functional classification descriptions that follow are the basis for the 2040 Regional Travel Demand Model (RTDM). The definitions are based on the Federal Highway Administration's (FHWA) Highway Functional Classification Concepts, Criteria and Procedures document.<sup>3</sup> The functional classification of each roadway reflects its role in the regional system. Functional classification has specific implications for the administration of federal aid highway programs. Transportation planning agencies use functional classification as a means to identify corridor preservation, access management, and roadway design requirements.

- ▶ **Interstates:** All routes which comprise the Interstate Highway system are considered interstate highways. Interstates are designed with mobility and long-distance travel in mind. I-25 is the only interstate highway in the North Front Range region.
- ▶ **Freeway and Expressways:** 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:** Urban 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.
- ▶ **Major Collectors:** Major collectors serve traffic circulation in higher density residential and commercial/industrial areas. They distribute and channel trips between Local Roads and Arterials, usually over a distance of greater than three-quarters of a mile. They allow for higher speeds and more signalized intersections.

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<sup>3</sup> [http://www.fhwa.dot.gov/planning/processes/statewide/related/highway\\_functional\\_classifications/fcauab.pdf](http://www.fhwa.dot.gov/planning/processes/statewide/related/highway_functional_classifications/fcauab.pdf)



- ▶ **Minor Collectors:** Minor collectors serve traffic circulation in lower density residential and commercial/industrial areas. They distribute and channel trips between Local Roads and Arterials, usually over a distance of less than three-quarters of a mile. They allow for lower speeds and fewer signalized intersections
- ▶ **Local:** The primary function of local roads is to provide access to adjacent land uses in both urban and rural areas. They carry no through-traffic movement and constitute the mileage not classified as part of the Arterial and Collector systems.

**Table 2-3** 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 2040 Regional Travel Demand Model (RTDM) and does not include all of the lane miles in the region.

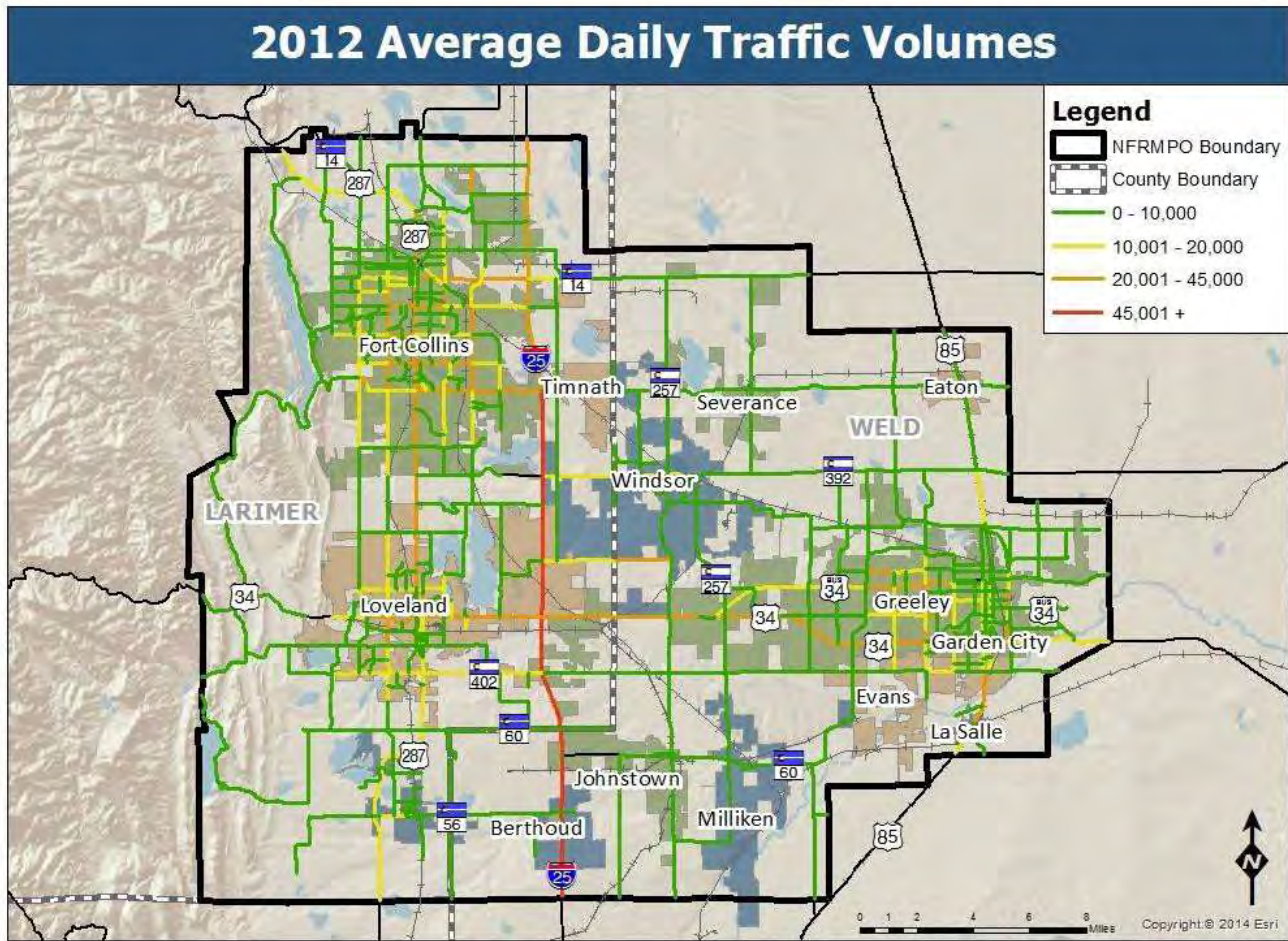
Table 2-3: Examples of Functional Classification in the NFRMPO Model		
Functional Class	Lane Mileage (2012)	Regional Examples
Freeway	109	Interstate 25
Expressway	232	US Route 85, US Route 34
Principal Arterial	573	State Highway 392
Minor Arterial	737	State Highway 14/Mulberry Street
Collector	1,144	Weld County Route 39, Larimer County Route 19/Taft Hill Road
Ramps	16	I-25 Entrance and Exit Ramps
Frontage Road	60	I-25 Frontage Road
<b>Total</b>	<b>2,870</b>	

*Source: North Front Range 2012 Base Year Regional Travel Model*

### Existing Daily Traffic Volumes

**Figure 2-3** shows the 2012 daily traffic volumes on major roadways on and off the National Highway System (NHS) in region. The major traffic volumes are located along the major routes within the region. I-25 south of Harmony Road/Weld County Route 74 has the highest traffic volume in the region with over 45,000 daily trips, with US 34 and US 287 seeing heavy traffic as well. Conversely, many collectors see less than 10,000 trips per day.

Figure 2-3: Average Daily Traffic Volumes



Apr, 2015

Sources: CDOT, 2015

### Roadway Surface Condition

CDOT monitors roadway conditions on the State Highway system on a weekly basis and completes a pavement review annually. Roadways are given a rank based on the roughness and rutting of the roadway surface, as well as the amount of cracking and patching. A “good” surface condition corresponds to a remaining service life greater than 11 years; a “fair” surface condition corresponds to a remaining service life between six and 11 years; and a “poor” surface condition corresponds to a remaining service life of less than six years. Roadway conditions from CDOT’s system are shown in **Figure 2-4**. Many of the region’s important highways and connections are in “poor” condition.

In 2013, CDOT shifted from using “Remaining Service Life” to “Drivability Life”. Drivability Life focuses on how long a highway segment will have acceptable driving conditions based on an assessment of pavement smoothness, surface cracking, rutting, and safety.<sup>4</sup> There are three categories: “High Drivability Life” will have

<sup>4</sup> CDOT 2014 Transportation Deficit Report, 2014.

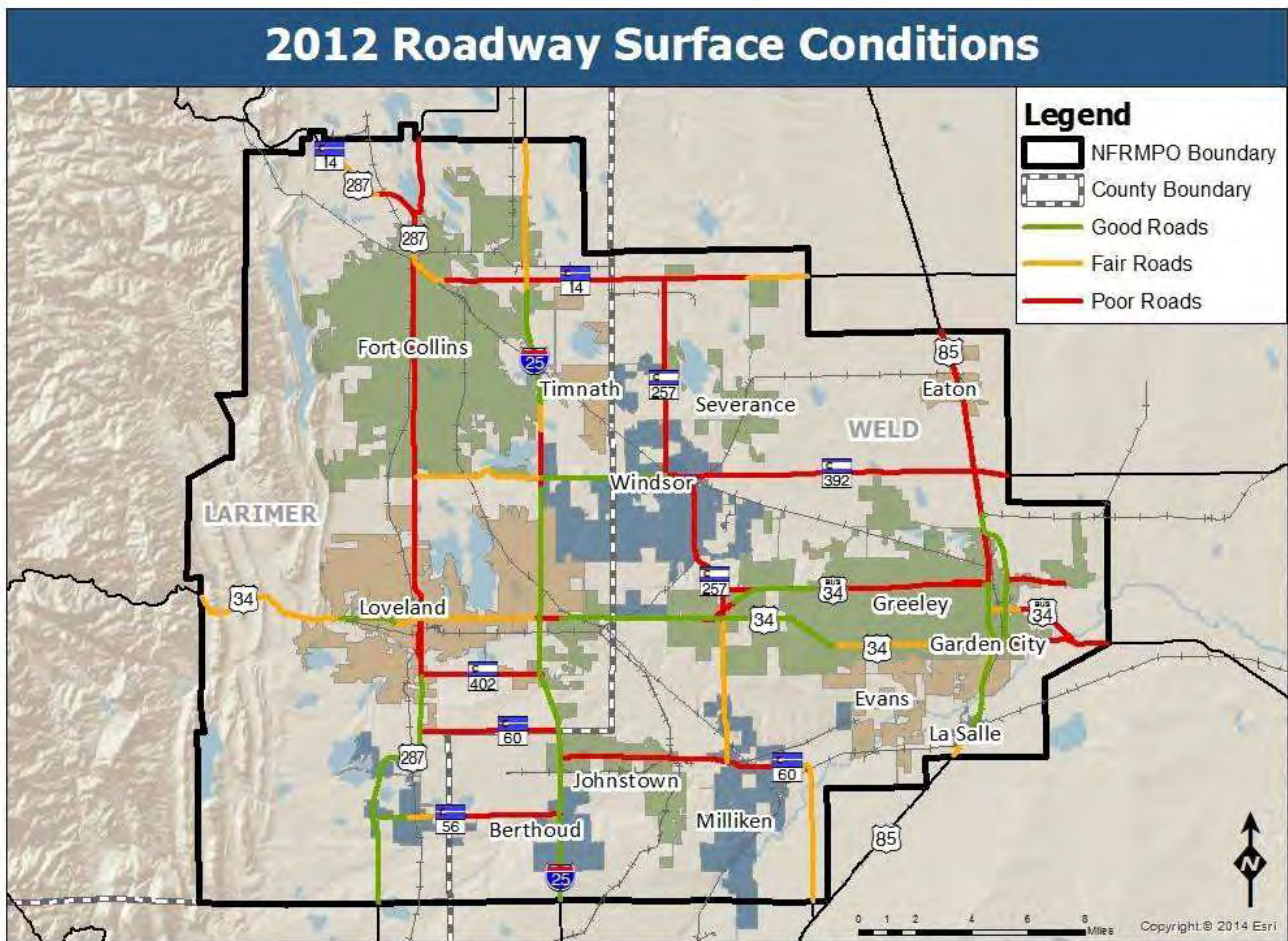
<https://www.codot.gov/library/AnnualReports/2014-annual-transportation-deficit-report.pdf>



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. In the future, the NFRMPO will address Drivability Life when considering roadway surface conditions during the Call for Projects and Transportation Improvement Program (TIP) processes.

A variety of construction projects have improved roadway surface quality in certain areas, while other areas have not been improved and have deteriorated. Noticeable improvements can be seen along the I-25 corridor south of CO 392 to the NFRMPO’s southern boundary, and along portions of US 34. Meanwhile, US 287 has seen roadway surface quality decrease although there is significant construction underway or planned in 2015.

**Figure 2-4: 2012 Roadway Surface Conditions**



Apr, 2015  
Sources: CDOT, 2015

**Special Roadway Corridors**

Roadways are categorized by their regional and national significance or by their scenic or historic value. Multiple roadways within the NFRMPO’s boundaries fit the NHS criteria based on their significance and one regional highway is considered scenic and historic.

*National Highway System*

The NHS includes interstate highways as well as a portion of the urban and rural major arterial system. Approximately 102 miles of NHS roadways are within the NFRMPO boundary, as shown on **Figure 2-5**. 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 (SH 14 and US 287) is the only designated Scenic Byway within the NFRMPO boundary. Approximately seven miles of this byway are within the northern portion of the region. The route follows US 287 from the Cache La Poudre River northwest as shown in **Figure 2-5**.

**Figure 2-5: 2012 National Highway System**



Apr, 2015  
Sources: CDOT, 2015

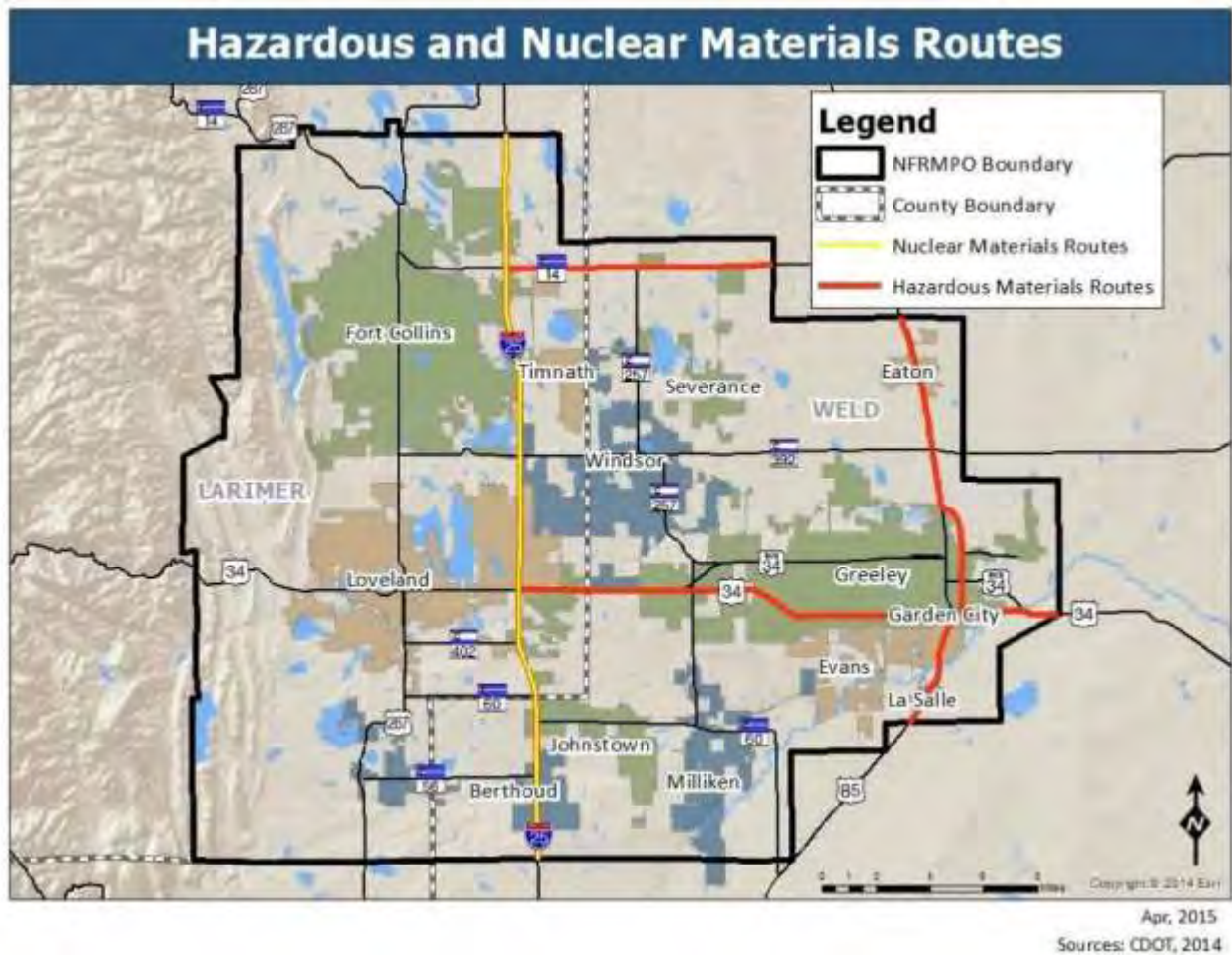
*Hazardous and Nuclear Materials*

Due to safety reasons, the transportation of hazardous and nuclear materials is limited to designated roadways. **Figure 2-6** illustrates the roadways in the region the State of Colorado has designated for the transportation of hazardous and nuclear materials. As shown, three routes are designated for transporting hazardous materials (I-



25, SH 14, US 34, and US 85), while one route is designated for transporting nuclear materials (I-25). Federal and State regulations prohibit these materials from being shipped using other routes.

**Figure 2-6: Hazardous and Nuclear Materials Routes**



### Bridge Conditions

Major strides have been made to fix and repair bridges within the State using Highway Safety Improvement Program (HSIP) or Funding Advancements for Surface Transportation Economic Recovery Act (FASTER) funding. Colorado voters approved FASTER in 2009. The FASTER program designated State funds for safety improvements, bridge repairs, and transit expansion. Working with CDOT, municipalities within the region have invested a variety of resources and funds into fixing bridges.

CDOT defines structurally deficient bridges as those needing to be monitored and/or repaired, but does not imply possible collapse or unsafe driving conditions.<sup>5</sup> If a structurally deficient bridge becomes unsafe, the structure will be closed. Functionally obsolete bridges are those built to standards not used today. Possible standards include adequate lane widths, shoulder widths, or vertical clearances for current or expected traffic.

<sup>5</sup> CDOT FASTER Bridge Enterprise FAQ, 2015. <https://www.codot.gov/programs/BridgeEnterprise/BridgeFAQs>

FHWA produces an annual National Bridge Inventory (NBI), which is the result of surveying the number of structurally deficient and functionally obsolete bridges across the country. Since 2007, 58 new bridges have been constructed in Larimer and Weld counties. The number of structurally deficient bridges has increased, though the number of functionally obsolete bridges has decreased. **Figure 2-7** shows the combined number of structurally deficient, functionally obsolete, and total deficient (combined structurally deficient and functionally obsolete) bridges in Larimer and Weld counties, from 2007-2014. The increase in structurally deficient bridges is attributed to the 2013 floods in Northern Colorado. Many of these bridges should be repaired or reconstructed using flood relief funding.

**Figure 2-7: Bridge Conditions**



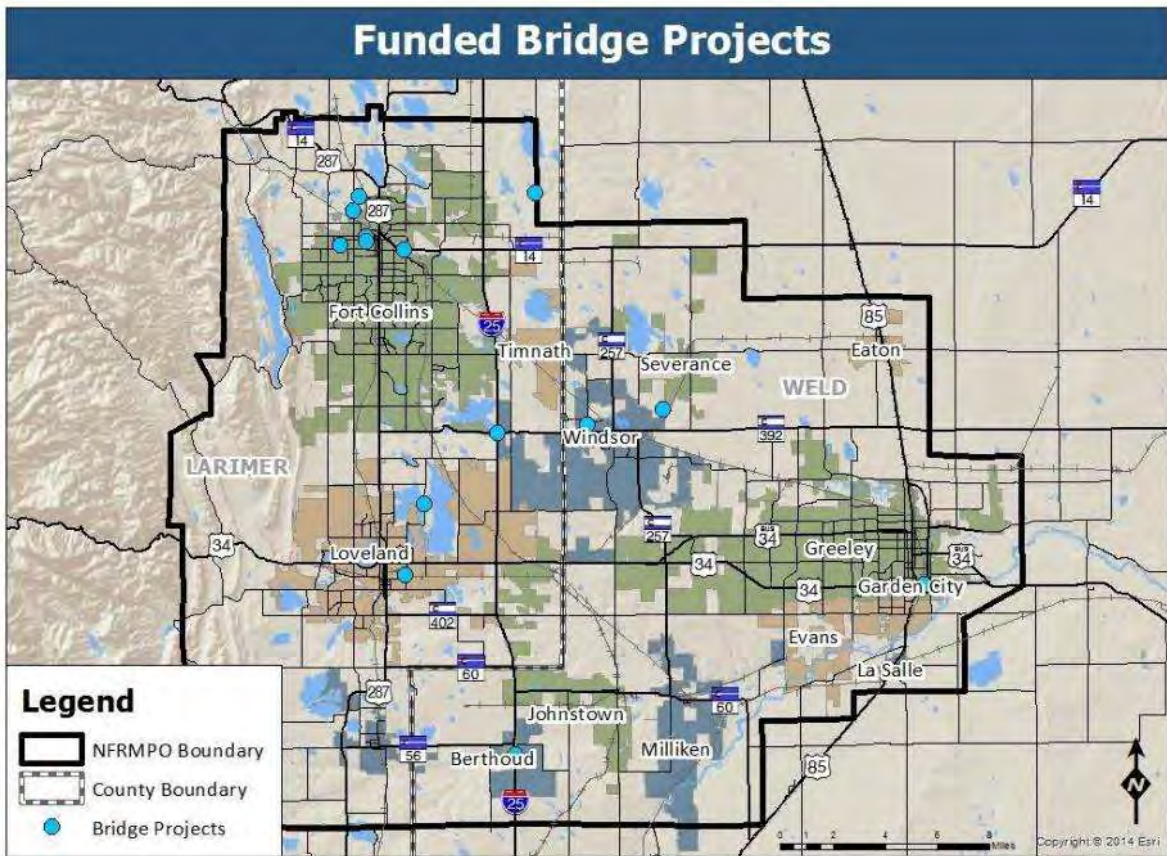
*Source: National Bridge Inventory, 2015*

Fifteen bridges have been or are in the process of being repaired using State funding, as shown in **Table 2-4**. These projects repair deficient bridges along major corridors within the region. **Figure 2-8** maps the projects listed in **Table 2-4**.



Table 2-4: Funded Bridge Projects			
Bridge	Municipality	Project Status	Funding Source
US 85 Bypass: 5 <sup>th</sup> -US 34	Greeley	In design	Bridge On-System
US 34/85 Interchange	Greeley	In design	Bridge On-System
US 34 & US 85 Bridge	Greeley	In design	Bridge On-System
Larimer CR 50 at Larimer and Weld Canal	Larimer County	In design	Bridge Off-System
Larimer CR 3 at Larimer County Canal	Larimer County	Under construction	Bridge Off-System
Larimer CR 17 at Poudre River	Larimer County	Under construction	Bridge Off-System
LaPorte-Whitcomb Bridge at Arthur's Ditch	Fort Collins	Complete	Bridge Off-System
Madison Avenue at Greeley-Loveland Canal	Loveland	Complete	Bridge Off-System
Weld CR 21 at Greeley No. 2 Canal	Weld County	Complete	Bridge Off-System
Shields Street at Larimer County Canal No. 2	Fort Collins	Complete	Bridge Off-System
Bryan Avenue at Mulberry Street	Fort Collins	Complete	Bridge Off-System
Windsor 15 <sup>th</sup> Street at Greeley No. 2 Canal	Windsor	Complete	Bridge Off-System
Larimer CR 11C at Horseshoe Lake Spillway	Larimer County	Complete	Bridge Off-System
SH 14: Cache La Poudre	Fort Collins	Under construction	Bridge Enterprise Pool
I-25 Service Road over Little Thompson River	Berthoud	Complete	Bridge Enterprise Pool
Larimer County Road 48 over I-25	Larimer County	Not Yet Scheduled	Bridge Enterprise Pool
US 287 at Meadow Lane (over Draw)	Larimer County	Complete	Bridge Enterprise Pool
I-25 & SH 392 Interchange	Windsor	Under construction	Safety Pool
<b>Source:</b> CDOT FASTER projects, <a href="http://www.coloradodot.info/projects/faster">http://www.coloradodot.info/projects/faster</a> , 2014			

Figure 2-8: Funded Bridge Projects



Apr, 2015

Sources: NFRMPO, CDOT, 2015

In addition to the construction projects listed in **Table 2-4**, CDOT has identified additional bridges rated in poor condition, **Table 2-5**. These bridges may receive funding to fix structural deficiencies as it becomes available.

Table 2-5: Bridges with Structural Deficiencies

Bridge	Municipality	Rating	Type of Work
Prospect Road over I-25	Fort Collins	49	Replacement
US 287 at Meadow Lane (over Draw)	Larimer County	47.2	Replacement
Larimer County Road 48 over I-25	Larimer County	46.2	Yet to be Determined
I-25 Service Road over Little Thompson River	Weld County	45.3	Replacement
SH14 over Coal Bank Creek	Weld County	28.7	Replacement

*Source:* <http://www.coloradodot.info/programs/BridgeEnterprise/poor-bridges/>



**Safety**

Crash data for State and federal roadways within the NFRMPO are collected annually by CDOT. **Table 2-6** shows the crash rate per 100M vehicle miles traveled (VMT) for the major State and federal highways based on crash data from 2008 to 2012. The Crash Rate per 100M VMT was calculated using FHWA’s formula:

$$R = \frac{C \times 100,000,000}{V \times 365 \times N \times L}$$

R = Crash Rate

C = Number of Crashes

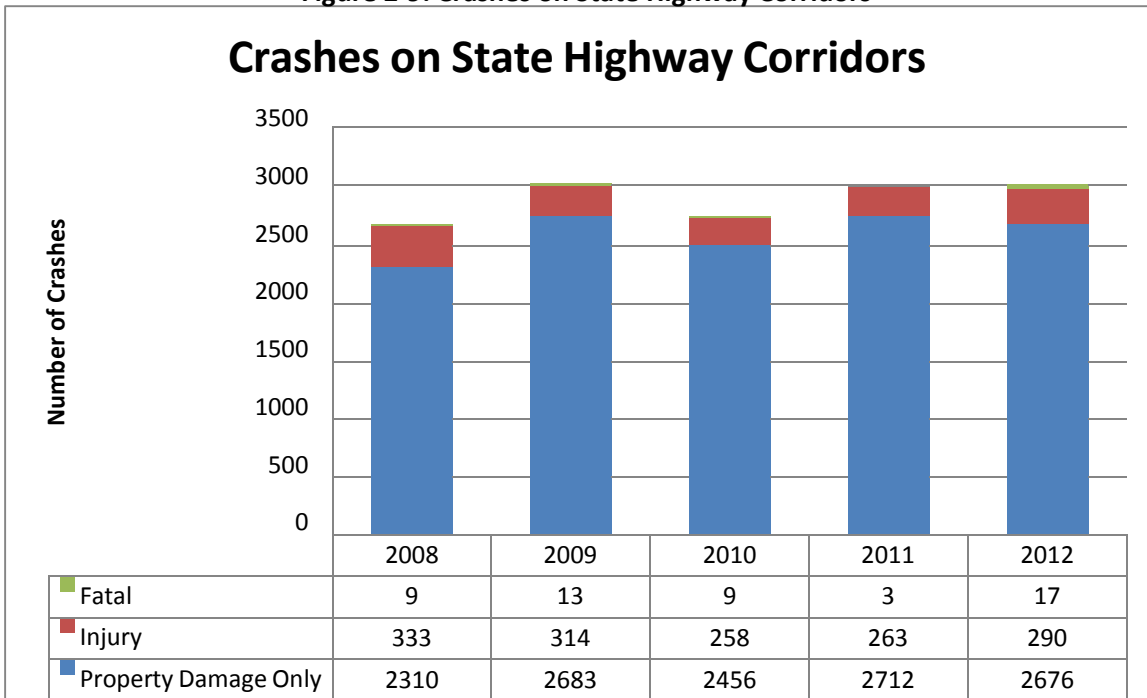
V = AADT

Table 2-6: Crash Rate per 100 VMT (2008-2012)		
Route	Total Crashes	Crash Rate Per 100M VMT
I-25	3,024	83.23
US 287	4,281	359.52
SH 1	91	259.20
SH 257	325	120.82
US 85	952	209.26
SH 14	776	133.95
SH 392	677	173.56
US 34	2,265	140.81
US 34 Business	1,411	445.67
SH 60/SH 56	414	157.27
SH 263	34	152.96
SH 402	123	137.15
State Facilities Average	--	197.78
<i>Source: CDOT Crash Data, 2008–2012</i>		

As shown in **Table 2-6**, many of the region’s busiest roads have higher crash rates per 100M VMT than more rural facilities. These corridors should be targeted for safety improvements in the future.

**Figure 2-9** shows the total number of crashes on State and federal highways within the region divided into fatal, injury, and property damage only (PDO) crashes. Crashes have steadily increased from 2008 to 2012, with a sharp increase in fatal and PDO crashes. In all, there were nearly 3,000 crashes within the region; of those, 300 crashes had at least one injury, while 17 were fatal. More severe crashes occurred within municipal boundaries at or near intersections. Arterial roadways, particularly through more densely populated areas, often experience high crash rates due to interchange access and intersection related crashes. Crashes along I-25 may be attributed to congestion and heavy directional flow during peak hours.

Figure 2-9: Crashes on State Highway Corridors



Source: CDOT Crash Data, 2008–2012

### C. Freight

FHWA estimates by 2040 the nation’s transportation system will handle cargo valued at more than \$39 Trillion, compared with \$17.4 Trillion in 2012.<sup>6</sup> Volumes, in tons, will increase by nearly 45 percent over 2012 levels by 2040 from 19.7 Billion to 28.5 Billion respectively. These huge 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

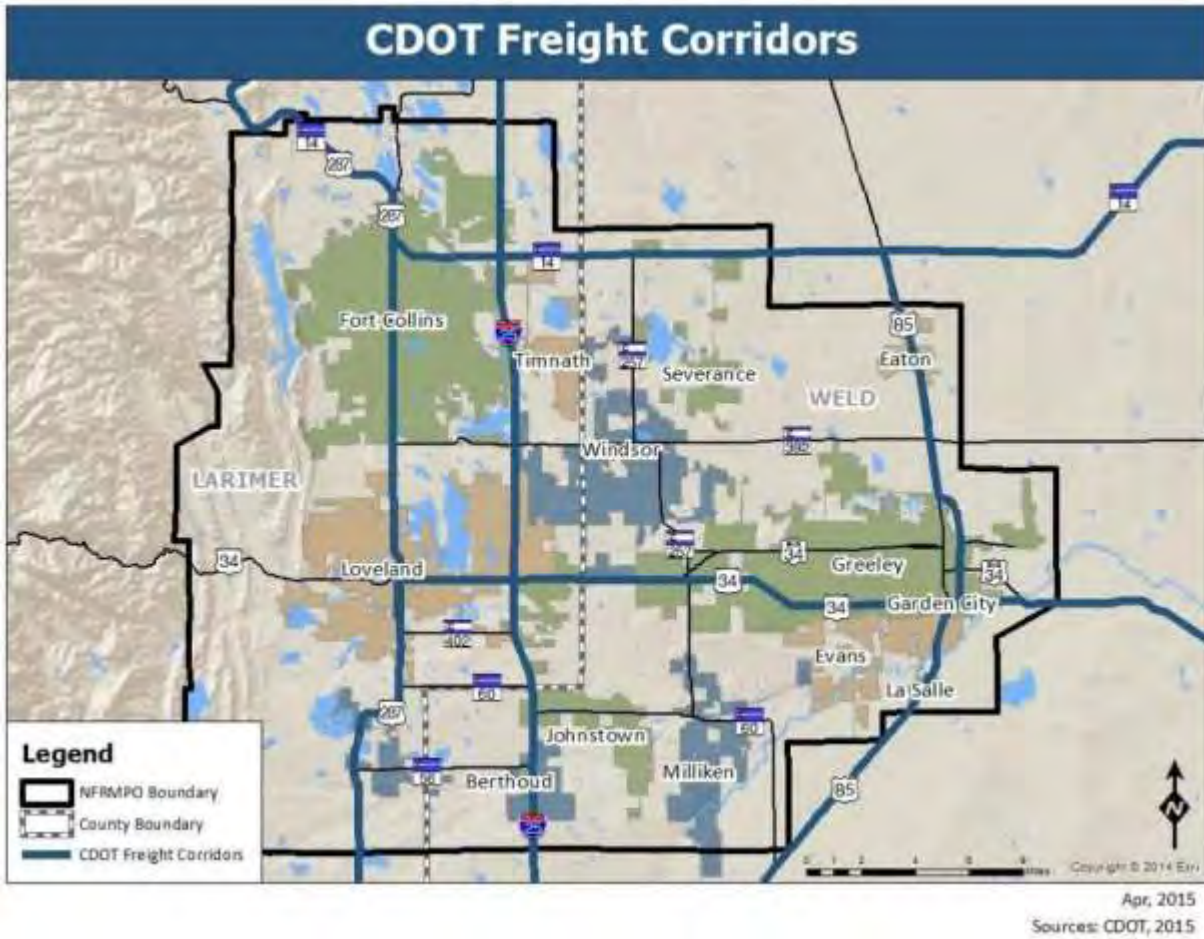
As part of the State Highway Freight Plan, CDOT identified Freight Corridors throughout the State with input from the freight industry and other key stakeholders. Within the region, these corridors are: I-25; US 34; US 85; US 287; and SH 14. The corridors are shown in **Figure 2-10**.

<sup>6</sup> FHWA Freight Facts and Figures 2013:

[http://www.ops.fhwa.dot.gov/Freight/freight\\_analysis/nat\\_freight\\_stats/docs/13factsfigures/pdfs/fff2013\\_highres.pdf](http://www.ops.fhwa.dot.gov/Freight/freight_analysis/nat_freight_stats/docs/13factsfigures/pdfs/fff2013_highres.pdf)



Figure 2-10: CDOT Freight Corridors



A large amount of freight is moved by truck through the region. **Table 2-7** 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 connecting metropolitan areas, ports, border crossings, and major hubs.<sup>7</sup>

County	Inbound Tonnage (thousands)		Age		Total (th)	
	2010	2040	2010	2040	2010	2040
Larimer	8,901.73	11,999.59	9,361.32	17,616.89	18,263.04	31,825.94
Weld	14,209.05	25,672.22	17,846.56	30,210.83	29,846.16	55,883.05

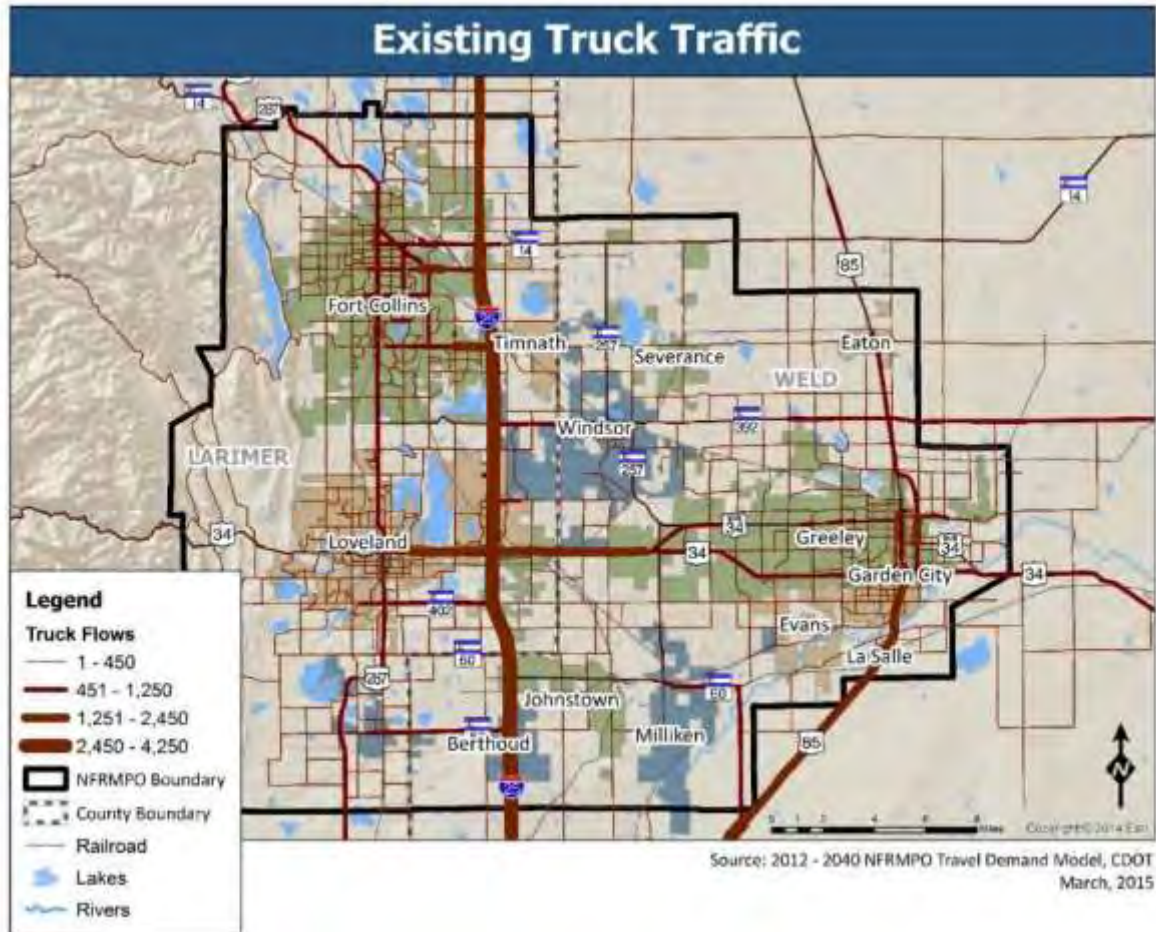
*Source: Transearch 2010; IHS Global Insight, CDOT, 2015*

<sup>7</sup> FHWA Freight Facts and Figures 2013: [http://www.ops.fhwa.dot.gov/Freight/freight\\_analysis/nat\\_freight\\_stats/docs/13factsfigures/pdfs/fff2013\\_highres.pdf](http://www.ops.fhwa.dot.gov/Freight/freight_analysis/nat_freight_stats/docs/13factsfigures/pdfs/fff2013_highres.pdf)



**Figure 2-11** shows the existing level of truck traffic from the 2040 RTDM, using natural breaks in the data set. The numbers provided are total flows, or the total number of trucks in both directions per day. The most heavily used truck routes in the region are I-25, US 34, US 85, US 287, and SH 14. As shown, I-25 carries the heaviest volume of truck traffic, followed by US 85 and US 34. The Port of Entry, located on I-25 in Fort Collins, recorded a total of 960,759 trucks in 2014, with 215,999 passing through the port itself.<sup>8</sup>

**Figure 2-11: Existing Truck Traffic**



To evaluate the safety of truck travel on the roadway network, the percentage of overall crashes involving trucks was compared against the percentage of truck traffic on the region’s top 10 truck routes. **Table 2-8** compares Annual Average Daily Truck Traffic (AADTT), Annual Average Daily Traffic (AADT), and the percent truck crashes along the heaviest-traveled corridors. This comparison can be used to evaluate safety on routes with high truck traffic. **Table 2-8** uses the percentage of truck traffic, a weighted average of the State Highway segments that comprise the corridor, and the percentage of truck crashes (the percent of the total crashes involving a truck), which is also a weighted average for the corresponding State Highway segments. Due to limitations in the data for non-State Highway facilities, this comparison is limited to the State Highway portions of the RSCs. The truck traffic is for the year 2012 and the truck crash percentages are for the five year period from 2008 to 2012. As

<sup>8</sup> Colorado State Patrol, 2015.



shown in **Table 2-8**, there does not appear to be a clear correlation between the percent truck traffic and the percent truck crashes.

Table 2-8: Truck Crash Rates						
Roadway	AADTT (Truck)	AADT (All Traffic)	Percent Truck Traffic	Total Crashes	Truck Crashes	Percent Truck Crashes
I-25	6,780	57,520	11.8%	3,024	184	6.1%
US 85	1,385	15,750	8.8%	952	78	8.2%
SH 257	454	6,730	6.8%	325	13	4.0%
SH 392	606	9,060	6.7%	677	29	4.3%
SH 14	1,236	19,641	6.3%	776	36	4.6%
US 34	1,328	26,956	4.9%	3,676	95	2.6%
US 85 Business	497	10,550	4.7%	446	19	4.3%
SH 60	321	6,907	4.7%	312	18	5.8%
US 287	880	20,404	4.3%	2,512	38	1.5%
SH 56	358	8,300	4.3%	102	3	2.9%
<i>Sources: CDOT, 2015</i>						

### 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 2012, freight railroads originated 30.6M tons of commodities and terminated 29.7M tons within Colorado. **Tables 2-9 and 2-10** show the top five commodities originated and terminated within the State in 2012. Coal was the largest commodity shipped from and within Colorado, making up 74 percent of originating rail traffic and 58 percent of terminating rail traffic.

Table 2-9: Colorado Originated Rail Freight (2012)		
Commodity	Percent of Total	Tons
Coal	74%	22,776,000
Other	11%	3,354,000
Cement	6%	1,721,000
Food Products	3%	954,000
Waste & Scrap	3%	947,000
<i>Source: Association of American Railroads, Rail Fast Facts, 2015</i>		

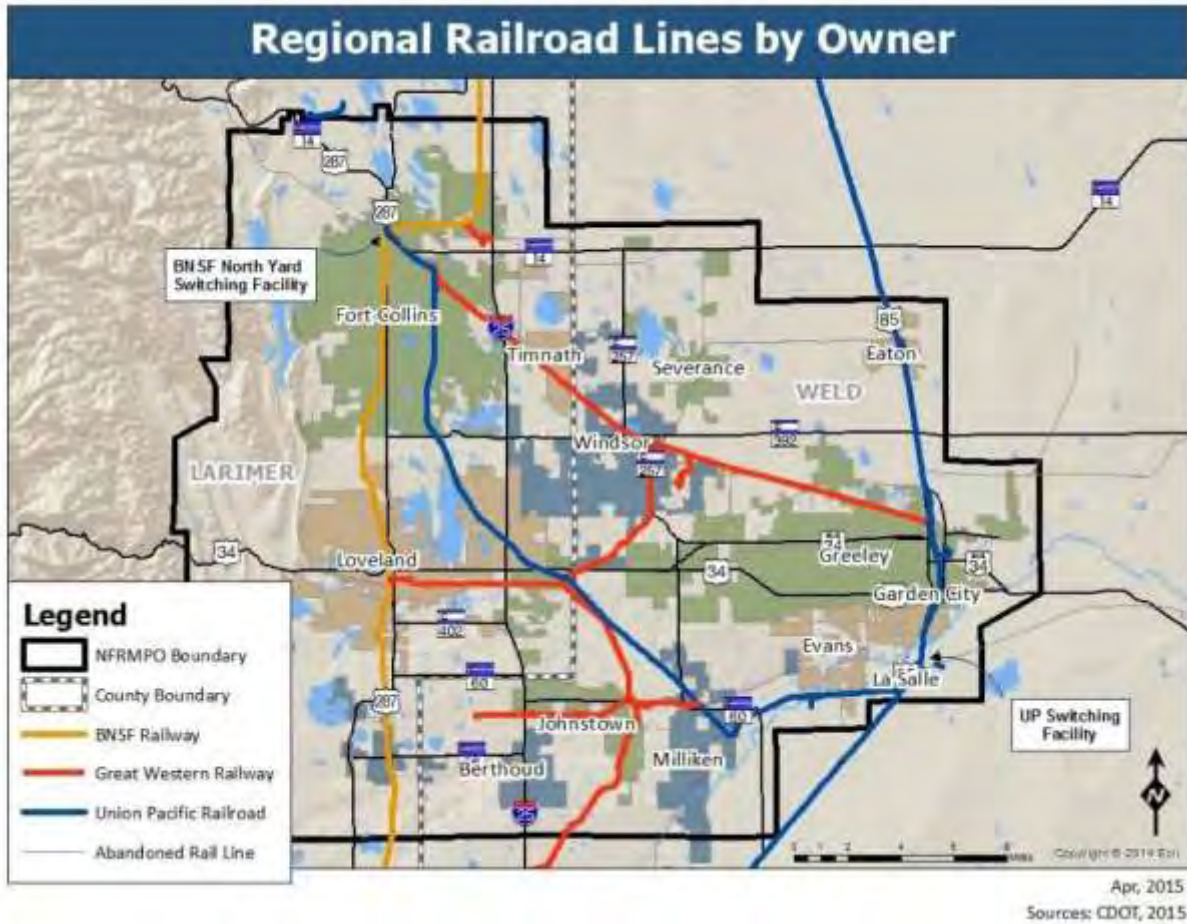


Table 2-10: Colorado Terminated Rail Freight (2012)		
Commodity	Percent of Total	Tons
Coal	58%	17,138,000
Other	23%	6,856,000
Stone, sand, gravel	8%	2,475,000
Intermodal	4%	1,132,000
Food Products	4%	1,059,000
<i>Source: Association of American Railroads, Rail Fast Facts, 2015</i>		

Railroads are classified according to the annual gross operating revenue from the railroad operations. A Class I Railroad is a railroad which had an operating revenue of at least \$433.2M in 2011. A regional or short-line railroad has annual operating revenue of less than \$20M 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/short-line railway. These railroads are described in more detail in the following section and shown in **Figure 2-12**.

- ▶ **Union Pacific Railroad (UPRR):** UPRR is a Class I Railroad which has several rail lines in the North Front Range region. The north-south 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 are 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 US 287, with a switch yard in Fort Collins. Six trains operate per day on the BNSF line.
- ▶ **Great Western Railway of Colorado (GWR):** GWR is a regional/short-line railroad. GWR operates a total of 80 miles of track and interchanges with both BNSF and UPRR. The company operates freight service between Loveland and Johnstown, with spur lines to Milliken and Longmont. Another line connects north from Kelim (east of Loveland) to Windsor, and from there to 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.

Figure 2-12: Regional Railroad Lines by Owner



### Freight Safety

Freight vehicles and passenger vehicles interact on the roadway system and at the 316 at-grade railroad crossings in the region. **Table 2-11** lists the number of crashes at these at-grade rail crossings. In the 10-year period between 2004 and 2014, 25 incidents between trains and passenger vehicles occurred at regional at-grade railroad crossings, with nine injuries and two fatalities.





Table 2-11: Railroad Crossing Crashes

Year	Railroad	County	City/Town	Crossing ID	Roadway Name	Crossing Protection	Fatality	Injury
2005	GWR	Weld	Windsor	S45106Y	SH 257	Watchman	--	1
	UP	Weld	Eaton	804856D	CR 76	Stop signs	--	--
	UP	Weld	Greeley	816131K	22 <sup>nd</sup> Street	Cross bucks	--	--
2006	GWR	Larimer	Loveland	872128C	Denver Avenue	Highway traffic signal, Cross bucks	--	--
	GWR	Weld	Windsor	871917X	Eastman Park Drive	Cross bucks, Flagged by crew	--	--
	UP	Weld	Milliken	804538S	SH 257	Standard Flashing Light Signal, Audible, Cross bucks	--	--
	UP	Weld	Milliken	804539Y	CR 52	Cross bucks	--	3
2007	BNSF	Larimer	Fort Collins	244622C	Horsetooth Road	Gates, Cantilever Flashing Light Signal	1	--
	UP	Weld	Eaton	804853H	2 <sup>nd</sup> Street	Gates, Standard Flashing Light Signal, Audible, Cross bucks	--	--
	GWR	Weld	Windsor	244889T	CR 15	Cross bucks	--	--
2008	GWR	Larimer	Fort Collins	244647X	Summit View	Gates, Standard Flashing Light Signal, Audible, cross bucks	--	--
	GWR	Larimer	Loveland	921967R	Boise Avenue	Highway Traffic Signals, Wigwags, Bells	--	--
	UP	Weld	Eaton	804852B	CR 72	Cross bucks, Stop sign	--	--
	UP	Weld	LaSalle	804355Y	CR 48	Cross bucks, Stop sign	--	--
2010	BNSF	Larimer	Fort Collins	244632H	Plus Street	Cross bucks	1	--
	UP	Weld	Eaton	804855W	5 <sup>th</sup> Street	Cross bucks	--	--
	GWR	Weld	Windsor	245106Y	CR 23	Cross bucks	--	1
2011	BNSF	Larimer	Loveland	245032J	Private Road	Stop signs	--	--
	UP	Weld	Eaton	804852B	CR 72	Stop signs	--	--
2012	UP	Larimer	Fort Collins	804501C	CR 32	Gates	--	--





### D. Bicycle and Pedestrian System

#### Bicycle System

##### *Regional Bicycle Plan*

The NFRMPO completed and adopted the NFRMPO Regional Bicycle Plan on March 7, 2013. This plan reports existing and proposed bicycle facilities on RSCs. The purpose of the plan is to:

- ▶ Provide a summary of existing bicycle facilities;
- ▶ Identify opportunities to connect and enhance the regional bicycle system;
- ▶ Identify regional bicycle corridors and provide implementation steps;
- ▶ Provide member governments with tools to support local bicycle planning;
- ▶ Position the NFRMPO to pursue multiple funding sources (including State and federal sources); and
- ▶ Fulfill the federal requirement to address bicycle planning as a component of the RTP.

The plan identifies existing facilities within the region, as well as 12 regional bicycle corridors which could serve as main routes for bicycle and pedestrian travel between and through local communities as well as connections to areas adjacent to the region. While certain segments of the regional bicycle corridors 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. **Table 2-1** lists locations of the 12 regional bicycle corridors as outlined in the plan.

##### *Existing Bicycle Facilities*

Facilities identified in the plan include multi-use off-street trails, on-street bicycle lanes, and on-street bicycle routes. The following are common definitions of these facilities:

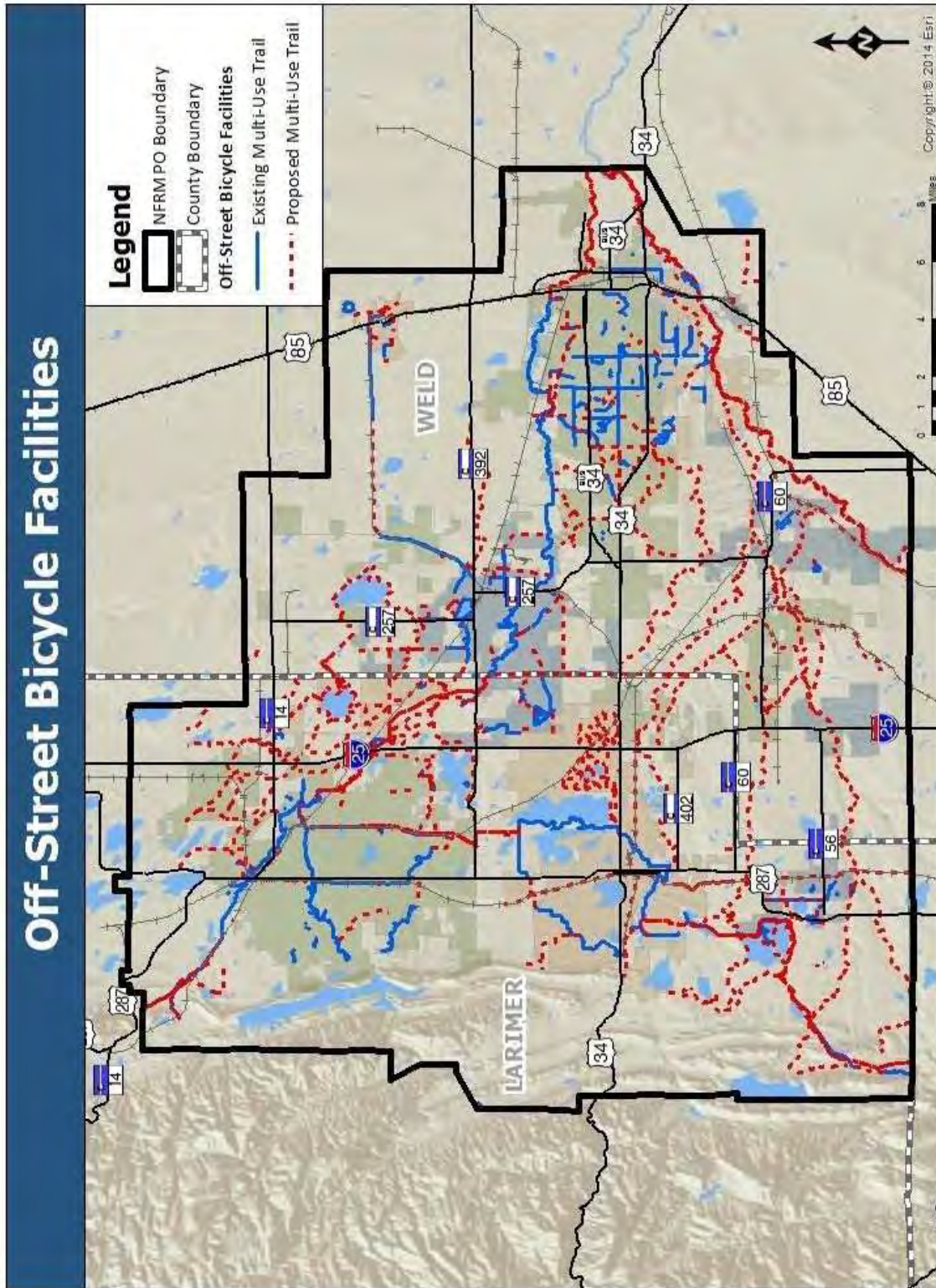
- ▶ **Multi-Use Off-Street Facility** – a hard or soft surface trail designed to be used by commuters and recreationalists. These facilities are accessible to bicycles, pedestrians, equestrians, and other non-motorized users.
- ▶ **On-Street Bicycle Lane** - an on-street bicycle facility delineated by pavement markings and signage for the use of bicyclists. Typically located on roadways with a classification of collector and above.
- ▶ **On-Street 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.

The facilities shown in **Figures 2-13 and 2-14** were identified from a number of sources, the NFRMPO Regional Bicycle Plan, 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 2-12** shows the miles of bicycle facilities currently exist in the region.



Table 2-12: Existing Bicycle Facility Miles			
Community	On-Street Bike Lane Miles	On-Street Bicycle Route Miles	Multi-Use Off-Street Facility Miles
Berthoud	2	0	1
Eaton	0	0	2
Evans	0	0	24
Fort Collins	142	25	31
Greeley	44	39	34
Garden City	0	0	0
Johnstown	2	0	0
LaSalle	0	2	0
Loveland	83	15	3
Milliken	0	0	4
Severance	1	0	0
Timnath	0	0	1
Windsor	20	0	22
Larimer County	69	2	26
Weld County	11	0	59
<b>Total:</b>	<b>374</b>	<b>83</b>	<b>207</b>
<i>Source: NFRMPO Regional Bicycle Plan, 2013</i>			

Figure 2-13: Off-Street Bicycle Facilities

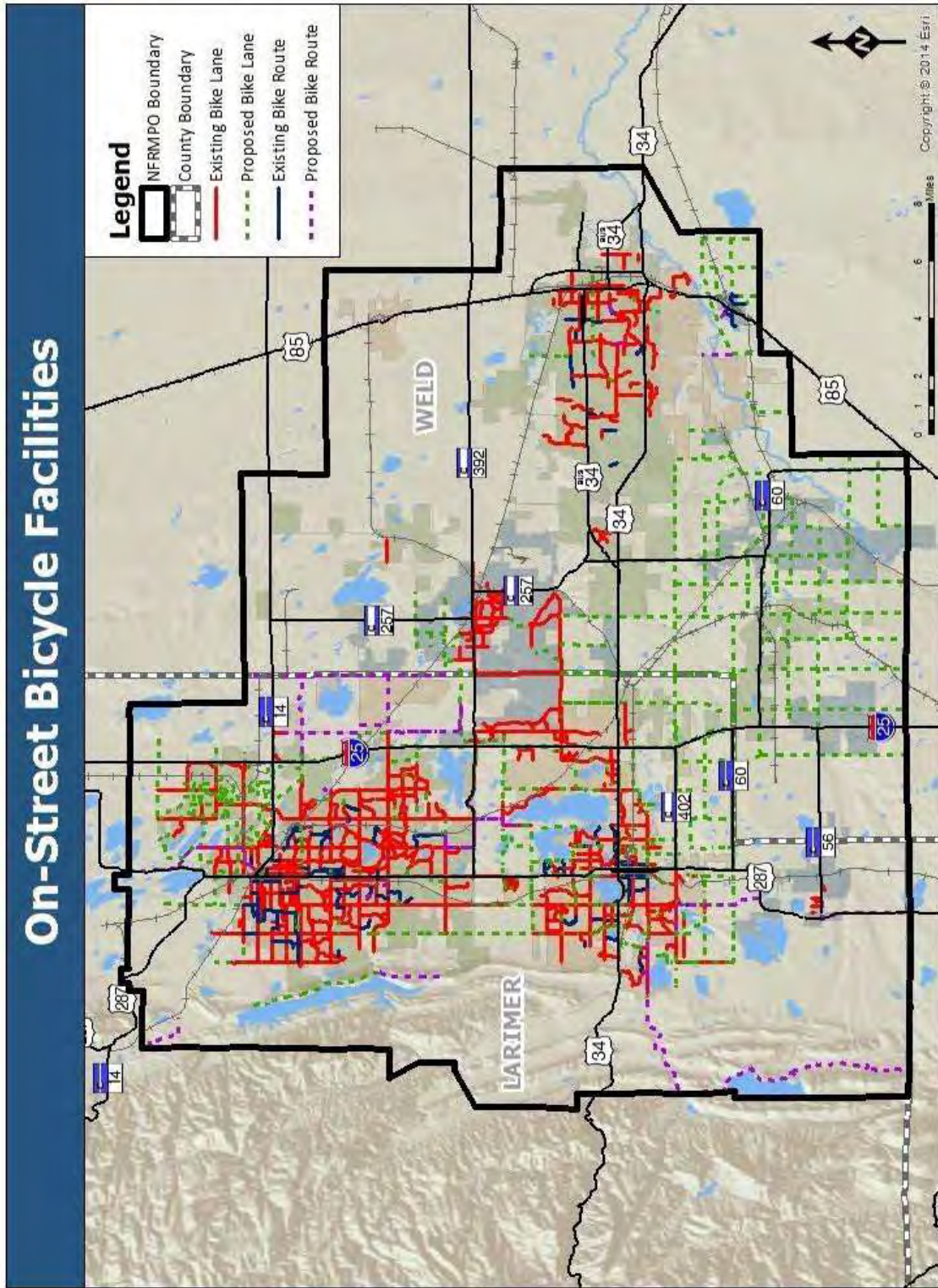


Apr, 2015

Sources: CDOT, 2014



Figure 2-14: On-Street Bicycle Facilities







## Pedestrian System

### Existing Pedestrian Facilities

The NFRMPO also gathered data on existing pedestrian facilities, which includes multi-use off-street trails and sidewalks. The following are common definitions of these types of facilities:

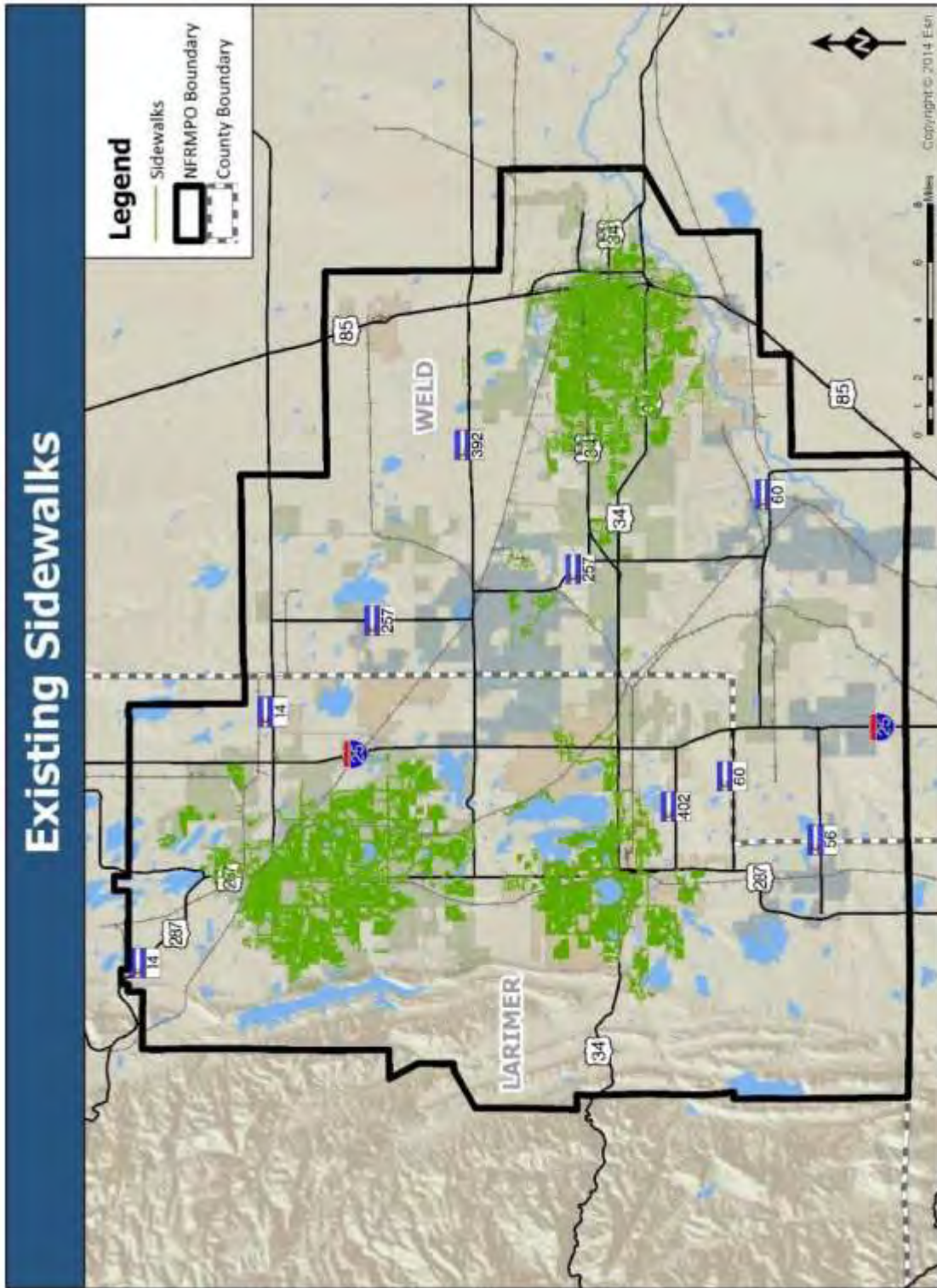
- ▶ **Multi-Use Off-Street Facility** – a hard or soft surface trail designed to be used by commuters and recreationalists. These facilities are accessible to bicycles, pedestrians, equestrians, and other non-motorized users. **Figure 2-15** shows multi-use off-street facilities.
- ▶ **Sidewalk** – a paved walkway along the side of an existing street or roadway. Sidewalks are essential to support local transit service access.

The facilities in **Figure 2-15** were identified from a number of sources, the NFRMPO Regional Bicycle Plan, local Master Street Plans and Standards, as well as existing local bicycle and pedestrian plans. They were further refined by discussions with individual local governments. Sidewalk totals were only gathered for the communities of Evans, Fort Collins, Greeley, Loveland, and portions of Windsor due to limited Geographic Information Systems (GIS) resources in many of the member communities.

**Table 2-13** shows current data gathered on the number of pedestrian facilities within the region.

Community	Multi-Use Off-Street Facility	Sidewalk Miles
Berthoud	1	--
Eaton	2	--
Evans	24	147
Fort Collins	31	844
Greeley	34	968
Garden City	0	--
Johnstown	0	--
LaSalle	0	--
Loveland	3	475
Milliken	4	--
Severance	0	--
Timnath	1	--
Windsor	22	--
Larimer County	26	--
Weld County	59	--
<b>Total:</b>	<b>207</b>	<b>2,434</b>
<i>Sources: NFRMPO Regional Bicycle Plan, 2013; NFRMPO Cities, Towns, and Counties, 2014</i>		

Figure 2-15: Existing Sidewalks





**Bicycle and Pedestrian Count Locations**

One challenge to implementing a regional bicycle system is documenting the system’s performance. In 2010, CDOT established a formal bicycle and pedestrian counting program which included the purchase of permanent and mobile bicycle and pedestrian counters for the State. In November 2014, NFRMPO staff met with CDOT, the City of Fort Collins, and Colorado State University (CSU) to establish the location for a permanent counter along a regional and local bicycle facility. It was determined a counter should be placed at the intersection of the Mason Corridor Trail (RBC 8: BNSF Fort Collins/Berthoud Trail) and the Spring Creek Trail in Fort Collins to gather accurate, year-round information on both bicycle commuters and recreational trail users. RBC 8 was identified as a possible location for a permanent bicycle counter location in the Regional Bicycle Plan.

Currently, the cities of Fort Collins, Greeley, and Loveland are the only municipalities collecting count data on their bicycle and pedestrian trail systems. Greeley and Loveland use mobile electronic counters to gather data, while Fort Collins recruited volunteers to conduct manual counts at the locations provided in **Tables 2-14 through 2-16**. Counts were collected between January, 2013 and September, 2014.

Table 2-14: Fort Collins Bicycle and Pedestrian Counts	
Location	Estimated Daily Average
Ziegler Road and Kechter Road	200
Power Trail at Horsetooth Road Trailhead	500
Mason Trail at Horsetooth Road Trailhead	650
Spring Creek Trail at Drake Road Trailhead	1,400
Horsetooth Road and Shields Street Intersection	450
Fossil Creek Trail at Spring Canyon Park Trailhead	900
Poudre River Trail at Lincoln Avenue Trailhead	950
Spring Creek Trail at Lee Martinez Park Trailhead	1,700
Mountain Avenue at Mason Street Intersection	1,150
Laurel Street and Remington Street Intersection	1,800
Prospect Road at Remington Street Intersection	1,800
Spring Creek Trail at Centre Avenue Trailhead	1,200
Taft Hill Avenue at LaPorte Avenue Intersection	750
Mountain Avenue at Remington Street Intersection	450
<i>Source: City of Fort Collins, 2014</i>	



Table 2-15: Greeley Bicycle and Pedestrian Counts				
Location	Daily Average	Peak Day Volume	Peak Day	Count Month
Poudre River Trail at Island Grove Trailhead	69	211	Monday	January
Poudre River Trail at 25 <sup>th</sup> Avenue Trailhead	72	335	Sunday	January
Poudre River Trail at 35 <sup>th</sup> Avenue Trailhead	149	437	Sunday	May
Poudre River Trail at 35 <sup>th</sup> Avenue Trailhead	240	403	Saturday	July

*Source: City of Greeley, 2014*

Table 2-16: Loveland Bicycle and Pedestrian Counts				
Location	Daily Average	Peak Day Volume	Peak Day	Count Month
North Taft Avenue – Between 8 <sup>th</sup> Street and 10 <sup>th</sup> Street	46	49	Wednesday	June 4 – December 31, 2013

*Source: City of Loveland, 2014*

### E. Transportation Demand Management Program

Transportation Demand Management (TDM) strategies are actions which improve transportation system efficiency by altering transportation system demand rather than roadway capital expansion. TDM strategies include the following:

- ▶ Reducing trip length or time;
- ▶ Encouraging off-peak travel; and
- ▶ Reducing single-occupancy vehicles (SOV) on roadways.

In 1996, the NFRMPO began implementation of the SmartTrips™ program for Northern Colorado with designated staff from the NFRMPO and the communities of Fort Collins, Greeley, and Loveland. The program was part of a package of strategies developed to reach the goals established by the NFRMPO which include reducing the number of trips made by SOVs by 10 percent by the year 2015.

The NFRMPO currently provides several TDM programs, including the VanGo™ vanpooling program, ride matching through the Go Portal ([www.smarttrips.org](http://www.smarttrips.org)), and business outreach services and events.

### NFRMPO Household Survey of 2010 and Implications for TDM

The NFRMPO conducted a household survey in 2009 for the NFRMPO sub-regions. Staff collected data throughout the region and documented it in the NFRMPO Household Survey of 2010. The survey was conducted





in the same manner across all sub-regions, providing a snapshot of current travel behavior throughout the North Front Range. The data has been used to target TDM service improvements for existing programs as well as exploring the potential for new services and programs in the region.

Key differences between the cities, towns, and rural areas in the region are reflected in household travel behavior. Some characteristics include:

- ▶ **Fort Collins** – Fort Collins households report smaller-than-average household sizes and fewer vehicles. These households report the highest levels of non-motorized travel in a typical week and the highest levels of transit pass ownership. Household members have higher-than-average education levels and more students per household than the other areas. Fort Collins respondents have a higher average number of bicycles per household and report riding a bicycle or walking to work or school more frequently than other parts of the region.
- ▶ **Greeley/Evans** – Households in the Greeley/Evans area are the most unique of the four areas. Consisting of more retirees and minorities than other areas, these households tend to be smaller, with fewer vehicles, fewer students, fewer workers, lower incomes, and the highest disability rates. The Greeley/Evans area has higher renter rates, and respondents are more likely to hold a transit pass than other areas of the region, with the exception of Fort Collins. Households in the Greeley/Evans area use transit more frequently than other parts of the region. Thirteen percent of Greeley/Evans drivers do not have a driver’s license, which may contribute to higher levels of walking or transit use.
- ▶ **Loveland** – Loveland households tend towards average regional characteristics. They report somewhat smaller household sizes and number of workers per household, but higher-than-average renters. Loveland households have above-average transit usage for the region.
- ▶ **Larimer County** – Household size in unincorporated Larimer County is smaller than average, but respondents report the highest number of vehicles per household. They have the highest licensure rate, lowest levels of disability, above-average number of workers per household, and have the highest reported income levels in the region.
- ▶ **Weld County** – Respondents in unincorporated Weld County are similar to those in Larimer County, with the exception that they have lower education rates and more Hispanic households than the regional average. They are younger, have more students, and report the largest household size. Transit use is lowest in unincorporated areas of Weld County.

### I-25 Carpool Park and Ride Study

In the summer of 2010, the NFRMPO conducted a survey to determine how Park-n-Rides (PNRs) were being used along the I-25 corridor in the region. The six regional PNRs were surveyed during the morning (a.m.) and evening (p.m.) peak periods on weekdays, during July and August 2010. The regional PNRs include:

- ▶ Harmony Road (Fort Collins) –Exit #265
- ▶ SH 392 (Windsor) – Exit #262
- ▶ US 34 (Loveland) – Exit #257



## Chapter 2: Existing Transportation System

- ▶ SH 402 (Loveland) – Exit #255
- ▶ SH 60 (Johnstown) – Exits #252 and #254
- ▶ SH 56 (Berthoud) – Exit #250

The results of the surveys show a significant change in PNR use compared to previous surveys. Highlights from the 2010 survey include:

- ▶ SH 402 and SH 60 approached or exceeded 100 percent capacity on the days surveyed. At the SH 402 PNR, which currently has 88 paved spaces, users were also parking in a makeshift unpaved extension of the lot.
- ▶ SH 392 had the largest drop in use (from 36 vehicles in previous surveys to 11-12 vehicles).
- ▶ License plate data collected from 532 license plates and matched with home addresses in Northern Colorado revealed 38 percent of the cars at the six PNRs were from the Fort Collins area, while 25 percent were from the Loveland area. Berthoud, Greeley, Johnstown, and Denver Metro area each yielded between 9 and 10 percent.
- ▶ Carpools represent more than 70 percent of the overall usage at PNRs in the NFRMPO region. Vanpools accounted for 24 percent of the vehicles leaving in the morning and 20 percent of the vehicles arriving in the afternoon. The Harmony Road PNR had the largest number of morning and afternoon carpools (39 and 48 vehicles, respectively).
- ▶ 54 percent of carpools in both the morning and afternoon contained two passengers while the three passenger vehicles accounted for 11 and 18 percent, respectively.

### Regional TDM Efforts

NFRMPO serves as the regional coordinator for TDM programs in the North Front Range. This includes the VanGo™ Vanpool Services program and business outreach.

#### VanGo™

The VanGo™ program, managed by the NFRMPO, provides vanpool services to meet the origin and destination needs of commuters in the region and between the North Front Range and the Denver Metro area. The program, which began in 1994, has grown over the last 20 years to more than 400 riders and 74 routes in 2014.

#### SmartTrips™

The NFRMPO has focused on regional modes of transportation, including carpooling and vanpooling along with the ridesharing website [www.smarttrips.org](http://www.smarttrips.org). The NFRMPO developed a free online tool, The Go Portal, which allows commuters to find carpool matches, calculate commute savings, and get information on commute options.

#### CarGo™

Carpool matching is provided by CarGo™, a ridesharing system available through the SmartTrips™ website. The CarGo™ program enables users to receive personalized carpool matches. The tool matches carpool participants who live near each other and are traveling in the same direction, during the same time period, to share the ride to school or work.



### Bicycle Programs

The NFRMPO works with CDOT and local governments to promote Bike Month and Bike to Work Day every June. Additionally, there are more than 290 miles of bicycle facilities (bike routes, paths, lanes, and off-street trails) within ¼-mile of the RSCs in the region (I-25, US 34, and US 287 and parallel facilities, as defined in *Section A*). The SmartTrips™ website allows users to track miles of bicycle travel. Tracking these miles serves as an important performance measure for the program. Personal and employer incentives will need to be employed to increase reporting participation.

### Local Government TDM Efforts

Local governments in the region are also involved in TDM efforts. Transit and bicycle programs are the most common focus of TDM efforts in the NFRMPO region. Some local governments have also developed ITS which provide information to travelers about traffic, weather, construction, and other travel factors.

#### *City of Fort Collins*

The City of Fort Collins is the largest city in the NFRMPO region, with a population of 143,986 (2010 Census). It is an economic and academic hub within the region and is home to CSU.

### FCTrip

FCTrip is a web-based application that provides information to travelers in the City of Fort Collins, including:

- ▶ Timely and accurate information regarding traffic conditions;
- ▶ Information on weather conditions;
- ▶ Information on work area traffic, road construction, and road/lane closures; and
- ▶ Up-to-the-minute photographs of major intersections.

FCTrips provides this information through a network of closed-circuit television cameras, video detectors, and pavement sensors. Users are able to view real-time maps that provide information on traffic conditions, construction, and road closures. An example FCTrip map is shown in **Figure 2-16**.

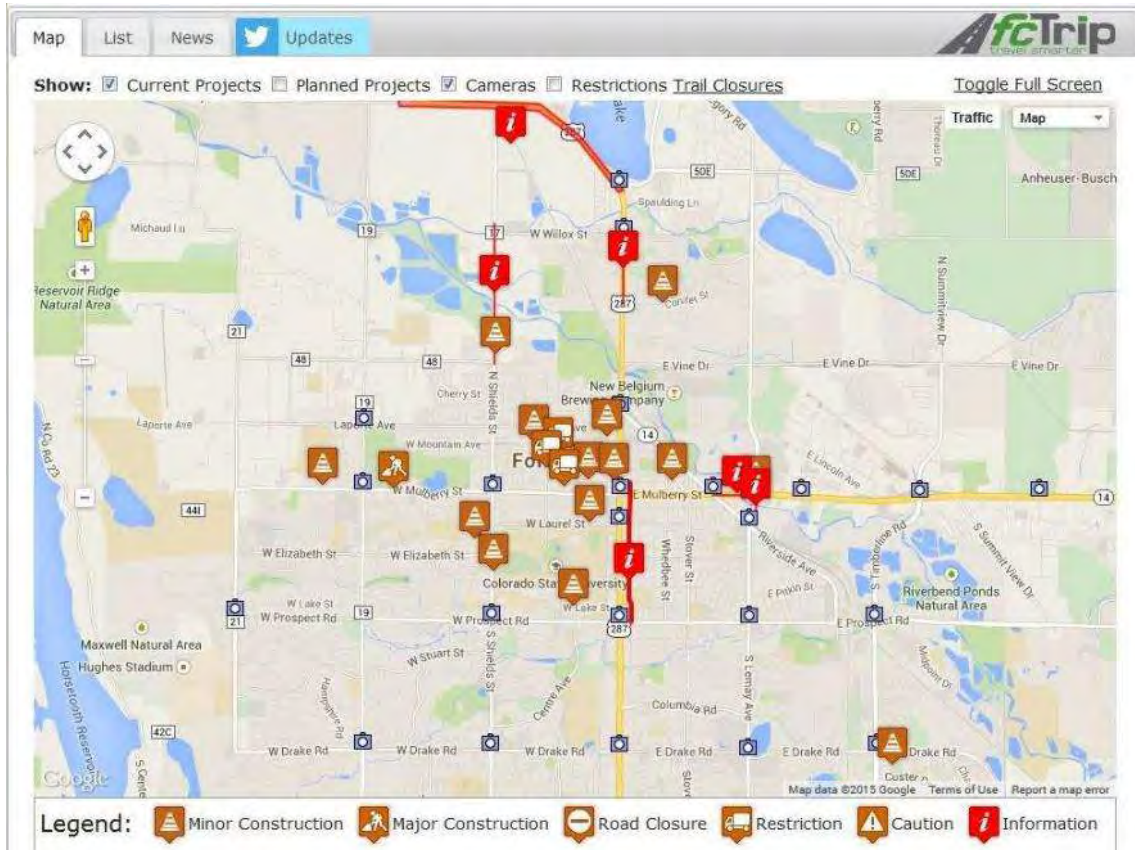
#### *Fort Collins Bike Library*

The Fort Collins Bike Library was established in conjunction with FC Bikes – City of Fort Collins, New Belgium Brewery, the Downtown Development Authority, and Bike Fort Collins – a non-profit group established in 2005 for bicycle advocacy. The Bike Library provides bicycle and equipment rental service for residents, students, and visitors to Fort Collins for a minimal cost (first day free, \$10 each additional day). Members can borrow a bike for as short as one hour or for as long as seven days. The bike library provides a fleet of commuter bikes, cruiser bikes, children’s bikes, striders, tandem bicycles, and bicycle trailers to attract a broad user base. As of May 2015, just over 24,000 registered patrons have checked out over 24,000 bikes, logged over 275,000 miles, 109,000 rider days, and prevented nearly 125 metric tons of CO<sub>2</sub> from being released into the atmosphere.<sup>9</sup>

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<sup>9</sup> According to FC Bikes and Bike Fort Collins

Figure 2-16: FC Trip Map



*Transfort*

Transfort offers Passfort, an employer-based bus program which allows for a bulk purchase of bus passes. All buses are equipped with bicycle racks to increase multimodal transportation opportunities.

*FC Bikes*

FC Bikes is the bicycle program established for the City of Fort Collins. In 2014, Fort Collins completed an updated Bicycle Master Plan that covers a cost-effective approach to bicycle infrastructure, connectivity, policies, and programs. The plan aims to implement bicycle infrastructure improvements which will help the City achieve Diamond Status on Bicycle Friendliness by the League of American Bicyclists by the year 2020. The goals, principles, and policies that pertain to bicycling established in the City’s Plan and the Transportation Master Plan have laid the foundation for the current policies, projects, and programs as well as the focus for the numerous recommendations provided. In addition, FC Bikes promotes bicycling in the City by sponsoring events such as Bike to Work Day, Winter Bike to Work Day (in December), and BikeWinter, encouraging cyclists to ride throughout the winter. Winter Bike to Work Day in December is the cornerstone event, with increased numbers of participants in each year since its inception in 2007. The City of Fort Collins Transportation Board incorporated a bicycle sub-committee in 2009.





### *Climatewise*

Climatewise is a free, voluntary City of Fort Collins program that assists local businesses and the environment through the promotion of waste reduction, energy savings, alternative transportation, water conservation, and practicing pollution prevention.

### *Colorado State University – TDM Programs*

With an enrollment of 26,775 students for the 2015 Spring Semester,<sup>10</sup> CSU has a significant transportation impact on the City of Fort Collins. The presence of students and faculty impacts the City's demographics and transportation system. For example, Fort Collins has a higher level of bicycle commuting than the national average and other parts of the region. This can be partially attributed to the student population. In addition, more than 35 percent of Fort Collins households reported that someone walks or bikes to work or school at least once a week.<sup>11</sup> CSU has implemented TDM programs to alleviate parking issues and congestion on campus.

All CSU students, faculty, and staff are able to ride the Transfort bus system at no cost, using their university identification card. The transit center at Lory Student Center, opened in 2006, includes a Transfort customer counter, flat screen monitors displaying departure times and news stories, and an indoor passenger waiting area to increase comfort and convenience. The transit center is certified LEED Gold.

The Fort Collins Bike Library also has a station at the Lory Student Center, providing students, faculty, and staff access to bicycles. CSU has hundreds of user-friendly bike racks to accommodate an estimated 14,200 bicycle parking spaces on the main campus and 1,100 spaces at the satellite campuses.<sup>12</sup> CSU also provides a full subsidy for employee vanpools through the VanGo™ program.

### *City of Loveland*

In 2012, the City of Loveland completed their Bicycle and Pedestrian Plan which covers strategies and activities to increase the use and convenience of bicycle and pedestrian facilities throughout the City. The plan aims to provide goals and objectives to provide a safe and effective bicycle and pedestrian system, fill in missing segments in the system, design and develop a complete streets system, and develop a continued source of funding for bicycle and pedestrian infrastructure.

Loveland also sponsors an annual Bike to Work Day event, including a business challenge to encourage employers to promote cycling as a transportation option to their employees. Additionally, the City of Loveland's Engineering Department has partnered with the Thompson School District to promote Safe Routes to School Program. This program benefits children and the community by reducing traffic congestion in school zones, improving air quality, increasing physical activity for children and adults, and promoting safe neighborhoods.

### *City of Greeley*

The City of Greeley is home to approximately 115 miles of bike lanes, trails, and paths and was designated a Bronze Level Bicycle Friendly Community<sup>SM</sup> by the League of American Bicyclists in May 2013. Greeley's Bicycle

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<sup>10</sup> Colorado State University Census Enrollment, spring 2015. Department of Institutional Research, Colorado State University

<sup>11</sup> NFRMPO Household Survey of 2010

<sup>12</sup> Colorado State University Bicycle Master Plan, 2014



Master Plan was adopted in May 2015 and aims to increase investment in the bicycle and pedestrian system through a dedicated budget and implementation of a complete street program.

The City also hosts a number of cycling events throughout the year, including bike to work day and pop-up demonstrations of enhanced bicycle facilities. Greeley has also used the Safe Routes to School Program to provide funding for school zone enhancements to the bicycle and pedestrian system.

### Local Transit Programs

Transit is a large portion of TDM and *Section H* of this chapter provides more detail about the various regional transit programs.

### Employer-based TDM programs

Employer-promoted TDM programs are an effective, locally-based mechanism to increase employee use of alternative modes for their commute to work.

A notable employer-based TDM effort in the region is the New Belgium Brewery. New Belgium actively promotes and supports bicycle commuting within their company and nation-wide. New Belgium employees receive a custom cruiser bicycle after one year of employment with the company. Team Wonderbike is New Belgium's bicycle commuter advocacy program with more than 10,000 members who have pledged to offset more than eight million car miles per year by riding their bikes. New Belgium also offers local grants, sponsorships, and product donations to applicants whose objectives align with New Belgium's.

CDOT offers TDM programs to its employees located throughout Colorado. Employees who work in the NFRMPO region are provided with a monthly commuter check worth \$35 to subsidize vanpool costs. Employees who travel to the Denver metro area for meetings are provided with a RTD Eco Pass allowing them to ride transit. Full-time employees who commute to the Denver region from the NFRMPO region are also provided with Eco Passes. CDOT sponsors Bike to Work Day events in June at all of its statewide offices and provides incentives for employees to ride their bikes to work through the month of July.

Several regional employers promote transportation alternatives in conjunction with other events at the workplace, most commonly health fairs, including:

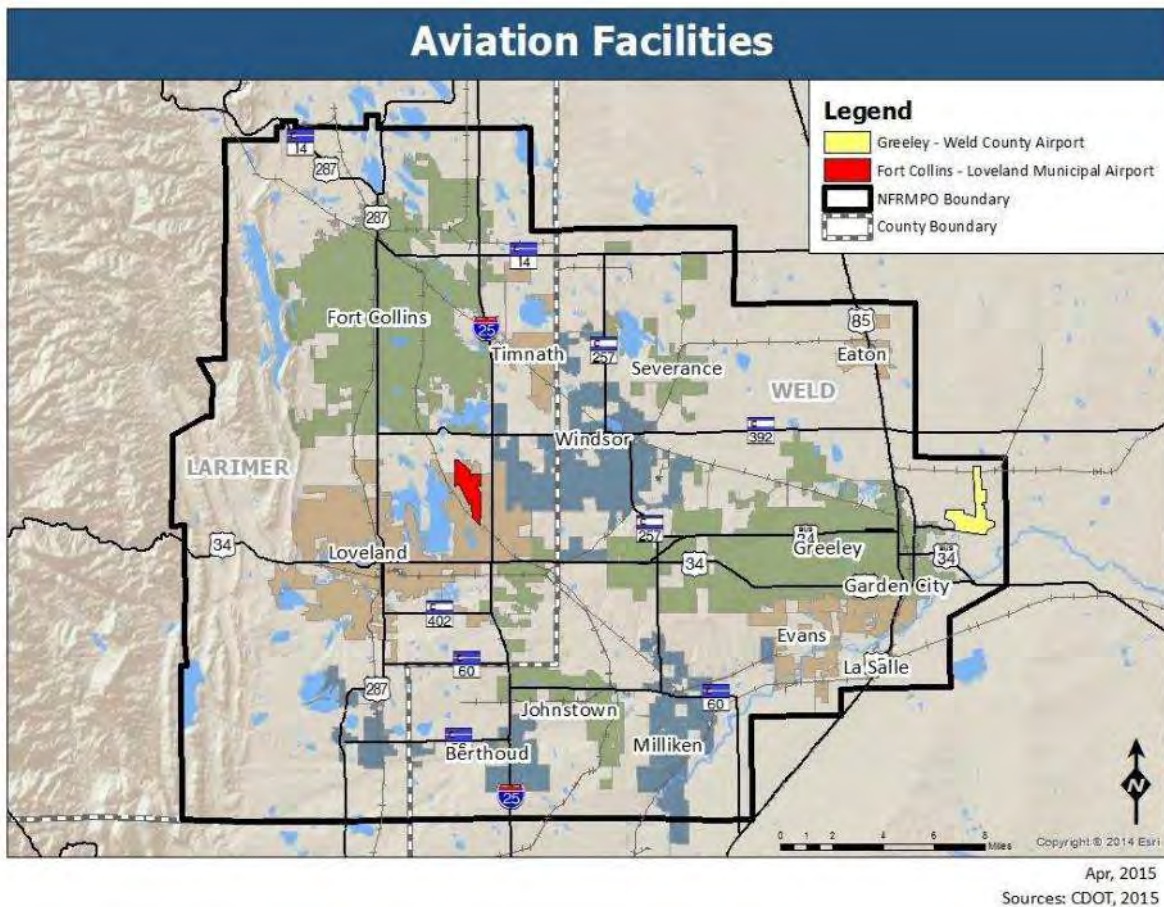
- ▶ Advanced Energy, Inc.
- ▶ AMD
- ▶ Avago Technologies
- ▶ Gallegos Sanitation
- ▶ Hach
- ▶ Hewlett-Packard
- ▶ Intel
- ▶ LSI Corporation
- ▶ McKee Medical Center
- ▶ Platte River Power Authority - Rawhide Power Plant
- ▶ Rickards Long & Rulon, LLP
- ▶ Poudre River Public Library District

- ▶ State Farm Insurance – Great Western Region
- ▶ Weld County
- ▶ Woodward Governor

F. Aviation Facilities

Two airports currently operate within the NFRMPO region: Fort Collins-Loveland Municipal and Greeley-Weld County. The Fort Collins Downtown Airport closed in 2006. Each of the two operating facilities is described in more detail in the following sections. **Figure 2-17** shows the location of the two regional airports.

**Figure 2-17: Regional Airports**



**Fort Collins-Loveland Municipal Airport**

Fort Collins-Loveland Municipal Airport (FNL) is a Major Commercial Service Aviation airport, which operates under a limited Federal Aviation Regulation (FAR) Part 139 certificate. This Regulation establishes operation procedures for commercial service. The airport previously had regularly scheduled commercial service through Allegiant Air, which was discontinued in October 2012. The airport has two runways - 15/33 and 6/24. Runway 15/33 is 8,500 feet in length and has a width of 100 feet. This runway has an asphalt surface with high intensity runway lighting. Runway 6/24 is 2,273 feet in length and 40 feet in width. This runway has an asphalt surface, but does not have any runway lighting. The airport is equipped with a VHF (Very High Frequency) Omni-



directional Range (VOR), an Instrument Landing System (ILS), and a Global Positioning Satellite (GPS) as navigation aids.

In 2013, the airport had approximately 95,000 flight operations including air carrier, private charter, corporate, air ambulance transport, aerial fire suppression, flight training, and general aviation usage. An estimated 4,000 inbound and outbound flight passengers used the airport via charter services.<sup>13</sup> According to the CDOT Division of Aeronautics, approximately 54,000 passengers arrive at the airport annually.<sup>14</sup> In 2013, the airport employed 826 people with a total payroll of approximately \$24.8 M. The total economic impact of the airport (including direct, indirect, and induced impacts) is estimated to be \$129.4 M.<sup>15</sup> The airport also has 215 based aircraft including single-use aircraft, multi-use aircraft, jet aircraft, and helicopters.

In 2007, a master plan for the airport was completed to evaluate existing and future aviation facilities and demands. The plan covers a 20-year time horizon and predicts future aviation and general development needs for the airport. 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. Future plans call for runway 15/33 to be expanded to 9,500 feet in length and 150 feet in width to accommodate larger commercial aircraft, as well as an increase in weight accommodation with an asphalt overlay. Runway 6/24 is expected to be expanded to 60 feet in width and maintain its existing length. The airport also plans to construct an additional runway west of 15/33 with a length of 6,700 feet and width of 75 feet to accommodate additional operations of smaller aircraft. The airport expansion plans are estimated to maintain 179,364 annual operations, an increase of 84,364 annual operations from 2013 estimates.

Table 2-17 shows changes in total employment and economic output at the Fort Collins–Loveland Airport from 2003–2013.

Table 2-17: Fort Collins – Loveland Municipal Airport Economic Factors			
	2003	2008	2013
Total Employment	619	749	826
Total Economic Output	\$37,178,00	\$56,316,800	\$129,426,000
<i>Source: CDOT Economic Impact Study for Colorado Airports, 2013</i>			

### 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

<sup>13</sup> City of Loveland. Fort Collins – Loveland Annual Report, 2013

<sup>14</sup> CDOT Economic Impact Study for Colorado Airports, 2013

<sup>15</sup> CDOT 2014 Annual Report, Division of Aeronautics





with medium intensity runway lighting. The airport is equipped with VOR, ILS, 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.<sup>16</sup> In 2013, the airport employed 672 people with a total payroll of approximately \$30.8 M.<sup>17</sup> The total economic impact of the airport (including direct, indirect, and induced impacts) is estimated to be \$94.1 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.

Table 2-18 shows changes in total employment and economic output at the Greeley – Weld County Airport from 2003–2013.

Table 2-18: Greeley – Weld County Municipal Airport Economic Factors			
	2003	2008	2013
Total Employment	1,436	1,766	672
Total Economic Output	\$73,102,000	\$120,814,200	\$94,091,000
<i>Source: CDOT Economic Impact Study for Colorado Airports, 2013</i>			

### G. Intelligent Transportation System (ITS)

The uncertainty of funding for transportation and the need for continued bailout of the federal trust fund means that funding for large scale transportation projects cannot be guaranteed. ITS has become more popular because it improves the existing roadway system’s operations in a cost effective manner. ITS uses technology to improve mobility, increase safety, and reduce delays. Various ITS techniques within the North Front Range include:

- ▶ Adaptive Signal Systems
- ▶ Automatic Traffic Recording Devices - Tube Counters, Inductive Loop Detection, Bluetooth, Wi-Fi, Video Vehicle Detection
- ▶ Backup Traffic Signal Control Cabinets
- ▶ Closed Circuit TV
- ▶ Dynamic Message Signage

<sup>16</sup> CDOT Economic Impact Study for Colorado Airports, 2013

<sup>17</sup> Airport Data, [www.gxy.net/airport-data](http://www.gxy.net/airport-data), 2015



- ▶ Fiber Optic Communications (I-25, US 34, and throughout Greeley)
- ▶ In-Pavement Traffic Sensor - Inductive Loop Detection
- ▶ Lane Control Signage
- ▶ Maintenance Decisions Support System (MDSS) – Winter weather event maintenance
- ▶ Pavement Condition Detection
- ▶ Traffic Operation Centers
- ▶ Road and Weather Information Service (RWIS) – monitors weather conditions and traffic signals programmed to adapt their timing in response to traffic congestion
- ▶ Weather Stations – Provide precipitation detection, visibility measurements, wind speed, surface condition, etc.

Communities in the North Front Range have partnered with CDOT to implement a variety of projects. In 2011, CDOT, NFRMPO, and local jurisdictions developed the CDOT Region 4 Intelligent Transportation Systems Strategic Implementation Plan. The plan serves as the guiding document for ITS projects in the region to 2021, and identifies the funding needs, recommended deployment time frames, and potential funding sources.

In addition to projects sponsored by local communities, CDOT operates its COTRIP website ([www.cotrip.org](http://www.cotrip.org)) offering 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. The program takes advantage of previously completed ITS projects to offer commuters an idea of conditions before they begin their travel. Traffic cameras around the region provide live updates on traffic. The cameras are located in municipalities as well as key spots along the I-25 corridor. CDOT also provides an App, CDOT Mobile, which provides real-time travel information. Travelers can also sign up for text messages and emails which provide similar updates.

Within the region, the cities of Fort Collins, Greeley, and Loveland use ITS to monitor traffic and control traffic signals.

- ▶ From the City's Traffic Operations Center (TOC), Fort Collins uses Advanced Traffic Management System (ATMS), which consists of wireless communication and fiber optic technology to connect 175 traffic signals; 42 closed circuit television cameras (CCTV); and remote data sensors. With this system, Fort Collins can monitor the transportation system, modify signal timing, and troubleshoot signal malfunctions. In 2014, the City introduced a system which measures travel time using Bluetooth readers throughout the City. Using the Bluetooth signal from passing devices, the TOC can monitor travel times along major corridors. The sensors can be read in real-time, allowing TOC staff to adjust traffic signals as needed. Additionally, the sensors allow City staff to study traffic patterns over time which can lead to adjustments in the traffic signal timing.
- ▶ From Loveland's TOC, the City can use CCTV, variable message signs (VMS), weather-monitoring stations, and the fiber optic network to adjust traffic signals and to improve the flow of traffic. Loveland has completed projects adding fiber optic cables to enhance communication to local traffic controllers. The City of Loveland is currently exploring Bluetooth technology to monitor travel times throughout the City.

- ▶ Between 2009 and 2014, the City of Greeley made a concentrated effort to bring their traffic signal operation into the 21<sup>st</sup> century. The City has installed a Traffic Management Center, upgraded all signals with Advanced Traffic Controllers, connected 117 traffic signals through 30 miles of fiber optic cable, installed 20 CCTV cameras, added two weather stations, and installed six permanent count locations. In addition, Greeley was the first in Colorado to install Adaptive Signal Control Technologies (ASCT) for the 15 traffic signals on the 10th Street Corridor. This adaptive signal operation has improved travel times and reduced accidents along the corridor. In 2015, the City will work with CDOT to add an additional 12 traffic signals along the US 85 and US 34 Bypass corridors to the adaptive system. The City of Greeley is currently exploring Bluetooth technology to monitor travel times throughout the City.

CDOT is currently installing fiber optics on I-25, which will act as the backbone for larger ITS projects on state highways. The project includes fiber wiring and cameras as well as hooking up the permanent Vehicle Messaging Services (VMS). CDOT Region 4 is installing fiber, cameras and VMS on US 34 from I-25 to west Greeley and will be installing ramp meters between SH 392 and Harmony Road.

**Figure 2-18** shows the projects funded in the FY 2012-2017 Transportation Improvement Program (TIP). Many of the projects were city-wide, including improvements to traffic control centers and traffic signal upgrades. In these cases, the point shows the location of the traffic control center rather than a specific project location. **Table 2-19** shows the location and funding sources for each of the ITS project.

**Figure 2-18: Funded ITS Projects**

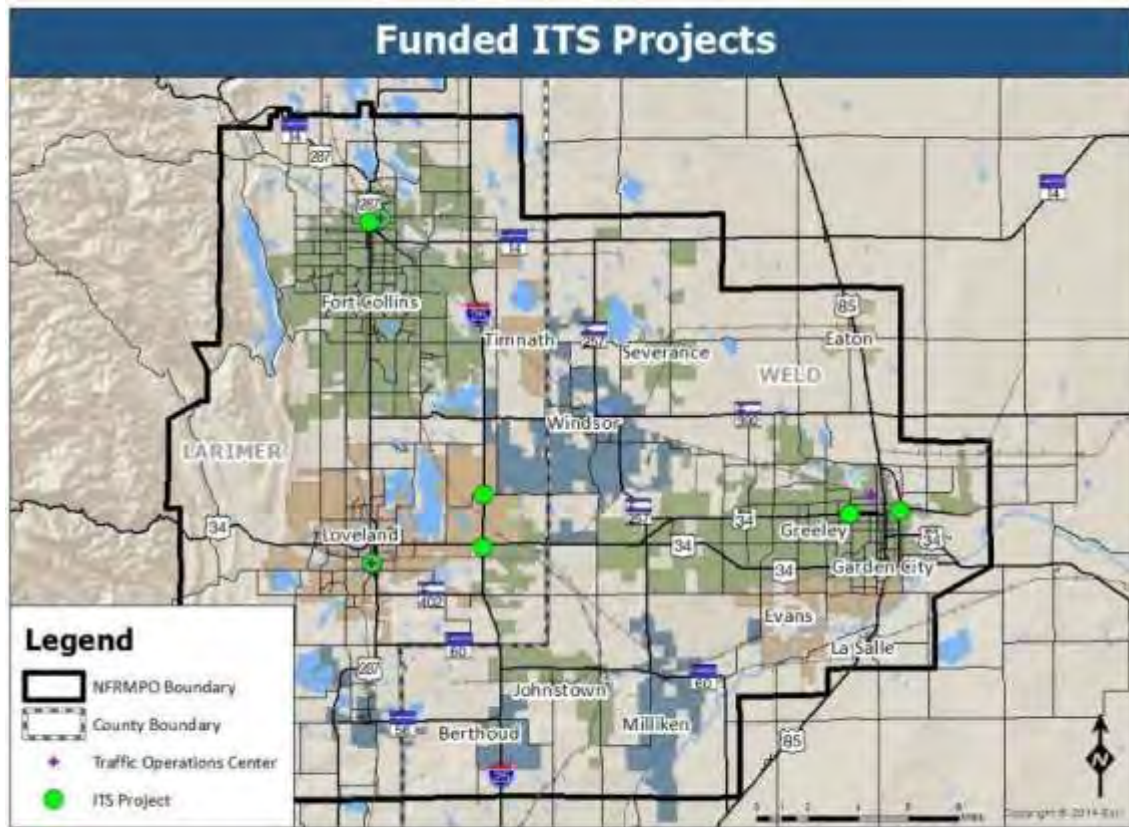




Table 2-19: Funded ITS Projects Economic Factors		
Project	Funding Source	Location
Northern Fort Collins Rail Crossing Signals	CMAQ	Fort Collins
Greeley Fiber Optic Communication	CMAQ	Greeley
Loveland Traffic Signals Controllers	CMAQ	Loveland
Loveland I-25/US 34/Crossroads VMS	CMAQ	Loveland
Loveland Traffic Operations Center	STP-Metro	Loveland
Greeley Fiber Optic Communication	STP-Metro	Greeley
Implementation of Network Management System	FASTER	Fort Collins
Adaptive Signal Control US 85 (Greeley)	RAMP	Greeley
US 34 Bypass (Greeley) Adaptive Signals	RAMP	Greeley
US 34 from I-25 to West Yard Fiber Installation	RAMP	Greeley
<i>Source: NFRMPO FY2012-2017 TIP</i>		

### H. Transit System

This section provides information on municipal, county, private, and non-profit transit providers. These entities operate services in both urban and rural areas, including limited interregional services.

#### Public Transportation Providers

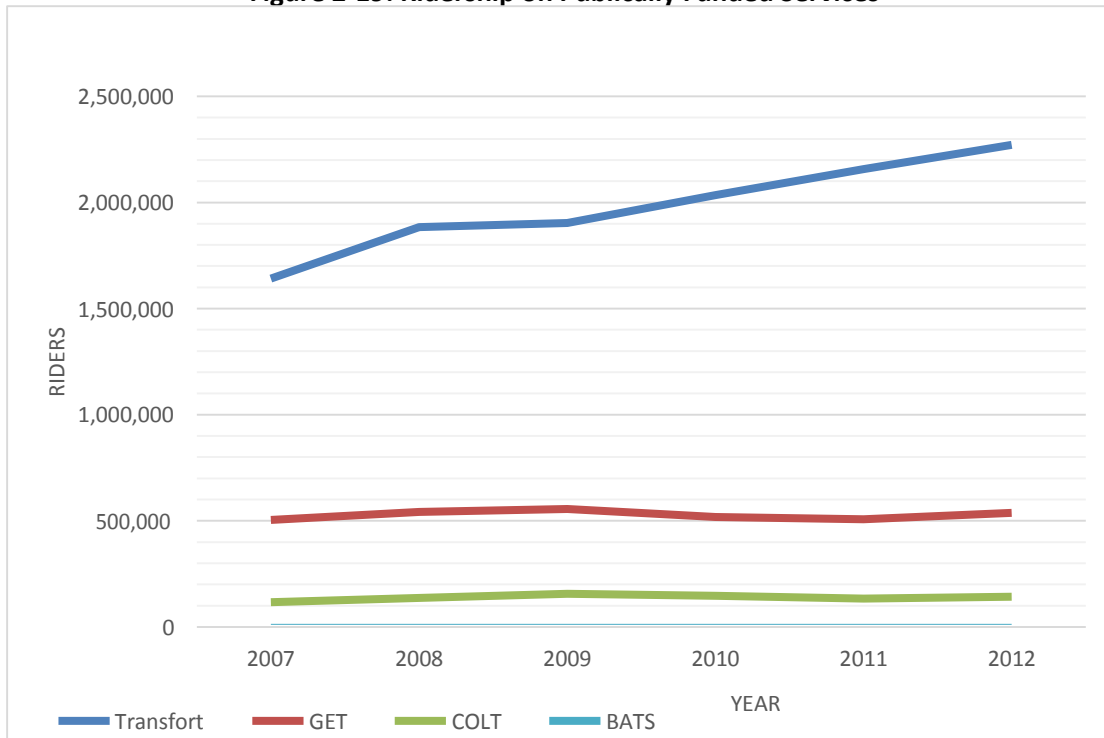
Current public transportation systems in the North Front Range region include those operated by the cities of Fort Collins, Greeley, and Loveland, and the Town of Berthoud. Other transportation services active in the region include transportation services provided by volunteers, such as Senior Alternatives In Transportation (SAINT) and Rural Alternative for Transportation (RAFT), several commercial transportation providers, and the NFRMPO VanGo™ subscription vanpool program.

Public transportation in the region has evolved primarily as a city government function. SAINT and the Berthoud Area Transportation Services (BATS) evolved to meet the needs of seniors, while the transit services in Fort Collins, Greeley, and Loveland operate fixed-routes and paratransit services which serve broad markets. **Figure 2-19** illustrates the comparative levels of ridership among the publicly funded systems.





**Figure 2-19: Ridership on Publically Funded Services**



**Source:** BATS, COLT, GET, and Transfort, 2013-2015

### *Transfort – The City of Fort Collins*

The Transfort system is owned and operated by the City of Fort Collins. Transfort provides fixed-route and paratransit services. The paratransit service is known as Dial-a-Ride.

Transfort’s fixed-routes are illustrated in **Figure 2-20**. Transfort operates 20 local routes, two late night weekend services, one bus rapid transit route, and one regional route. Routes generally run from 6:30 a.m. until 6:30 p.m., Monday through Saturday, but there is considerable variation with some routes to the CSU campus operating until 10:00 p.m.

Transfort charges a single ride fare of \$1.25, discounted to \$0.60 for seniors (60+) and disabled or Medicare recipients. The fare for the late night weekend service is \$1.00 each way, discounted to \$0.50 for seniors and disabled or Medicare recipients. There is no fare for transfers, youths (17 and under), and full-time CSU students, faculty, and staff with a valid RamCard.

### Service Characteristics

In 2012, Transfort carried more than 2.29 Million passengers on the fixed-route system, which increased from 1.9 Million passengers in 2009. The fixed-route system has a productivity of 29.2 riders per hour. Routes 2, 3,



and 11 serve the CSU campus and are some of the most productive in the system.<sup>18</sup> These three routes carry a combined average of 73 passengers per hour. Similarly, routes 91 and 92 are designed to serve Poudre School District (PSD) students and operate limited hours with high productivity. The remaining routes average 22.9 riders per hour.

As required by the federal government, Transfort operates Dial-a-Ride service within ¼-mile of regular fixed-routes. In 2012, the system provided 19,429 hours of service and carried 37,747 riders. Transfort provides travel training to Dial-a-Ride users who are interested in learning to use the fixed-route buses for some or all of their trips.

### Vehicles

Transfort operates a fleet of 43 vehicles, ranging in age from two to 18 years old, with the average vehicle age of 7.6 years. All vehicles are Americans with Disabilities Act (ADA) accessible. The entire fleet is expected to be fueled by Compressed Natural Gas (CNG) within the next 2 years. Veolia Transportation leases six vehicles from Transfort to operate all paratransit service within the Transfort service area.

Excluding buses earmarked for disposal in 2015, there are currently six vehicles in the Transfort fleet in excess of Federal Transit Administration (FTA) service life standards. Two of the six vehicles are five years past their service life and the remaining four are four years past their service life.

### System Characteristics

**Table 2-20** shows the system-wide characteristics over the six year period of 2007 to 2013. All categories show a steady increase, with a 38.4 percent increase in ridership and 44.7 percent increase in service hours.<sup>19</sup> There was a 49.2 percent increase in costs and a 74.2 percent increase in fare revenues during this period.

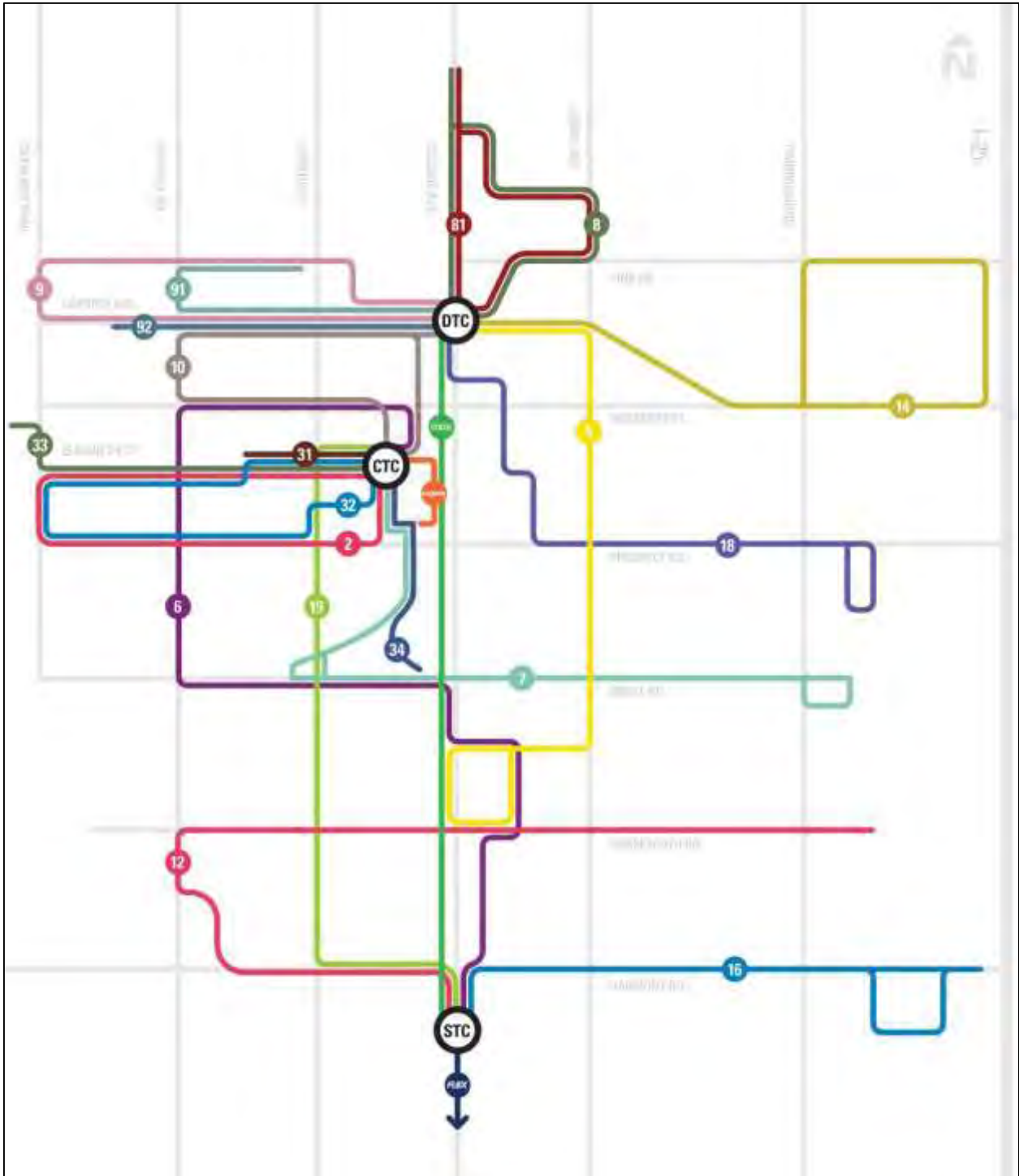
The City of Fort Collins funds Transfort with a combination of FTA urbanized area funds, city general funds, operating revenues, and contract revenue for CSU and PSD students. **Table 2-21** illustrates the system-wide performance measures for Transfort.

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<sup>18</sup> In 2014, Route 3 became Route 32 and Route 11 became Route 31.

<sup>19</sup> Population assumption of 148,167 in 2012, provided by Colorado’s DOLA.

Figure 2-20: Transfort System Map



Source: Transfort, 2015



Table 2-20: Transfort Trends 2007-2012					
Year	Ridership	Annual Vehicle Miles	Annual Vehicle Hours	Annual Operating Costs	Annual Fares
2007	1,641,407	774,466	66,675	\$5,857,751	\$663,213
2008	1,884,197	798,952	68,368	\$6,288,216	\$699,681
2009	1,904,229	791,627	69,984	\$6,001,968	\$790,883
2010	2,034,195	913,682	75,563	\$6,267,239	\$869,409
2011	2,156,732	995,858	77,355	\$7,121,053	\$951,141
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
<i>Source: Transfort, 2014</i>					

Table 2-21: Transfort 2013 System-Wide Performance Measures	
Performance Measure	Total
Cost per Operating Hour	\$90.55
Passengers per Operating Hour	23.52
Cost per Passenger Trip	\$3.85
Subsidy per Passenger Trip	\$3.34
Farebox Recovery	13.2%
Ridership per Capita	14.93
Cost per Capita	\$57.47
<i>Source: Transfort, 2014</i>	



*Mason Express (MAX) Service*

Construction began on the MAX bus rapid transit service in summer of 2012, with service beginning in May 2014. The service provides an express bus service at 10-minute intervals during peak hours, a 20-minute trip from the Downtown Transit Center to the South Transit Center along the Mason corridor; **Figure 2-21**.

The MAX serves major activity and employment centers throughout Fort Collins, including Midtown, CSU, and Downtown. The MAX links with other Transfort bus routes, PNRs, the City’s bicycle/pedestrian trail system, and other local and regional transit routes providing seamless service for passengers.

The MAX’s system has a partially dedicated corridor which runs parallel to the BNSF Railway Line, between the South Transit Center (south of Harmony Road) and Horsetooth Road and between Drake Road and University Avenue (CSU). This dedicated route is an integral part of the MAX service and is independent of traffic conditions. The MAX stations are spaced further apart than regular local-service bus routes, cutting transit commute times.

MAX implements a number of ITS technologies to ensure efficient service. Each bus stop is equipped with Dynamic Message Signs (DMS) to show passengers anticipated wait times. On board, DMS inform passengers of upcoming stops. Automatic vehicle location technologies help inform both the passenger and operator of bus location. Transit signal priority gives MAX buses reduced traffic signal wait times. Off-board fare collection increases system speed by eliminating driver interaction with fares. Automated passenger counters record system use and stop popularity. MAX buses have cameras on-board and at each stop for security and bus location purposes. Passengers can access also access MAX’s free on-board Wi-Fi.

**Figure 2-21: MAX Service Route Map**



*Source: Transfort, 2015*

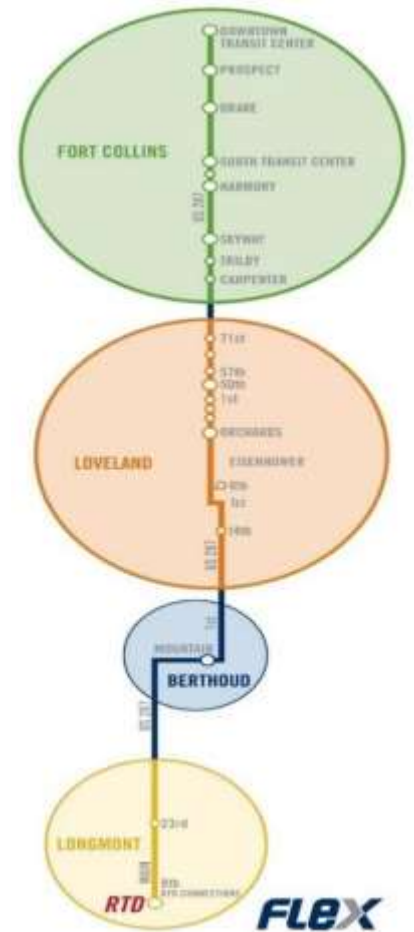
*FLEX Regional Transit Service*

Prior to June 2010, the FoxTrot route operated between the cities of Fort Collins and Loveland. In June 2010, the FoxTrot route was replaced with the FLEX route, extending service from Loveland to Berthoud and Longmont. The route currently terminates at RTD’s Longmont 8<sup>th</sup> and Coffman PNR station, **Figure 2-22**. The service is operated by Transfort and funded through a regional partnership between the cities of Fort Collins, Longmont, and Loveland, the Town of Berthoud, and Boulder County. This service began as a three-year pilot project to connect riders in the North Front Range with the Boulder and Denver metro areas. During peak morning and

afternoon commute times, an express route operates on 30-minute headways at key stops between Fort Collins and Longmont. Off-peak service is provided at one-hour headways between Fort Collins and Loveland. In 2015, the service was awarded funding through the Denver Region Council of Governments (DRCOG) Congestion Mitigation and Air Quality (CMAQ) call for projects to expand service to the City of Boulder beginning in 2016.

In 2012, FLEX carried 184,649 passengers during 9,187 service hours or 18.5 passengers per hour. Service characteristics and performance measures for FLEX are listed in **Tables 2-22 and 2-23**.

Figure 2-22: FLEX Service Route Map



Performance Measure	Total
Cost per Operating Hour	\$83.42
Passengers per Operating Hour	18.47
Cost per Passenger Trip	\$4.52
Subsidy per Passenger Trip	\$4.21
Farebox Recovery	6.8%

*Source: Transfort, 2015*

Service	Year	Ridership	Annual Vehicle Miles	Annual Vehicle Hours	Annual Operating Costs	Annual Fares
FoxTrot	2007	89,642	67,128	3,930	\$227,848	\$14,827
	2008	108,176	66,911	3,918	\$211,604	\$15,958
	2009	111,228	67,347	3,973	\$350,740	\$14,965
FoxTrot & FLEX	2010	134,982	139,903	6,851	\$594,555	\$24,934
FLEX	2011	168,609	202,418	9,152	\$759,359	\$41,216
	2012	184,649	204,726	9,197	\$744,654	\$50,164
	2013	169,205	203,949	9,161	\$764,222	\$52,215

*Source: Transfort, 2015*



### *Greeley-Evans Transit (GET)*

Greeley-Evans Transit (GET) is operated by the City of Greeley and provides fixed-route, paratransit services, and the door-to-door on-demand service, Call-N-Ride, to the public.

As of 2015, GET operates seven local fixed-routes, including a campus shuttle for the University of Northern Colorado (UNC), the UNC Boomerang. Additionally, GET provides evening demand-response service. **Figure 2-23** illustrates the system's fixed-routes through December 2015. **Figure 2-24** shows the system's fixed-routes proposed to begin in January 2016, operating out of a temporary transfer center north of Lincoln Park in downtown Greeley. The numbers on the map show the proposed corresponding route number. Routes generally run from 6:30 a.m. to 7:30 p.m., Monday through Friday and from 7:00 a.m. to 5:30 p.m. on Saturdays. The UNC Boomerang operates Monday through Friday when UNC is in session. Paratransit service, a door-to-door service for persons who qualify under the ADA, is operated within  $\frac{3}{4}$ -mile of fixed-routes during the same time as fixed routes. Demand-response service operates within the same service area as paratransit and offers extended service during the evening for the general public, until 8:30 p.m. Monday through Saturday. Demand-response service is also available on Sunday from 7:45 a.m. until 1:45 p.m. There is no service on major holidays.

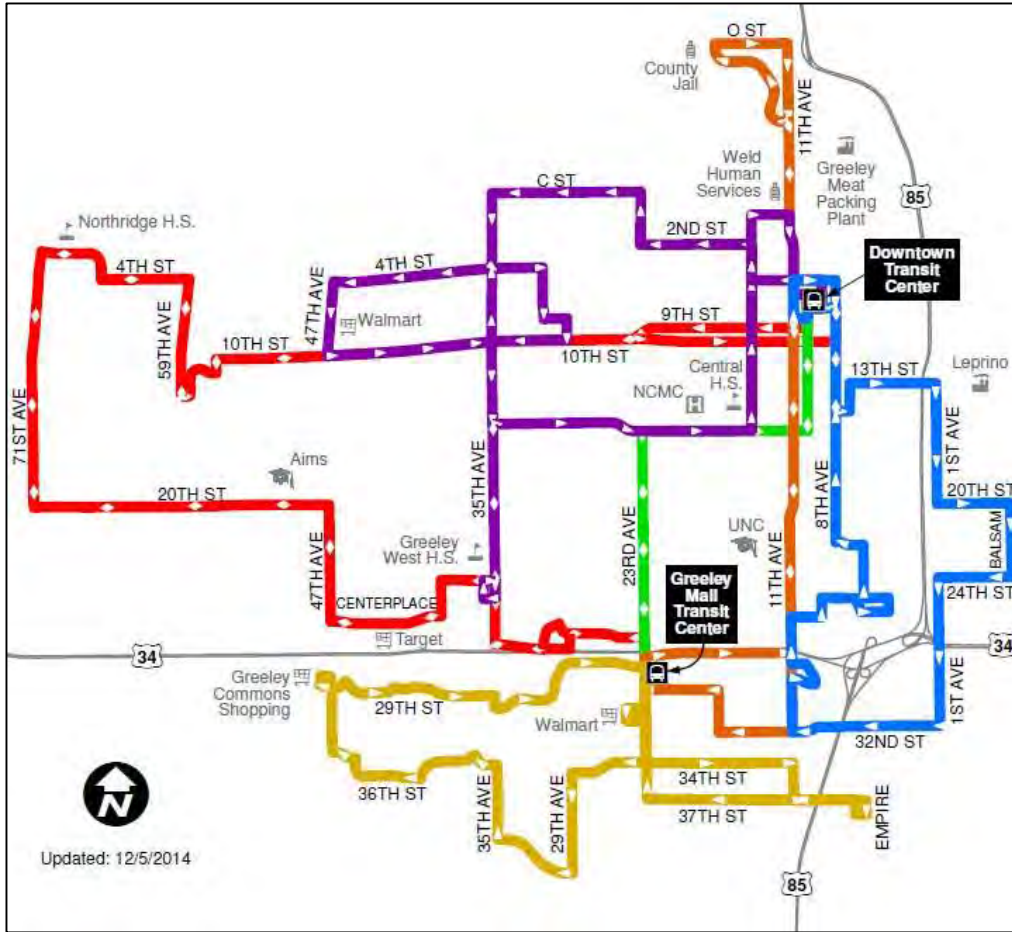
GET charges a basic single ride fare of \$1.50, discounted to \$0.75 for seniors, the disabled, Medicare recipients, and youth six to 18 years old. Children five years and under ride free. In August 2014, GET began its *Ride Free with a School ID* program which allows any student with a valid student ID to ride any GET bus for free. Student ridership increased from 12,858 in 2013 to 32,541 in 2014, a 153 percent increase. UNC students are not included in this program; however, they are allowed to ride for free under the University program. Aims Community College students are eligible to purchase a semester pass for \$64, but are not able to ride for free. A variety of multiple ride tickets and passes are also sold at a discount. Transfers are free.

### *Service Characteristics*

In 2013, GET carried over 532,000 passengers on their fixed-route system. The fixed-route system's productivity was 16.47 riders per hour, as shown in **Table 2-24**. Ridership has varied over the past few years due to significant route changes to the UNC Boomerang, negatively impacting ridership. Without including the UNC Boomerang service, ridership throughout the GET system has continued to grow.

The paratransit and demand-response services combined, operated 13,328 hours of service, and carried 25,007 riders for an average productivity of 1.88 riders per hour. This is up from 1.7 riders per hour in 2009. The paratransit and demand-response services use one-third of the total system's service hours. GET provides travel training to assist riders in learning to use the fixed-route buses.

Figure 2-23: GET Fixed Route Bus Service



Source: City of Greeley – GET, 2015



Figure 2-24: GET 2016 Proposed Fixed Route Bus Routes

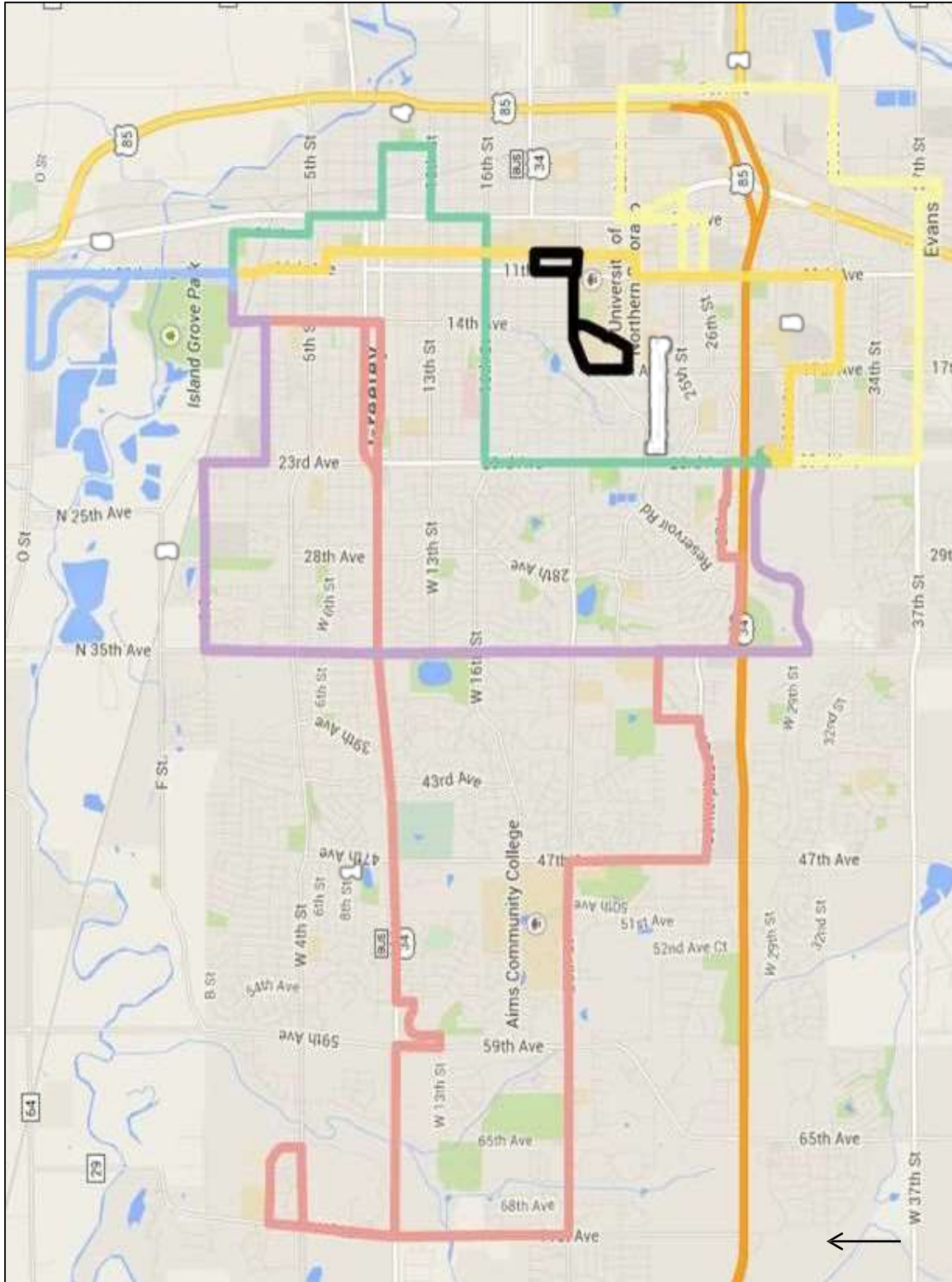




Table 2-24: GET Route Service Statistics 2013			
Route	Annual Passengers	Annual Service Hours	Passengers per Hour
Red Route (1)	107,758	6,671	16.15
Gold Route (2)	26,509	3,382	7.84
Purple Route (3)	32,767	3,380	9.69
Green Route (4)	40,794	3,413	11.95
Orange Route (5)	216,261	10,126	21.36
Blue Route (6)	43,849	3,335	13.15
UNC Boomerang	64,156	2,006	31.98
<i>Fixed-Route Subtotal</i>	<i>532,904</i>	<i>32,312</i>	<i>16.47</i>
Paratransit/Demand-Response	25,007	13,328	1.88
<b>TOTAL</b>	<b>557,101</b>	<b>45,641</b>	<b>12.21</b>

*Source: City of Greeley – GET, 2015*

### Vehicles

GET has a fleet of 27 vehicles, all running on diesel. GET uses nine vehicles for demand-response service and 18 for fixed-route service. All of the vehicles are wheelchair accessible, with two wheelchair tie-downs on the fixed-route vehicles and three on the demand-response vehicles.

Of the active GET fleet, 15 vehicles are currently past their useful life. Four of the vehicles will be replaced in 2015, the remaining vehicles will be replaced between FY2016 and FY2019 with CMAQ funds awarded to GET during the NFRMPO’s FY2016-2019 Call for Projects.

### System Characteristics

Trends in basic system characteristics are illustrated in **Table 2-25**. Over the six-year period from 2007 to 2012, ridership grew by 9.1 percent, service miles decreased by 0.5 percent, and service hours were reduced by 2.1 percent. Operating costs increased by 42.6 percent, while annual fare revenue increased by 98.5 percent. This increase in fare revenue was due to increased ridership on the fixed-route service as well as a fare increase in September 2008 and a bus pass increase in July 2010.



Year	Ridership	Annual Vehicle Miles	Annual Vehicle Hours	Annual Operating Costs	Annual Fares
2007	504,487	589,635	45,222	\$2,111,672	\$282,296
2008	541,770	557,739	45,997	\$2,557,364	\$349,936
2009	555,754	537,251	45,285	\$2,553,479	\$406,712
2010	517,582	527,931	44,369	\$2,542,641	\$366,671
2011	507,271	555,751	46,492	\$2,684,182	\$466,439
2012	538,034	571,576	44,568	\$2,633,583	\$481,126
2013	550,193	586,791	46,182	\$3,010,244	\$560,372

*Source: GET, 2015*

GET funds its \$2.6M annual operating costs through fares, UNC contract revenues, and local and FTA funding. Service is provided to the City of Evans and Garden City through a purchase of service contract.

GET system performance measures are shown in **Table 2-26**. The system has a low cost per operating hour compared to COLT and Transfort at \$65.18, reflecting the limited staff available to run the system. The other performance measures reflect a basic system with a high level of paratransit service compared to the fixed-route services provided.

Performance Measure	Total
Cost per Operating Hour	\$65.18
Passengers per Operating Hour	11.91
Cost per Passenger Trip	\$5.47
Subsidy per Passenger Trip	\$4.09
Farebox Recovery	18.62%
Ridership per Capita	4.67
Cost per Capita	\$25.55

*Source: GET, 2015*

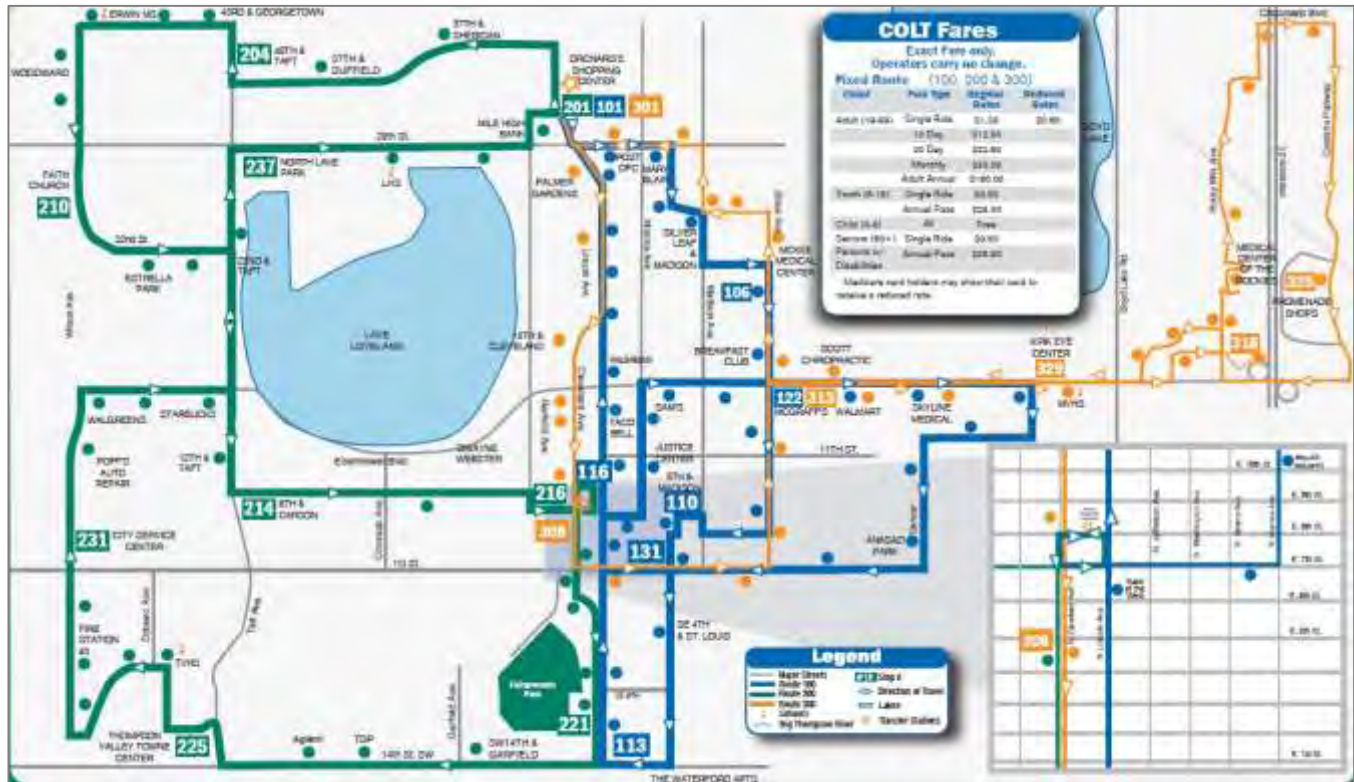
*City of Loveland Transit (COLT)*

The City of Loveland Transit (COLT) system is operated by the City of Loveland’s Public Works Department. COLT’s fixed-route service runs from 6:48 a.m. to 6:40 p.m., Monday through Friday and from 8:48 a.m. to 5:40 p.m. on Saturdays, with one-hour headways. Paratransit and senior door-to-door service is available during the same hours for eligible passengers. The service is divided into three routes: 100, 200, and 300, as shown in **Figure 2-25**.

A regular one-way adult fare is \$1.25 and reduced fares are offered for seniors, youth, ADA passengers, and those with limited income. COLT offers 10-day, 20-day, and monthly passes, as well as discounted annual passes

for persons with disabilities, seniors, and students. Regular paratransit trips are \$2.00 each way and \$1.00 for ADA eligible passengers and those with limited income. COLT offers a monthly billing process for all paratransit passengers. Youth ages 17 and under ride free.

**Figure 2-25: COLT Fixed Route Bus Service**



*Source: City of Loveland– COLT, 2015*

**Vehicles**

COLT has a fleet of 10 ADA accessible vehicles:

- ▶ One Chevrolet Entervan,
- ▶ Three Ford cutaway paratransit buses,
- ▶ Three Ford cutaway fixed-route buses, and
- ▶ Three 32-passenger Gillig transit-style buses.

Of the 10 buses in the COLT fleet, currently only one vehicle is past its useful service life.

**System Characteristics**

While the smallest of the fixed-route systems, COLT saw increases in all of its ridership and annual vehicle miles traveled from 2007 to 2013, **Table 2-27**. During this period, ridership increased by 23.2 percent, service miles increased by 20 percent, and vehicle hours increased by 3.4 percent. Financially, COLT has seen an increase of almost 27 percent in its annual operating cost and a 20 percent increase in annual fare revenues.





Table 2-28 shows COLT’s system-wide performance measures. The system has the lowest cost per capita of all the fixed-route systems.

Year	Ridership	Annual Vehicle Miles	Annual Vehicle Hours	Annual Operating Costs	Annual Fares
2007	115,895	184,058	13,617	\$900,070	\$68,518
2008	136,255	192,481	14,112	\$948,463	\$75,332
2009	155,695	200,370	12,237	\$978,013	\$76,468
2010	146,467	194,753	12,041	\$952,127	\$79,705
2011	133,555	207,048	13,265	\$1,071,550	\$114,240
2012	142,144	214,414	14,092	\$1,150,000	\$108,368
2013	142,803	220,916	14,085	\$1,142,916	\$82,208
<i>Source: COLT, 2015</i>					

Performance measures for the system show COLT’s operational costs are average, Table 2-28, and the riders per hour are comparable to GET. As with GET, this reflects a relatively high percentage of demand-response service and healthy ridership on the fixed-routes. COLT has the lowest cost per capita of any of the fixed-route systems. This is a reflection both of the operational efficiency and level of service. The City of Loveland provides 0.19 service hours per capita, compared to 0.38 for Greeley and 0.55 for Fort Collins.

Performance Measure	Total
Cost per Operating Hour	\$79.72
Passengers per Operating Hour	12.18
Cost per Passenger Trip	\$11.90
Subsidy per Passenger Trip	\$10.71
Farebox Recovery	9.40%
Ridership per Capita	2.15
Cost per Capita	\$17.42
<i>Source: COLT, 2015</i>	

*Bustang*

The CDOT Bustang service is an interregional express bus service provided by CDOT through a contracted operator, Ace Express Coaches. The Bustang service provides a connection between the North Front Range region and Denver with six northbound and six southbound buses Monday through Friday. There are three stops in the region: US 34 and I-25 in Loveland, Harmony Road, and the Downtown Transit Center in Fort Collins. The schedule is shown in **Table 2-29**. No trips are allowed that are entirely within either Larimer County or the RTD District. One-way and multi-trip discount tickets are available, with single tickets available for purchase on all buses. There is also a 25 percent discount for disabled persons and adults 65 years and over.<sup>20</sup> The service route shown in **Figure 2-26**, the line to the North Front Range region is shown in green.

**Figure 2-26: Bustang North Line Route**



Source: CDOT, 2015

**Table 2-29: Bustang North Line Schedule**

South Bound: Fort Collins Downtown Transit Center to Denver Bus Center (Monday-Friday Schedule)				
Fort Collins Downtown Transit Center	Harmony Road Transit Center	Loveland-Greeley PNR	Denver Union Station	Denver Bus Center
--	5:30 AM	5:40 AM	6:40 AM	6:50 AM
--	5:45 AM	5:55 AM	6:55 AM	7:05 AM
--	6:15 AM	6:25 AM	7:25 AM	7:35 AM
--	6:45 AM	6:55 AM	7:55 AM	8:05 AM
11:00 AM	11:20 AM	11:30 AM	12:20 PM	12:30 PM
3:00 PM	3:20 PM	3:30 PM	4:20 PM	4:30 PM
North Bound: Denver Bus Center to Fort Collins Downtown Transit Center to (Monday-Friday Schedule)				
Denver Bus Center	Denver Union Station	Loveland-Greeley PNR	Harmony Road Transit Center	Fort Collins Downtown Transit Center
8:30 AM	8:45 AM	9:35 AM	9:50 AM	10:10 AM
1:00 PM	1:15 PM	2:10 PM	2:25 PM	2:45 PM
4:15 PM	4:30 PM	5:20 PM	5:35 PM	--
4:30 PM	4:45 PM	5:35 PM	5:50 PM	--
5:00 PM	5:15 PM	6:05 PM	6:20 PM	--
5:50 PM	6:10 PM	7:00 PM	7:15 PM	--

Source: CDOT, 2015

<sup>20</sup>[www.ridebustang.com/north-line](http://www.ridebustang.com/north-line)

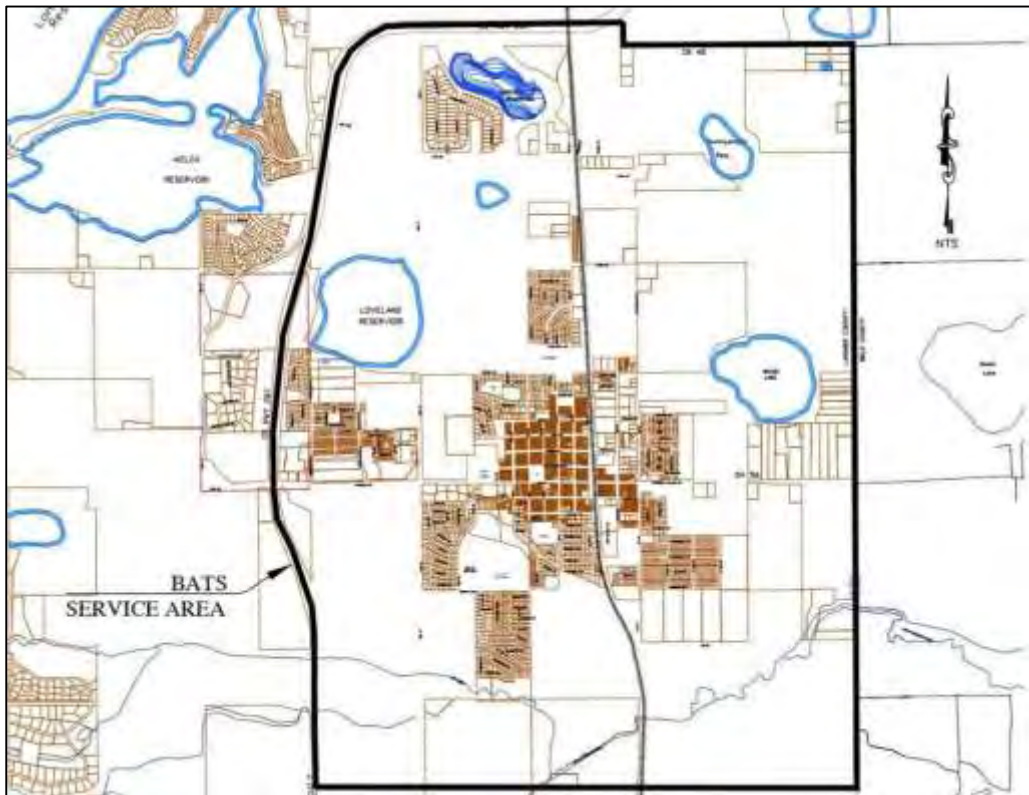
*Berthoud Area Transportation Services (BATS)*

BATS is operated by the Town of Berthoud. BATS provides shared-ride demand-response service for residents in an approximately eight-square mile service area, **Figure 2-27**. The service area includes the developed portion of Berthoud and the immediate area surrounding the Town.

BATS transports riders to Longmont on Mondays, with trips to Loveland provided Tuesday through Friday. Out-of-town rider pickups begin at 8:00 a.m. with a return trip to Berthoud at 11:30 a.m. In-town trips are provided from 8:00 a.m. to 4:00 p.m., Monday through Friday. There is no service on holidays and all rides must be scheduled at least 24-hours in advance.

BATS fares are \$1.00 for in-town trips and \$4.00 for out-of-town trips, each way. The system has a small source of consistent revenue through a one-cent Town sales tax.

**Figure 2-27: BATS Service Area**



*Source: Town of Berthoud, 2015*

**Vehicles**

The BATS fleet includes three buses equipped with wheelchair lifts, acquired through CDOT grants.

**BATS Service Characteristics**

BATS service characteristics and performance measures reflect the demand-response service mode. In March 2013, the BATS service area was reduced to an eight-square mile area. From 2007 to 2012, BATS ridership decreased by 20 percent, vehicle miles increased by 1.3 percent, vehicle hours decreased by 2.9 percent,



## Chapter 2: Existing Transportation System

operating costs increased by 12 percent, and annual fare revenues increased by 142 percent, see **Table 2-30**. BATS 2012 performance measures are shown in **Table 2-31**.

Table 2-30: BATS Trends 2007-2013					
Year	Ridership	Annual Vehicle Miles	Annual Vehicle Hours	Annual Operating Costs	Annual Fares
2007	12,189	81,642	5,378	\$187,414	\$8,520
2008	11,885	99,696	5,822	\$220,746	\$13,520
2009	14,273	112,172	6,253	\$209,975	\$17,571
2010	13,397	112,867	6,397	\$284,675	\$18,897
2011	13,254	112,224	6,493	\$288,015	\$20,771
2012	9,739	82,731	5,222	\$210,324	\$20,613
2013	4,715	23,596	2,250	\$125,346	\$8,103
<i>Source: Town of Berthoud—BATS, 2015</i>					

BATS service characteristics and performance measures reflect the demand-response service mode. Considering the large geographic area the system covers, the system productivity is relatively high. BATS characteristics can best be compared with SAINT, although BATS uses paid drivers rather than volunteers. Their budget and cost per hour remain low. While the riders per capita is low, considering this is a demand-response system, 1.27 riders per capita shows solid community use.

Table 2-31: BATS System-Wide Performance Measures	
Performance Measure	Total
Cost per Operating Hour	\$40.28
Passengers per Operating Hour	1.9
Cost per Passenger Trip	\$21.60
Subsidy per Passenger Trip	\$19.48
Farebox Recovery	9.8%
Ridership per Capita	1.27
Cost per Capita	\$27.53
<i>Source: Town of Berthoud—BATS, 2015</i>	

### *SAINT – Senior Alternatives in Transportation*

SAINT is a 501(c)(3) non-profit providing rides to seniors 60+ and adults with disabilities in Fort Collins and Loveland. SAINT volunteers drive their own vehicles. SAINT staff recruits volunteers, schedules rides, and provides a mileage allowance and extra insurance to the volunteers. SAINT’s 500 clients are served by 160





volunteers and four staff members (one full-time and three part-time). In 2012, volunteer drivers in Fort Collins and Loveland provided over 25,000 rides to seniors in need.<sup>21</sup>

SAINT operates from 8:15 a.m. to 4:00 p.m., Monday through Friday. Weekend and evening rides are available in Fort Collins by special request. Riders must call to make reservations at least three business days in advance, with reservations taken Monday through Friday from 8:00 a.m. to 12:00 p.m. No fare is required; however, donations of \$1.00 are suggested, with the average donation being \$1.15.

**Table 2-32** shows SAINT’s performance measures for the period of 2007 to 2012. The number of passengers, service hours, and miles all increased by 26 percent, while the cost increased by 14 percent.

Year	Passengers	Service Hours	Miles (Volunteer)	Cost	Donations <sup>22</sup>
2007	20,186	10,093	161,488	\$176,750	\$23,214
2008	20,165	10,083	161,320	\$184,172	\$23,190
2009	19,327	9,664	154,616	\$179,900	\$22,226
2010	19,648	9,824	157,184	\$182,900	\$22,595
2011	21,079	10,540	168,632	\$189,750	\$24,241
2012	25,454	12,727	203,632	\$202,345	\$29,272
2013	26,103	13,051	208,824	\$215,189	\$26,164

*Source: SAINT, 2015*

*RAFT*

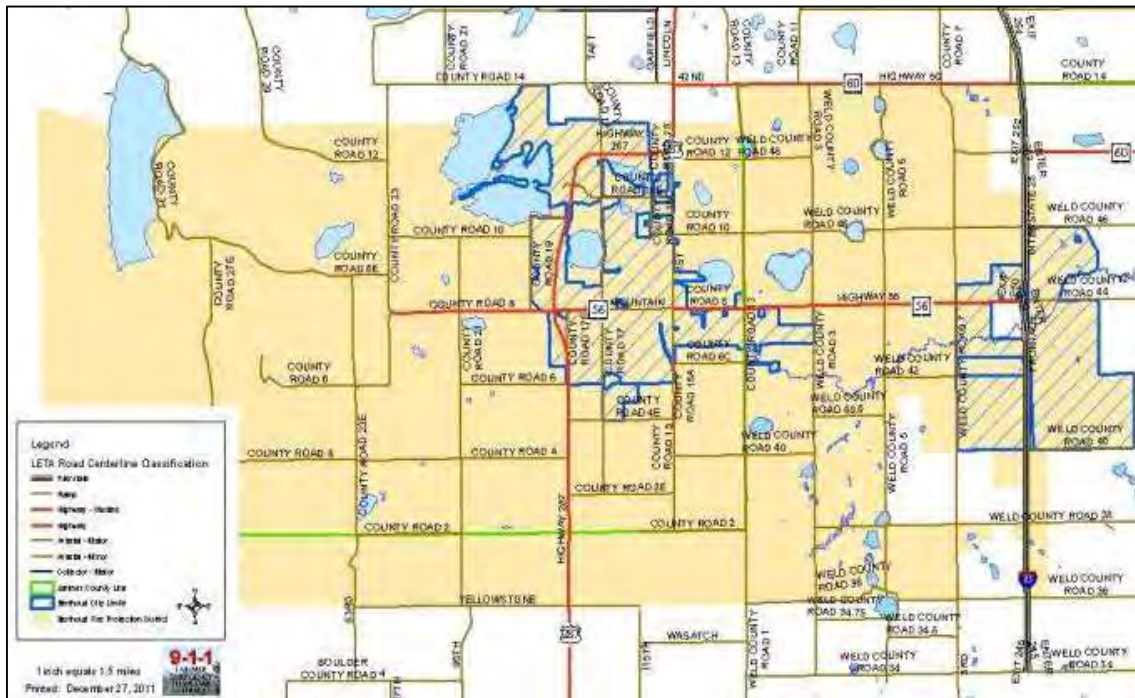
RAFT began in January 2014 due to the reduction in the service area of BATS. RAFT is a non-profit volunteer transportation service which offers door-to-door, on-demand services to eligible seniors (65+) and adults (18+) with disabilities. RAFT operates under the Berthoud Area Community Center/Golden Links, Inc. The service relies on volunteer drivers; however, the service acquired an ADA van with funds from a NFRMPO New Freedom sub-grant. During its first year of service, volunteers drove approximately 22,000 miles providing 960 trips for eligible individuals.

To be eligible, individuals must reside within the area served by the Berthoud Fire Protection District (zip code 80513), **Figure 2-28**, in counties surrounding Berthoud, but outside of the area served by BATS. RAFT volunteers take riders to Berthoud, Longmont, Loveland, and adjacent areas. Individuals choosing to use RAFT must pre-register as a rider.

<sup>21</sup> SAINT website: [www.saintvolunteertransportation.org](http://www.saintvolunteertransportation.org)

<sup>22</sup> Donations estimated based on number of passengers and average donation per trip of \$1.15.

Figure 2-28: RAFT Service Area



Source: RAFT website, 2015

*Windsor Senior Ride Program*

Senior Ride provides transportation assistance to Windsor residents age 55 and older who are unable to drive themselves. The service maintains one wheelchair accessible 13-passenger Starcraft van. The van can hold up to two wheelchairs and 11 passengers. The service employs two drivers who split the driving duties. Rides are provided to and from medical appointments, as well as to and from Senior Nutrition Lunches at the Windsor Community Recreation Center on Wednesdays and Fridays. Rides to and from grocery stores in town are available on Thursdays and Fridays, **Table 2-33**.

Day	Appointment Times	Location	Fee
Monday	8:00 a.m. – 3:30 p.m.	Greeley, Fort Collins, Loveland, Windsor	\$6.00
Tuesday	8:00 a.m. – 3:30 p.m.	Greeley, Fort Collins, Loveland, Windsor	\$6.00
Wednesday	8:00 a.m. – 3:30 p.m.	Windsor	\$4.00
Thursday	8:00 a.m. – 3:30 p.m.	Windsor	\$4.00

Source: Town of Windsor—Windsor Senior Ride Program, 2015



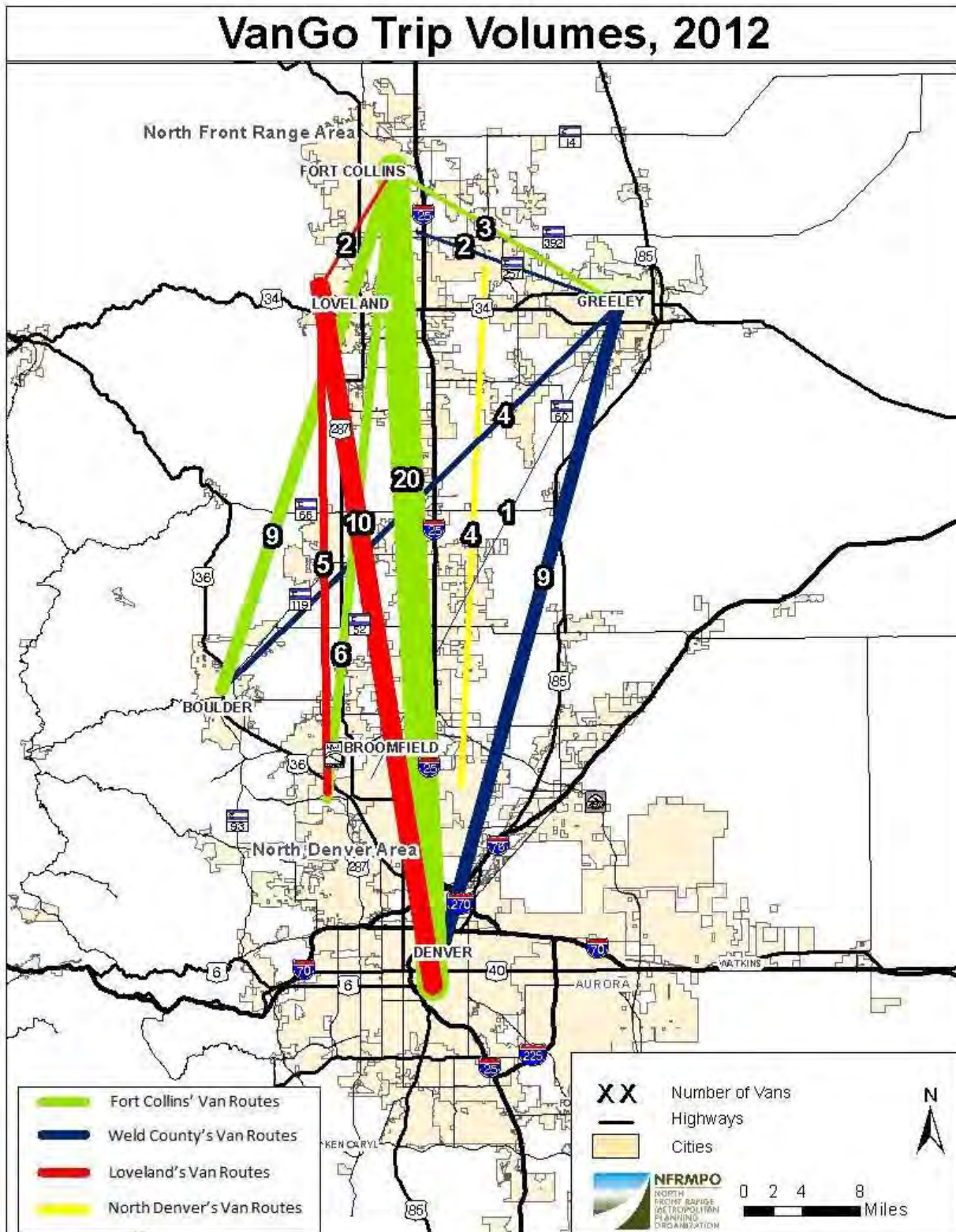
### *VanGo™ – Van Pool Program*

VanGo™ Vanpool Services is a provider which links an average of six people with similar daily commutes together to share a van. Vanpool members pay a monthly fee to cover the costs of the administration of the program, fuel, maintenance, and insurance. Driving responsibility is shared among the vanpool members. VanGo™ reports the vehicle and passenger miles traveled to FTA to fund the vehicles.

The VanGo™ fares are calculated using a zone system. There are a total of 13 20–square mile service areas, with VanGo™ currently serving 10 of the areas. Fares are computed according to the number of zones in the vanpool's route. For example, in 2012 a trip from Fort Collins to downtown Denver cost \$227 per person, per month. The average price for a gallon of gasoline in 2012 was \$3.60, making the VanGo™ vanpool option a cheaper alternative to driving to Denver alone on a daily basis.

**Figure 2-29** illustrates the volume of VanGo™ trips in 2012 from various locations within the region and the Denver metropolitan area. Services along I-25, US 287, and US 85 are the most popular routes for vanpools. In 2012, there were 75 separate vanpools with 95 percent of the available seats occupied, 428 seats reserved out of 450 available seats.

Figure 2-29: VanGo™ Volumes 2012

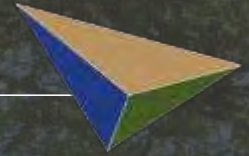


Source: VanGo, NFRMPO Staff, 2014



# Chapter 3

## Socio-Economic Profile



Old Town Fort Collins. Image Credit: City of Fort Collins



## Chapter 3: Socio-Economic Profile

### A. Socio-Economic Data

In 2013, the North Front Range Metropolitan Planning Organization (NFRMPO) updated the Land Use Allocation Model for the North Front Range region. This model uses a base year of 2012 to generate socio-economic data forecasts to the horizon year 2040. The resulting forecasts provide input to the NFRMPO Regional Travel Demand Model (RTDM) to project future travel volumes on roadways and potential transit ridership. The household and employment data are estimated for the area within the North Front Range Modeling Boundary, which is larger than the NFRMPO boundary.

#### Overall Forecast

In 2013, the NFRMPO contracted with Steven B. Fisher, Ph.D., Phyllis Resnick, Ph.D., and Logan Simpson Design to prepare a demographic forecast for the North Front Range portion of Larimer and Weld counties making up the North Front Range Modeling Boundary, **Figure 3-1**. The socio-economic forecasts are divided into seven subregions, **Figure 3-2**. The NFRMPO municipalities and counties in each subregion are described in **Table 3-1** and shown in **Figure 3-3**. The team worked closely with the State Demographer’s office and a stakeholders’ group to develop North Front Range specific information. The report, *2040 Economic and Demographic Forecast*,<sup>23</sup> describes the forecasting process and resulting anticipated growth in population, households, and employment from 2010 to 2040, in five year increments. **Tables 3-2 through 3-4** summarize the results from the report.

Subregion	NFRMPO Municipalities and Counties
1 – Surrounding Area	Eaton, LaSalle, Severance, Larimer County, Weld County
2 – Greeley/Evans	Evans, Garden City, Greeley, Milliken, Severance, Weld County, Windsor
3 – Fort Collins	Fort Collins, Larimer County
4 – Loveland/Berthoud	Berthoud, Johnstown, Loveland, Larimer County, Weld County
5 – Extended Larimer County	Larimer County
6 – Extended Weld County	Weld County
7 – Central I-25	Johnstown, Milliken, Timnath, Windsor, Larimer County, Weld County

*Source: NFRMPO 2012-2040 Land Use Allocation Model*

<sup>23</sup> Steve Fisher, Phyllis Resnick. *2040 Economic and Demographic Forecast*, North Front Range Metropolitan Planning Organization. 2012-2013.

Figure 3-1: North Front Range Modeling Boundary

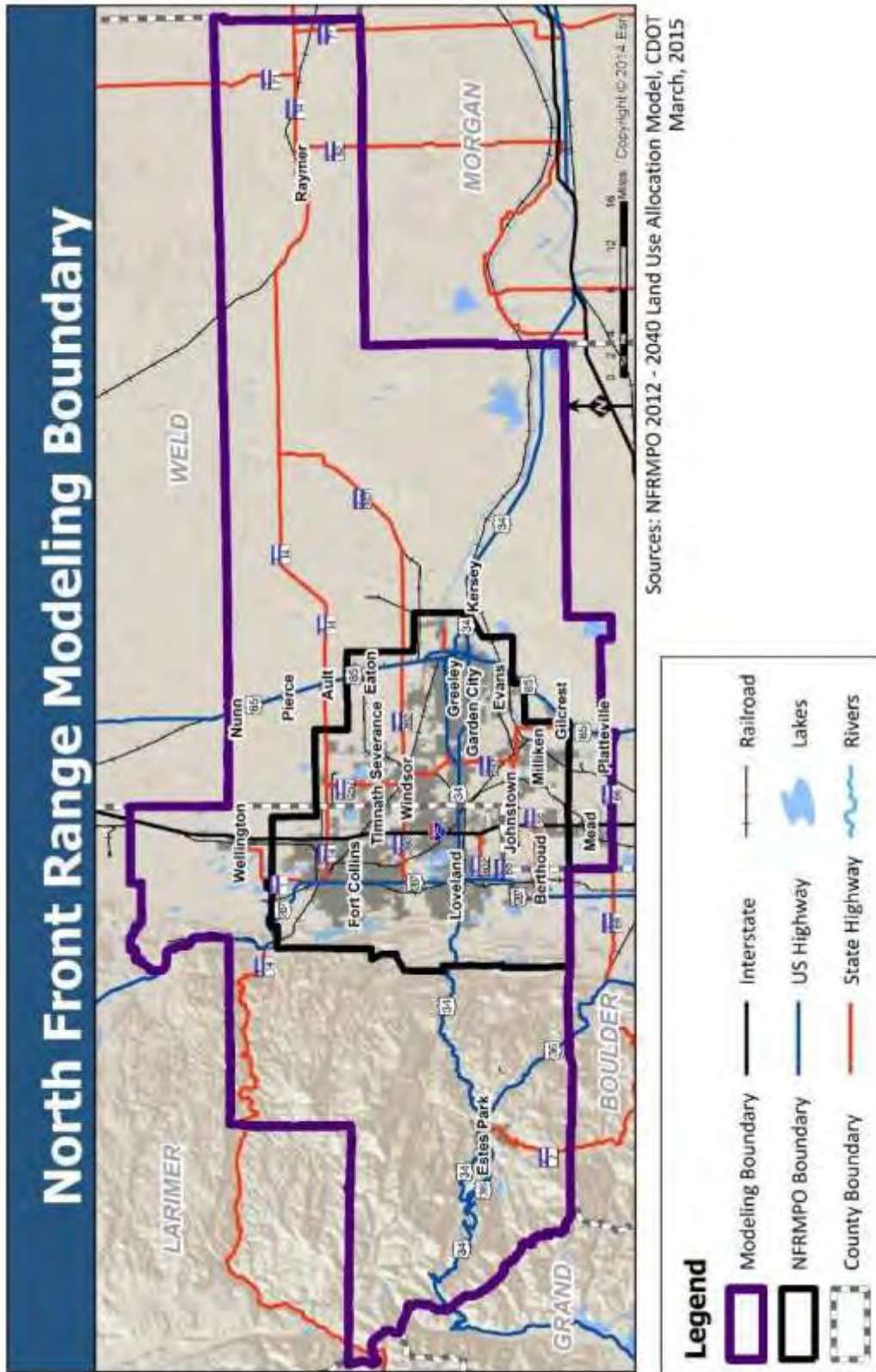
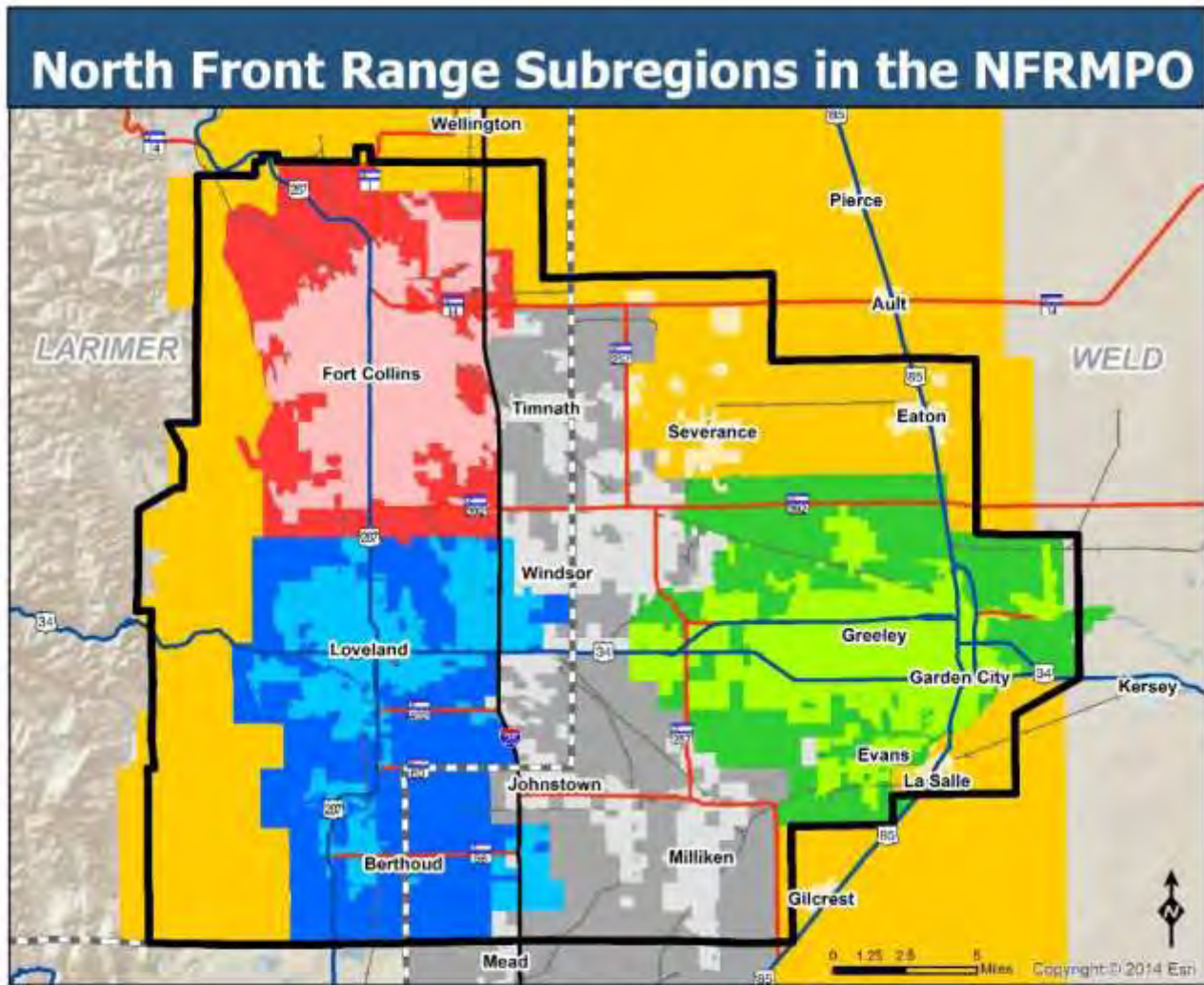






Figure 3-3: North Front Range Subregions in the NFRMPO



Sources: NFRMPO 2012 - 2040 Land Use Allocation Model, CDOT July, 2015

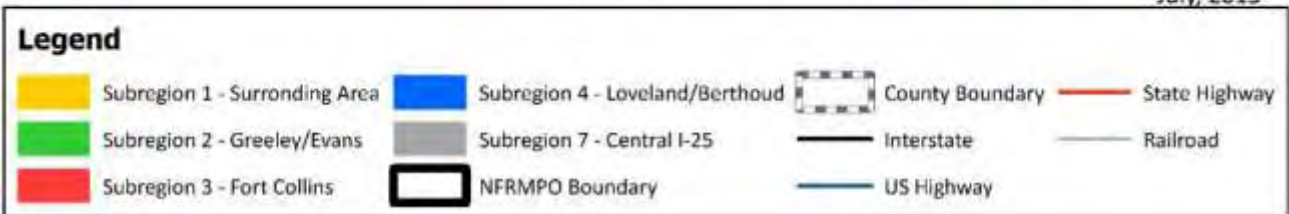




Table 3-2: Population Projections			
Subregion	2010	2040	Percent Growth (%)
1	50,867	89,651	76.25%
2	115,974	223,091	92.36%
3	171,417	259,078	51.14%
4	78,733	149,932	90.43%
5	21,373	39,863	86.51%
6	7,746	14,532	87.61%
7	42,404	120,043	183.09%
<b>Total</b>	<b>488,514</b>	<b>896,190</b>	<b>83.45%</b>

*Source: 2040 Economic and Demographic Forecast*

Table 3-3: Household Projections			
Subregion	2010	2040	Percent Growth (%)
1	19,900	35,728	79.54%
2	43,633	86,680	98.66%
3	64,526	99,959	54.91%
4	30,563	59,451	94.52%
5	8,218	15,703	91.08%
6	3,033	5,795	91.06%
7	16,585	47,861	188.58%
<b>Total</b>	<b>186,459</b>	<b>351,176</b>	<b>88.34%</b>

*Source: 2040 Economic and Demographic Forecast*

Table 3-4: Employment Projections			
Subregion	2010	2040	Percent Growth (%)
1	11,288	20,007	77.24%
2	58,263	115,059	97.48%
3	101,158	146,456	44.78%
4	40,763	78,267	92.01%
5	5,397	9,572	77.36%
6	2,173	3,860	77.63%
7	18,574	55,374	198.13%
<b>Total</b>	<b>237,615</b>	<b>428,599</b>	<b>80.38%</b>

*Source: 2040 Economic and Demographic Forecast*

### Land Use Allocation Model

The Land Use Allocation Model (LUAM) is a parcel/land use based growth model. The LUAM distributes household and employment projections set in the *2040 Economic and Demographic Forecast* report. The model allocates households and employment based on consolidated future land uses from local jurisdictions in the region, shown in **Figure 3-3**. These projections serve as control totals for the LUAM, meaning the population totals limit the allocation of households and employment. The North Front Range modeling area consists of seven sub-regions: Central I-25, Fort Collins, Greeley, Loveland, Extended Larimer County, Extended Weld County, and Surrounding Area. The Upper Front Range (UFR) portion within the ozone nonattainment area (see **Figure 4-1** in **Chapter 4**) is included for ozone conformity determinations. **Table 3-2** highlights which municipalities and counties are contained in each subregion. Each subregion has individual control totals set for 2012, 2015, 2025, 2035, and 2040 for households and employment. **Tables 3-5 and 3-6** summarize the results of the land use allocation by subregion. **Figures 3-4 through 3-8** display the results of the land use allocation model by traffic analysis zone (TAZ).

Subregion	2012	2040	Percent Growth (%)
1	15,404	35,730	131.95%
2	44,793	86,679	93.51%
3	68,862	99,893	45.06%
4	35,780	59,523	66.36%
5	6,936	15,703	126.40%
6	2,937	5,796	97.34%
7	18,074	47,861	164.81%
<b>Total</b>	<b>192,786</b>	<b>351,185</b>	<b>82.16%</b>

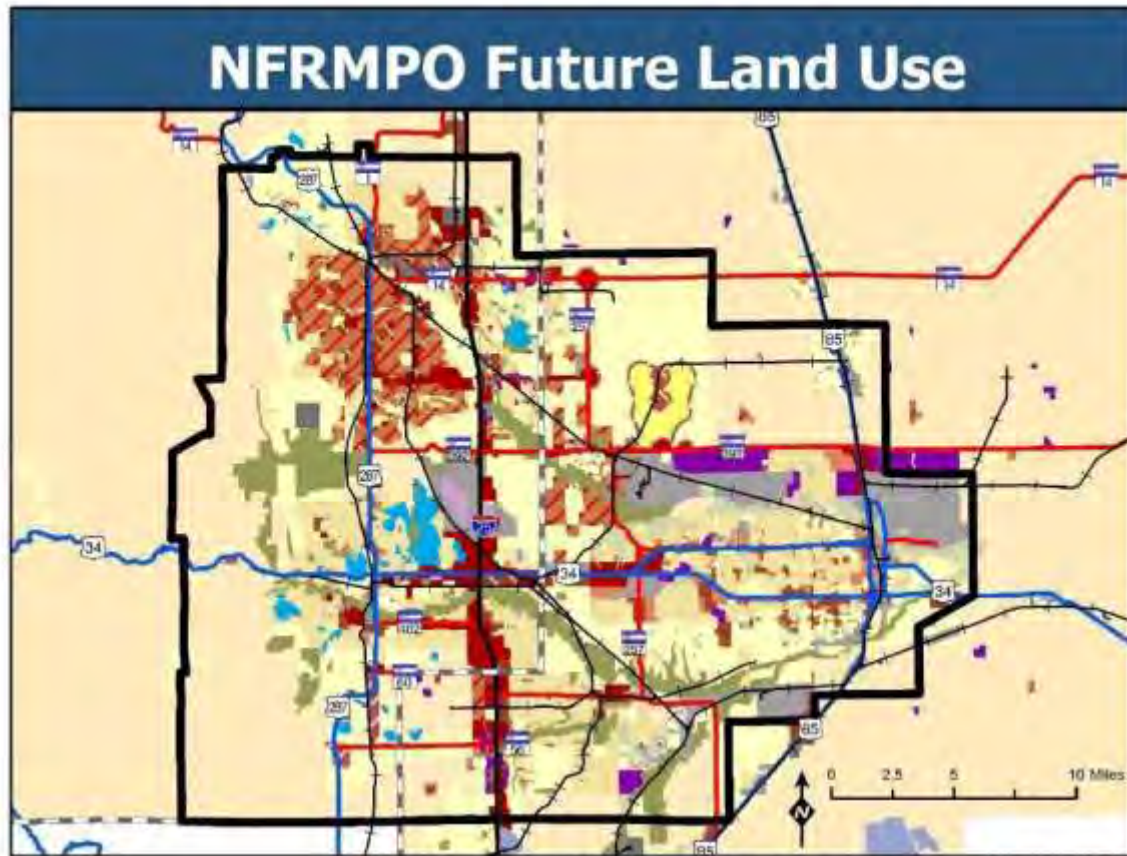
*Source: NFRMPO 2012-2040 Land Use Allocation Model*

Subregion	2012	2040	Percent Growth (%)
1	9,124	20,008	119.29%
2	71,050	115,064	61.95%
3	101,729	146,460	43.97%
4	51,365	78,276	52.39%
5	5,859	9,573	63.39%
6	2,359	3,856	63.46%
7	24,859	55,374	122.75%
<b>Total</b>	<b>266,345</b>	<b>428,611</b>	<b>60.92%</b>

*Source: NFRMPO 2012-2040 Land Use Allocation Model*



Figure 3-4: NFRMPO Future Land Use



Sources: NFRMPO 2012 - 2040 Land Use Allocation Model, CDOT March, 2015

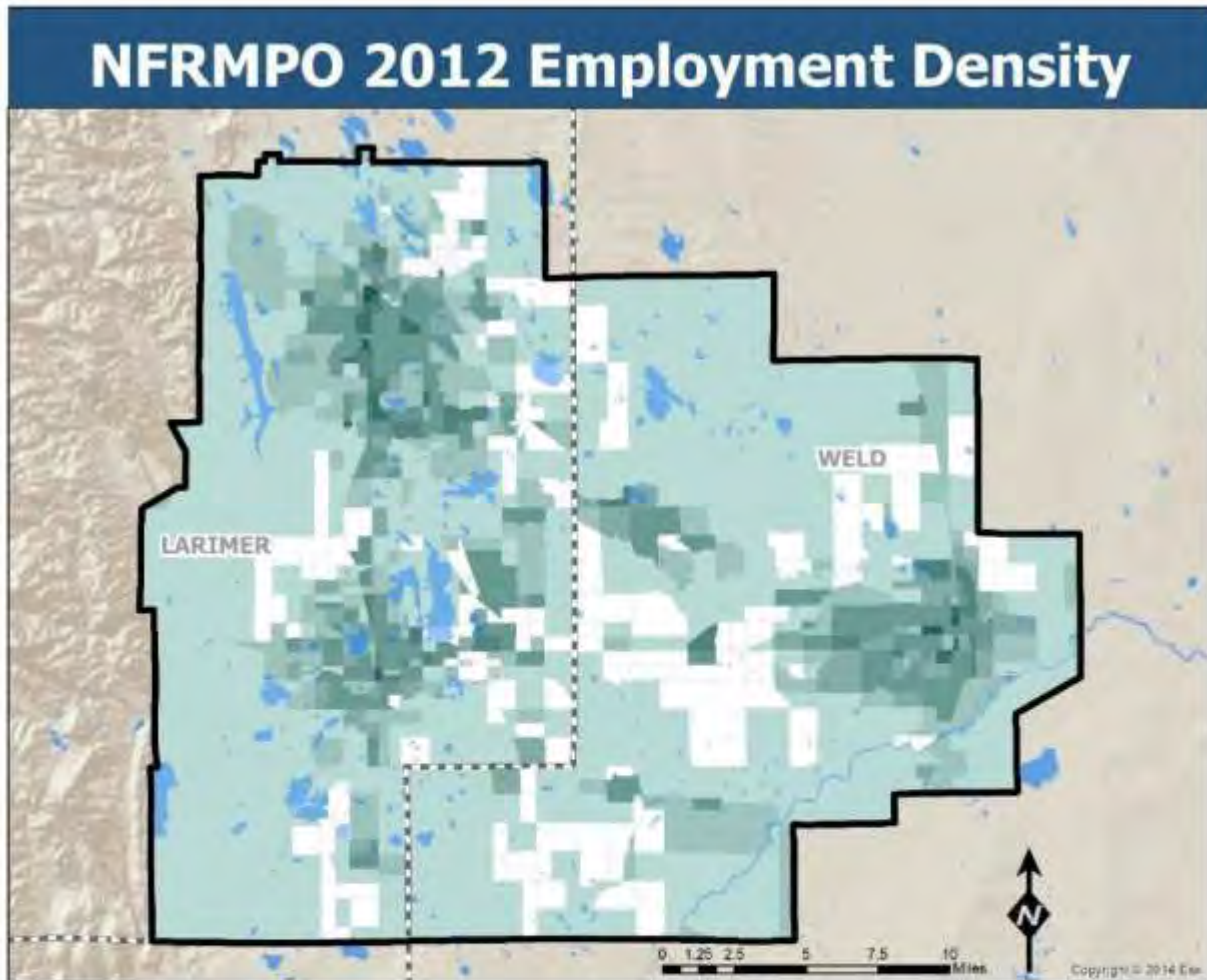
**Legend**

**Land Use Categories**

- |  |   |  |   |
|--|---|--|---|
|  | Commercial-Retail High (>2 emp/acre)        |  | Water   |
|  | Commercial-Retail Low (<2 emp/acre)         |  | Government Employment                             |
|  | Industrial High (>.2 emp/acre)              |  | Recreation Sports fields, etc.; Campus K-12       |
|  | Industrial Low (<.2 emp/acre)               |  | Multi-Family Residential (12-35 du/acre)          |
|  | Office                                      |  | Single Family Residential-Low (.3 - 2 du/acre)    |
|  | Mixed Use Commercial High                   |  | Single Family Residential-Medium (2-5 du/acre)    |
|  | Mixed Use Commercial Low                    |  | Single Family Residential-High (5-12 du/acre)     |
|  | Mixed Use Commercial Medium                 |  | Single Family Residential-Ultra Low (<.3 du/acre) |
|  | Mixed Use PUD Residential/Commercial Retail |  | Agriculture / Residential                         |
|  | Mixed Use Residential High                  |  | NFRMPO Boundary                                   |
|  | Mixed Use Residential Low                   |  | Country Boundary                                  |
|  | Mixed Use Residential Medium                |  | Interstate  |
|  | Conservation                                |  | U.S. Highway                                      |
|  | Open Space, Parks                           |  | State Highway                                     |
|  |   |  | Railroad  |



Figure 3-5: NFRMPO 2012 Employment



Source: NFRMPO 2012 - 2040 Land Use Allocation Model  
May, 2015

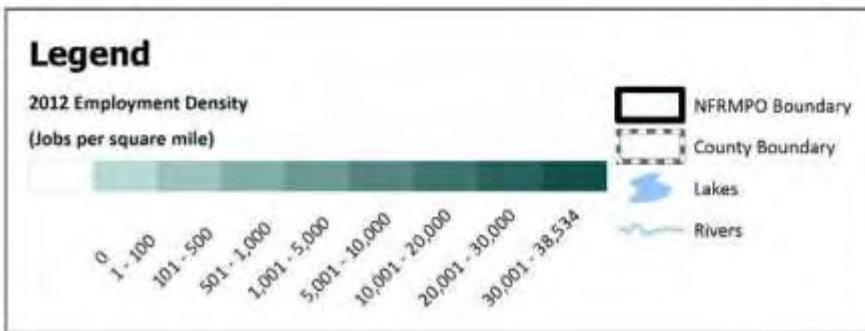
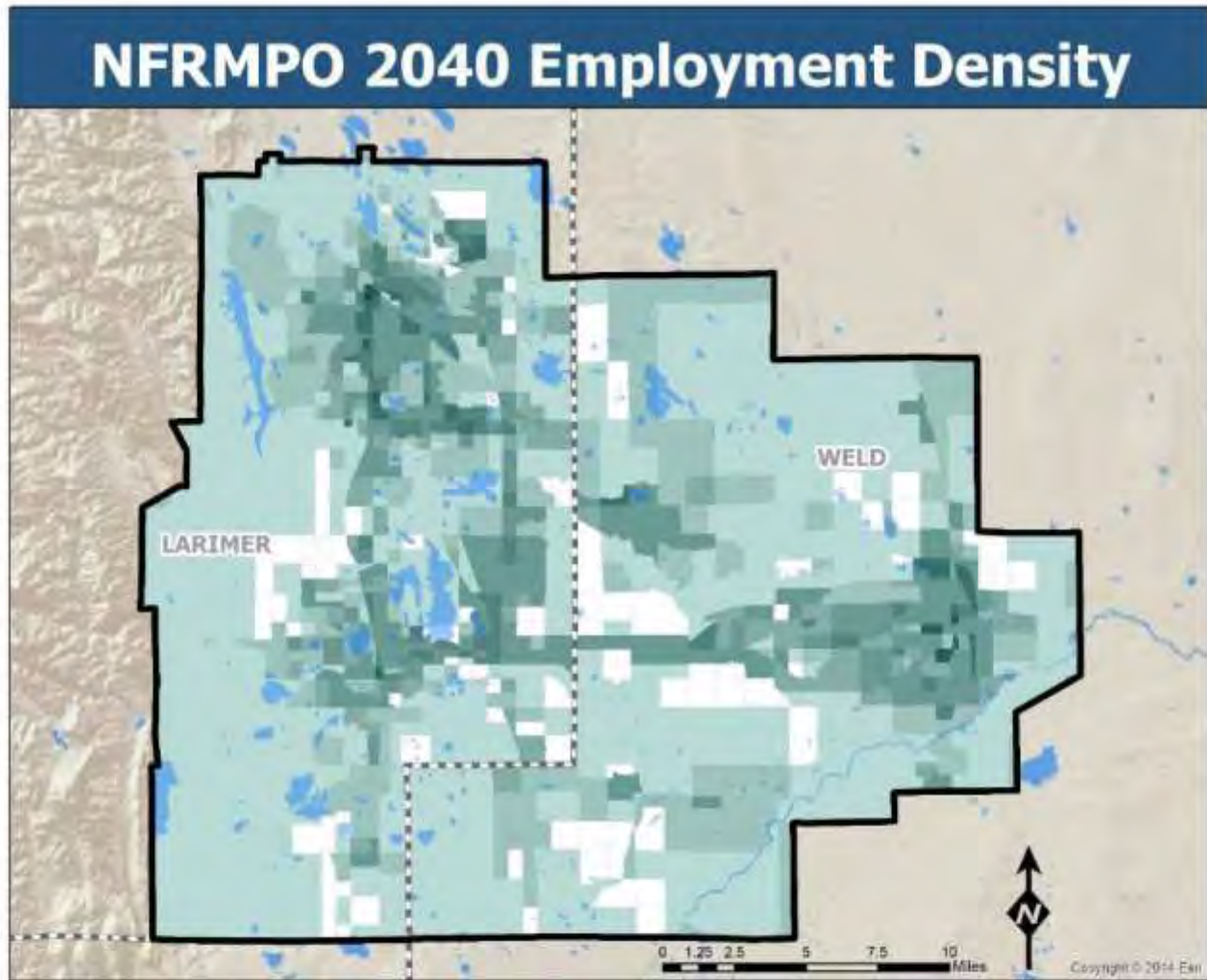


Figure 3-6: NFRMPO 2040 Employment



Source: NFRMPO 2012 - 2040 Land Use Allocation Model  
May, 2015

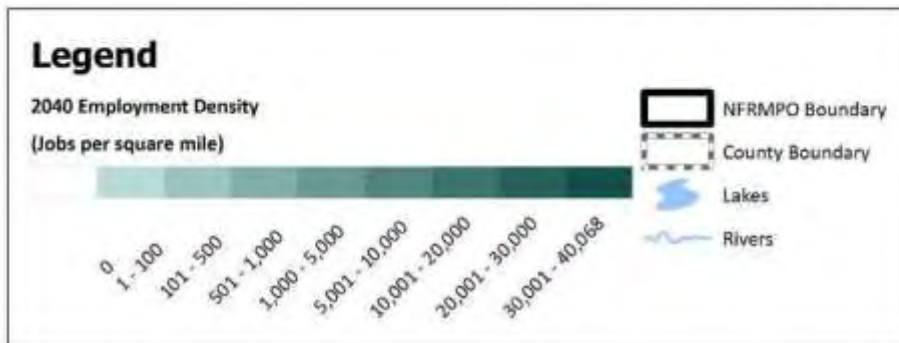
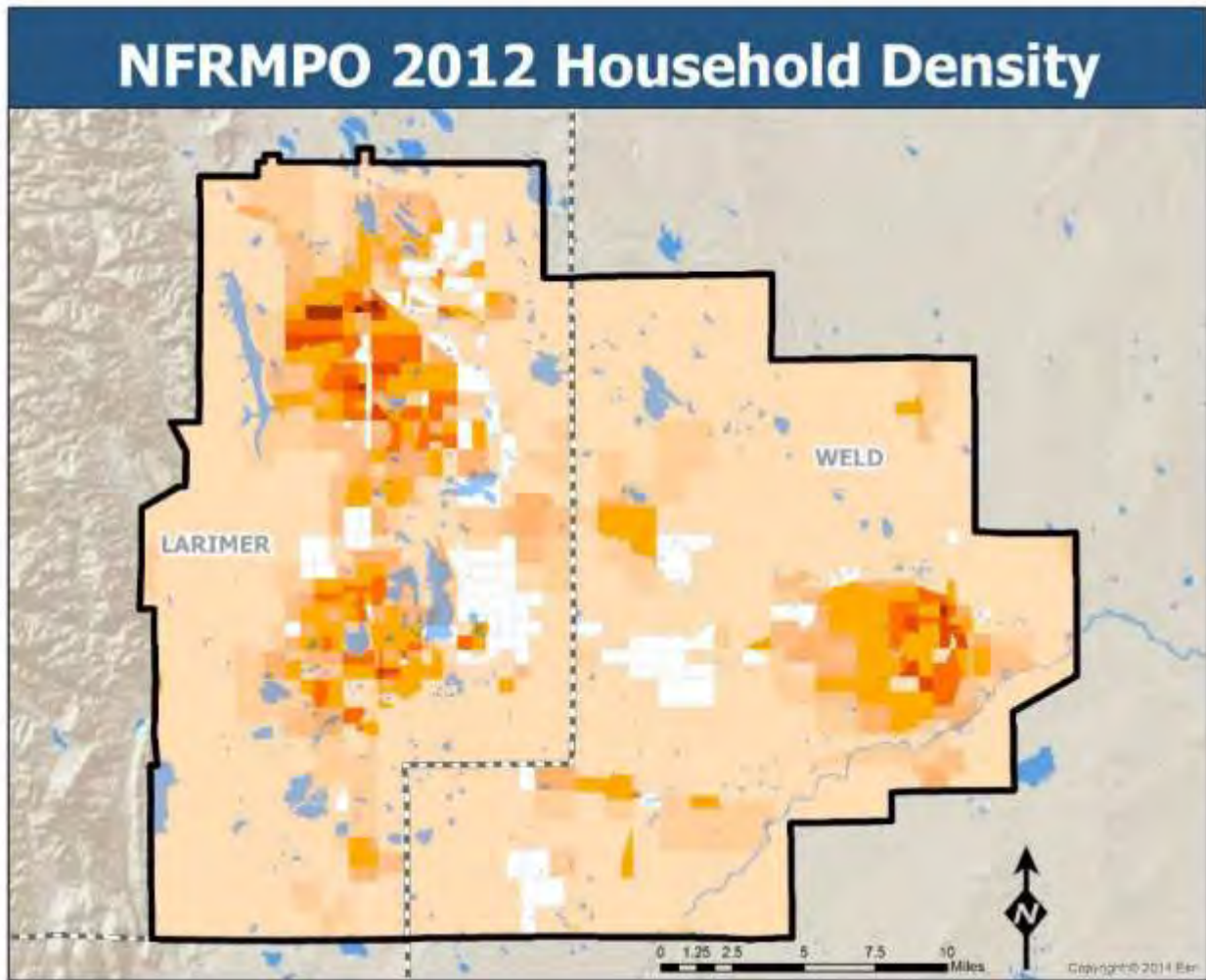


Figure 3-7: NFRMPO 2012 Households



Source: NFRMPO 2012 - 2040 Land Use Allocation Model  
May, 2015

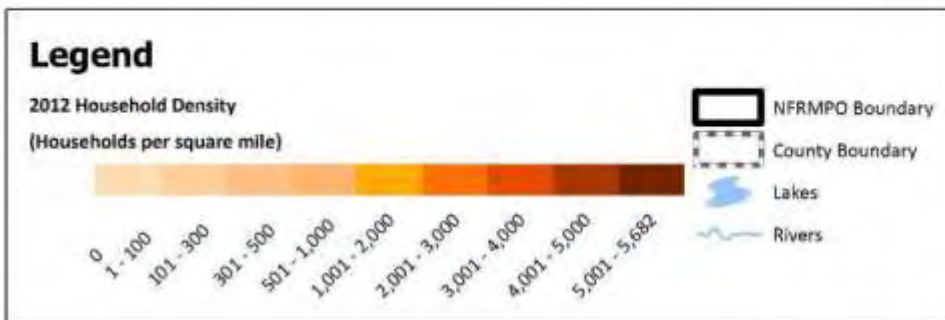
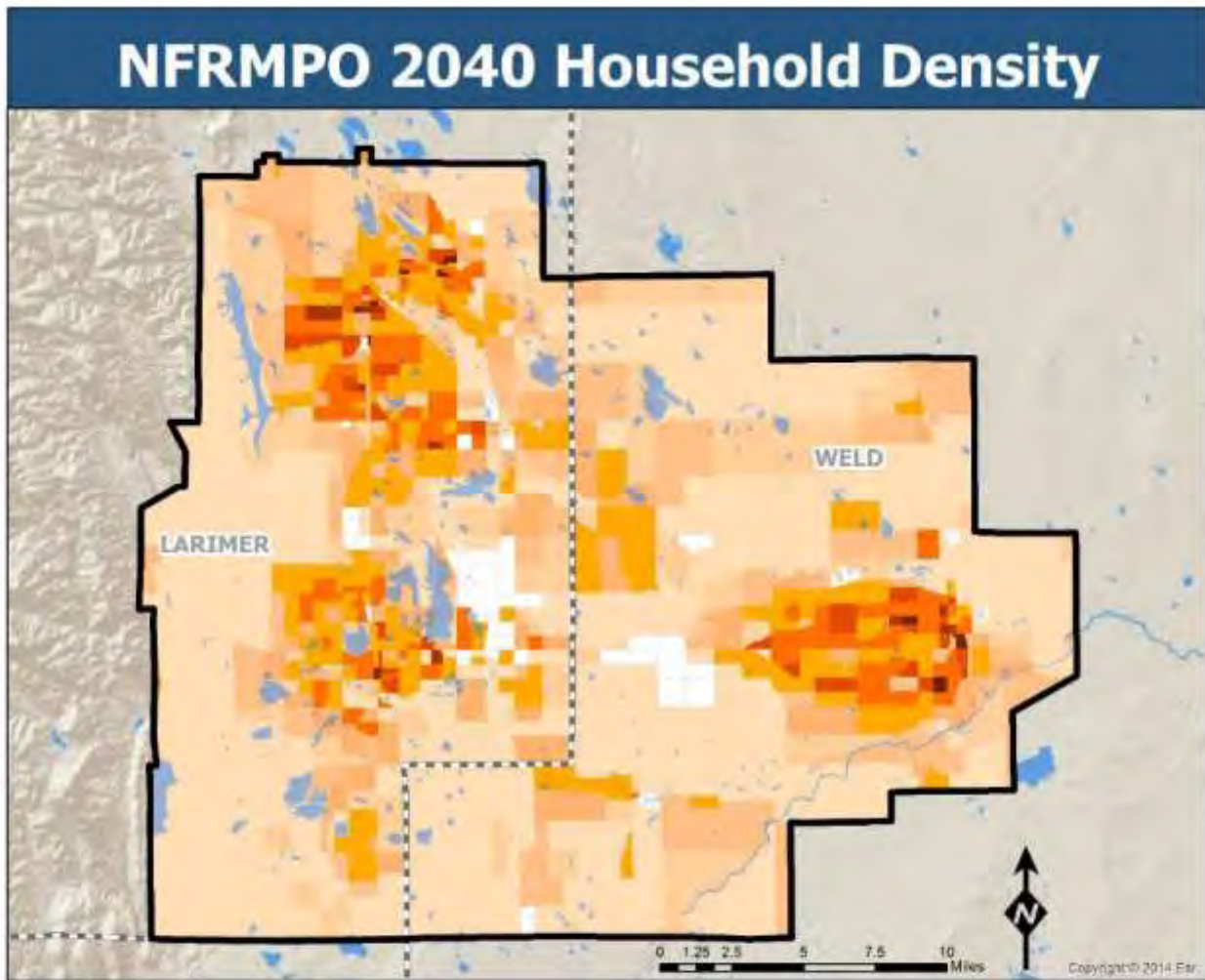
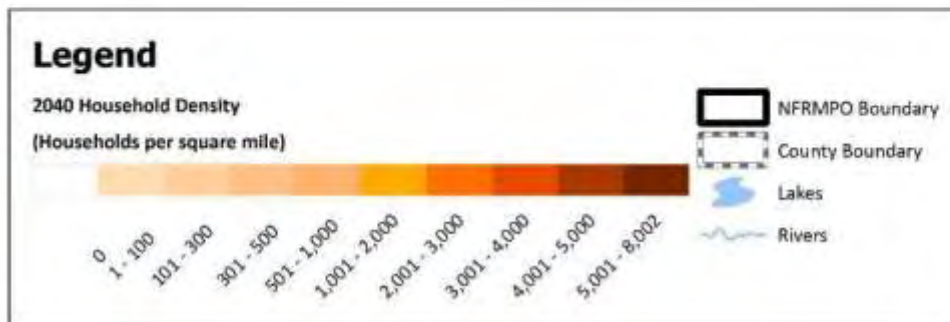




Figure 3-8: NFRMPO 2040 Household Forecasts



Source: NFRMPO 2012 - 2040 Land Use Allocation Model  
May, 2015





## Regional Travel Demand Model

### Households

The *2040 Economic and Demographic Forecast*,<sup>24</sup> projects households in the North Front Range will increase 0.2 percent annually between 2010 and 2040. For input into the travel model, household projections were classified by five household sizes, or the number of people occupying the household, and three income levels, illustrated in **Table 3-7** for the 2012 base year and **Table 3-8** for the 2040 projections. These classifications increase the sensitivity of the RTDM in response to household characteristics.

Table 3-7: 2012 Household Size and Income Data							
Household Income (2010 dollars)	1-person HH	2-person HH	3-person HH	4-person HH	5+ person HH	Total HH	Percent
Less than \$20,000 (Low Income)	17,186	1,936	33,401	8,798	11,759	73,080	38%
\$20,000 - \$74,999 (Medium Income)	8,322	1,257	13,403	17,072	11,499	51,553	27%
\$75,000 and higher (High Income)	3,333	22,672	9,095	24,864	8,189	68,153	35%
<b>Total</b>	<b>28,841</b>	<b>25,865</b>	<b>55,899</b>	<b>50,734</b>	<b>31,448</b>	<b>192,786</b>	<b>100%</b>
<b>Percent</b>	<b>15%</b>	<b>14%</b>	<b>29%</b>	<b>26%</b>	<b>16%</b>	<b>100%</b>	

*Source: NFRMPO 2012-2040 Regional Travel Demand Model*

Table 3-8: 2040 Household Size and Income Data							
Household Income (2010 dollars)	1-person HH	2-person HH	3-person HH	4-person HH	5+ person HH	Total HH	Percent
Less than \$20,000 (Low Income)	31,306	3,526	60,845	16,027	21,421	133,125	38%
\$20,000 - \$74,999 (Medium Income)	15,160	2,290	24,416	31,098	20,947	93,910	27%
\$75,000 and higher (High Income)	6,071	41,600	16,567	45,294	14,918	124,150	35%
<b>Total</b>	<b>52,537</b>	<b>47,116</b>	<b>101,827</b>	<b>92,419</b>	<b>57,286</b>	<b>351,185</b>	<b>100%</b>
<b>Percent</b>	<b>15%</b>	<b>14%</b>	<b>29%</b>	<b>26%</b>	<b>16%</b>	<b>100%</b>	

*Source: NFRMPO 2012-2040 Regional Travel Demand Model*

<sup>24</sup> Steve Fisher, Phyllis Resnick. *2040 Economic and Demographic Forecast*, North Front Range Metropolitan Planning Organization. 2012-2013.

### Employment

Overall, employment is projected to grow at approximately two percent per year for the entire region, with Weld County projected to grow at a slightly higher rate than Larimer County.

The location of employment for 2012 was determined by geocoding Quarterly Census of Employment and Wages (QCEW) data from the Bureau of Labor Statistics (BLS) to the street centerline map for the North Front Range. The results show each employer and the number of employees for each mapped location. These results were then aggregated to the TAZ level. **Figure 3-9** shows major employers, those with more than 100 employees, across the North Front Range. In 2012, major employers were predominately within cities, as in previous years. These major employers were viewed as major activity centers due to their sizable contributions to transportation network use.

For input into the RDTM, employment was divided into four categories defined by the National Industrial Classification System (NAICS): Basic, Medical, Retail, and Service.

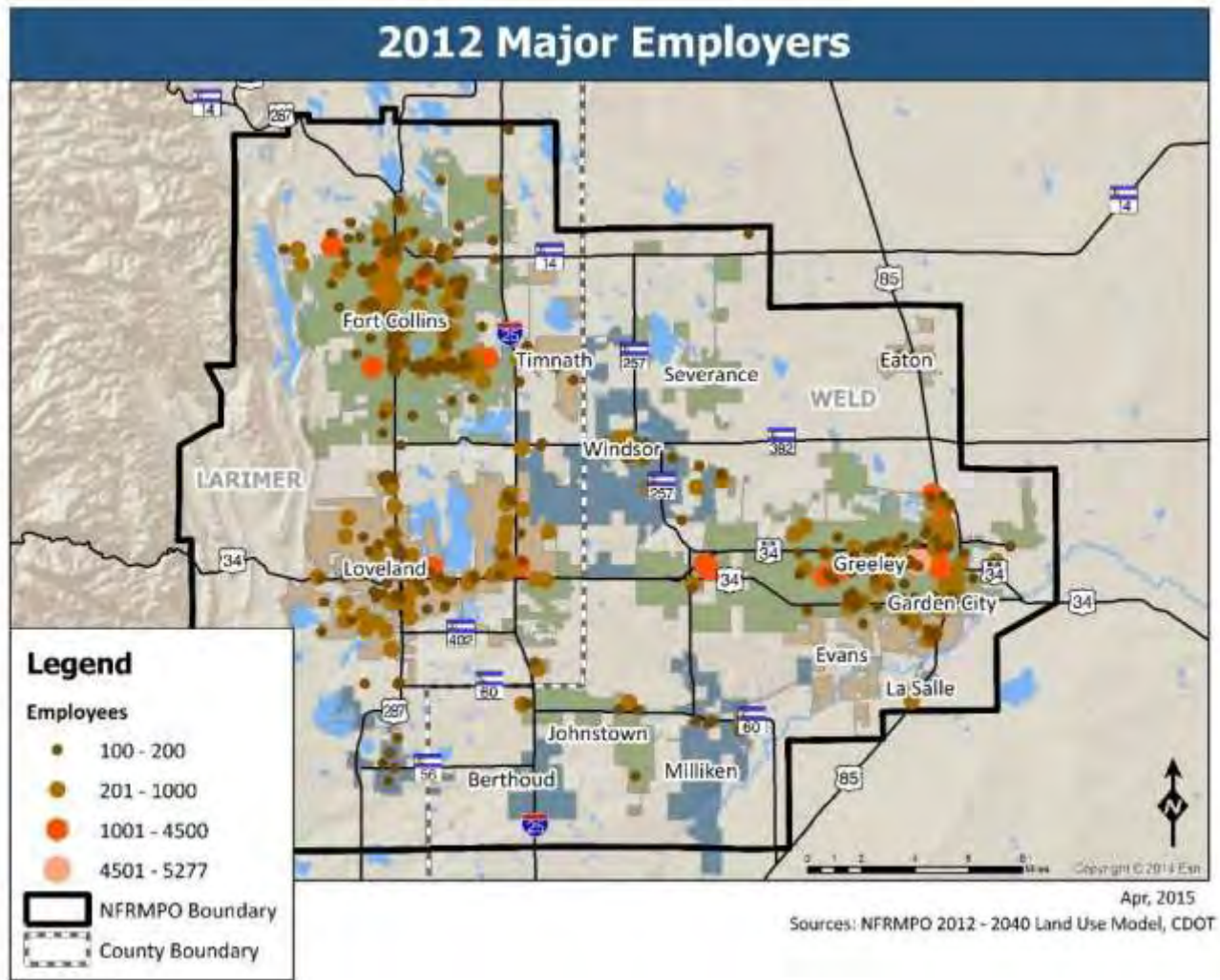
- ▶ **Basic jobs**, also known as production-distribution, are those based on outside dollars flowing into the local economy and include industries that manufacture and/or produce goods locally for export outside the region. Basic jobs include manufacturing, mining, utilities, transportation, and warehousing among others.
- ▶ **Medical jobs** include health care and social assistance.
- ▶ **Retail jobs** include retail trade, post offices, and food service.
- ▶ **Service jobs** include finance, insurance, real estate, and public administration.

The Basic, Medical, Retail, and Service employment estimates for 2012 and forecasts for 2040 are shown in **Table 3-9**. The disaggregated total employment in the travel model does not account for people working from home.

Classification	2012		2040		Percent Growth (%)
	Employees	Percentage (%)	Employees	Percentage (%)	
Basic	47,155	17.7%	72,293	16.9%	53.3%
Medical	30,101	11.3%	39,233	9.1%	30.3%
Retail	40,692	15.3%	61,132	14.3%	50.2%
Service	148,397	55.7%	255,953	59.7%	72.5%
<b>Total</b>	<b>266,345</b>	<b>100%</b>	<b>387,443</b>	<b>100%</b>	<b>45.5%</b>

*Source: NFRMPO 2012-2040 Regional Travel Demand Model*

Figure 3-9: 2012 Major Employers



### Aging Population

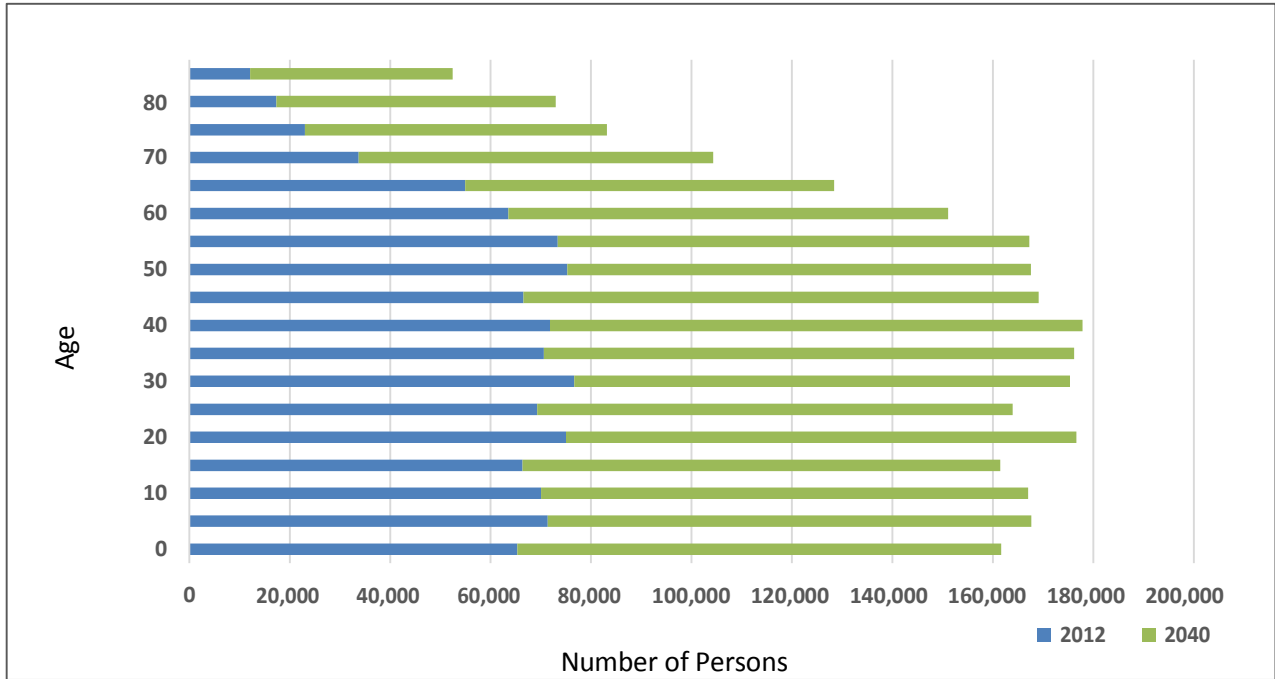
According to the 2010 Census, the baby boomers population (those born between mid-1946 and mid-1964)<sup>25</sup> grew by more than 30 percent between 2000 and 2010 in Colorado. **Figure 3-10** shows the significant increase in the 65+ population by 2040, compared to 2012. The likely impacts of new and pending retirees will impact the regional transportation system through:

- ▶ The increased demand for housing units as the in-migration of new workers assume the jobs of the recently retired.
- ▶ The location and availability of amenities, health care, and entertainment for the senior population.
- ▶ The shift in the type of housing necessary to accommodate the growing senior population.
- ▶ The level of service and availability of transit for the senior population.

<sup>25</sup> US Census, *The Baby Boom Cohort in the United States: 2012 to 2060*, <http://www.census.gov/prod/2014pubs/p25-1141.pdf>.

American Community Survey (ACS) data (2009 - 2013) was used to identify the percentage of those aged 65 years and older by city in the NFRMPO region, **Figure 3-11**. The cities range from six percent (Timnath) to 16 percent (Garden City).

**Figure 3-10: Colorado Population by Age in 2012 and 2040**



*Source: Colorado Department of Local Affairs*

Larimer County is expected to have a larger percentage of its population over the age of 65, while a large portion of Weld County population growth is expected to be in the younger age brackets. The difference in general terms would be an increase in the percentage of retirees in Larimer County and an increase in the percentage of younger families with children in Weld County. **Figures 3-12 and 3-13**, depict this trend.



Figure 3-11: Percentage of Population 65 Years and Older by City

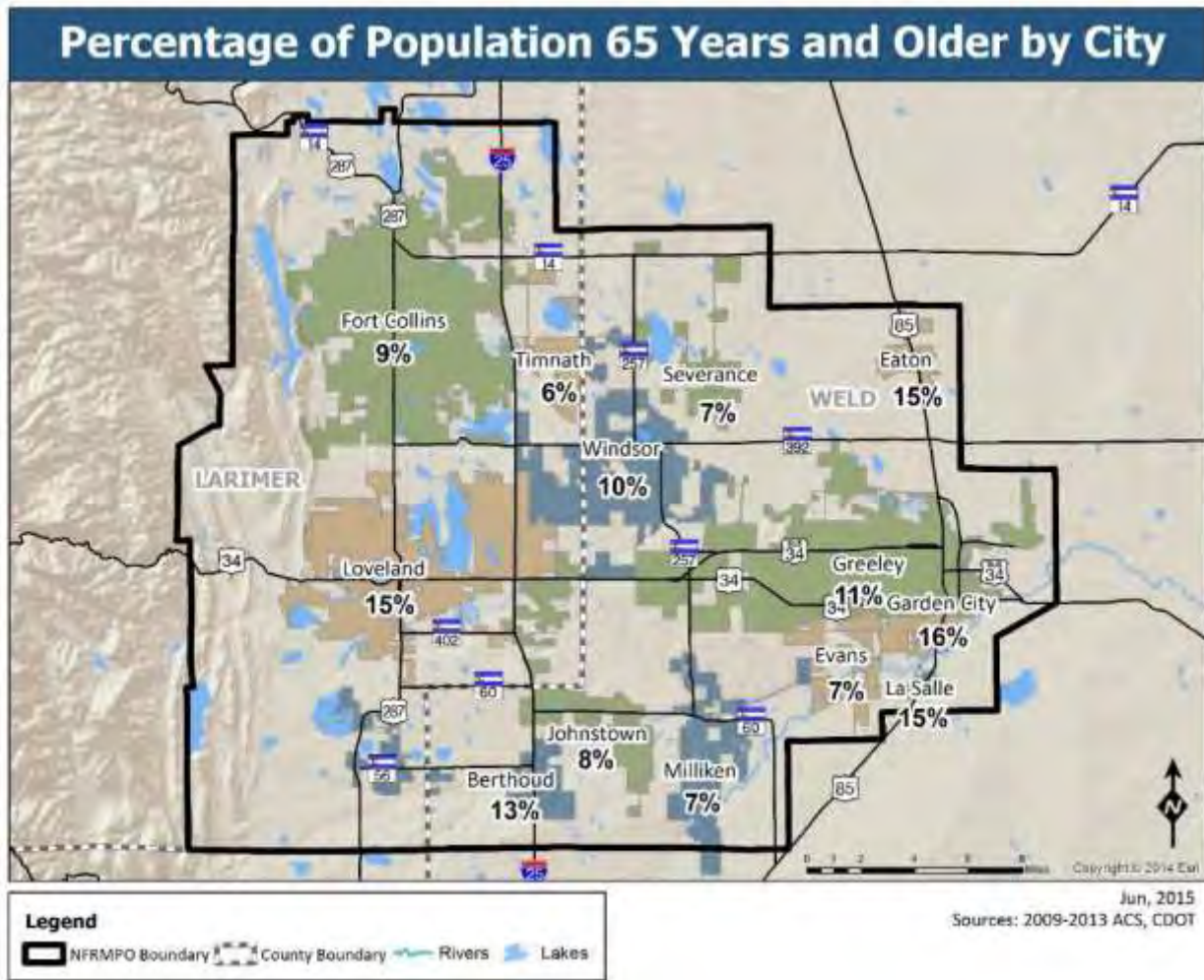
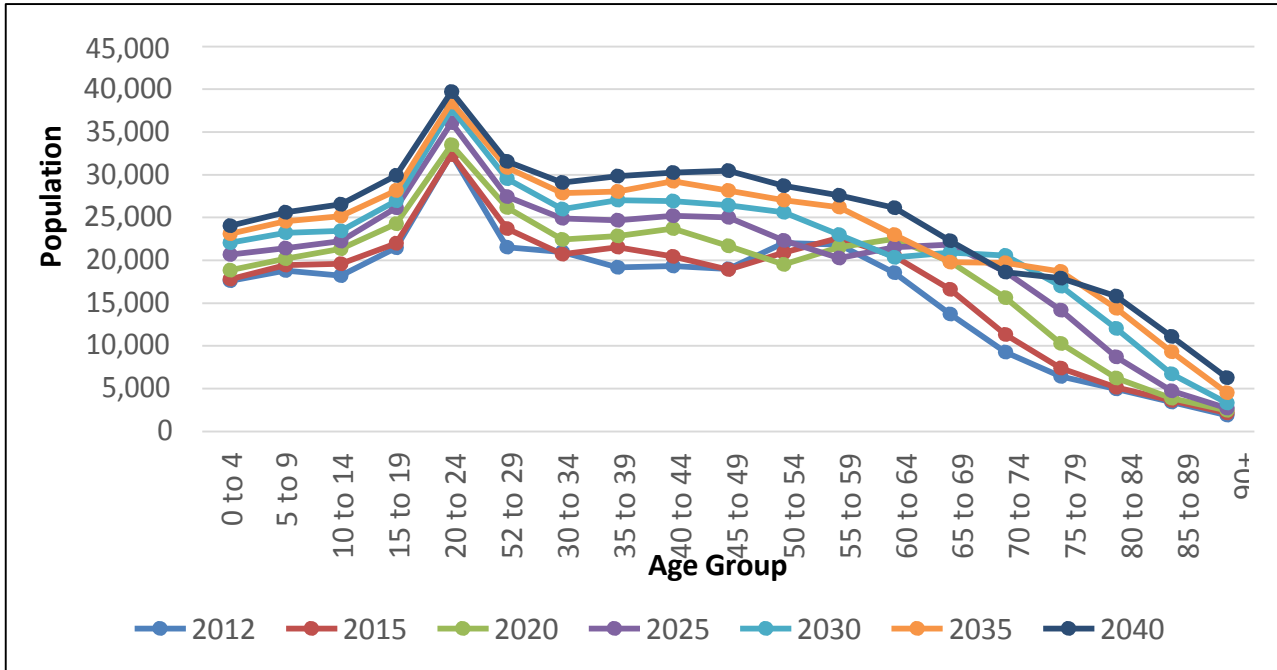


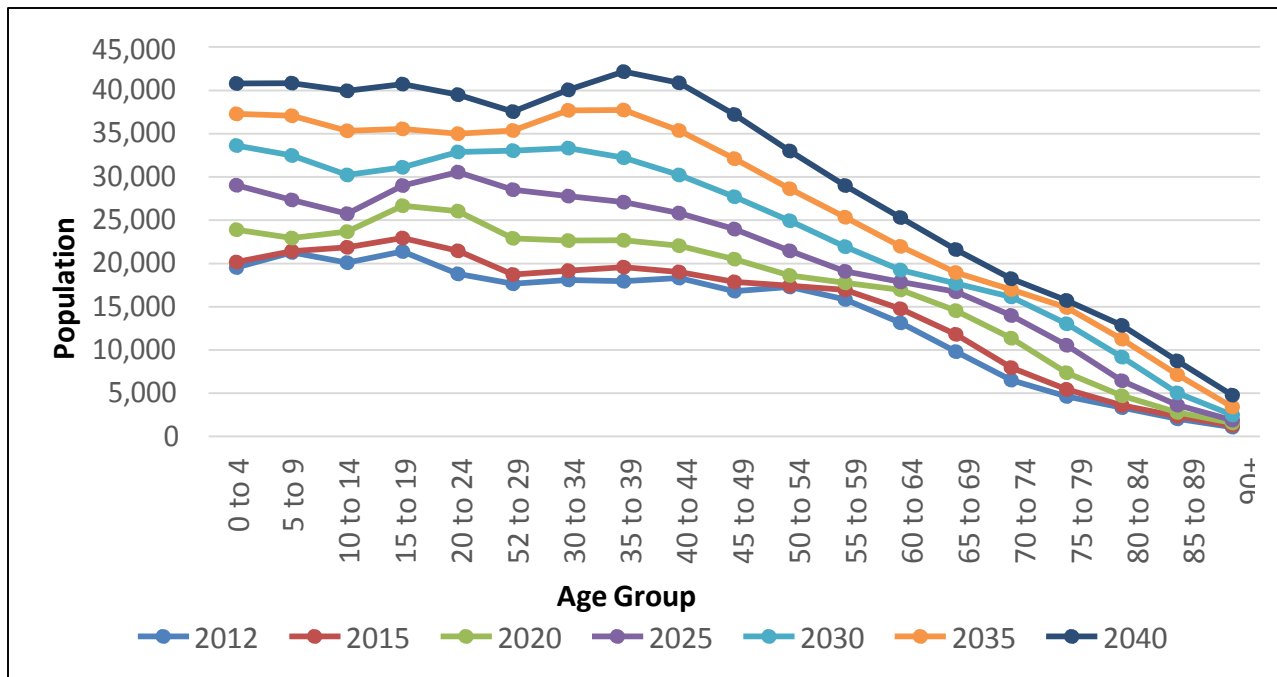


Figure 3-12: Larimer County Age Distribution



Source: State Department of Local Affairs, Demography Division, 2014

Figure 3-13: Weld County Age Distribution



Source: State Department of Local Affairs, Demography Division, 2014

### Vehicles by Household

The number of vehicles available in households is slightly different between Larimer and Weld counties, with the overwhelming majority of households having two or more vehicles available, shown in **Table 3-10**.

Table 3-10: Number of Vehicles Available in Households by County		
Number of Vehicles	Larimer County	Weld County
None	4.2%	4.3%
1	28.0%	25.3%
2	43.1%	42.0%
3 or more	24.7%	28.3%
<i>Source: US Census Bureau, Decennial Census, 2010</i>		

The vehicle availability per household is in line with commute patterns across the region. The *NFRMPO 2010 Household Survey* provides information about how residents in the region commute to work. The vast majority of people who commute to work do so in automobiles, **Table 3-11**. Most commuters who use bicycles or walk to work live in Fort Collins or Greeley/Evans.

Table 3-11: Commute to Work by Mode	
Travel Mode	Commuter Trips (%)
Auto/van/truck driver or passenger	89.3%
Bike	6.2%
Walk	3.4%
Transit (local bus or express bus)	0.5%
Other (don't know or refused)	0.6%
<b>Total</b>	<b>100%</b>
<i>Source: NFRMPO Household Survey, 2010</i>	

## B. Environmental Justice

### Background

Executive Order 12898, *Federal Actions to Address Environmental Justice (EJ) in Minority Populations and Low-Income Populations (1994)*, was enacted to reinforce Title VI of the Civil Rights Act of 1964. The Civil Rights Act states, “no person in the United States shall, on grounds of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.” Executive Order 12898 also states, “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”

In May 2012, the US Department of Transportation (USDOT) issued an update to Order 5610.2(a), *Actions to Address Environmental Justice in Minority and Low-Income Populations*. The DOT order updates the original EJ order, which was published on April 15, 1997. The DOT order continues to be a key component in the promotion of EJ principles in all DOT programs, policies, and activities. The NFRMPO's EJ process follows three guiding principles outlined in the DOT Order:

- a. To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations in relation to transportation improvements.
- b. To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- c. To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

Under USDOT Order 5610.2(a),<sup>26</sup> an adverse effect is defined as:

- ▶ Bodily impairment, infirmity, illness, or death;
- ▶ Air, noise, and water pollution and soil contamination;
- ▶ Destruction or disruption of man-made or natural resources;
- ▶ Destruction or disruption of aesthetic values;
- ▶ Destruction or disruption of community cohesion or a community's economic vitality;
- ▶ Destruction or disruption of the availability of public and private facilities and services;
- ▶ Vibration;
- ▶ Displacement of persons, businesses, farms, or non-profit organizations;
- ▶ Increased traffic congestion, isolation, exclusion, or separation of individuals within a given community or from a broader community; or
- ▶ Denial of, reduction in, or significant delay in the receipt of benefits of DOT programs, policies, or activities.

The NFRMPO EJ process also includes a determination of whether a construction-related activity on the existing transportation system will result in a "disproportionately high and adverse effect on human health or the environment," which is defined by Order 5610.2(a) as:

- ▶ Being predominantly borne by a minority and/or low-income population or
- ▶ Suffered by the minority and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority and/or non-low-income populations.

It is important to identify where significant numbers of minority and low-income households are located within the region to comply with the requirements of Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, and DOT Order 5610.2(a). These orders were enacted to ensure

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<sup>26</sup> [http://www.fhwa.dot.gov/environment/environmental\\_justice/ej\\_at\\_dot/orders/order\\_56102a/](http://www.fhwa.dot.gov/environment/environmental_justice/ej_at_dot/orders/order_56102a/)



the full and fair participation of potentially affected communities in transportation decisions. The intent of EJ is to avoid, minimize, or mitigate disproportionately high and adverse impacts on minority populations and low-income populations.

The NFRMPO uses CDOT’s Environmental Justice in Colorado’s Statewide and Regional Planning Process Guidebook, as the framework for addressing EJ in the region. This section discusses minority and low-income populations and the specific efforts in public outreach, mapping, and measuring the benefits and burdens.

### Low Income Populations

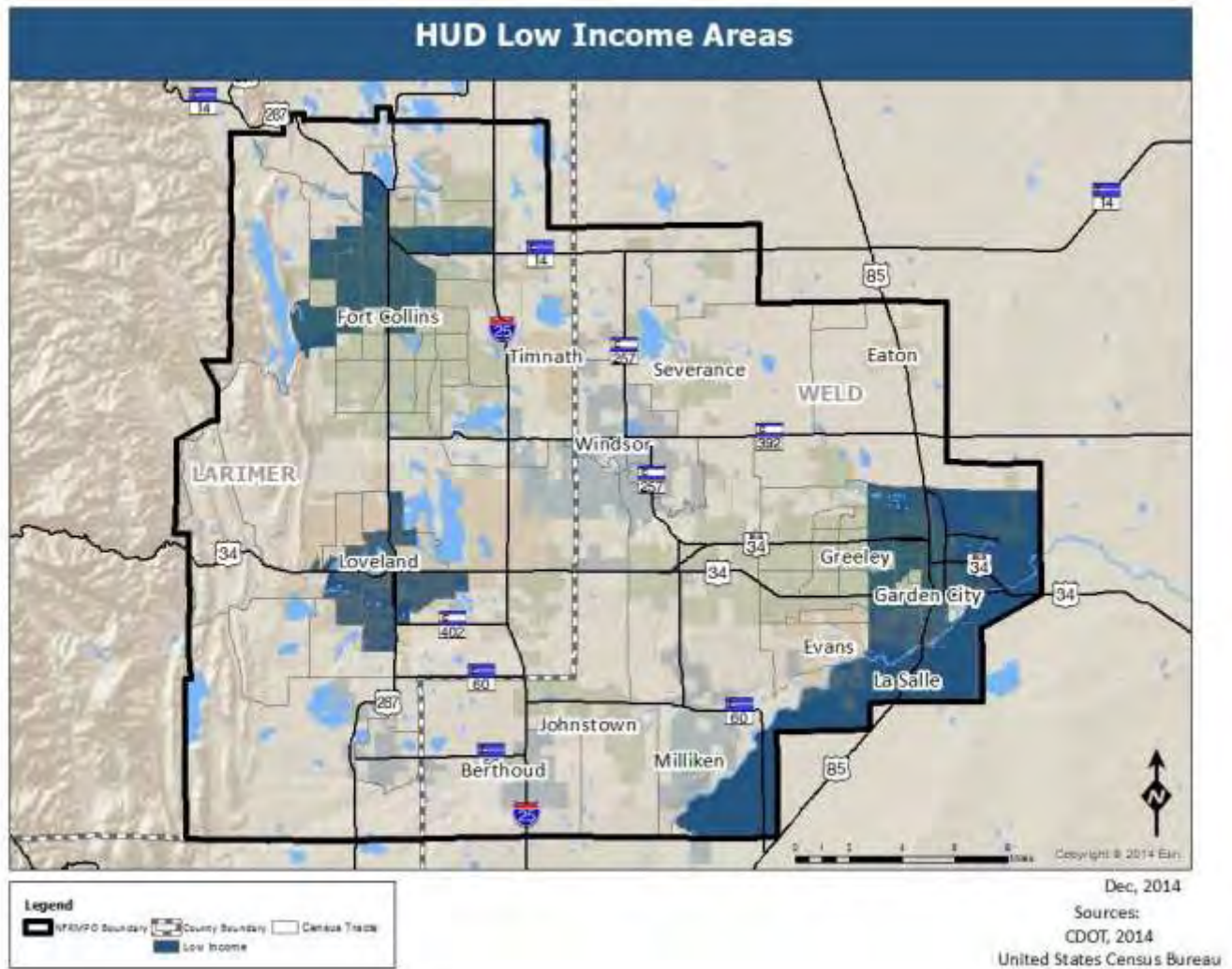
Low-income thresholds are determined by the Department of Housing and Urban Development (HUD) for the 64 counties in Colorado for use by the Department of Local Affairs (DOLA), which allocates Community Development Block Grants (CDBG). The methodology for determining low income follows the CDOT Environmental Justice Guidebook. **Tables 3-12 and 3-13** show low income thresholds for Larimer and Weld counties as determined by HUD for FY 2012.

Table 3-12: Larimer County HUD FY2012 Low Income Limits								
Income Limit	Persons per Household							
	1	2	3	4	5	6	7	8
Low Income Limit	\$43,550	\$49,750	\$55,950	\$62,150	\$67,150	\$72,100	\$77,100	\$82,050
Very Low Income Limit	\$27,200	\$31,300	\$35,000	\$38,850	\$42,000	\$45,100	\$48,200	\$51,300
Extremely Low Income Limit	\$16,350	\$18,650	\$21,000	\$23,300	\$25,200	\$27,050	\$28,900	\$30,800

Table 3-13: Weld County HUD FY2012 Low Income Limits								
Income Limit	Persons per Household							
	1	2	3	4	5	6	7	8
Low Income Limit	\$38,300	\$43,800	\$49,250	\$54,700	\$59,100	\$63,500	\$67,850	\$72,050
Very Low Income Limits	\$23,950	\$27,400	\$30,800	\$34,200	\$36,950	\$39,700	\$42,450	\$45,150
Extremely Low Income Limits	\$14,350	\$16,400	\$18,450	\$20,500	\$22,150	\$23,800	\$25,450	\$27,100

Households have been mapped using Census Tracts with ACS estimates from 2008-2012. The dark blue areas in **Figure 3-14** show Census tracts considered low income based on Median Household Income and Average Household Size.

Figure 3-14: HUD Low Income Areas



### Minority Populations

Executive Order 12898 defines the term minority as anyone who is:

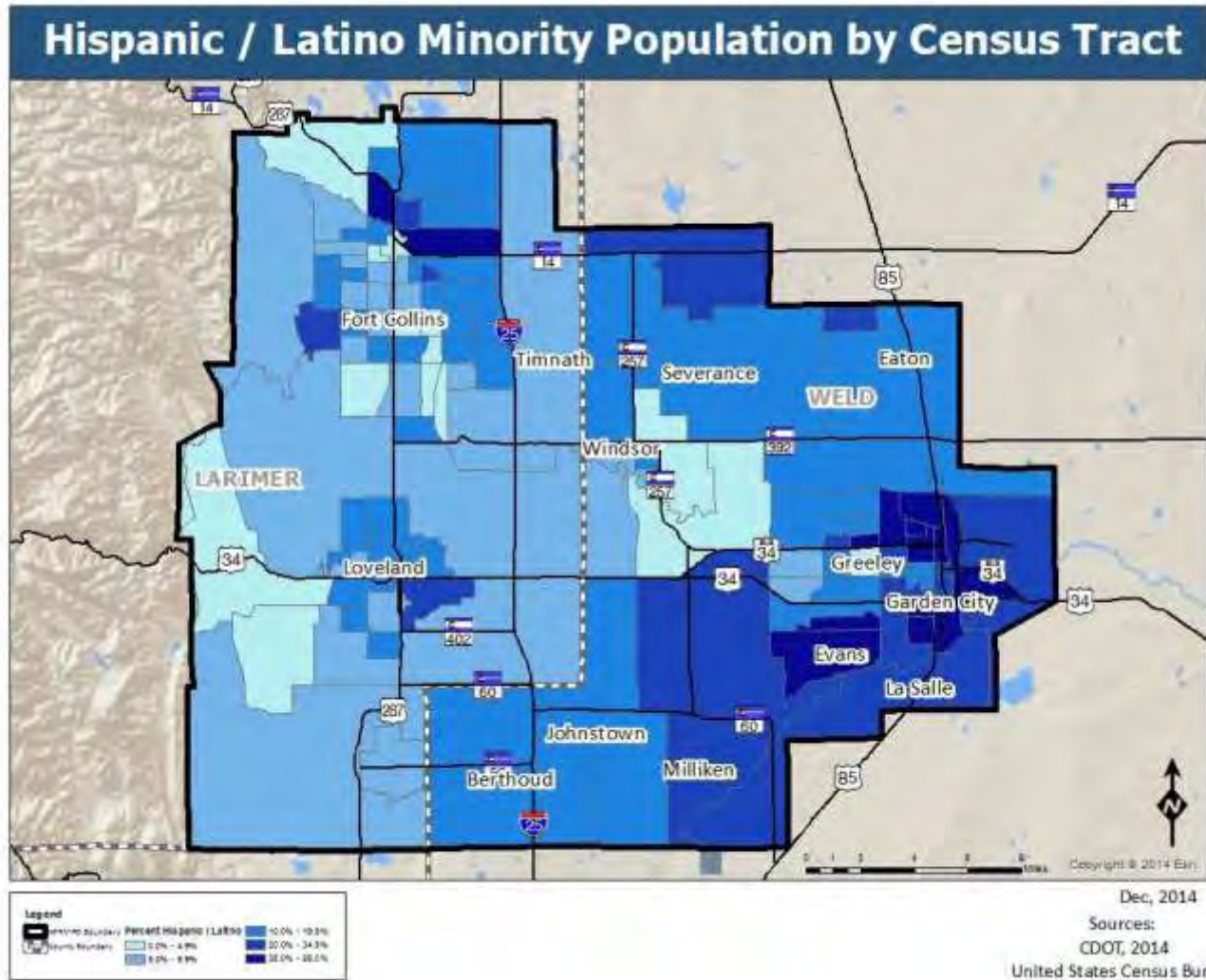
- ▶ **American Indian and Alaskan Native** – a person having origins in any of the original people of North America and who maintains cultural identifications through tribal affiliation or community recognition.
- ▶ **Asian or Pacific Islander (including Native Hawaiian)** – a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands.
- ▶ **Black/African American** – a person having origins in any of the black racial groups of Africa.
- ▶ **Hispanic/Latino** – a person who is Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.

ACS estimates from 2008-2012 show the largest minority population in the region is the Hispanic/Latino segment. The highest concentration, by percentage, of Hispanic/Latino residents is in Garden City at 66 percent,

Evans at 47 percent, LaSalle at 37 percent, and Greeley at 36 percent. By comparison, Fort Collins and Loveland have 10 percent and 12 percent, respectively.

Census tracts show the largest concentrations of Hispanic/Latino residents in **Figure 3-15** reside along the US 85 Corridor in Weld County and smaller pockets in northeast Fort Collins and southeast Loveland.

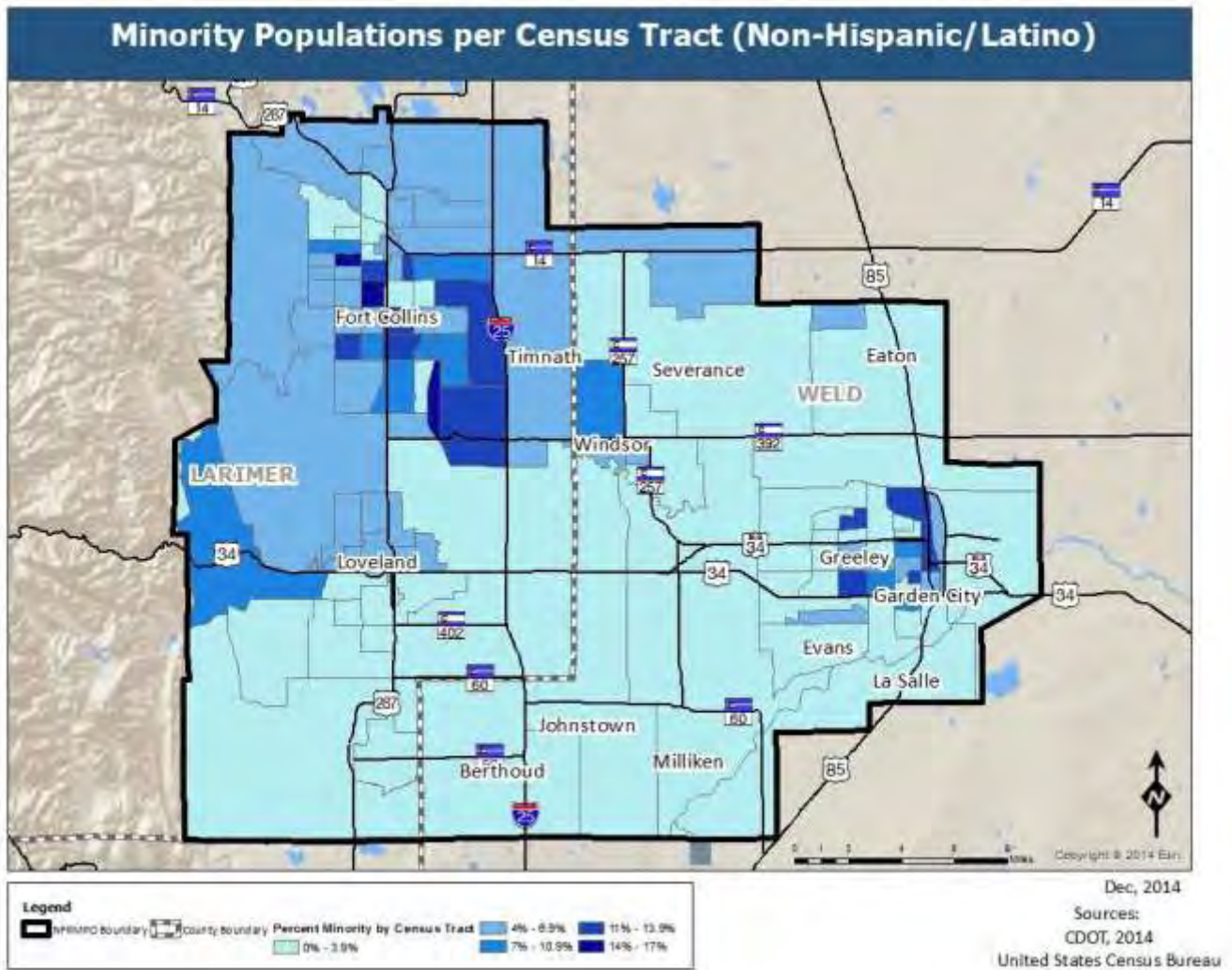
Figure 3-15: Hispanic/Latino Minority Populations



**Figure 3-16** combines all remaining minority populations from 2008-2012 ACS estimates. This analysis shows the predominance of the Hispanic/Latino minority and lack of diversity outside of Fort Collins and Greeley. The block groups in Fort Collins and Greeley are likely due to the presence of major universities and the influx of refugee populations over the past decade



Figure 3-16: Minority Populations



### Other Environmental Justice Populations

#### Limited English Proficiency

Executive Order 13166, *Improving Access to Services for Persons with Limited English Proficiency (LEP)* (2000), requires recipients of federal funds to examine the services they provide and identify any need for services to LEP populations. Census tracts with a moderate to high percentage of residents who are proficient in another language, but speak English “less than very well,” are considered to be EJ populations. These languages include Spanish, Asian Languages, African Languages, Arabic, and other languages. **Table 3-14** shows the top five LEP populations in the region. The NFRMPO is required to undertake special outreach for LEP populations. The NFRMPO maintains relationships with local translators who are available for public meetings and document translation for the region’s LEP population and can be requested as needed.



Language	Total	Percent of Population
Spanish	16,960	3.57%
Asian Languages *	1,393	0.29%
Other Indo-European Languages **	624	0.13%
African Languages ***	253	0.05%
Arabic	180	0.03%

\*Asian Languages include, but are not limited to Chinese, Japanese, Korean, Thai, and Vietnamese.

\*\*Other Indo-European Languages include, but are not limited to German, Greek, and Russian.

\*\*\*African Languages include, but are not limited to Afro-asiatic, Nilo-Saharan, and Niger-Congo.

### 65 Years of Age and Older

The NFRMPO also considers the Senior Population (age 65 and older) in the EJ process. Census tracts with a moderate to high percentage of senior residents are considered to be EJ areas. Seniors face different transportation and mobility challenges which may increase the need for safety improvements in the roadway and pedestrian system, and increased transit, paratransit, demand-response transportation systems, and increased transportation and transit connections throughout the region. Mapping the senior population in the region helps to show where to focus on those needs. **Figure 3-11** in the *Socio-Economic Data Section* shows the highest concentrations of residents age 65 and older by municipality.

### Disabled Populations

Census tracts with a moderate to high percentage of residents who are disabled are considered to be EJ populations within the region. ACS-designated disabilities include:

- ▶ **Sensory Disabilities** – conditions including blindness, deafness, or a severe vision or hearing impairment
- ▶ **Physical Disabilities** – conditions which substantially limit one or more basic physical activity.
- ▶ **Mental Disabilities** – physical, mental, or emotional condition lasting more than six months and impair a person’s ability to learn, remember, or concentrate.
- ▶ **Self-Care Disabilities** – physical, mental, or emotional condition lasting more than six months which impair a person’s ability to dress, bathe, or get around inside the home.
- ▶ **Go-outside-home Disabilities** – physical, mental, or emotional condition lasting more than six months and impair a person’s ability to go outside of the home to shop or visit a doctor’s office.
- ▶ **Employment Disabilities** – physical, mental, or emotional condition lasting more than six months which impair a person’s ability to work at a job or business.

Disabled populations face different transportation and mobility challenges which may increase the need for safety improvements in the roadway and pedestrian system, increased transit, paratransit, and demand-response transportation systems, and a higher need for mobility coordination efforts throughout the region. Additional information about existing and potential future transportation services are discussed in the *2040 Regional Transit Element (RTE)*.

**NFRMPO Environmental Justice Analysis Areas**

**Figure 3-17** shows Census tracts with minority populations greater than the regional average of 21.82 percent and tracts considered low income based on Median Household Income and Average Household Size. Census designated minority populations include Hispanic/Latino, Black (Non-Hispanic), Native American (Non-Hispanic), Asian (Non-Hispanic), Hawaiian Pacific Islander (Non-Hispanic), and Other (Non-Hispanic). When implementing transportation projects within the region, an EJ Analysis must be performed on projects within these areas.

**Figure 3-17: Environmental Justice Areas**



### NFRMPO Environmental Justice Process and Analysis

An EJ analysis must be completed on all projects included in the Transportation Improvement Program (TIP). If a project included in the TIP, or subsequent TIP amendments, lies within ¼-mile of or adjacent to an EJ population, an EJ analysis must be completed on the project individually. If it does not, the project is considered Non-EJ. The benefits and burdens of each project must be examined individually on all EJ and Non-EJ projects. An overall analysis on projects in the TIP determines if it meets EJ requirements. The analysis process follows the three guiding principles outlined in DOT order 5610.2(a) listed in the *EJ Background* section. **Chapter 12** includes an overall EJ analysis of regionally significant projects included in the FY2016-2019 TIP and 2040 RTP.

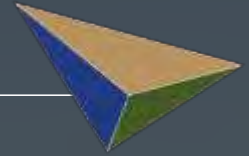
An EJ analysis also includes a determination of whether the transportation related activity will result in a “disproportionately high and adverse effect on human health and the environment” as defined in DOT order 5610.2(a). All EJ procedures are completed by NFRMPO staff. **Table 3-15** lists the benefits and burdens of an EJ or Non-EJ project.

Table 3-15: Environmental Justice Benefits and Burdens	
Benefit	Burden
Decrease in travel time	Air and water pollution
Improved air quality	Soil contamination
Expanded employment opportunities	Destruction or disruption of man-made or natural resources
Better access to transit options and alternative modes of transportation (walking and bicycling)	Adverse impacts on community cohesion or economic vitality
Improved quality of transit	Noise and vibration
Increased property values	Decrease in property values



# Chapter 4

## Performance-Based Planning





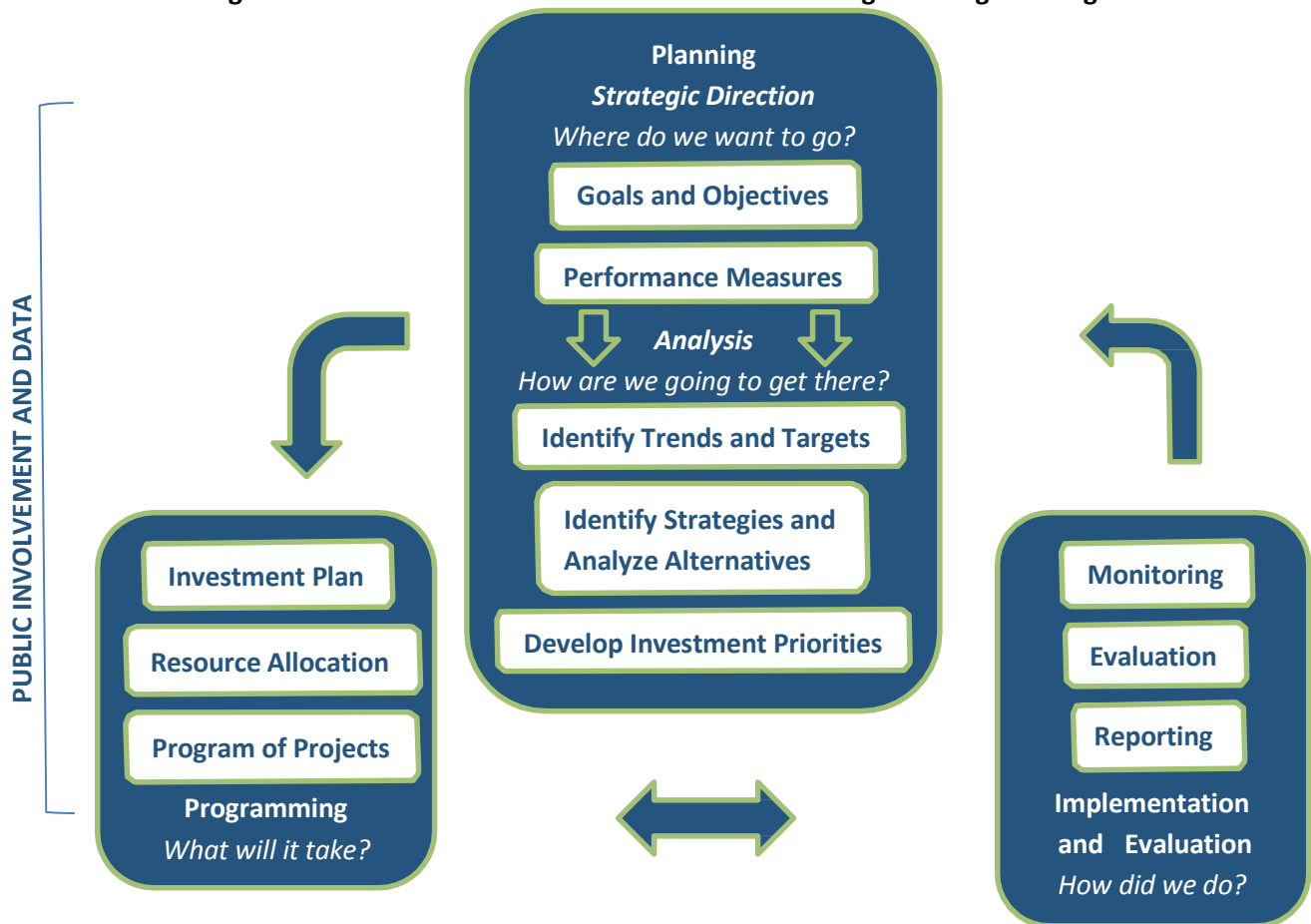
## Chapter 4: Performance-Based Planning

Transportation agencies have applied performance management in the planning process for decades. Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21) mandates this for the first time for all state-wide, metropolitan, and non-metropolitan transportation planning agencies to receive federal-aid funding. Performance-based planning uses the existing planning process to answer four primary questions:

- ▶ Where do we want to go?
- ▶ How are we going to get there?
- ▶ What will it take?
- ▶ How did we do?

This process framework is shown in **Figure 4-1**, along with its three stages: Planning, Programming, and Implementation and Evaluation.

**Figure 4-1: Framework for Performance-Based Planning and Programming**



*Source: FHWA, Performance-Based Planning and Programming Guidebook, 2013*

## A. Goals, Objectives, Performance Measures, and Targets

As identified in MAP-21, the Colorado Department of Transportation (CDOT) is required to develop goals, objectives, performance measures, and targets (GOPMT) aligning with federal goals. MAP-21 requires metropolitan planning organizations (MPOs) to align their GOPMT with both the federal and State Department of Transportation (DOT). These GOPMT must be used to drive project selection as MPOs are required to report in their Transportation Improvement Programs (TIP) and Regional Transportation Plans (RTP) the projects selected move the region towards achieving the goals, based on the targets adopted. The GOPMT are developed during the Planning stage of Performance-Based Planning.<sup>27</sup> This section reviews the three steps in Performance-Based Planning.

### Planning

The GOPMT are developed in the two phase Planning stage: Strategic Direction and Analysis. NFRMPO staff and the Technical Advisory Committee (TAC) began working on the GOPMT in May 2014. The NFRMPO's GOPMT are based on the national goals, CDOT GOPMT, real-time data, and examples from other MPOs. The development of each part of the GOPMT is summarized in the following section.

#### *Vision Statement*

A clear vision statement provides the strategic direction typically articulated for the public and stakeholders on how the GOPMT will work as a top-down performance-based process. The vision statement for the GOPMT addresses the question “Where do we want to go?” by defining the overall direction the region wishes to move towards. The vision statement for the 2040 RTP GOPMT is:

*“We seek to provide a multi-modal transportation system that is safe, as well as socially and environmentally sensitive for all users that protects and enhances the region’s quality of life and economic vitality.”*

#### *Goals*

Goals are the first step to supporting the vision statement. Goals address the key desired outcomes for the region. MAP-21 requires the NFRMPO to comply with national and State GOPMT. Currently, seven national goals have been established: infrastructure condition, freight movement and economic vitality, environmental sustainability, safety, congestion reduction, system reliability, and project delivery. CDOT was consistent with the national goals with the exception of eliminating project delivery as its own goal, instead encompassing it throughout all of their goals. The NFRMPO goals are shown in **Table 4-1**.

#### *Objectives*

Objectives are needed to support and accomplish the set goals. Objectives have not been released at the national level; however, CDOT has released a list of objectives for each of their goals. The NFRMPO used CDOT's objectives and local data to determine appropriate objectives for each goal.

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<sup>27</sup> FHWA's *Performance-Based Planning and Programming Guidebook*, September 2013.  
[http://www.fhwa.dot.gov/planning/performance\\_based\\_planning/pbpp\\_guidebook/pbppguidebook.pdf](http://www.fhwa.dot.gov/planning/performance_based_planning/pbpp_guidebook/pbppguidebook.pdf).

Table 4-1: Goals and Objectives	
Goals	Objectives
<b>Economic Development/Quality of Life:</b> Foster a transportation system that supports economic development and improves residents quality of life	Conforms to air quality requirement
	Maintain transportation infrastructure and facilities to minimize the need for replacement or rehabilitation
	Investment in infrastructure
<b>Mobility:</b> Provide a transportation system that moves people and goods safely, efficiently, and reliably	Reduce number of severe traffic crashes
	Use the Congestion Management Process (CMP) to reduce congestion
	Reliable travel times
<b>Multi-modal:</b> Provide a Multi-modal system that improves accessibility and transportation system continuity	Support transportation services for all, including the most vulnerable and transit-dependent populations
	Implement Regional Transportation Element (RTE), Regional Bicycle Plan, and North I-25 Environmental Impact Study (EIS)
	Develop infrastructure that supports alternate modes and connectivity
<b>Operations:</b> Optimize operations of transportation facilities	Use Transportation Demand Management (TDM) techniques to reduce congestion and optimize the system
	Implement Intelligent Transportation Systems (ITS)
	Enhance transit service in the North Front Range
	Reduce project delivery time-frame

*Performance Measures*

Performance measures support objectives and serve as a basis for comparing projects and tracking results over time. Performance measures finalize the strategic direction phase of the planning stage in **Figure 4-1**. Many performance measures can be used to accomplish multiple objectives, **Figure 4-2**. Performance measures are used to assess projects and to prioritize options. Performance measures were required for all projects in the FY 2016-2019 Call for Projects to determine if the projects selected would move the region towards accomplishing the goals. More detail on project selection and prioritization is discussed later in this chapter.

Performance measures also provide the foundation to answering the question “How did we do?” in the implementation and evaluation step. Performance measures are measurable data, able to be monitored and recorded over time. The NFRMPO performance measures approved by the Planning Council on September 4, 2014 are shown in **Table 4-2**.

*Targets*

Targets are specific levels of performance desired to be achieved within a certain time-frame. Targets are established for each performance measure. Targets are the first step in the analysis phase of the planning stage. This phase relies on baseline data from past trends, tools to forecast future performance, and information on possible strategies, available funding, and other constraints to allow appropriate targets, to be set. The NFRMPO used only attainable targets, while CDOT used both attainable and aspirational targets. The NFRMPO targets are listed in **Table 4-2**.

**Table 4-2: Performance Measures and Targets**

Performance Measure	Target	Data Source
Air quality conformity tests on plans and programs	Passes conformity	NFRMPO and CDPHE
Number of facility samples with poor surface conditions	Reduce by 1%	CDOT
Bridges with a sufficiency rating below 50.0	Less than 5% of bridges	CDOT
Five-year rolling average of injury and fatal crashes	No increase in crashes	CDOT
Regionally significant congested corridor with a travel time index of 2.5 times or less than free flow	Maintain at least 80%	INRIX, HERE, and CDOT; Fort Collins, Greeley, and Loveland Bluetooth Data
Population and essential destinations within paratransit and demand-response service area within the MPO boundary	At least 85%	COLT, GET, Transfort as available
Non-motorized facilities per capita	Increase by at least 2%	NFRMPO member agencies
Fixed-route revenue hours per capita within service areas	Increase by 30%	COLT, GET, Transfort as available
Transit service vehicles within useful life parameters established by FTA	Maintain 75%	COLT, GET, Transfort as available
VMT growth per capita	Change in VMT should not exceed change in population	NFRMPO Regional Travel Demand Model
Fixed-route ridership per capita within service areas	Increase by 10%	COLT, GET, Transfort



### **Programming**

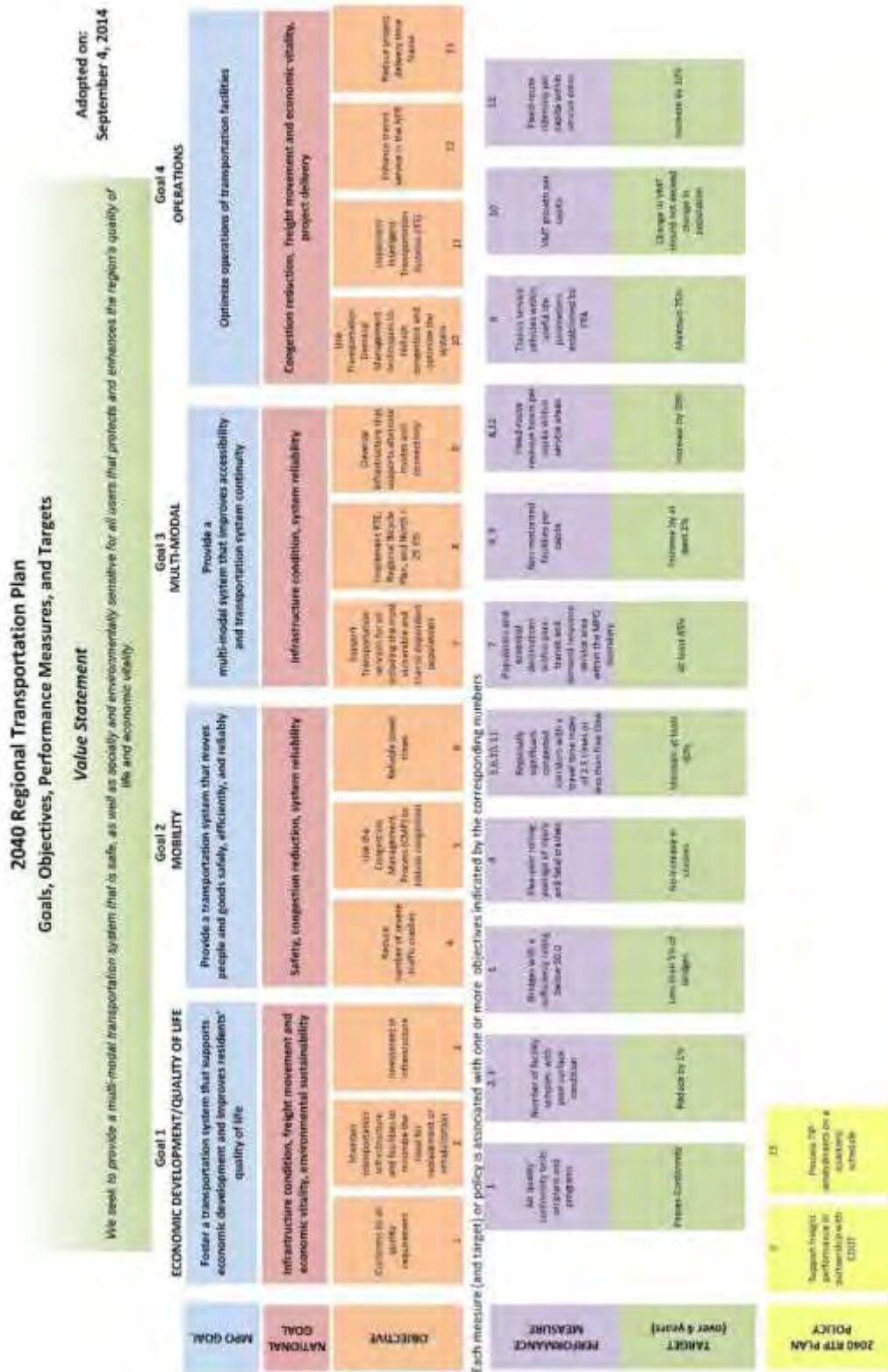
There are three phases in the programming stage of performance-based planning: investment plan, resource allocation, and program of projects. This stage answers the question “What will it take?” NFRMPO member agencies do not currently use the RTP as an investment plan, but could if they chose to do so. The NFRMPO receives resource allocations from three Federal Highway Administration (FHWA) funding sources: Surface Transportation Program (STP-Metro); Congestion, Mitigation, and Air Quality Program (CMAQ); and Transportation Alternatives Program (TAP). Projects submitted to the FY2016-2019 Call for Projects went through a selection process to receive funding and the selected projects were programmed into the FY2016-2019 TIP and FY2016-2019 State Implementation Program (STIP).

### **Implementation and Evaluation**

The last stage in performance-based planning is implementation and evaluation. Projects included in the TIP are selected on the basis of performance and show a clear link to meeting performance objectives. It is important to note what types of data are needed from these projects to ensure the projects selected move the region toward meeting the Goals and Targets. There are three phases important in checking the status of the region in achieving the GOPMT. These include:

- ▶ **Monitoring** – Gathering information on actual conditions.
- ▶ **Evaluating** – Conducting analysis to understand the extent that implemented strategies have been effective.
- ▶ **Reporting** – Communicating information about system performance and the effectiveness of plans and programs to policymakers, stakeholders, and the public. The NFRMPO will release an annual Systems Performance Report each fall to document progress toward achieving the Targets.

Figure 4-2: 2040 Regional Transportation Plan Goals, Objectives, Performance Measures, and Targets



## B. FY2016-2019 Call for Projects

For the FY2016-2019 Call for Projects, the NFRMPO member agencies had the ability to apply for three federal-aid funding programs: STP-Metro, CMAQ, and TAP. The NFRMPO is given an allocation for each program and hold a project selection process to prioritize eligible projects to receive funding. Each federal-aid funding program available for member agencies is summarized in this section, including the FY2016-2019 Project Scoring Criteria and Process and selected projects.

### Surface Transportation Program (STP-Metro)

STP-Metro is typically the most flexible and largest of the funding programs. These funds can be used for highway, bridge, transit, Intelligent Transportation Systems (ITS), and pedestrian and bicycle infrastructure projects. The NFRMPO receives a federal allocation for regional priority projects. The Planning Council approved TAC identified STP-Metro funding targets for large and small communities, communities larger than 50,000 people were classified as large and communities with less than 50,000 people were considered small. The Planning Council allocated 71.5 percent of the funding for large communities and 28.5 percent for small communities. Sponsors were limited in the amount of funding they could apply for, to cap the number of applications submitted. This allowed higher priority projects to move forward. The Planning Council also allowed small communities to use the federal STP-Metro funding for heavy maintenance improvements.

**Table 4-3: STP-Metro Project Selection**

Evaluation Criterion	Possible Points	
	Small*	Large**
Safety	25	50
Mobility (multi-modal, congestion, reliability, continuity, etc.)	25	45
System Preservation (maintaining the current system based on current pavement)	25	0
Partnerships (each partner must contribute at least 10% of the local match requirement)	25	5
<b>Total</b>	<b>100</b>	
*A small community has a population less than 50,000.		
**A large community has a population greater than 50,000.		

*With MAP-21, the Highway Bridge Program was eliminated and the money rolled into the National Highway Performance Program (NHPP). This forces STP-Metro funds to be used to pay for off-system bridges. A new burden to repair and rehabilitate deficient bridges will likely make it harder to use this source to fund local priorities in the future.*

Table 4-4: STP-Metro Project Selection								
Project	Sponsor	Total Funded	2016	2017	2018	2019	Federal Request*	Unfunded**
<b>CDOT Projects</b>								
I-25 Truck Climbing Lane	CDOT	\$3,000,000	\$3,000,000	\$0	\$0	\$0	\$3,000,000	\$0
I-25/Crossroads	CDOT	\$2,000,000	\$0	\$1,000,000	\$1,000,000	\$0	\$2,000,000	\$0
<b>Large Community Projects</b>								
Horsetooth and College	Fort Collins	\$2,367,867	\$0	\$1,252,912	\$1,114,955	\$0	\$2,400,000	\$32,133
US 34 Widening	Loveland	\$1,108,031	\$0	\$0	\$646,560	\$461,471	\$2,320,000	\$1,211,969
LCR 17 Expansion	Larimer County/	\$865,855	\$0	\$0	\$532,014	\$333,841	\$865,855	\$0
10 <sup>th</sup> Street Access Control Implementation	Greeley	\$1,498,216	\$0	\$0	\$0	\$1,498,216	\$3,100,000	\$1,601,784
US 287 Intersection	Fort Collins	\$0	\$0	\$0	\$0	\$0	\$1,168,000	\$1,168,000
<b>Small Community Projects</b>								
65 <sup>th</sup> Avenue Widening	Evans	\$1,230,705	\$293,529	\$937,176	\$0	\$0	\$1,808,259	\$577,554
Collins Street Resurfacing	Eaton/ Weld County	\$103,440	\$0	\$103,440	\$0	\$0	\$103,440	\$0
LCR 17 Expansion	Berthoud/ Larimer	\$1,000,000	\$0	\$0	\$0	\$1,000,000	\$1,000,000	\$0
<b>Total</b>		<b>\$17,765,554</b>	<b>\$3,293,529</b>	<b>\$3,293,528</b>	<b>\$3,293,529</b>	<b>\$3,293,528</b>	<b>\$17,765,554</b>	<b>\$4,591,440</b>
*The total requested amount of STP-Metro funds for the project.								
**The remaining balance from the federal request minus the total funded.								
<i>Source: NFRMPO FY2016-2019 TIP</i>								



### Congestion Mitigation & Air Quality (CMAQ)

The purpose of the CMAQ program is to fund transportation projects or programs that reduce emissions and contribute to attainment or maintenance of the National Ambient Air Quality Standards (NAAQS) for ozone and carbon monoxide (CO). The CMAQ program supports two important goals of the United States Department of Transportation (USDOT): improving air quality and relieving congestion.<sup>28</sup> CMAQ funds are required to be invested in the nonattainment ozone area and maintenance CO area. At a minimum, projects must include three things: they must be a transportation project, generate an emissions reduction, and be located in or benefit a nonattainment and/or maintenance area. The requirement which determines project criteria is its ability to generate an emissions reduction. The NFRMPO determined the emissions reduction in projects based on the evaluation criteria, depicted in **Table 4-5**. During project selection, the TAC identified three project pools for funding: signal timing, compressed natural gas (CNG) bus replacement, and CNG Equipment. In each funding pool, the communities with projects in the pools were allowed to negotiate the award recommendations for these pools. The projects selected for CMAQ funding for the FY2016-2019 are shown in **Table 4-6**.

Table 4-5: CMAQ Project Evaluation Criteria	
Evaluation Criterion	Possible Points
Short Term Emissions Benefit (Year 1)	20
Long Term Emissions Benefit (Years 2-5)	40
Total Emissions Benefit / Federal Cost	40
Total	100

<sup>28</sup> USDOT's *Transportation for a New Generation: Strategic Plan FY 2014-2018*, November 2014.  
[http://www.dot.gov/sites/dot.gov/files/docs/2014-2018-strategic-plan\\_0.pdf](http://www.dot.gov/sites/dot.gov/files/docs/2014-2018-strategic-plan_0.pdf)

**Table 4-6: CMAQ Project Selection**

	Project	Sponsor	Total Funded	2016	2017	2018	2019	Federal Request*	Unfunded**
<b>Signal Timing</b>	Greeley Comprehensive Traffic Signal Timing	Greeley	\$185,000	\$185,000	\$0	\$185,000	\$0	\$185,000	\$0
	Loveland Traffic Optimization	Loveland	\$380,000	\$380,000	\$0	\$380,000	\$0	\$380,000	\$0
	Loveland Adaptive Signals	Loveland	\$0	\$0	\$0	\$770,000	\$0	\$770,000	\$770,000
<b>CNG Bus Replacement</b>	GET CNG Bus Replacement	Greeley	\$3,880,230	\$764,842	\$778,567	\$5,892,933	\$1,558,255	\$5,892,933	\$2,012,703
	Transfort CNG Bus Replacement	Fort Collins	\$2,762,936	\$1,177,857	\$791,926	\$3,311,600	\$0	\$3,311,600	\$548,664
	COLT CNG Bus Replacement	Loveland	\$726,616	\$0	\$0	\$2,208,000	\$363,308	\$2,208,000	\$1,481,384
<b>CNG Equipment</b>	Vehicle/Expansion	Weld County	\$4,405,060	\$1,363,252	\$1,252,472	\$5,195,802	\$901,400	\$5,195,802	\$790,742
	LaSalle CNG Vehicle Replacement	LaSalle	\$103,054	\$103,054	\$0	\$107,627	\$0	\$107,627	\$4,573
	Loveland CNG Vehicle Replacement	Loveland	\$383,147	\$0	\$127,716	\$2,343,720	\$127,716	\$2,343,720	\$1,960,573
	Larimer County CNG Vehicle Replacement	Larimer County	\$383,147	\$95,787	\$95,787	\$1,473,662	\$95,787	\$1,473,662	\$1,090,515
<b>Total</b>			<b>\$13,209,190</b>	<b>\$4,069,791</b>	<b>\$3,046,791</b>	<b>\$3,046,467</b>	<b>\$3,046,466</b>	<b>\$21,868,344</b>	<b>\$8,659,154</b>

\*The total requested amount of STP-Metro funds for the project.

\*\*The remaining balance from the federal request minus the total funded.

*Source: NFRMPO FY2016-2019 TIP*

### Transportation Alternatives Program (TAP)

TAP was implemented with MAP-21. The program provides a variety of alternative transportation projects, including many previously eligible activities under separately funded programs such as Safe Routes to School, Recreational Trails, and the Transportation Enhancement (TE) Program. The TAP is the smallest funding program for the NFRMPO and has the most restrictive criteria. MAP-21 allocated TAP funding to MPOs based on population and allows MPOs to conduct their own project selection. NFRMPO member agencies are eligible for NFRMPO and CDOT TAP funds. The NFRMPO’s available funding is estimated at \$250,000 per fiscal year. The NFRMPO used CDOT’s Evaluation Criteria, shown in **Table 4-7**, for project selection to assist sponsors who might apply for both NFRMPO and regional CDOT TAP funds. After project selection, two projects received awards, the Great Western Trail and the Colorado Front Range Trail. Details of these projects are shown in **Table 4-8**. During the TAP project selection process, members of the Northern Colorado Bike & Ped Collaborative played a critical role in recommending two projects for selection to TAC.

**Table 4-7: TAP Project Evaluation Criteria**

Evaluation Criterion	Possible Points
Enhance Safety	20
Increase Bicycling and/or Walking Activity	9
Maximize Transportation Investment/Network Connectivity Improvement	11
Improve State and Regional Economy	8
Expand Recreational Opportunities, Enhance Quality of Life, and Improve Public Health	8
Provide Transportation Equity	4
Project Readiness	20
Integration with Plans and Community Documented Support	20
<b>Total</b>	<b>100</b>

**Table 4-8: TAP Project Selection**

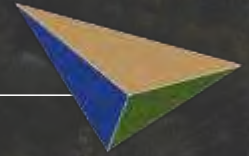
Project	Sponsor	Total Funded	2016	2017	2018	2019	Federal Request*	Unfunded**
Colorado Front Range Trail	Larimer County	\$450,000	\$250,000	\$200,000	\$0	\$0	<b>\$450,000</b>	\$0
Great Western Trail	Windsor	\$550,000	\$0	\$50,000	\$250,000	\$250,000	<b>\$550,000</b>	\$0
<b>Total</b>		<b>\$1,000,000</b>	\$250,000	\$250,000	\$250,000	\$250,000	<b>\$1,000,000</b>	<b>\$0</b>

\*The total requested amount of STP-Metro funds for the project.  
 \*\*The remaining balance from the federal request minus the total funded.  
*Source: NFRMPO FY 2016-2019 TIP*



## Chapter 5

### Environmental Profile



The University of Northern Colorado in Greeley. Image Credit: City of Greeley



## Chapter 5: Environmental Profile

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A variety of environmental considerations impact transportation planning and projects in the North Front Range Metropolitan Planning Organization (NFRMPO) area. These include air quality, historic and archaeological sites, agriculture, habitat and species, water and wetlands, and conservation areas, both current and potential. Of these, the NFRMPO has specifically designated responsibilities regarding air quality.

### A. Air Quality

North Front Range air quality is regulated by stringent State and federal laws. The North Front Range Transportation and Air Quality Planning Council (NFRT&AQPC) is the designated lead air quality planning organization for carbon monoxide (CO), while the Regional Air Quality Council (RAQC) is the designated lead air quality planning organization for ozone. Air quality planning and conformity with the State Implementation Plan (SIP) is a federally and State-sanctioned function of the NFRMPO. The NFRMPO must address motor vehicle emissions which constitute a major source of CO and ozone pollutants. The region has been in violation of the National Ambient Air Quality Standards (NAAQS) for CO since the 1990's and ozone since early 2000's. The North Front Range area is currently designated as a maintenance area for CO and a marginal nonattainment area for ozone.

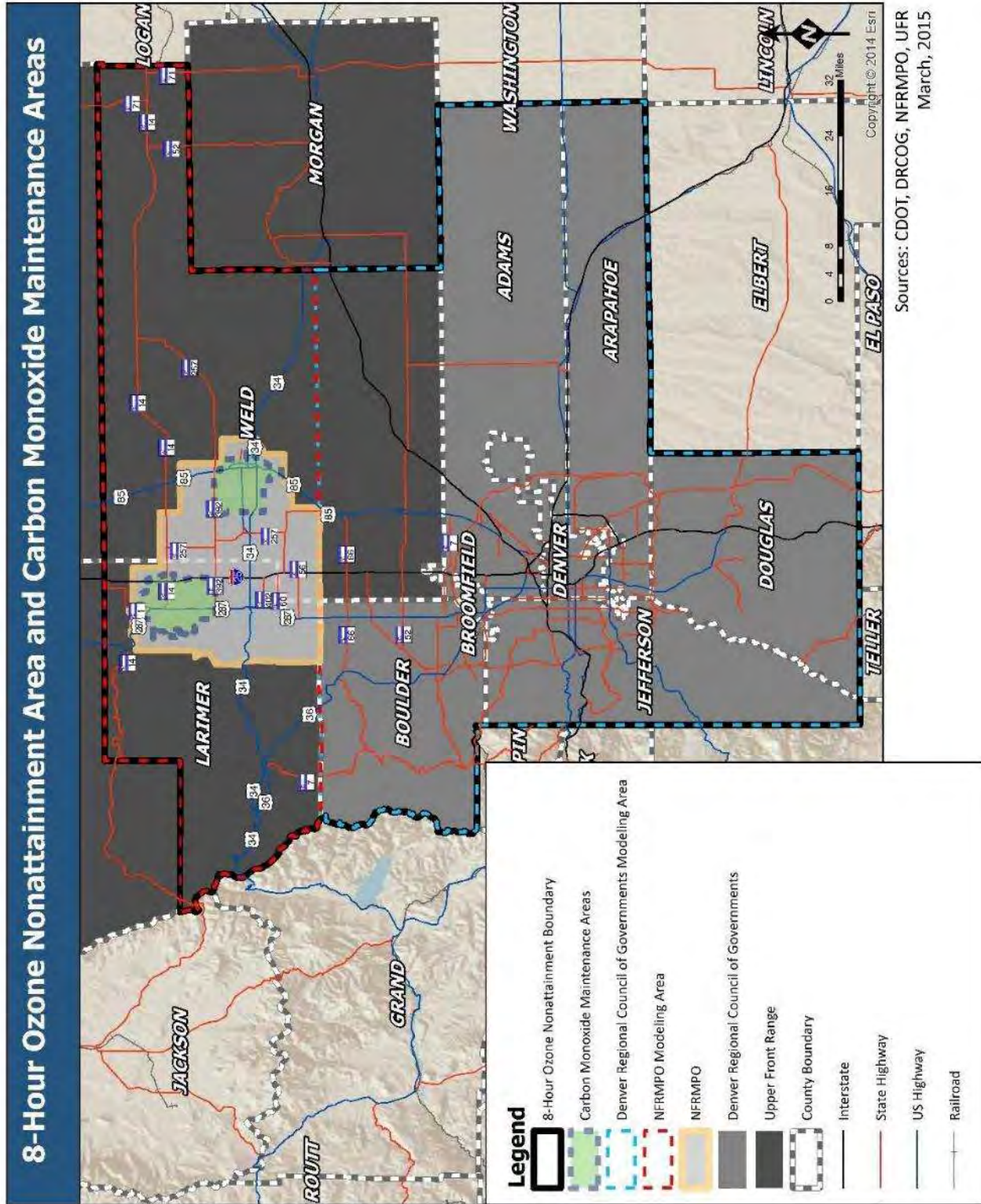
In 1993, the Governor of Colorado designated the NFRT&AQPC as the lead air quality planning organization for the Greeley and Fort Collins CO maintenance areas. In July 2013, Colorado Governor John Hickenlooper designated the RAQC as the lead air quality planning agency for the entire Denver/North Front Range Ozone nonattainment area. The Planning Council and RAQC, in cooperation with the Colorado Air Pollution Control Division (APCD), Colorado Department of Transportation (CDOT), and local governments are responsible for the development and implementation of transportation-related air quality planning projects within the NFRMPO Modeling Boundary, **Figure 5-1**.

A number of regional strategies are being implemented to offset the increase in emissions which accompanies high population growth rates. Strategies include a regional Transportation Demand Management (TDM) program with carpool and vanpool programs, regional transit planning, coordination with the Denver Regional Transportation District (RTD) on inter-regional transit services and planning for inter-regional bus service along the I-25 Corridor between Fort Collins and Denver funded by CDOT.

### **Carbon Monoxide Maintenance Areas—Fort Collins and Greeley**

In the late 1980s, portions of Fort Collins and Greeley were in violation of the NAAQS for CO. As a result, the previous nonattainment status continued with the Clean Air Act (CAA) Amendments of 1991.

Figure 5-1: Carbon Monoxide Maintenance Areas and 8-Hour Ozone Nonattainment Area



Fort Collins was re-designated to maintenance status on July 22, 2003.<sup>29</sup> A revision to the SIP on July 22, 2003<sup>30</sup> removed the Inspection and Maintenance (I/M) program and the oxygenated fuels program as a federal requirement, effective January 1, 2004. Eight years after an area is re-designated to attainment, the CAA Section 175(B) requires a subsequent maintenance plan covering a second 10-year term, which was approved on September 12, 2013.<sup>31</sup>

In the mid-1990s, CO levels improved substantially from improved engine and vehicle technology and Greeley was re-designated to maintenance status on March 10, 1999,<sup>32</sup> with a revision to the SIP on August 19, 2005<sup>33</sup> which removed the I/M program and the oxygenated fuels program as a federal requirement. A subsequent maintenance plan covering a second 10-year term was approved on August 2, 2013 extending the maintenance period to 2019.<sup>34</sup> The two CO maintenance areas are shown in **Figure 5-1**. A summary of the conformity documentation for the Greeley and Fort Collins CO Maintenance Plans is provided in **Appendix B**.

### Denver-North Front Range 8-Hour Ozone Nonattainment Area

In November 2007, the US Environmental Protection Agency (EPA) designated the Denver/North Front Range region as a nonattainment area for the 8-hour ozone standard of 80 parts per billion (ppb), adopted in 1997, when a deferral expired. This was due to violations of the 8-hour ozone standard which occurred in the summer of 2007. The official nonattainment designation effectively terminated the Early Action Compact (EAC) of previous years, explained later in the section, and necessitated adopting a SIP for ozone within one year, per EPA requirements. In addition, nonattainment status meant businesses requiring air quality permits would have more stringent requirements. Ozone conformity determinations are now required for all Transportation Improvement Programs (TIP) and Regional Transportation Plans (RTP). The designated ozone nonattainment area is shown in **Figure 5-1**. A summary of the conformity documentation for the Denver-North Front Range Ozone SIP is provided in **Appendix B**.

In March 2008, EPA established a more stringent 8-hour standard for ozone, based on a review of the most recent health effects information. The standard is currently set at a level of 75 ppb averaged over an 8-hour period. A revised SIP for the new ozone standard was submitted by the governor to the EPA on June 18, 2009. However, according to the *2008 Ozone Action Plan*, it contains provisions intended to begin moving the region to compliance with the 2008 standard. During this time, EPA implemented a five-year NAAQS review process of the 2008 standard to have a newly-revised standard by 2014.

In 2010, the motor vehicle I/M program expanded from the Denver Metro area into parts of Larimer and Weld counties to include Fort Collins, Greeley, and nearby jurisdictions within the nonattainment area. The expansion was implemented in November 2010, and was required by the *2008 Ozone Action Plan*.

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<sup>29</sup> 68 FR 43316, <https://federalregister.gov/a/03-18303>, 2003

<sup>30</sup> 68 FR 43316, <https://federalregister.gov/a/03-18303>, 2003

<sup>31</sup> 78 FR 56164, <https://federalregister.gov/a/2013-21987>, 2013

<sup>32</sup> 64 FR 11775, <http://www.gpo.gov/fdsys/pkg/FR-1999-03-10/pdf/99-5661.pdf>, 1999

<sup>33</sup> 70 FR 48650, <https://federalregister.gov/a/05-16486>, 2005

<sup>34</sup> 78 FR 46816, <https://federalregister.gov/a/2013-18439>, 2013

In 2012, the Denver Metro and North Front Range were classified as a marginal nonattainment area under the 2008 Ozone NAAQS by EPA.<sup>35</sup> This designation required areas to meet the standard by December 31, 2015. On December 17, 2014, EPA proposed a new NAAQS for ozone. This would change the primary and secondary standard to a level between 65 and 70 ppb. EPA is required to make its final ruling by October 2015. On December 23, 2014, the D.C. Circuit Court rejected the EPA's 2008 Ozone Air Quality Standard. This changed the attainment deadline to July 31, 2015 and revoked the 1997 NAAQS. On March 6, 2015, EPA issued a final rule<sup>36</sup> implementing the 2008 NAAQS for ozone and SIP requirements. The Denver Metro and the North Front Range will be reclassified as moderate nonattainment in January 2016.

#### *Background - Early Action Compact for Ozone*

Prior to 2007, the NFRMPO was included in the nonattainment area by EPA because of identified ozone precursor contributions from the region and air quality monitors exceeding the 1997 8-hour ozone NAAQS. In 2004, EPA included all of the NFRMPO area and additional portions of Larimer and Weld counties with the highest concentration of emissions inside the nonattainment boundary.

Larimer and Weld counties joined with the Denver Metro region in an EAC with EPA to defer nonattainment status. The EAC outlined control measures in place by the end of 2005 and required ozone readings to be back in compliance by the end of 2007. Control measures affecting the NFRMPO were emissions controls on stationary sources at oil and gas wells. In addition, EPA required the Reid Vapor Pressure (RVP), or evaporation rate, of gasoline be reduced to 7.8 pounds per square inch (psi) from the previous 9.0 psi RVP gasoline in the Denver area.

The EAC did not require any controls on mobile sources in the North Front Range region. At the time, the Denver Metro area was subject to an automotive inspection and maintenance program, but the EAC did not require it for the NFRMPO area.

#### *Ozone Action Plan (2008)*

In 2008, after several months of analysis, evaluation, and public input the RAQC and NFRMPO proposed an Ozone Action Plan to the State. The Air Quality Control Commission (AQCC) approved the plan in December 2008. The Ozone Action Plan includes a range of control measures to be included in the SIP, including federally-enforceable measures and State-only enforceable measures.

#### *Federally-Enforceable measures:*

1. Increase the system-wide control requirements for all condensate tanks to 85 percent by May 1, 2010 and 90 percent by May 1, 2011.
2. Remove exemptions for selected small sources required to file air pollution emission notices and obtain permits.
3. Require general application of permit requirements and reasonably available control technology (RACT) for all Volatile Organic Compound (VOC) stationary sources greater than two tons per year and Nitrogen Oxide (NOx) stationary sources greater than five tons per year in the whole nonattainment area.

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<sup>35</sup> 77 FR 30098, <https://federalregister.gov/a/2012-11618>, 2012

<sup>36</sup> 80 FR 12264, <https://federalregister.gov/a/2015-04012>, 2015



### State-Only Enforceable measures:

1. Implement an I/M program in the North Front Range (portions of Larimer and Weld counties).
2. Implement more stringent cut-points for the Denver metro area I/M program.
3. Continue implementing the high-emitter pilot program in the Denver metro area.
4. Tighten State collector plate requirements (currently all vehicles 25 years and older) by limiting collector plates to true collector vehicles and requires emissions testing for old, non-collector vehicles.
5. Implement statewide control requirements for reciprocating internal combustion engines (RICE).
6. By 2009, require low-bleed control devices on all new and existing pneumatic valves in oil and gas operations.
7. Expand current requirements for VOC controls in the entire nonattainment area.

In response to the AQCC October 2012 directive to consider full adoption of EPA's *Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution*,<sup>37</sup> on February 23, 2014, AQCC fully adopted:

- ▶ EPA's New Source Performance Standard Support Subpart Quad O into Regulation Number 6: *Standards of Performance for New Stationary Sources, Part A*;
- ▶ Corresponding revisions to the emissions reporting and permitting framework in Regulation Number 3: *Stationary Source Permitting and Air Pollutant Emission Notice Requirements, Parts A, B, and C*; and
- ▶ Complementary oil and gas control measures in Regulation Number 7: *Control of Ozone via Ozone Precursors and Control of Hydrocarbons via Oil and Gas Emissions (Emissions of Volatile Organic Compounds and Nitrogen Oxides)* to regulate methane emissions and reduce VOCs.<sup>38</sup>

These oil and gas control measures revisions concentrate on identifying and repairing leaks in the oil and gas sector, as well as additional recordkeeping and reporting requirements. These oil and gas control measures are estimated to reduce VOC emissions by approximately 93,500 tons per year and methane/ethane emissions by approximately 65,000 tons per year, at a cost of approximately \$42.5 M per year.<sup>39</sup>

### B. Historic and Archeological Sites

Section 106 of the National Historic Preservation Act (NHPA) outlines the process federal agencies and their designated representatives must follow when planning projects with the potential to affect significant historic and prehistoric properties. The Colorado State Register of Historic Places and the National Register of Historic Properties identify sites, areas, and communities that reflect the State's cultural heritage and resources. Areas and sites on the National Register of Historic Properties are automatically added to the Colorado State Register of Historic Places.

The region contains a wide variety of historical and archaeological sites. The National Register of Historic Places and the Colorado State Register of Historic Places organize historic sites into districts, resources, and structures. **Figure 5-2** displays the different sites located within the North Front Range. While most of the sites are located within Fort Collins, Greeley, and Loveland, there are sites located throughout the region. As of 2014, the region

<sup>37</sup> 40 CFR Part 60, Subpart OOOO (NSPS OOOO), <http://www.ecfr.gov/cgi-bin/text-idx?node=sp40.7.60.oooo>, 2014

<sup>38</sup> [https://www.colorado.gov/pacific/sites/default/files/003\\_030614-729AM-R3-6-7-fact-sheet-003\\_1.pdf](https://www.colorado.gov/pacific/sites/default/files/003_030614-729AM-R3-6-7-fact-sheet-003_1.pdf)

<sup>39</sup> [https://www.colorado.gov/pacific/sites/default/files/003\\_030614-729AM-R3-6-7-fact-sheet-003\\_1.pdf](https://www.colorado.gov/pacific/sites/default/files/003_030614-729AM-R3-6-7-fact-sheet-003_1.pdf)

had a total of 55 historic places, three resource districts, four historic structures, one cultural resource, and seven cultural districts. The most up-to-date information can be found on the Office of Archaeology and Historic Preservation’s website.<sup>40</sup>

As each community grows, they should evaluate the potential impacts of transportation improvements relative to the historic and archaeological sites. Additional sites may be added as deemed necessary with the help of historians or archaeologists.

### Mitigation

Colorado is required to update its Statewide Preservation Plan every 10 years. The underlying objective of this plan is to safeguard places, traditions, cultural connections, and the richness of Colorado’s heritage through education.<sup>41</sup> The 2020 Colorado Statewide Preservation Plan lists six overall goals for historic preservation in the State that build off the overarching objective:

1. Preserving the Places that Matter
2. Strengthening and Connecting the Colorado Preservation Network
3. Shaping the Preservation Message
4. Publicizing the Benefits of Preservation
5. Weaving Preservation Throughout Education
6. Advancing Preservation Practices

Using this preservation plan as a guide, communities can make informed decisions about how transportation planning impacts historic preservation within the North Front Range. The Statewide Preservation Plan can be found online at the Office of Archaeology and Historic Preservation’s website ([historycolorado.org](http://historycolorado.org)).

The potential impact of implementing a transportation improvement project relative to identified historic sites, as well as other sites considered for inclusion in the historic registers, must be evaluated prior to project initiation.

For construction projects and many maintenance activities, a certified historian and an archaeologist conduct on-the-ground surveys to identify, record, and evaluate cultural resources for eligibility to the National Register of Historic Places. When significant sites are identified within a proposed project area, an interdisciplinary team determines how best to avoid the sites or minimize adverse impacts during construction.

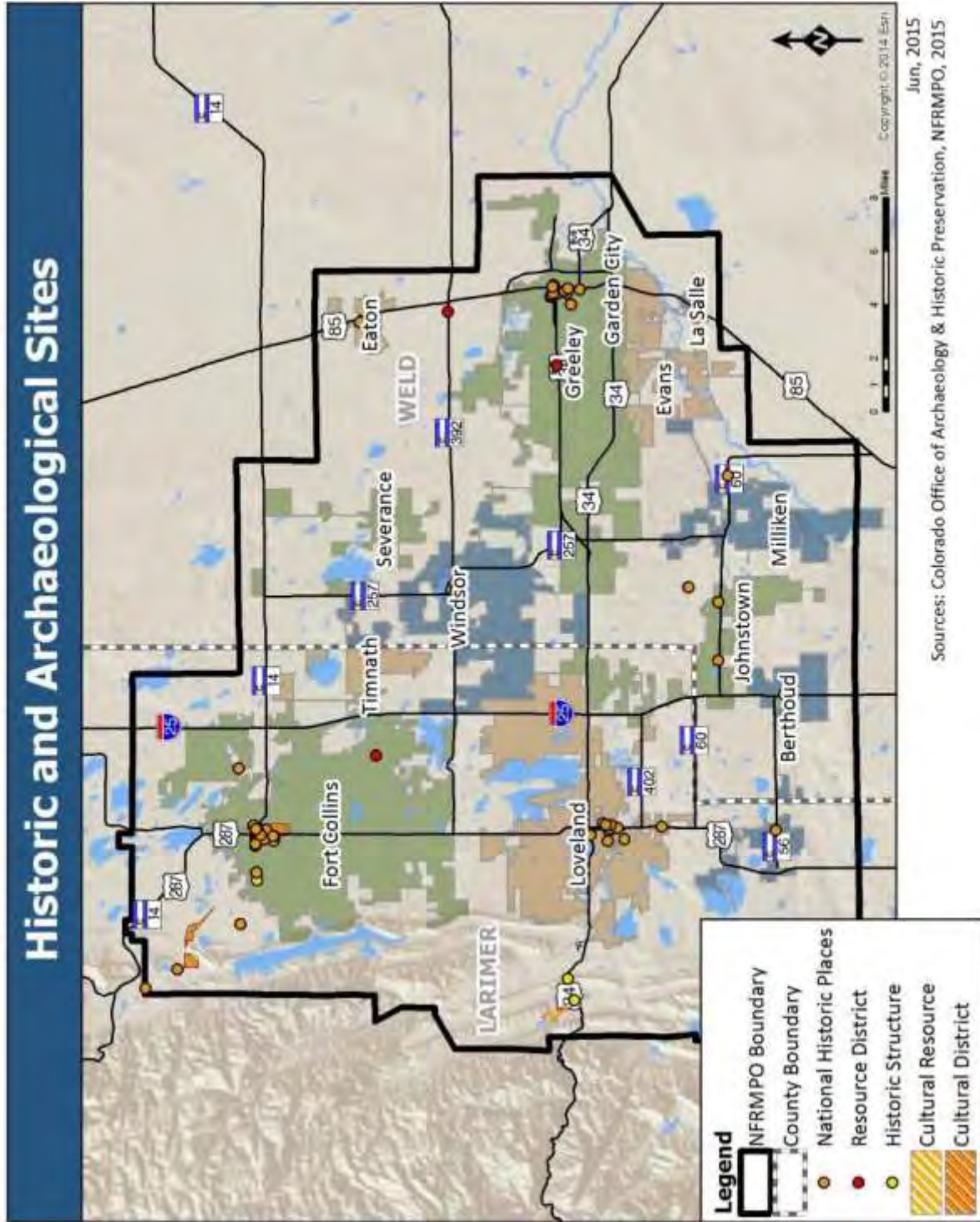
Fort Collins, Greeley, and Loveland maintain Historic Preservation Commissions, tasked with reviewing the impacts of development projects on historic sites and places. In 2011, Fort Collins undertook the Historic Preservation Process Improvements Study. Through a mix of public involvement and studying other communities’ best practices, Fort Collins has implemented revisions in its code, increased public notice, and improved the appeals process.

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<sup>40</sup> <http://www.historycolorado.org>, 2014

<sup>41</sup> <http://www.historycolorado.org/sites/default/files/files/OAHP/Programs/StatePlan.pdf>, 2014

Figure 5-2: Historic Preservation Sites



### C. Agricultural Land

Agriculture in the North Front Range is a major contributor to the economic vitality of the region. With over 2.5 Million acres of agricultural land, Weld County is one of the largest agricultural centers in Colorado. Weld County is one of the largest producers of livestock in the country, including two of the largest cattle feeding operations in the State.<sup>42</sup> Due to the fertile and well-irrigated land, Weld County is a large producer of hay, wheat, corn, sugar beets, barley, dry beans, onions, and carrots.<sup>43</sup> Larimer County also maintains an active agricultural sector, producing corn for grains, wheat, and vegetables.<sup>44</sup>

A large percentage of the rural land under cultivation within the North Front Range region is irrigated by an intricate network of canals, making it highly productive. These canals and their lateral ditches are crossed by streets, roads, highways, bike paths, sidewalks, and railroads. These crossings can pose engineering, project scheduling, and funding/contractual challenges during the development and implementation of transportation projects. These risks are covered in the *Natural Hazards* section of this chapter.

In addition, the conversion of agricultural land to urban and transportation uses is a regional and community issue. Conversions for transportation uses are typically addressed at the project level through actions to avoid or minimize such impacts.<sup>45</sup> The potential conversions are coordinated with federal agencies, particularly with regard to National Environmental Policy Act (NEPA) processes. Reporting of these kinds of conversions to the Natural Resources Conservation Service of the U.S. Department of Agriculture (USDA) is coordinated through CDOT.

The loss of farmland is an issue in both Larimer and Weld counties. Between 2007 and 2012, the number of farms in Larimer County decreased from 1,757 to 1,625, with a drop in acreage from 489,819 to 450,389. The average size of the farms in Larimer County decreased slightly. Meanwhile, Weld County decreased its number of farms from nearly 4,000 to approximately 3,500, with a decrease in farmland acreage from 2.08 M to 1.96 M. Conversely, Weld County increased the average size of farms by more than 20 acres.

The USDA conducts an agricultural census every five years and provides county profiles with the results. The results for the 2012 Census compared to the 2007 Census are shown in **Table 5-1**. Compared to the 2007 Agricultural Census, pastureland in both Larimer and Weld counties increased its percentage of the total, while all other categories decreased.

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<sup>42</sup> <http://www.co.weld.co.us/assets/c88682A241c8B23c0837.pdf>

<sup>43</sup> Weld County 2012 Agricultural Census

([http://www.agcensus.usda.gov/Publications/2012/Online\\_Resources/County\\_Profiles/Colorado/cp08123.pdf](http://www.agcensus.usda.gov/Publications/2012/Online_Resources/County_Profiles/Colorado/cp08123.pdf))

<sup>44</sup> Larimer County 2012 Agricultural Census

([http://www.agcensus.usda.gov/Publications/2012/Online\\_Resources/County\\_Profiles/Colorado/cp08069.pdf](http://www.agcensus.usda.gov/Publications/2012/Online_Resources/County_Profiles/Colorado/cp08069.pdf))

<sup>45</sup> See the Farmland Protection Policy Act [PL 97-98; 7 U.S.C. 4201 et seq.]



Type of Land	Larimer (%)		Weld (%)	
	2007	2012	2007	2012
Woodland	6.4%	5.2%	--	--
Cropland	24.5%	23.6%	47.3%	43.5%
Pasture	64.0%	67.8%	48.8%	53.2%
Other uses	5.2%	3.3%	4.0%	3.4%

*Source: Colorado Agricultural Statistics, USDA, Census for Agriculture, County Profiles, 2007 & 2012*

#### D. Threatened and Endangered Species

Wildlife habitat and its ability to support diverse species is important in the North Front Range region. Numerous laws and regulations protect wildlife species and their habitats. **Figure 5-3** illustrates some of the region’s bird and mammal species which are either threatened or important to this area. Short-grass prairie is the major habitat which supports a variety of species. Threatened and important species ensure a diverse, healthy environment, and are determined on a State and federal level. The Endangered Species Act of 1973 grants the US Fish and Wildlife Service (USFWS) the power to oversee listing and protection of terrestrial animals, plants, and freshwater fish. Colorado Parks and Wildlife (CPW) provides assistance at the State level. Riparian areas along major waterways are important as well, including the Cache la Poudre, Big Thompson, Little Thompson, and South Platte Rivers.

Along with individual pockets of habitat, some larger habitat areas cover the entire region. These include the Preble’s Meadow Jumping Mouse and Mule Deer ranges.



*Preble's Jumping Mouse. Source: USFWS*



*Mule Deer. Source: USFWS*

Many agencies assist in the compilation of important habitat and designated wildlife areas including: USFWS, CPW, and the Colorado Natural Heritage Program (CNHP).

The NFRMPO recognizes threatened and endangered bird, mammal, plant, and fish species inhabit Larimer and Weld counties. Further research must be conducted before a transportation project begins to determine if threatened or endangered species are an issue within the given project’s area.

#### Wildlife Habitat Mitigation

Owing to the diverse environment found in the North Front Range, the region has a variety of plant and animal species. Wildlife species and their habitats are protected by numerous laws and regulations. Habitats for regionally significant or endangered animals are shown in **Figure 5-3**.



CDOT has recognized the importance of the short-grass prairie habitat and created a proactive mitigation strategy by participating in the Short-Grass Prairie Initiative (SGPI). This initiative started in 2001 and covers over a third of the State, extending out to the eastern border with Kansas and Nebraska and from the northern border with Wyoming to the southern border with New Mexico. The SGPI includes the Nature Conservancy, USFWS, and other federal agencies and will protect up to 50,000 acres of the short-grass prairie in eastern Colorado over the next 20 years. This allows for CDOT projects which impact short-grass prairie to offset a project's impacts against the areas that have been created through the SGPI.

Colorado Senate Bill 40 requires any agency of the State to obtain wildlife certification from CPW when the agency plans construction in any stream or its bank or tributaries. CPW, a division of the Colorado Department of Natural Resources (DNR), is responsible for protecting and preserving the State's fish and wildlife resources through conservation, recreation, and wildlife management activities.<sup>46</sup> Certification from CPW must be obtained for actions with adverse impacts to streams or its bank or tributaries. Certification is provided by CPW which includes appropriate mitigation measures to eliminate or diminish adverse effects to such streams or their banks or tributaries. The Migratory Bird Treaty Act (MBTA) is a federal law that protects migratory birds, their nests, and eggs. This protection is extended to all birds in the region, with the exception of the rock dove (pigeon), English sparrow, and European starling.

## E. Natural Hazards

Owing to its location in the foothills of the Rocky Mountains, the North Front Range region experiences the risk for natural hazards. In recent years, wildfires and flooding have become an increasingly important issue. Each year the region faces multiple instances of snow, which can stick to roads and create dangerous conditions. Heavy flooding in 2013 left roads and bridges in a state of disrepair and have taken time to repair. In 2012, wildfires damaged property on the outskirts of the NFRMPO's western boundary. **Figure 5-4** shows the location of wildfires between 2012 and 2014 in addition to the 500-year flood zones in Larimer and Weld counties.

As shown in **Figure 5-4**, eastern Evans, northeastern Fort Collins, northern Greeley, LaSalle, southern Loveland, and Timnath are located near flood plains. These areas received heavy flooding during the 2013 floods. Additionally, the Horsetooth Reservoir separated and protected much of Fort Collins from the severe 2012 wildfire season.

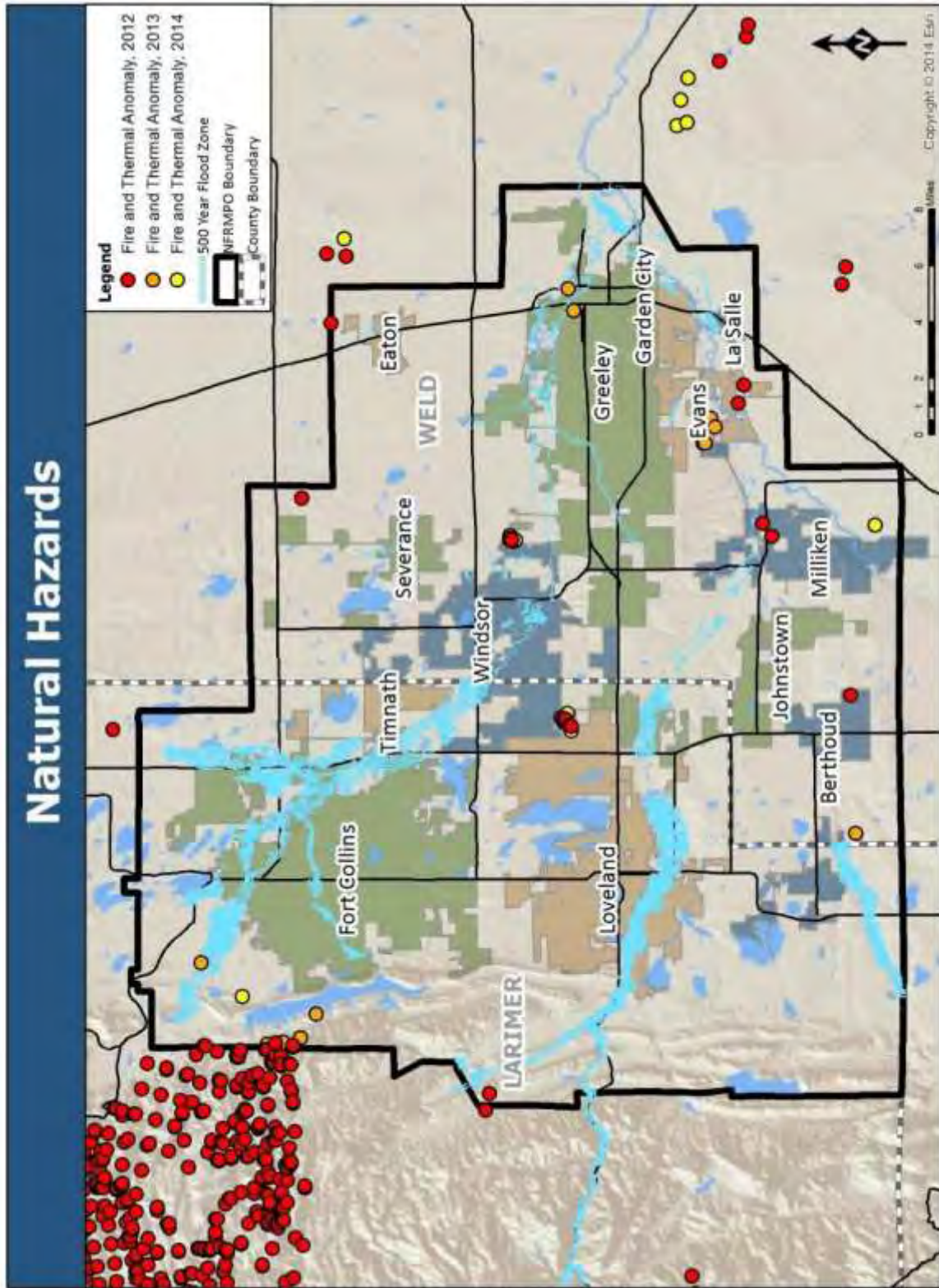
As transportation projects are programmed, the risks of developing in or near a flood plain or close to wildfire-prone areas should be acknowledged. Recovery can be expensive, but being prepared and aware can help to mitigate future issues.

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<sup>46</sup> CPW, 2015 (<http://cpw.state.co.us/aboutus/>)



Figure 5-4: Natural Hazards



Jun, 2015  
Sources: CDOT, US Forest Service, FEMA 2014



To deal with snow, local municipalities have prioritized the street networks within their jurisdictions. Seven communities offer some sort of snow removal process. Highest priorities include emergency routes, namely the routes connecting hospitals, fire stations, police stations, and rescue squad units. Second priority is given to streets which carry the highest traffic volumes, followed by schools and bus routes. Residential streets are usually not plowed, but intersections may be sanded. In every local jurisdiction, the highest priority takes precedence over the lower priorities; this means some lower priority streets may not be plowed to ensure resources are used on the highest priority streets.

#### F. Water Features and Water Quality

Numerous water bodies lie within and run through the North Front Range region. These include major rivers such as the Cache la Poudre, Big and Little Thompson, and South Platte Rivers, along with their minor tributary creeks and streams. The region also contains many lakes and reservoirs such as the Horsetooth and Windsor reservoirs, and Boyd, Carter, and Loveland Lakes. Two aquifers, Laramie and Laramie-Fox Hills, flow under the southeastern portion of the NFRMPO region. The water features and aquifers are illustrated in **Figure 5-5**.

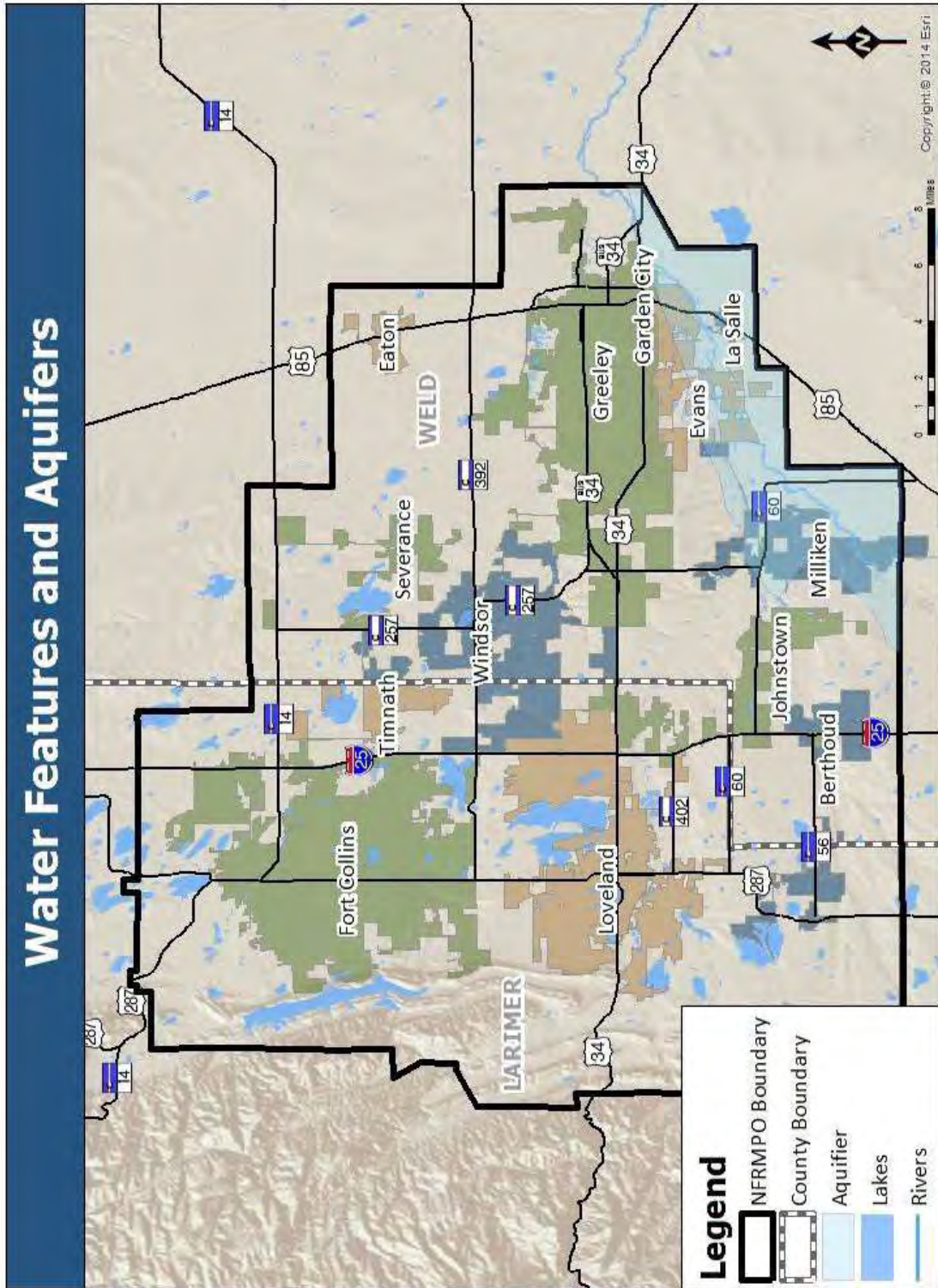
The Federal Clean Water Act (CWA) protects the waters throughout the US. From this act, the National Pollution Discharge Elimination System (NPDES) was created to develop water discharge standards to prevent pollution from entering the nation's waterways. The EPA oversees the CWA throughout the nation, but has granted CDPHE this duty in Colorado.

#### Water Quality Mitigation

In accordance with CDOT's Statewide Transportation Plan, mitigation strategies are used for water quality. The primary method is to control storm water discharges through best management practices which avoid or control runoff. CDOT is working with local municipalities, permit holders, and private developers to construct and maintain watershed scale water quality facilities. Using \$6.5M in a Permanent Water Quality Mitigation Pool (PWQ), CDOT will design and construct on-site PWQ control measures within CDOT's Municipal Separate Storm Sewer System (MS4) area. The first call for projects was held in spring 2015.

The region works to maintain clean water through an efficient system of reservoirs and water treatment facilities. The City of Fort Collins operates two Water Reclamation Facilities within the Lower Cache la Poudre River watershed and a single Water Treatment Facility. These facilities filter wastewater to meet or exceed all State and federal pollution control standards and to protect the Cache la Poudre downstream. Additionally, the City of Loveland is in the process of expanding its Water Treatment Plant in a \$20.5M project with expected completion in March 2016. Greeley operates two Water Treatment Plants and a Wastewater Reclamation Plant.

Figure 5-5: Water Features and Aquifers



Apr, 2015  
Sources: CDOT, 2014

## G. Wetlands

Wetlands are areas inundated or saturated by surface or ground water at a frequency or duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions.<sup>47</sup> In the North Front Range region, wetlands are primarily found adjacent to streams or rivers where the ground stays saturated. Wetlands are regulated by standards set by Section 404 of the CWA. **Figure 5-6** shows the wetlands within the region.

### Wetland Mitigation

CDOT projects are required by federal law to first avoid and, if not possible, minimize impacts to wetlands. Where impacts are unavoidable, they must be mitigated. Preference must be given to the use of wetland banks where the project impacts occur within the service area of an approved wetland bank. Use of wetland banks is not appropriate where locally important ecological functions should be replaced on-site. Outside of an approved wetland bank's service area, mitigation should be on-site or within the same watershed where the impacts are occurring.

As Colorado communities continue to grow, mitigating for wetland impacts is becoming increasingly difficult and expensive. Anticipating and planning for future projects and operations to avoid and minimize impacts as much as possible is increasingly important, as is proactive identification of methods to mitigate unavoidable impacts.

CDOT is currently involved in the identification and development of proactive mitigation programs for wetlands. Current programs include the development of new wetland banks and cooperative partnerships with state, local, and federal agencies for the development of wetland enhancement and restoration programs.

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<sup>47</sup> EPA, 2015 (<http://water.epa.gov/lawsregs/guidance/wetlands/definitions.cfm>)







## H. Conservation Areas

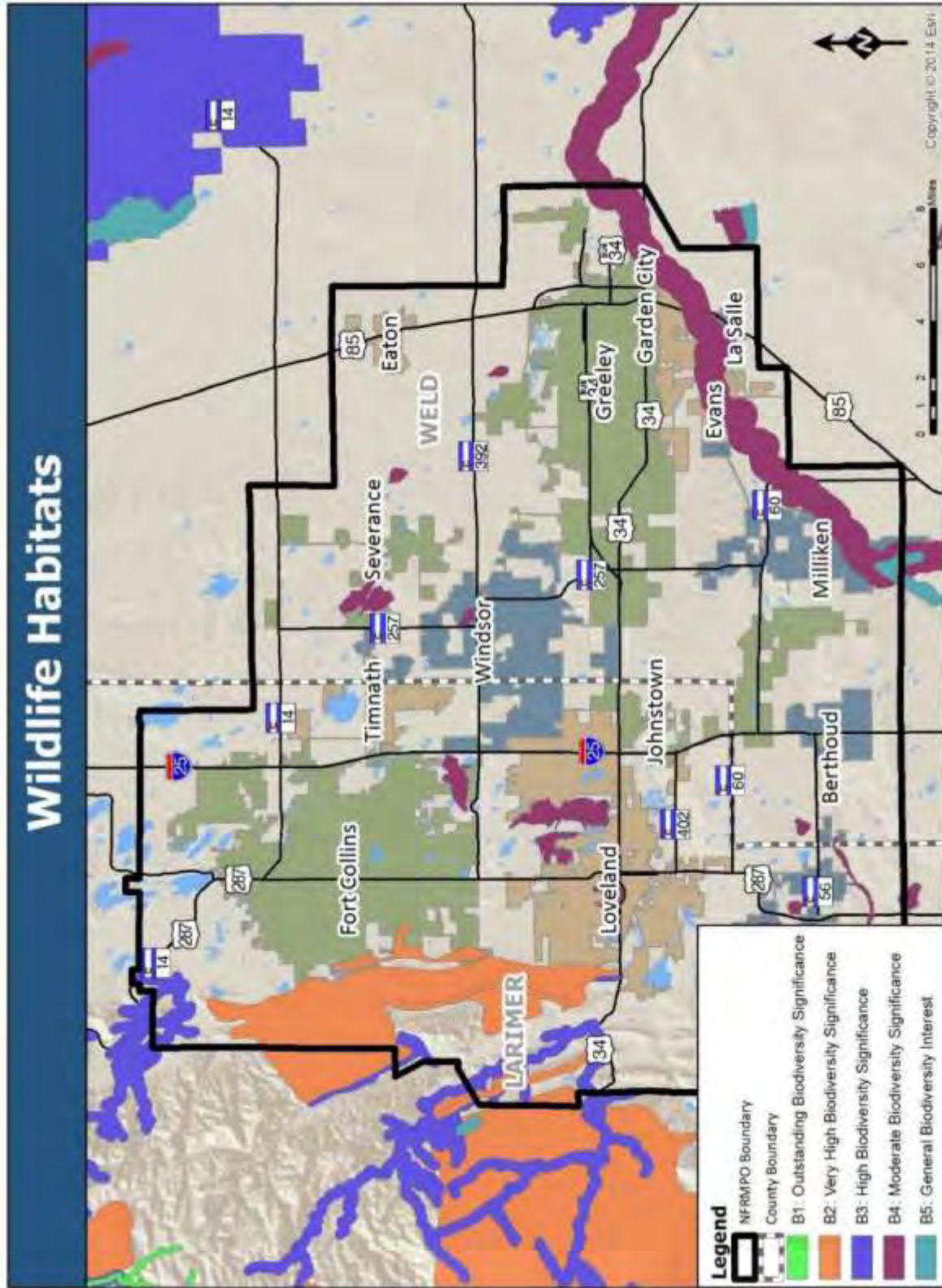
The CNHP identifies Potential Conservation Areas (PCA) on a Statewide basis regularly. A PCA is an ecologically sensitive area that provides species, suites of species, or a natural community upon which they depend, for its continued existence.<sup>48</sup> **Figure 5-7** identifies these areas within the NFRMPO. These areas are the best estimate of the primary area required to support the long-term survival of targeted species or natural communities. The size and configuration of a PCA is dictated by what species, communities, or systems the CNHP seeks to conserve at a given location. The PCAs do not necessarily preclude human activities, but the target's ability to function naturally might be greatly influenced by them, and the areas may require management to limit human use. The areas with "very high" and "high" biodiversity significance are generally found around Horsetooth Reservoir, Devil's Backbone, hogbacks, and along waterways in the foothills on the western edge of the region. The area along the South Platte River also has general biodiversity interest.

The Regionally Significant Corridors (RSCs) identified in **Chapter 2** have minimal contact with the PCAs, with the main contact points crossing over rivers. Proposed bicycle and pedestrian trails could potentially have more of an impact on the PCAs than RSCs, especially along the South Platte River because of its biodiversity interest.

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<sup>48</sup> [http://www.landscape.org/colorado/priorities/cnhp\\_pca/](http://www.landscape.org/colorado/priorities/cnhp_pca/)

Figure 5-7: Potential Conservation Areas



## I. Energy

Significant oil and gas production has been underway in the region for most of the past century. Consequently, it is not unusual to see drilling rigs and operations equipment being transported from one place to another. Much of the petroleum is transported away from wellheads by tanker trucks rather than through pipelines.

As shown in **Figure 5-8**, a large portion of Weld County and a small portion of Larimer County sit within the Wattenberg Gas Field. The Wattenberg Gas Field extends throughout Weld County south to Denver. Much of the economic growth in Weld County has been a result of the oil and gas industry. Weld County had more than 2,300 existing permits and 400 pending permits in 2014, while Larimer County had four permits and 15 pending in 2014. In 2012, Weld County produced 36,648,474 barrels of oil out of 49,384,913 barrels produced Statewide.<sup>49</sup> By comparison, Larimer County produced 171,772 barrels in 2012.

The presence of a thriving oil and gas production industry has had air quality consequences due to the emissions of gaseous pollutants from wellheads. Modeling of air quality for transportation conformity analyses is required to take these emissions into consideration (see the **Air Quality** section of this chapter). Consequently, some unique dependencies exist in the region between the oil and gas industry and the expansion and maintenance of the transportation system.

The Niobrara Shale is a shale rock formation covering Northeastern Colorado, Southeast Wyoming, Southwest Nebraska, and Northwest Kansas. Oil and natural gas can be found within these rock formations beneath the ground surface at depths of approximately 7,000 feet or greater. Companies drill wells vertically and horizontally to access the oil and gas, and use a complex fracturing system to extract the resource. Companies are still in the early stages of exploration of the Niobrara play; however, results appear to be promising and an assessment of long-term production is underway. In 2013 and 2014, oil and gas companies were actively expanding their mineral interests and leases in Weld County.

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<sup>49</sup> COGCC Reports: <http://cogcc.state.co.us/COGCCReports/>







## J. Planning and Environmental Linkages

### Process and Guidance

The Federal Highway Administration (FHWA) defines the Planning and Environmental Linkages (PEL) process as a collaborative and integrated approach to decision-making that considers environmental, community, and economic goals early in the transportation planning process. The PEL process uses information, analysis, and products developed during the planning stages to inform the environmental review, or NEPA process. MAP-21 acknowledges the FHWA PEL process and states a PEL study is beneficial to the planning process by incorporating environmental and community values into transportation decision making at the beginning stages of project planning and development. Additionally, PEL processes allow non-transportation agencies, such as federal, State, local, and tribal government resource agencies, to be an important part of the decision making process.

The 2035 RTP 2011 Update referenced an environmental streamlining project (Strategic Transportation and Environmental Planning Process for Urbanizing Places (STEP UP)) for Colorado to develop an improved process for addressing environmental impacts of transportation projects at early stages of planning. The project was initially a partnership between the NFRMPO, CDOT, EPA, FHWA, USFWS, US Army Corps of Engineers (USACE), USDOT, Colorado State Historic Preservation Office, and the CPW to develop tools to assist with more comprehensive and effective transportation, land use, and environmental planning. The target for STEP UP was to provide high quality data, limit environmental impacts, and have coordination early on with Resource Agencies and other public officials with environmental responsibilities.

CDOT has not implemented STEP UP as originally intended due to the challenges of organizing data being greater than anticipated. CDOT continues to pursue PEL studies in an effort to improve efficiency, reduce environmental impacts, and lower the costs of implementing transportation projects through the environmental review stages. The PEL process also helps to streamline projects and shorten decision-making by identifying planning studies before a full NEPA process, which requires evaluation of relevant environmental effects of a federal project or action, including developing alternatives, occurs.

In December 2012, CDOT, in coordination with FHWA, released a PEL Handbook to provide guidance on integrating transportation planning efforts with the NEPA process. CDOT's PEL process demonstrates the need to streamline decision-making and project implementation while focusing on environmental considerations to coordinate with the NEPA process. PEL studies are also used as tools to identify varying political needs and desires when a corridor spans multiple jurisdictions by combining efforts with multiple community technical experts and elected officials. Additional information on CDOT's PEL guidance can be found on the CDOT website at [www.codot.gov/programs/environmental/planning-env-link-program](http://www.codot.gov/programs/environmental/planning-env-link-program).

### Examples of PEL Studies in the North Front Range Region

#### *US 34 Optimization Plan*

The intent of the US 34 Optimization Plan was to identify basic needs for a 25-mile segment of US 34 from I-25 east to Kersey. The study was intended to identify specific needs of the corridor to determine services needed to meet future travel needs. The plan was a collaborative effort between Evans, Greeley, Johnstown, Kersey,

Loveland, Milliken, Windsor, and Larimer and Weld counties. The plan also identified environmental constraints along the corridor, which will be used in any future NEPA process.

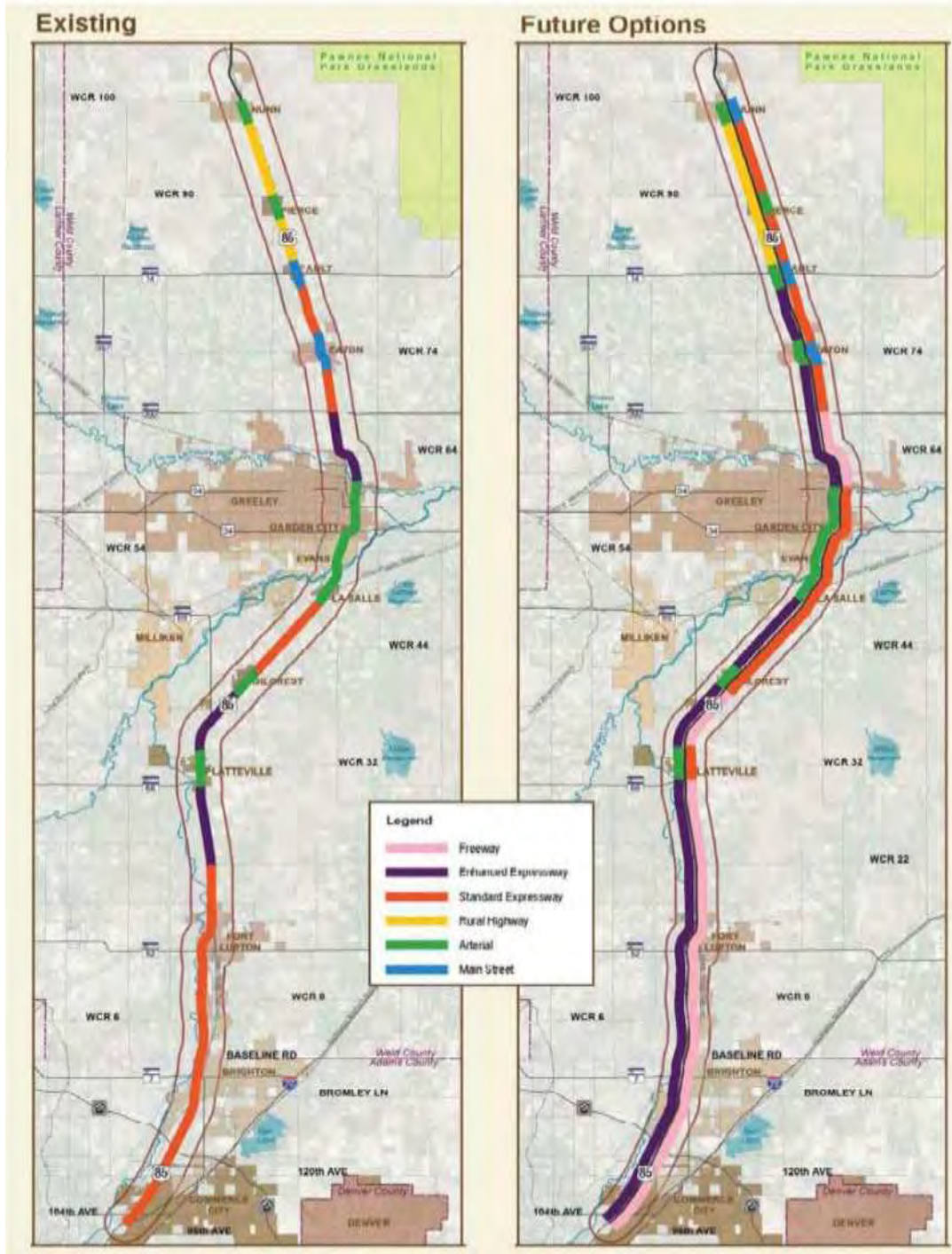
#### *US 85 PEL*

The US 85 PEL Study, currently underway, aims to develop a vision for the US 85 Corridor between I-76 and the Town of Nunn. The study uses considerations from the US 85 Access Control Plan and incorporates prioritization and implementations strategies for the different sections of the corridor. The US 85 PEL process is a collaborative approach between CDOT, local community representatives, MPOs, and the public. The PEL Study also aims to review the environmental, economic, and developmental impacts of individual communities along the corridor to develop alternatives to address needs, funding, and project prioritization. The PEL is scheduled to be completed in Fall 2015.

The NFRMPO participates in the US 85 PEL study as a member of the Technical Advisory Committee (TAC) and the Executive Committee. The TAC is comprised of representatives from communities along the corridor, regional and local transportation planning staff, CDOT representatives, as well as members of special interest groups. The NFRMPO will be used as a source of information and funding in future call for project cycles as priorities along the corridor arise in member communities. Outputs from the NFRMPO travel demand and land use allocation models could also be utilized when studying future travel demand and community population and employment growth predictions along the corridor.

**Figure 5-9** shows the US 85 Corridor Sections as defined in the US 85 PEL.

Figure 5-9: US Highway 85 Classification Diagram



Source: Felsburg, Holt, & Ullevig, 2015

## K. Environmental Mitigation

Much progress has been made in mitigating transportation's effects on the environment. According to 23 CFR §450.104, environmental mitigation activities are "*policies, programs, actions, and activities that, over time, will serve to avoid, minimize, or compensate for (by replacing or providing substitute resources) the impacts to or disruption of elements of the human and natural environment associated with the implementation of a long-range statewide transportation plan or metropolitan transportation plan.*" Mitigation efforts should benefit neighborhoods and communities, cultural resources, parks and recreation areas, wetlands, water sources, natural areas, endangered and threatened species, and the ambient air. Project impacts are considered in the planning phase rather than after the project finishes.

Regional and statewide mitigation efforts have been discussed throughout this chapter. CDOT programs are aimed at improving air and water quality, preserving the delicate ecosystem of Eastern Colorado via the SGPI, and moving toward sustainable and cleaner energy production. All of these mitigation efforts are in line with CDOT's Statewide Transportation Plan and policies set and enforced by CDPHE.

Mitigation for disruption to the human environment is addressed in the *Environmental Justice* section of **Chapter 3**.

### National Environmental Policy Act (NEPA)

Signed in 1970, NEPA is the federal environmental policy, which aims to incorporate the environment into the decision-making process. The three step NEPA process is important to transportation planning across the country, and includes:

- ▶ **Categorical Exclusion**  
Projects that meet federal agency's criteria for no significant environmental impact may be excluded from further NEPA examination.
- ▶ **Environmental Assessment (EA) / Finding of No Significant Impact (FONSI)**  
The EA is a report which determines whether a project significantly impact the environment. If the project will not significantly affect the environment, then the agency issues a finding of no significant impact or FONSI.
- ▶ **Environmental Impact Statement (EIS)**  
An EIS is prepared when a noteworthy impact is expected to significantly impact the environment. The EIS considers alternatives and proposed actions. Outreach must be provided.

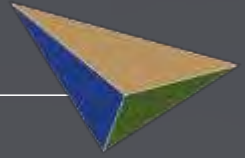
### State Level Requirements

Colorado enforces federal requirements for environmental mitigation, specifically for air quality and the environment. CDPHE works alongside the EPA to enforce the federal EAs and EISs. CDPHE is also the lead for air quality regulations for the State and local agencies in Colorado, including the NFRMPO.



# Chapter 6

## Transportation Safety and Security



Downtown Johnstown. Image Credit: Town of Johnstown

## Chapter 6: Transportation Safety and Security

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### A. Safety

One of the core goals of the North Front Range Metropolitan Planning Organization (NFRMPO) is to reduce the number and severity of crashes on regional transportation facilities. Specifically, the target is to have no increase in crashes over the next five years. Safety is considered at all levels of the system, including roads, transit, bicycle and pedestrian facilities, and at-grade railroad crossings. The NFRMPO considers the reduction in crash rates, improvement of at-grade crossings, and safer bicycle and pedestrian facilities during the Call for Projects phase of the Transportation Improvement Program (TIP) when selecting projects.

Successive federal transportation spending bills have shifted transportation planning focusing on safety for roads, non-motorized trails, transit, and railroads. Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21), the most recent and current authorization bill continued the shift to additional federal spending for safety projects. The inclusion of additional requirements from the Americans with Disabilities Act (ADA) has also made aspects of the transportation system safer for those with disabilities. Additionally, emergency response organizations are collaborating at the scene of traffic incidents to improve safety and efficiency.

MAP-21 pushed transportation planning to become goal and performance measure oriented. As a result, the NFRMPO defined its *Mobility* goal to include the following performance measures:

- ▶ Reduce facilities with poor surface condition by one percent;
- ▶ Ensure less than five percent of bridges have a sufficiency rating below 50.0; and
- ▶ No increase in crashes on a five year rolling average of injury and fatal crashes

These performance measures will influence projects awarded funding through the NFRMPO's TIP Call for Projects.

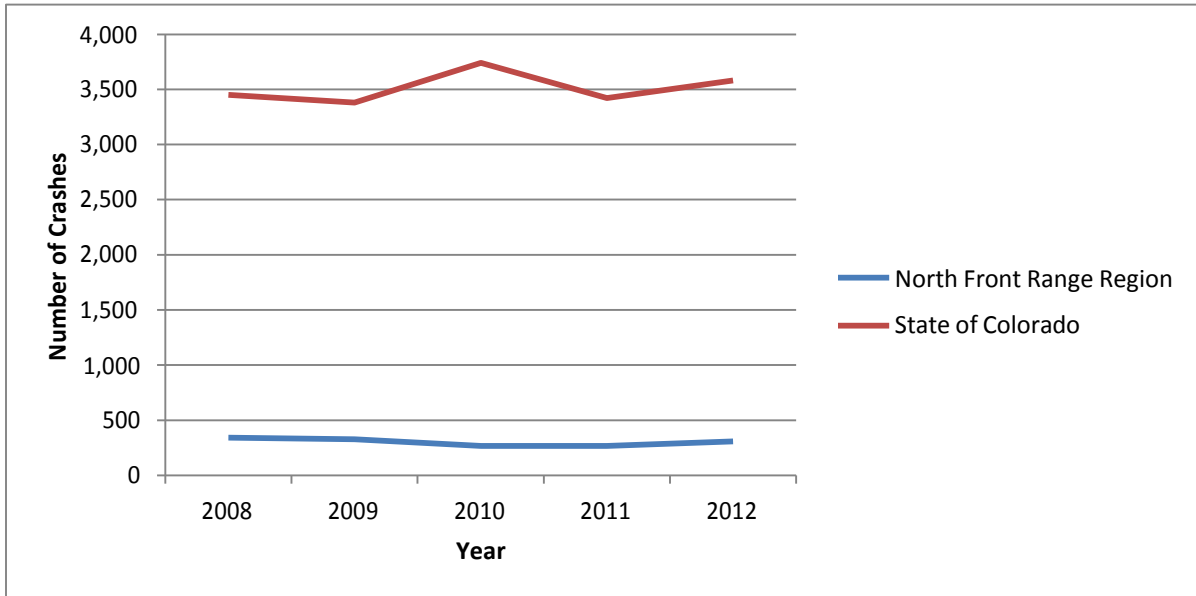
### Crash Data

NFRMPO and municipal staff track regional incidents and identify areas where crash data shows a high rate of incidents. Crash rate information is detailed in **Chapter 2**. Since crashes impact the regional transportation system, **Chapter 11** explains the different methods the region employs to manage congestion, what information is provided on transportation system performance, and what strategies can alleviate congestion. Multiple strategies can improve reliability and safety by understanding the underlying congestion causes.

### Crash Trends

To show how the number of crashes across the region relates to statewide trends, **Figure 6-1** compares the number of crashes involving injuries and/or fatalities on state highway facilities within the NFRMPO boundary to the total number of crashes in the State of Colorado. The number of severe crashes in the North Front Range region fell between 2008 and 2012; however, there was an increase between 2011 and 2012. During this same five year period, crashes on the entire State Highway system increased. The NFRMPO and local jurisdictions should continue to monitor local and regional crash trends to assess progress for the *Mobility* performance measures.

Figure 6-1: Injurious and Fatal Crashes, 2008-2012



Source: CDOT, Colorado State Patrol. 2015

### Statewide Initiatives

The NFRMPO works alongside and follows initiatives undertaken at the state level. A variety of plans have been produced to ensure an open dialogue, a statewide policy, and a coordinated effort to improve safety on Colorado’s transportation system. These plans are available on the Colorado Department of Transportation’s (CDOT) Safety website at [www.codot.gov](http://www.codot.gov).

In 2006, Colorado published its Strategic Plan for Improving Roadway Safety (SPIRS). For the 2014 update, Colorado produced the State Highway Safety Plan (SHSP) which established the state’s *Towards Zero Deaths* (TZD) initiative. The plan notes in the 10 years between 2002 and 2012, traffic-related fatalities in Colorado dropped 36 percent and serious injuries declined 35 percent.<sup>50</sup> To continue this decrease, the SHSP brought together a range of stakeholders to achieve TZD in eight emphasis areas: aging road users; bicyclists and pedestrians; impaired driving; infrastructure – rural and urban; motorcyclists; occupant protection; young drivers; and data. The plan also established a Distracted Driving Task Force, to conduct research into the issue of distracted driving.

Every year CDOT publishes the Colorado Integrated Safety Plan (ISP). Produced by CDOT’s Office of Transportation Safety and Traffic and Safety Engineering Branch, the ISP identifies the state’s goals, objectives, and strategies for improving traffic safety. The plan presents different funding sources, the amounts allocated to each CDOT region, and potential projects/project types that could be funded. Every year CDOT studies the crash data, including number and severity, and further refines existing strategies to reduce and mitigate future crashes.

<sup>50</sup> <https://www.codot.gov/safety/safety-data-sources-information/safety-plans/colorado-strategic-highway-safety-plan>

In 2012, CDOT produced the I-25 Traffic Incident Management Plan (TIMP) for the section from SH 7 to the Wyoming State Line. The plan is the culmination of an effort by nine fire districts, 12 law enforcement agencies, 12 cities and towns, three counties, CDOT, and WYDOT. The main objectives of the TIMP are: responder safety; safe, quick clearance of incidents; and prompt, reliable, inter-operable communications. Underlying this plan is the need to create relationships between agencies and conversations between responders so there is a consistent and coordinated effort at the scene of an incident. In addition to the physical plan, CDOT has created a program for its staff to travel throughout the North I-25 region to different emergency response agencies and train responders about the plan.

In 2009, Coloradans passed the Funding Advancements for Surface Transportation and Economic Recovery (FASTER) Act, ensuring a stable flow of funding to safety, transit, highway, and bridge projects. This source of funding has been used throughout the region to enhance the safety of the regional transportation system. Safety projects include pavement resurfacing and culvert repairs, variable messaging signs, and bicycle-pedestrian facilities. Municipalities within the NFRMPO region have worked diligently to use this funding to improve the safety of the region's transportation system.

### **Transit Safety**

MAP-21 authorized the Federal Transit Administration (FTA) to regulate safety for all modes of public transportation. As a result, Direct Recipients (DR) of \$5307 Urbanized Area Formula Grants Program funds must develop, implement, and certify a Public Transit Agency Safety Plan within one year of FTA's ruling. The Safety Plans are one part of the National Safety Program, which also includes the National Public Transportation Safety Plan, the Public Transportation Safety Certification Training Program, and the State Safety Oversight Program. As of June 2015, there has been no ruling from FTA and no local agencies have created these plans.

### **Rail safety**

As discussed in **Chapter 2**, the region has extensive railroad track mileage running in both the rural and urban areas. There are 118 at-grade crossings in Larimer County and 198 in Weld County. BNSF Railway, Great Western Railway (GWR), and Union Pacific Railroad (UPRR) provide multiple programs to ensure track safety.

American railroads ensure a culture of safety is followed both internally and on the tracks. BNSF Railway and UPRR staff inspect their routes multiple times per week for internal defects, track strength, undue stress on wheels, or preventable equipment failures.

Educating people about safety near railroad tracks is an important undertaking for the railroads. UPRR and BNSF Railway provide safety grants, which can be used by communities to provide education about safety near railroads. Grants can be used for youth education activities, school or community safety days, community safety blitzes, and at-grade crossing educational enforcement activities. In addition to programs for the public, the railroads maintain a firm commitment to safety behind the scenes. The railroads provide safety and technical training for all employees. Employees are trained in the field, on the job, and at centralized training centers.

Operation Lifesaver Inc. (OLI) is a rail safety education program, which was established in 1972. The non-profit organization offers free rail safety education programs using a network of authorized volunteer speakers and trained speakers. OLI focuses on what it calls the three E's: education, enforcement, and engineering. By partnering with federal, state, and local government agencies, highway safety organizations, and the freight



railroads, OLI is able to reach out to a wide population as rail transport increases, becomes more efficient, and uses quieter trains. More information about OLI can be found on their website, [www.oli.org](http://www.oli.org).

Some jurisdictions within the region are working to ensure safety while creating Quiet Zones at some crossing in their downtowns. The communities have requested Quiet Zones, but these requests require improvements in the safety features of the at-grade rail crossings. In 2011, Fort Collins began a Quiet Zone Study for the Downtown area in addition to improvements made during construction of the MAX corridor. To follow through with the Quiet Zone Study, Fort Collins and BNSF Railway must continue to work together to improve safety in the corridor through new or expanded gates, supplemental safety measures, and/or closing cross streets. The City of Fort Collins has submitted their waiver to the Federal Railroad Administration (FRA) and is awaiting their response. The City of Windsor received a Transportation Investment Generating Economic Recovery (TIGER) grant in 2014 to install gates to allow them to have Quiet Zones in their downtown.

### **Moving Forward**

Federal transportation planning guidelines promote safer transportation systems for all users. Colorado transportation planning guidelines promote TZD, a program the NFRMPO supports. As the region moves forward, the NFRMPO and local jurisdictions should work together to study safety issues in depth, promote coordination, and provide education opportunities. Specifically, recommendations to improve safety within the region could include:

- Inventory safety procedures in each jurisdiction to understand how a regional safety program could operate. Continue to study and address the safety needs of EJ area segments.
- Study high-risk travel corridors for potential projects to improve safety, such as operational or capacity improvements on I-25.
- Promote coordination between the NFRMPO, jurisdictions, CDOT, Federal Highway Administration (FHWA), FTA, and other agencies to ensure increased safety as a consideration for road, transit, and bicycle and pedestrian transportation projects. Projects chosen should implement the *Goals, Objectives, Performance Measures, and Targets (GOPMT)* mentioned in **Chapter 4**.
- Facilitate coordinated emergency responses through incident management. Education programs like the *I-25 Transportation Incident Management Plan* bring a wide range of organizations together to promote coordination at incident locations, improving safety and operations.
- Create a regional Freight Plan, studying the impacts of truck and rail safety on the region's transportation network. Because rail and truck corridors intersect bicycle and pedestrian, transit, and travel corridors, the region should study safety as an aspect of an overall freight vision.
- Explore educational programs like OLI, Inc. to ensure the public understands how to stay safe near railroad tracks.

## **B. Security**

### **Transit Security**

Transit Security is the freedom from intentional harm and tampering which may affect transit users and operators. Plans to prevent, manage, or respond to threats on the region's transit networks are included in this section.

### *Berthoud Area Transportation Service (BATS)*



#### Mode: On-call transportation

In 2003, the Berthoud Area Transportation Service (BATS) adopted their Transit Safety and Security Plan. BATS provides seniors with regularly scheduled transportation to shopping and on-call transportation demand response service around Berthoud. The service takes passengers to Loveland and Longmont every day, with links to Fort Collins Loveland Express (FLEX) and the Regional Transportation District (RTD).

The core elements of the BATS Transit Safety and Security Plan are: Driver Selection, Driver Training, Vehicle Maintenance, Drug and Alcohol Education Programs, Safety Data, and a System Safety and Emergency Preparedness Plan (SSEPP). The SSEPP includes a training policy, security and emergency protocol, contacts, and other preparedness guidelines. It is modeled after the CDOT prototype.

Drivers for BATS have a complete background check performed, they must pass a drug and alcohol screening, and if available have the two previous years drug and alcohol records checked. Motor vehicle records are checked. Training on policies and procedures lasts approximately two weeks. Each driver has a cell phone for emergency purposes.

Vehicles used for BATS service have first aid kits and a fire extinguisher. The vehicles do not have cameras installed.

Contact Phone: (970) 532-3049

Website: <http://berthoud.org/Town/bats.php>

### *Bustang*



#### Mode: Interregional express bus service

Starting on July 13, 2015, Bustang connects commuters to Denver along the I-25 and I-70 corridors. This service was created by CDOT to alleviate congestion along major transportation corridors.

CDOT has contracted with Ace Express Coaches to operate the bus service for all Bustang routes. Driver training involves a multi-week training program that covers the Occupational Safety and Health Administration (OSHA) guidelines; Federal Motor Carrier Safety Administration Regulations (FMCSA); Customer Service; Hours of Service; Drug and Alcohol Screening; Passenger Safety; Vehicle Inspection; Fundamentals of Defensive Driving; and all drivers are required to take annual qualification and recertification tests to maintain driving skills.

Vehicle safety includes required routine maintenance on all 13 buses. Safety inspections are performed whenever a vehicle is being maintained. Drivers inspect vehicles before departing Horizon Coach Line facilities. Each bus has eight onboard cameras that record a week of video and can be monitored in real time using wireless internet (Wi-Fi) access.

Website: <https://www.codot.gov/travel/bustang>

*Colorado Department of Transportation (CDOT)*



**Park-n-Ride Services**

CDOT maintained Park-n-Ride (PNR) locations in the NFRMPO region include: Harmony Road PNR, SH 392 PNR, US 34 PNR, SH 402 PNR, SH60 PNR, SH 56 PNR, and Promontory PNR west of Greeley. Each of the CDOT maintained PNR location has surveillance cameras with the exception of the SH56 PNR location. Law enforcement officers regularly drive through the PNR lots.

Currently, there is limited parking in many of the lots along I-25. With the addition of Bustang services at three PNR lots including the South Transit Center, there will be an increased need for more parking spaces and improved facilities.

Website: <https://www.codot.gov/travel/parknride>

*City of Loveland Transit (COLT)*



**Mode: Fixed-route bus, paratransit**

In 2007, City of Loveland Transit (COLT) prepared an emergency operations and security plan. COLT worked with the Loveland Office of Emergency Management to implement a safety and security protocol for the COLT system. All COLT fixed-route and paratransit buses have a six camera security system on-board.

All COLT drivers are prescreened before employment to verify they carry a Class B CDL or higher with proper endorsements, pass a background check, pass a pre-employment drug screen, and must have a clean driving record.

During employment, drivers are required to complete a defensive driving course; be certified in both CPR/AED and First Aid; attend all safety-related meetings and trainings required by the City of Loveland; submit to random testing for both drugs and alcohol; and have their driving records monitored.

Contact Phone: (970) 962-2700

Contact Email: [COLT@cityofloveland.org](mailto:COLT@cityofloveland.org)

*Fort Collins Loveland Express (FLEX)*



**Mode: Fixed-route bus**

The City of Fort Collins operates the Fort Collins Loveland Express (FLEX) as part of a regional partnership with Loveland, Berthoud, and Longmont. The same plans and operations in effect for Transfort apply to FLEX. See the section on Transfort for more information.

Contact Phone: (970) 221-6620

*Greeley-Evans Transit (GET)*



**Mode: Fixed-route bus, paratransit, and call-n-ride**

Greeley-Evans Transit (GET) offers fixed-route bus services, paratransit, and call-n-ride services. Currently, GET is working on a Safety and Security Plan in anticipation of new MAP-21 guidance regarding safety and is anticipated to be completed in spring 2015. Additionally, GET is working on a 5 to 10 year strategic transit plan to update their 2006 plan.

## Chapter 6: Transportation Safety and Security

All new transit drivers undergo an extensive training process. A six-day classroom and hands-on training experience includes: a full tour of the facilities, explanation of procedures, the various transit shifts, driver cell phones and their use, organizational flow, the pre-post trip log book which is kept for a year, work related timekeeping, dress code, bulletin boards, the transit time book, safety board, a variety of informational training videos, sensitivity training handouts, drug/alcohol training, transit communication codes, and a complete training manual.

In the buses, new drivers will experience a skills course to test driving skills, tablet training using RouteMatch, an onboard global positioning system (GPS), wheelchair securement training, and mechanically-assisted and manual wheelchair lift operation. Before training is complete each driver must drive every route with a driver trainer. In total, complete driver training usually takes six weeks and all drivers must have final supervisor approval before they begin service.

Drivers for GET have background and driving checks performed in the initial hiring process. Drivers must have current, personal automobile insurance in good standing in addition to insurance with GET for the transit vehicles. Each year drivers are required to attend an eight hour class on defensive driving techniques. Drivers have a supervisor ride along at least twice a year. If a driver is involved in an accident, a supervisor will ride along on the next work day of operation.

A new GET transit center will be open in August 2016. The facility will have cameras throughout, double lock doors, and proximity doors for identification cards. The facility will be moving from the downtown library location to 1200 A Street.

All GET buses have cameras on board. There are four to five cameras on each vehicle and the video from each bus is downloaded every night. New fixed route buses will have eight. Supervisors can request time to review more of the video if necessary. GET has an additional plan for fleet maintenance.

Contact Phone: (970) 350-9287

Website: <http://greeleygov.com/services/greeley-evans-transit>

### *Rural Alternative for Transportation (RAFT)*

#### *Mode: On demand volunteer ride service*

Rural Alternative for Transportation (RAFT) provides rides for seniors (60+) and adults with disabilities (18+) which prevent them from driving. RAFT users must reside in the Berthoud Fire Protection District (ZIP 80513). Most of the vehicles used in this program are personal automobiles driven by volunteers. The program has one ADA accessible van that was purchased in part using FTA funds. There are no cameras in the volunteer vehicles or in the van.



The service limits of the Berthoud Fire District outside the Town of Berthoud is the SH 60/Larimer County Road 14 to the north; I-25 to the east; Yellowstone Road to the south and Carter Lake/Larimer County Road 31 to the west. A map of these limits can be found in **Chapter 2**.



## Chapter 6: Transportation Safety and Security

The volunteer driver requirements for RAFT include: having a current, valid driver's license; a clean, safe and dependable vehicle; compliance with speed limit and traffic laws; authorization to obtain a copy of their driving record; a background check; must be 18 years of age or older, and if requested will submit to a drug test.

Additionally, volunteer drivers must maintain the minimum automobile insurance required by Colorado State Law and proof of insurance must be provided to RAFT. Volunteers are protected by the Volunteer Protection Act of 1997. First Aid classes and defensive driving courses are not required, but recommended, reimbursement is offered to volunteers who complete either training.

As of January 2015, RAFT has been in operation for one year. In the first year of operation, 28 volunteer drivers drove approximately 22,000 miles over 960 trips. There were no accidents in 2014 and there have been no complaints filed to date.

Contact Phone: (970) 532-2730

Website: <http://www.berthoudraft.org/>

### *Senior Alternatives In Transportation (SAINT)*

Mode: Demand response / pre-scheduled volunteer ride service

Senior Alternatives In Transportation (SAINT) provides rides for seniors (60+) and adults with disabilities that prevent them from driving in the Fort Collins and Loveland areas.



The volunteer screening for SAINT includes: a motor vehicle driver background check; a criminal background check; confirmation of their personal automobile insurance; and an interview in the volunteer's home.

All vehicles involved in the SAINT program are owned by the volunteer. There are no cameras or other special equipment in the vehicles. There is no SAINT 'road supervisor,' but clients have been willing to let SAINT staff know how the drivers are performing.

Contact Phone: (970) 223-8604

Website: <http://www.saintvolunteertransportation.org/>

### *Senior Resource Services*

Mode: Demand response / pre-scheduled volunteer ride service

Senior Resource Services provides transportation for Weld County seniors (60+) through volunteers driving their own automobiles. Background and driving record checks are performed on all volunteers.



The group has one minivan with five hired drivers that provide transportation for seniors requesting non-medical trips. Service is expected to expand to the south in the future.

Contact Phone: (970) 352-9348

Website: <http://seniorresourceservices.info/>

### *Transfort/Dial-A-Ride*

#### Mode: Fixed-route bus, paratransit, and on-call transportation



Transfort is the transit provider for FLEX, MAX, and the general Transfort services. The Transfort System Safety Program Plan (SSMP) was last updated in March 2014. This safety plan outlines: purpose, goals and update procedures; a system and operational description; hazard management; contract management; bus rapid transit guideway access management; accident/incident notification, investigation, and reporting; maintenance audits and inspections; training and certifications; emergency response procedures; employee safety program; procurement; compressed natural gas fuels and safety; security; and an internal safety audit process.

The SSMP appendix contains documents on the safe operator plan, standard operating procedures, fleet maintenance, risk management audit, bus operator training program, emergency procedures, City of Fort Collins personnel policy and procedures, and transit security procedures.

The purpose of the SSMP is to:

- ▶ Establish management strategies to control hazards (safety) and threats and vulnerabilities (security); hazards and threats are identified, their risks assessed, and mitigating actions are developed, tracked, and resolved prior to revenue service; and
- ▶ Provide guidance for verifying that all project equipment, facilities, plans, procedures, and training programs are systematically reviewed for compliance with established system safety and security requirements prior to implementation of revenue service.<sup>51</sup>

New driver training consists of six to eight weeks of progressive training. Depending on the area of training various materials, methods, and forms of interaction are employed. Conditions of employment, defensive driving, customer service, emergency and security, and service operating policies are covered. Additionally, continuing education is a focus of the Transfort training programs.

The Conditions of Employment Section lists Equal Employment Opportunity (EEO), Sexual Harassment, and Substance Abuse Rules that must be followed by all employees.

System security measures are in place to safeguard employees, passengers, facilities, and equipment. A Citywide ID program is in place for City employees, non-public facility visitors, and contractors. Transfort specific transit security officers have been commissioned by the Fort Collins Chief of Police.

All Transfort buses, including MAX and FLEX, have cameras on board. All MAX bus stops along Mason Street have security cameras and are well lit. In 2014, Transfort installed two security gates at the dispatch facility.

In 2006, Fort Collins adopted the Transfort/Dial-A Ride Snow and Severe Weather Emergency Operations Plan. The objectives of this plan are to:

1. Provide the best possible level of service in a winter storm that is safe, effective, and efficient;

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<sup>51</sup> [Safety and Security Management Plan, R4, 2013, p.2].

2. Ensure that staff respond to the emergency according to plan;
3. Provide mutual support to other departments and a promise of best possible effort during the emergency; and
4. Provide public information that imparts the reality of operations in winter conditions.

In addition, the City of Fort Collins adopted the Safe Operator Plan in 2009.

Contact Email: [transfortinfo@fcgov.com](mailto:transfortinfo@fcgov.com)

Contact Phone: (970) 221-6620

*VanGo™*  
Mode: Vanpool



The NFRMPO has developed the VanGo™ Vanpool Services System Security and Emergency Preparedness Plan (SSEPP), which is modeled after the CDOT prototype. This plan is updated on an annual basis. Goals of the VanGo™ SSEPP are to:

1. Ensure security and emergency preparedness are addressed during all phases of system operation, including the hiring and training of agency personnel; the procurement and maintenance of agency equipment; the development of agency policies, rules, and procedures; and coordination with local public safety and community emergency planning agencies.
2. Promote analysis tools and methodologies to encourage safe system operations through the identification, evaluation, and resolution of threats and vulnerabilities, and the ongoing assessment of agency capabilities and readiness.
3. Create a culture which supports employee safety and security and safe system operations (during normal and emergency conditions) through motivated rules and procedures and the appropriate use and operation of equipment.

Annually the VanGo™ program creates a mock scenario for drivers and staff to practice their emergency response skills. Previous scenarios have focused on the response to a serious incident involving a VanGo van with passengers. Annual safety meetings are held in the fall in both Fort Collins and Greeley.

VanGo™ drivers and riders each have their own required application before they can begin using the service. Drivers are required to undergo driving record checks and complete an online defensive driving course.

A portion of VanGo™ vehicles are housed in Greeley with the remainder in Fort Collins. Transfort provides all of the emergency equipment for the vans. Items in the vans include a fire extinguisher, emergency blankets, First Aid kit, reflective traffic triangles, and information on accident response. Vehicle service is provided by GET for vans in Greeley and by Transfort for vans in Fort Collins.

VanGo™ operates approximately 74 vans, with 10 additional vans in reserve. There are no security cameras in any of the VanGo™ vans.

Contact Phone: (800) 332-0950

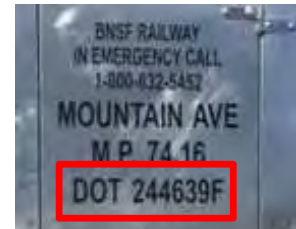
Contact Email: [staff@nfrmpo.org](mailto:staff@nfrmpo.org)

Website: <https://www.smarttrips.org/>

### Railway Transportation Security

To identify incident locations on the railway system, the following information is needed when contacting the appropriate railroad:

- ▶ Street/highway name;
- ▶ Nearest city/town;
- ▶ Railroad mile post (MP);
- ▶ Railroad subdivision; and
- ▶ Crossing/DOT Number (if available)



6-1 Crossing Number highlighted

Note: The DOT number is a six digit number with an alpha character at the end (e.g., 244639F) and is found on the sign mounted on the crossing post for a passive warning. It may be found on either the signal mast and/or signal cabin for an active warning device (i.e., a sign with flashing lights or a gate).

#### *BNSF Railway*

The BNSF Resource Protection Solutions Team responds to all railroad related emergencies, trespassers, and crimes. To ensure goods and services are protected; BNSF Railway has a Police Team as part of its Resource Protection Team. Additionally, BNSF has a trained K-9 team. The Police Team consists of fully certified state law enforcement officers who patrol to prevent trespassing and cargo theft.

BNSF ensures hazardous materials are carried safely and efficiently. Materials shipped via rail are identified and tracked by BNSF. If an incident occurs while hazardous materials are in transit, the developed BNSF Community Awareness and Emergency Response Code can be implemented. This was developed by BNSF through its work across the country. This was developed by BNSF Railway through its work with multiple local agencies across the country. Additionally, BNSF offers a First Responder Training at their Security and Emergency Response Training Center in Pueblo, Colorado.

ON GUARD is a BNSF employee program which encourages employees to report suspicious activities, individuals, or trespassers to BNSF's Resource Operations Call Center (ROCC). Since its inception in 2003, over 200 employees have reported suspicious activities. Employees have reported theft, vandalism, arson, attempted suicide, and other criminal violations, threats to safety, or unusual events on or near railroad properties.

To ensure members of the community are involved in the security of the rail system, BNSF educates community and legislative groups, police authorities, and schools on rail security. Specifically, the Citizens United for Rail Security (CRS) program encourages interested citizens and railway fans to participate in BNSF security training. Across the country, over 9,600 citizens and 777 partner law enforcement agencies currently participate in the program. Citizens and CRS members are encouraged to report any and all suspicious activity along railroad property to the BNSF Resource Protection hotline. Those interested in learning more can visit [www.citizensforrailsecurity.com](http://www.citizensforrailsecurity.com).



For more information about the security of the BNSF Railway system, visit [www.bnsf.com](http://www.bnsf.com).

#### *Union Pacific Railroad (UPRR)*

The Union Pacific Railroad (UPRR) has a police department with more than 220 Special Agents across their system. Similar to BNSF, Special Agents are certified state law enforcement officers who can arrest both on and off railroad property. Special Agents investigate trespassing, theft, threats of terrorism, and derailments. These officers have access to surveillance technology and investigative techniques in addition to relationships with local, state, and federal law enforcement agencies.

UPRR operates a varied security system throughout its network. In addition to the Special Agents, UPRR provides a surveillance network which can report the location and movement of hazardous cargo within seconds. In partnership with constant track checks, UPRR can pinpoint and manage the locations of the trains to ensure products are being shipped safely and efficiently.

For more information about the security of UPRR, visit [www.up.com](http://www.up.com).

#### *Great Western Railway of Colorado (GWR)*

The Great Western Railway (GWR) is a short-line railroad operated by OmniTRAX. OmniTRAX produces a Customer Safety Handbook, most recently updated in 2014, which explains the company's policies on safety and security. The handbook provides recommendations, contact information, and explanations of what to do in emergencies. The handbook can be accessed at [www.omnitrax.com](http://www.omnitrax.com).

### **Airport Transportation Security**

#### *Greeley-Weld County Airport*

In 2009, the Greeley-Weld County Airport Authority updated its Airport Security Plan (ASP) with the assistance of an Airport Security Advisory Committee (ASAC). The ASAC is formed with the assistance of the Greeley-Weld County Airport Tenants & Users Association. The ASAC periodically reviews the current plan and works with airport staff to implement updates.

Contact Phone: (970) 336-3000

Website: <http://www.gxy.net/>

#### *Fort Collins-Loveland Airport*

Security operations at the Fort Collins-Loveland Airport are conducted by the Transportation Security Administration (TSA). The same level of security inspections, regulations, and restrictions used at major airports are in place at the Fort Collins-Loveland Airport.

The terminal facilities have been expanded to accommodate a larger number of passengers and expanded security requirements.

Contact Phone: (970) 962-2850

Website: <http://www.fortloveair.com/>

## Emergency Management

Emergency management can be divided into four phases: prevention/mitigation, preparedness, response, and recovery.<sup>52</sup> These four phases correspond to efforts made across the region. When a disaster or emergency occurs, local governments have plans in place for how to prepare and inform residents, respond to disasters as they happen, and recover. As more data and knowledge about disasters is collected, local governments can work to mitigate future events and prevent further damage.

One of the ways local governments can prepare residents is to create a localized plan. Local municipalities and agencies in the region have worked together to create a range of Emergency Management Plans which establish protocols for handling and recovering from a variety of emergencies or disasters.

Two additional plans help the region with emergency preparedness actions. The Northern Colorado Regional Hazard Mitigation Plan is a joint effort between Larimer County; the cities of Fort Collins and Loveland; the towns of Berthoud, Estes Park, and Wellington; the Federal Emergency Management Agency (FEMA); the National Transportation Safety Board (NTSB); CDOT; National Weather Service; and CSU. The plan prepares residents for natural, man-made, and hazardous materials disasters or incidents by providing resources, information, and potential actions that should be undertaken in an emergency. Each community prepares an annual report concerning necessary updates and future actions. In recent years, the annual reports have analyzed the clean-up and mitigation efforts since the major flooding in September 2013.

The State of Colorado created READYColorado, a homeland security and all-hazards preparedness campaign. Teaming with a variety of public and private partners, READYColorado used a grant from the Department of Homeland Security (DHS) to enhance preparedness and response capabilities. The website provides assistance in making a personal plan, a one-stop shop for local emergencies, and a list of tools residents can use to prepare for and mitigate the risks from natural disasters and emergencies. More information about the program can be found at [www.readycolorado.com](http://www.readycolorado.com).

## Vulnerability Assessment

FEMA defines vulnerability as “any weakness that can be exploited by an aggressor”.<sup>53</sup> To identify vulnerabilities, FEMA uses a multidisciplinary team including engineers, architects, security specialists, and subject matter experts. The team reviews and coordinates building plans, utilities, emergency plans, and interview schedules. Using this information, FEMA is able to assess potential damages and impacts on local buildings and transportation networks if an event were to occur. The analysis identifies vulnerabilities in the critical functions and critical infrastructure using a Vulnerability Assessment Checklist that rates them on a scale from “very low” (no weaknesses) to “very high” (extremely susceptible).

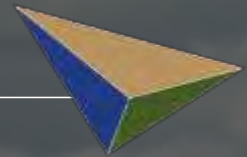
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<sup>52</sup> <http://ema.ohio.gov/Documents/COP/The%20Four%20Phases%20of%20Emergency%20Management.pdf>

<sup>53</sup> [http://www.fema.gov/pdf/plan/prevent/rms/155/e155\\_unit\\_iv.pdf](http://www.fema.gov/pdf/plan/prevent/rms/155/e155_unit_iv.pdf)

# Chapter 7

## Travel Demand Analysis





## Chapter 7: Travel Demand Analysis

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### A. Overview

The North Front Range Metropolitan Planning Organization (NFRMPO) prepared the NFRMPO 2040 Regional Travel Demand Model (RTDM) with input based on the socio-economic data provided in **Chapter 3** to evaluate the effects of growth on the transportation system in the North Front Range region and to meet the Clean Air Act (CAA) requirements. The RTDM estimates and forecasts for the following scenarios:

- ▶ **2012 Base Year** – Model calibrated to 2012 using the *NFRMPO Household Survey of 2010* and validated using traffic counts and transit boardings.
- ▶ **2015 Interim Year** – Interim for Conformity testing (CAA), includes 2015 transportation network and 2015 socio-economic forecasts.
- ▶ **2025 Interim Year** – Interim for Conformity testing (CAA), includes 2025 transportation network and 2025 socio-economic forecasts.
- ▶ **2035 Interim Year** – Interim for Conformity testing (CAA), includes 2035 transportation network and 2035 socio-economic forecasts.
- ▶ **2040 No Build** – 2012 transportation network and 2040 socio-economic forecasts.
- ▶ **2040 Build** – 2040 transportation network based on the fiscally constrained plan (described in **Chapter 10** and 2040 socio-economic forecasts for Conformity testing (CAA).

It is important to recognize transportation improvements other than increasing highway capacity may result in the reduction of roadway travel demand. The RTDM is a mode choice model, meaning transit is modeled on the roadway network to allow for scenario testing both modes. This section provides a summary of travel demand forecasting results from the RTDM.

### B. Existing Travel Characteristics

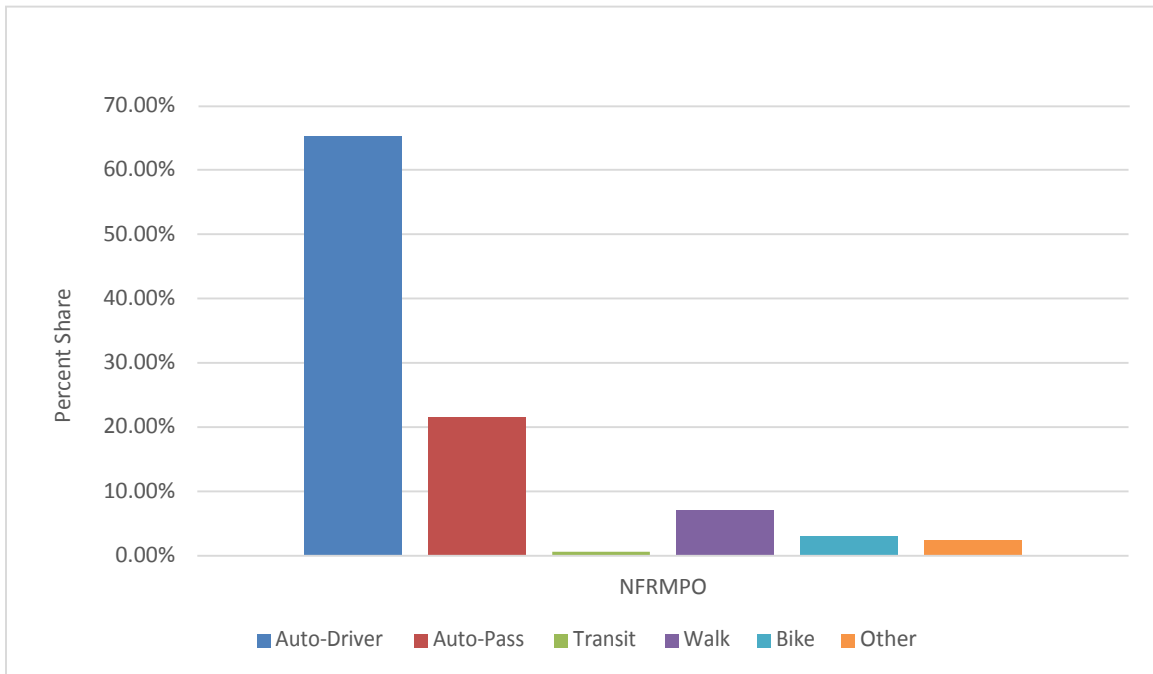
The 2040 RTDM uses a base year of 2012 to provide estimates and travel forecasts within the North Front Range modeling boundary to the 2040 horizon year. The base year was calibrated using the *NFRMPO Household Survey of 2010*, which only contains data inside the NFRMPO boundary. The survey indicated the main reason for nearly 34 percent of traveling in the NFRMPO was returning home from non-work activities (e.g., shopping), **Table 7-1**. The difference in travel modes in the NFRMPO are summarized in **Figure 7-1**.



Table 7-1: Primary Reasons for Traveling			
Main Reason for Traveling	Number of Trips	Percent	Avg. Trip Duration
Working at home	127	0.90%	14.16
Shop at home	0	0.00%	--
On-line school at home	7	0.00%	8.8
Return home from non-work activities	4,920	34.00%	17.17
Work/job	1,637	11.30%	19.34
All other activities at work	70	0.50%	17.82
Attending class	790	5.50%	15.53
All other activities at school	92	0.60%	11.75
Change of mode/transportation	354	2.40%	15.43
Dropped off passenger from car	566	3.90%	12.95
Picked up passenger from car	557	3.80%	14.6
Drive through	88	0.60%	9.93
Other – travel related	37	0.30%	10.97
Work/business related	618	4.30%	20.36
Service private vehicle	160	1.10%	13.21
Routine shopping (groceries, clothing, etc.)	1,236	8.50%	12.5
Shopping for major purchases or specialty	91	0.60%	18.35
Household errands (bank, dry cleaning, etc.)	475	3.30%	11.18
Personal business (attorney, accountant, etc.)	241	1.70%	16.86
Eat meal outside of home	577	4.00%	12.09
Health care (doctor, dentist)	224	1.50%	18.59
Civic/religious activities	196	1.40%	14.89
Outdoor recreation/entertainment	254	1.80%	23.18
Indoor recreation/entertainment	516	3.60%	16.42
Visit friends/relatives	435	3.00%	33.89
Loop trip	18	0.10%	38.74
Other	180	1.20%	14.33
<b>Total</b>	<b>14,467</b>	<b>100.00%</b>	<b>16.76</b>

*Source: NFRMPO Household Survey of 2010*

Figure 7-1: Travel Modes by Area



Source: NFRMPO Household Survey of 2010

### Travel by Automobile

The majority of trips within the NFRMPO are trips in single occupancy vehicles (SOV), which are vehicles with only the driver as an occupant (identified as Auto-Driver in **Figure 7-1**). Auto-Pass in **Figure 7-1** refers to vehicles carrying passengers, which is the second most used travel mode in the NFRMPO at 21.6 percent.

### Non-Motorized Travel

The survey showed 10.1 percent of work and non-work related trips in the NFRMPO are by non-motorized modes, either bicycle or pedestrian travel. These are stand-alone trips or augment transit trips (to and from transit stops). Generally, people in the region make non-motorized trips more frequently to attend class (e.g., at Colorado State University (CSU) or University of Northern Colorado (UNC)) or non-work related activities.

Survey data shows approximately 70 percent of households in the region have at least one bicycle, and 50 percent have two or more bicycles. More than 24 percent of survey respondents indicated a household member walked or rode a bicycle to school or work at least once per week.

### Transit Use

In the region, transit use accounts for less than one percent of work-related and other trips based on the survey. A large portion of the region consists of rural areas not served by transit, which is a contributing factor to the overall low rate of transit use. Most transit users connect to transit by walking or bicycling. Nearly seven percent of survey respondents indicated they use transit at least once per week.

Of the adult survey respondents, four percent reported having a transit pass. Less than two percent of survey respondents reported their employers provide a transit pass.

The lack of available transit options and sustainable revenue sources are likely reasons behind the low transit pass use. Another factor to explain the low rates of transit use is the high percentage (nearly 95 percent throughout the region) of employers providing free parking. Employees have fewer incentives to use other modes of transportation when there is abundant free parking.

C. Travel Demand Growth

**Roadways**

Daily vehicle miles traveled (VMT) is the total distance traveled by all motor vehicles each day. VMT was used to measure forecasted growth of travel in the region on roads included in the model. **Table 7-2** shows the estimated VMT for 2012 and the forecasted 2040 VMT for the NFRMPO area.

It should be noted, using a no-build scenario does not always result in realistic outputs for smaller areas of the region. This is due to significant levels of congestion in the forecast year without any improvements to the roadway system. A build scenario is also shown for comparison.

Forecasts from the 2040 RTDM show VMT for the region is projected to grow by 83 percent between 2012 and 2040 (No-Build). This growth assumes no roadway, transit, or non-motorized improvements in the future and only accounts for growth in households and employment. This also assumes current patterns and travel trends are held constant. This VMT growth compares with household growth forecasts of 56 percent and employment growth forecasts of 60 percent for the same period.

Area	Daily VMT				
	2012	2040 (No-Build)	Percent Growth (%)	2040 (Build)	Percent Growth (%)
<b>NFRMPO</b>	<b>10,314,179</b>	<b>18,915,133</b>	<b>83%</b>	<b>19,555,049</b>	<b>90%</b>

*Source: NFRMPO 2040 Regional Travel Demand Model*

**Roadway Travel Time Index**

Travel Time Index (TTI) is a quantitative measure, which takes the peak period travel time and divides it by free flow travel time. This is used as a system-wide measure to analyze the impacts of congestion on transportation. TTI has been calculated on all arterials, expressways, and freeways. Congestion, defined in the 2015 Congestion Management Process (see **Chapter 11**), is a TTI of 2.5 times or more than free flow.

The percent of congested roadway during the average peak period in 2012 was 0.02 percent. It is anticipated to grow to 3.5 percent by 2040 (No Build), with no transportation improvements and 3.3 percent with improvements, 2040 (Build). **Figures 7-2 through 7-4** depict the 2012 TTI and forecasted 2040 TTI. This TTI analysis is based on results from the 2040 RTDM and does not account for intersection operations or delay.

$$\text{Travel Time Index} = \frac{\text{Peak Period Travel Time}}{\text{Free Flow Travel Time}}$$

Figure 7-2: 2012 Travel Time Index

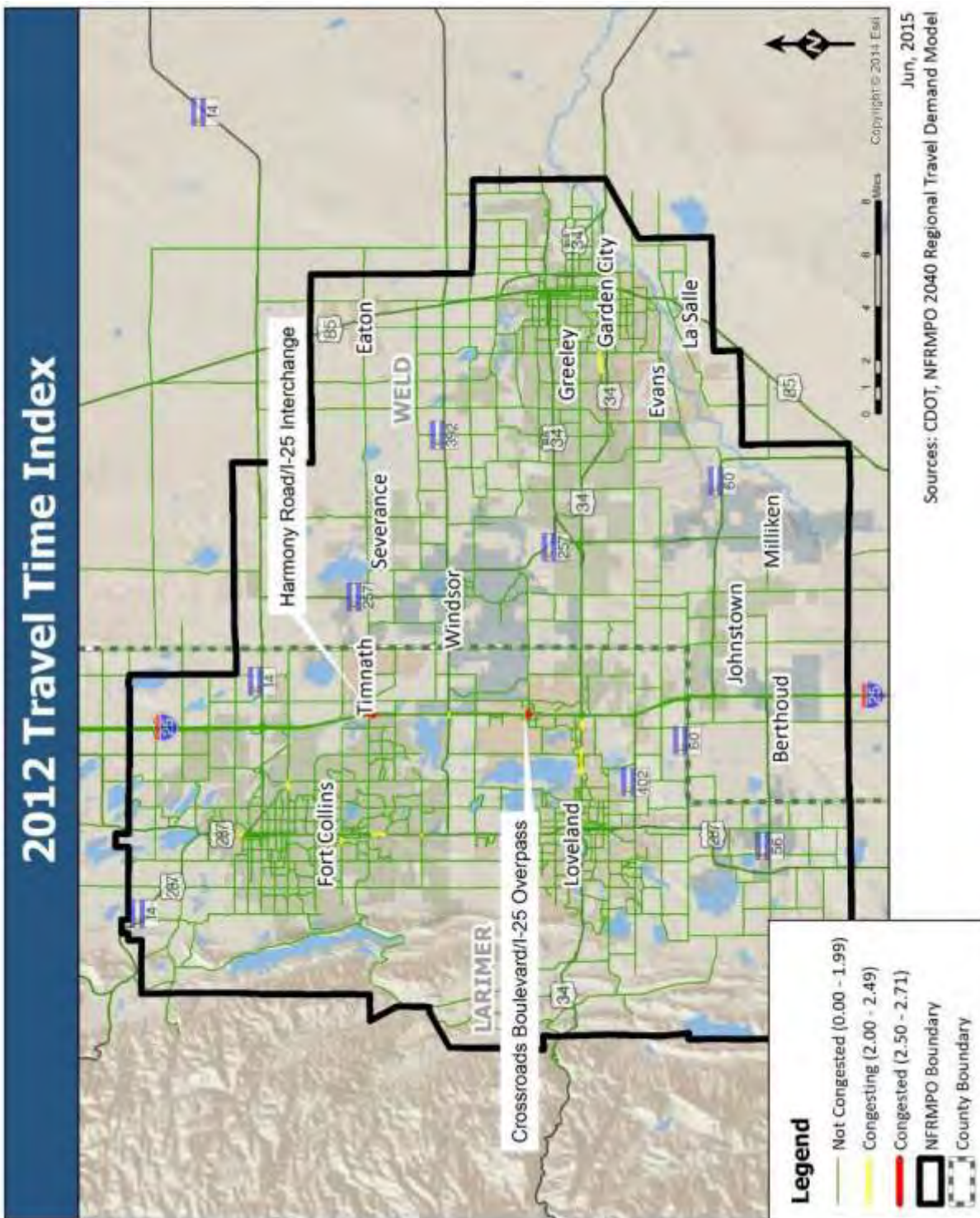
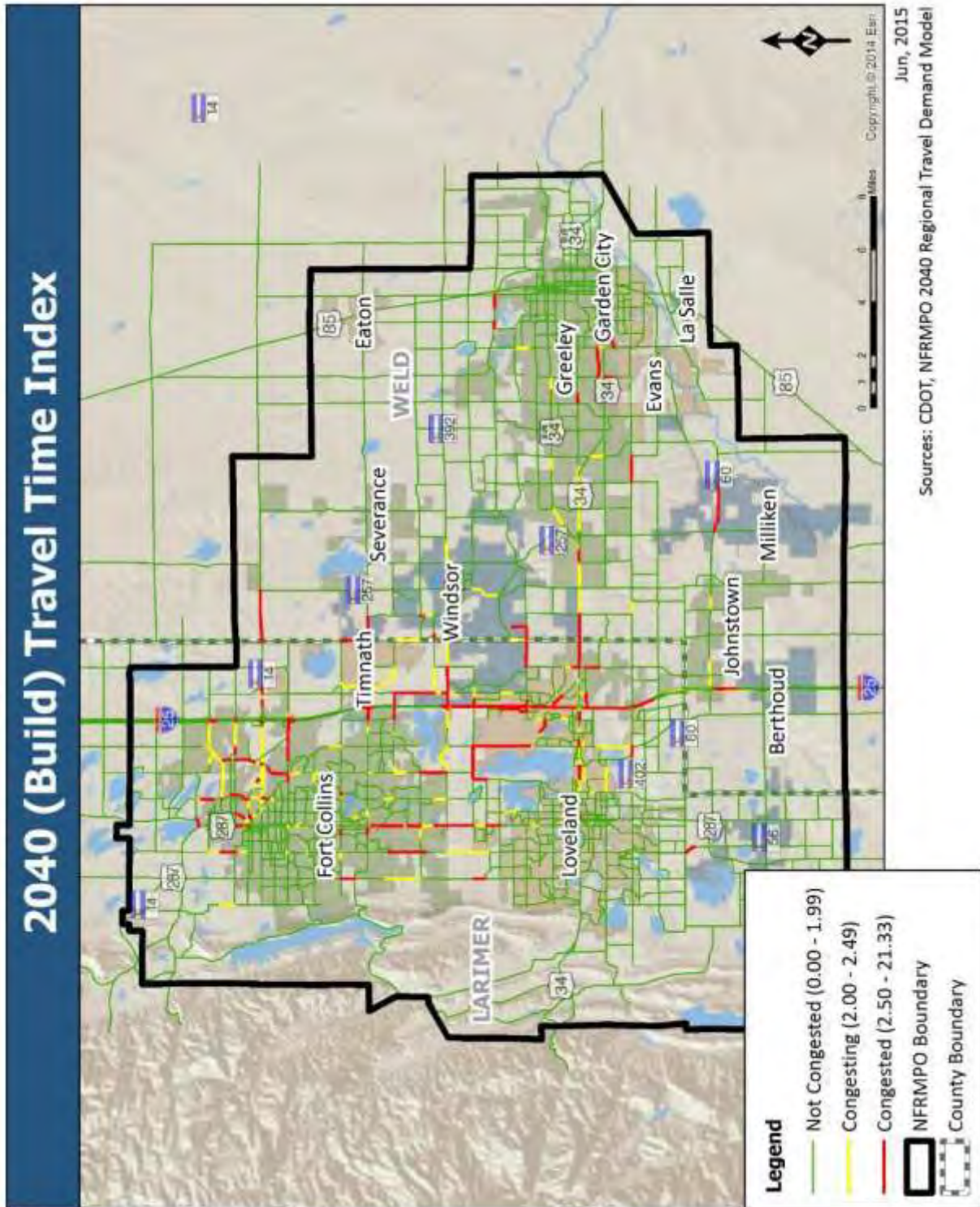






Figure 7-4: 2040 (Build) Travel Time Index





## Mode Choice

The NFRMPO uses a mode choice model as it allows for the estimation of transit ridership on the local, regional, and interregional systems on the existing roadway network. The NFRMPO first built the RTDM with mode choice capability for the 2030 model. Transit alternatives can be tested both locally and regionally. Transit ridership is verified and validated for the base-year scenario through on-board surveys which count the number of riders on any given route. This is similar to the validation of the highway portion of the model verified using traffic count data.

## Regional Routes

The *2040 Regional Transit Element (RTE)*, a companion document to the *2040 Regional Transportation Plan (RTP)*, describes the demand analysis used to model potential regional transit corridors. The 2040 RTE used the RTDM to show how anticipated growth over the next 25 years could impact transit ridership in the proposed regional corridors.

## Service Standards and Policies

Service standards are set by each of the three local transit agencies. Currently, Transfort's service standards act as a model for City of Loveland Transit (COLT) and Greeley-Evans Transit (GET). Transfort service standards are divided into three groups: productivity standards, load standards, and on-time performance. For productivity and load standards, Transfort groups its routes into five categories which provide different types of service:

- ▶ Rapid Transit (routes in a dedicated guideway);
- ▶ Commercial (provide basic route coverage and access);
- ▶ University (routes near and connecting to CSU);
- ▶ Residential (routes serving residential areas); and
- ▶ Regional (routes operating outside of Fort Collins).

By dividing the route system based on type of service, the agency can tailor the service standards to the purposes of each route. Transit routes can operate for different reasons and should be measured appropriately.

Productivity standards alert transit staff to routes and services which may require marketing, revision, or elimination. The two measures include passengers per revenue hour and passengers per revenue mile. The measurement of passengers per revenue hour considers the number of riders on a given service divided by the total number of revenue hours. The measurement of passengers per revenue mile considers the total number of riders over the route's extent. These numbers are collected and compared on an annual basis. Each measurement is monitored and categorized into four levels of performance:

- ▶ E (Exceeds);
- ▶ S (Satisfactory);
- ▶ M (Marginal); or
- ▶ U (Unsatisfactory).

Using these grades, the transit service can consider schedule changes, marketing, redesign, or elimination. For example, the Fort Collins City Council has set a system-wide benchmark of 20 passengers per hour for routes as

a measurement of consideration. Routes above this benchmark perform well, while routes below this benchmark should be evaluated for possible changes to improve or eliminate the route.

Minimum and maximum load standards measure when to provide additional service, reductions in service, or service eliminations. In this case, loads are the number of passengers on a given service compared to the capacity of the bus providing service. Peak hours (7:00 a.m. to 9:00 a.m. and 2:30 p.m. to 6:00 p.m.) and off-peak hours typically have different load standards. For example, local Transfort buses have a maximum load standard of 125 percent of the seated capacity during peak hours, and a maximum load standard of the seated capacity during off-peak hours.

On-time performance is a service standard used for dependability and can be measured either by percent of trips operated or schedule adherence. Each transit agency defines schedule adherence differently. Transfort considers “on-time” to mean arriving at a bus stop between zero minutes early and five minutes late, while GET defines “on-time” as zero minutes early to eight minutes late. As a service standard, each transit agency sets a minimum for on-time percentage. Transfort has set a standard of 90 percent of peak-hour buses and 95 percent of off-peak buses to arrive on time, while COLT requires 95 percent on-time performance for all buses. Buses which are consistently early or late should have their schedules evaluated to improve schedule adherence.

Further explanation of service standards can be found in the City of Fort Collins’ *Service Standards and Policies* document.<sup>54</sup> GET is in the process of creating similar system wide benchmarks, expected to be completed by the end of 2015. COLT measures the same service standards and is in the process of creating benchmarks.

### Greenhouse Gas Emissions

The State of Colorado, under the 2009 Funding Advancements for Surface Transportation and Economic Recovery (FASTER) legislation, is required to address the reduction in Green House Gas (GHG) emissions. To assist the State, a technical analysis from of the RTDM is included in this plan.

GHG in the atmosphere absorbs and emits radiation. GHGs are tied to the natural process, or greenhouse effect, whereby they capture radiant heat from the sun in the Earth’s lower atmosphere. The gases that contribute most to the greenhouse effect are water vapor, carbon dioxide (CO<sub>2</sub>), methane, and nitrous oxides (N<sub>2</sub>O). Most greenhouse gases have both natural and human activity sources. Transportation is the second largest source of GHG emissions, accounting for roughly 27 percent of all emissions.<sup>55</sup>

As it relates to the transportation system, energy is directly consumed by vehicles (automobiles, trucks, and buses) using the regional system and indirectly consumed by equipment during the construction of transportation capital improvement projects (non-mobile source). The GHG emissions quantified for this 2040 RTP are based only on the direct energy (i.e., energy consumed by vehicles using the facilities). Transportation emissions from fuel combustion in vehicles are normally presented as the total CO<sub>2</sub> equivalent released, and take into account the potential greenhouse effect of each gas. For example, motor vehicles emit small amounts

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<sup>54</sup> *Service Standards and Policies*, 2009: <http://www.ridetansfort.com/abouttransfort/plans-and-projects/transfort-strategic-plan> <sup>55</sup> EPA, *Sources of Greenhouse Gas Emissions*, 2013 <http://www.epa.gov/climatechange/ghgemissions/sources.html>



of N<sub>2</sub>O, which has a greenhouse gas effect potential 310 times that of CO<sub>2</sub>. Therefore, each ton of N<sub>2</sub>O is equivalent to 310 tons of CO<sub>2</sub>. The greenhouse gas emissions presented in this section are all presented as a CO<sub>2</sub> equivalent.

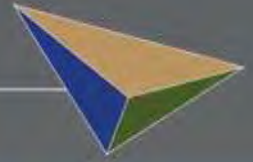
**Table 7-3** compares the total mobile source on- and off-network GHG emissions from the 2015 land use and transportation system, as well as the 2040 forecasts, with the fiscally constrained transportation system (2040 Fiscally Constrained). The energy calculations are based on VMT forecasts generated by the RTDM and calculated by Colorado Department of Public Health and US Environment (CDPHE) using the Environmental Protection Agency’s (EPA) Motor Vehicle Emissions Simulator (MOVES2014).<sup>56</sup> MOVES2014 is an upgraded version of the EPA’s modeling tools for estimating emissions from motor vehicles and adheres to new federal emission standard rules not included in previous modeling tools. A base year of 2015 was used for this calculation because it is the first input network year available in the MOVES2014 emissions model for the North Front Range region. The North Front Range region records GHG emissions for the winter and summer months due to the difference in non-mobile source emissions between the Estes Park area and the NFRMPO area. The Estes Park area has higher emissions during the summer due to tourist activity from Rocky Mountain National Park and other destinations within the area. The NFRMPO has much higher emissions in the winter because of the traffic generated by CSU and UNC. The direct energy consumption and GHG emissions associated with the use of the regional transportation system is projected to increase by approximately 19 percent in the winter and 20 percent in the summer, less than the projected VMT increase of 75 percent for the entire region from 2015 to 2040.

Table 7-3: Mobile Source Greenhouse Gas Emissions			
Time Period	Tons of CO <sub>2</sub> Equivalent		
	2015	2040 (Fiscally Constrained)	Percent Growth (%)
Winter	6,677	7,948	19.0
Summer	6,716	8,062	20.0
<i>Source: NFRMPO 2040 Regional Travel Demand Model, CDPHE, MOVES 2014</i>			

<sup>56</sup>79 FR 60343, <https://federalregister.gov/a/2014-23258>, 2014

# Chapter 8

## Plan Scenarios



LaSalle Community Center. Image Credit: Town of LaSalle

## Chapter 8: Plan Scenarios

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Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21) recommends the incorporation of scenario planning into metropolitan transportation plans.<sup>57</sup> When developing scenarios, an analysis of how a scenario impacts the transportation system and its performance is required. The Federal Highway Administration's (FHWA) *Performance Based Planning and Programming Guidebook (PBPP)*<sup>58</sup> recommends the following be considered when developing scenarios:

- ▶ Potential regional investment strategies for the planning horizon;
- ▶ Distribution of population and employment;
- ▶ Maintaining baseline conditions for the transportation system performance measures;
- ▶ Estimated costs and potential revenues available;
- ▶ Revenue constrained scenarios based on the total revenue reasonably expected to be available; and
- ▶ US Department of Transportation (USDOT) transportation system performance measures and locally developed measures.

Further, the PBPP lists benefits of scenario planning:

- ▶ Opportunity to engage a wide variety of stakeholders;
- ▶ Potential to clearly illustrate the trade-offs among different land use and transportation choices;
- ▶ More informed decision making;
- ▶ Helps decision makers develop performance measures and evaluate different policies for their impacts on targets; and
- ▶ Ideal method to focus on the broader array of issues implied by the focus on livability.

The North Front Range Metropolitan Planning Organization (NFRMPO) maintains three sets of data with the ability to be manipulated for scenario planning: land use – households and employment, roadway – capacity, and transit – route changes and improvements. The two types of scenarios selected for this 2040 RTP:

1. All transportation investments from 2012 to 2040 occur for road and highway projects, while all future household and employment growth from 2012 to 2040 remain constant.
2. All transportation investments from 2012 to 2040 occur for transit projects, while all future household and employment growth from 2012 to 2040 remain constant.

Each scenario is detailed in the remaining sections of this chapter. The NFRMPO is estimated to receive \$71.7 M of Surface Transportation (STP-Metro) funding and \$82.7 M of Congestion Mitigation and Air Quality (CMAQ) funding from 2016 to 2040. STP-Metro is the most flexible funding pool the NFRMPO receives, allowing funds for most roadway, transit, and non-motorized projects. This funding pool is represented for both scenarios. CMAQ does allow certain roadway projects, such as Intelligent Transportation Systems (ITS) and adaptive signal

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<sup>57</sup> *MAP-21 Factsheet: Metropolitan Planning*, <http://www.fhwa.dot.gov/map21/factsheets/mp.cfm>, 2012

<sup>58</sup> *Performance Based Planning and Programming Guidebook*  
[http://www.fhwa.dot.gov/planning/performance\\_based\\_planning/pbpp\\_guidebook/pbppguidebook.pdf](http://www.fhwa.dot.gov/planning/performance_based_planning/pbpp_guidebook/pbppguidebook.pdf), 2013

systems; however, the NFRMPO 2040 Regional Travel Demand Model (RTDM) is unable to model these types of improvements. Because of this, only the transit scenario is represented with CMAQ funding, **Table 8-1**.

Table 8-1: Scenario Funding		
Funding Pool	Roadway Scenario	Transit Scenario
STP-Metro	\$71,725,203	\$71,725,203
CMAQ	\$0	\$82,721,692
<b>Total</b>	<b>\$71,725,203</b>	<b>\$154,446,895</b>

Roadway analysis scenarios were run in conjunction with the roadway scenario to demonstrate the build-out of I-25 in the NFRMPO region. These roadway analysis scenarios are unconstrained and detailed in **Section A** of this chapter.

A. Roadway Scenario

The priority roadway corridor for the NFRMPO Planning Council is I-25 due to its north-south connections serving the entire region. As stated in the *North I-25 Environmental Impact Statement (EIS)*, the improvements begin at SH 14 on the north adding a third lane in both directions to meet the three lane section in Mead, approximately SH 66. Based on available funding shown in **Table 8-1**, the following defines the improvement made within fiscal constraint and is reflected in **Figure 8-1**:

2040 Regional Transportation Plan (RTP) Roadway Scenario: SH 14 to Harmony Road

- ▶ Widen I-25 between SH 14 and Harmony Road, including the Prospect Road interchange, approximately four miles in length.

**Figure 8-1: 2040 RTP Roadway Scenario**





**Tables 8-2 through 8-4** compare the 2040 RTP Roadway Scenario to the 2040 Build Scenario, showing lane-miles, number of interchange improvements, Vehicle Miles Traveled (VMT), Vehicle Hours Traveled (VHT), and the estimated cost.

Table 8-2: Improvements and Cost of 2040 RTP Roadway Scenario			
	Lane-Miles Added	Number of Interchanges for Improvements	Cost
<b>2040 (Build)</b>	0	0	\$0
<b>2040 RTP Roadway Scenario</b>	8	1	\$71,725,203*

\*This is not the total project cost, rather a reasonable share for the NFRMPO  
*Sources: NFRMO 2040 Regional Travel Demand Model, North I-25 EIS*

Table 8-3: Vehicle Miles Traveled (VMT) of 2040 RTP Roadway Scenario		
	VMT	Percent Increase in VMT
<b>2040 (Build)</b>	19,290,069	-
<b>2040 RTP Roadway Scenario</b>	19,290,809	0.004

*Source: NFRMO 2040 Regional Travel Demand Model*

Table 8-4: Vehicle Hours Traveled (VHT) of 2040 RTP Roadway Scenario		
	VHT	Percent Decrease in VHT
<b>2040 (Build)</b>	746,736	-
<b>2040 RTP Roadway Scenario</b>	746,515	0.030

*Source: NFRMO 2040 Regional Travel Demand Model*

For this Scenario, VMT is projected to increase by 0.004 percent compared to the 2040 Build Scenario, **Table 8-3**. With the same comparison VHT is projected to decrease by 0.030 percent, **Table 8-4**.

As I-25 continues to receive widening improvements, more users will be attracted to use it, increasing the VMT. At the same time, widening decreases the amount of congestion, allowing the VHT to decrease. **Figure 8-2** shows the travel time index (TTI) representing congestion, segments greater than 2.5 times free flow, of the 2040 RTP Roadway Scenario compared to the 2040 (Build) network. When there is a decrease in TTI, the time it takes to travel along the roadway has increased 2.5 times or more than the roadway was built to handle. When there is an increase in TTI, the time it takes to travel along the roadway has decreased to 2.5 times or less than the roadway was built to handle. **Table 8-5** details each with changes in TTI.



Table 8-5: 2040 RTP Roadway Scenario Travel Time Index (TTI) Results				
	From	To	TTI Before	TTI After
<b>North-to-South Segments</b>				
<b>Timberline Road</b>	Donella Court	Lincoln Avenue	2.52	2.47
<b>East-to-West Segments</b>				
<b>SH 14</b>	Dawn Avenue	Stockton Avenue	2.49	2.51
<b>SH 14</b>	Stockton Avenue	Approximately I-25/SH 14 Southbound Ramp	2.48	2.54
<b>SH 14</b>	Approximately I-25/SH 14 Southbound Ramp	Approximately I-25/SH 14 Southbound Ramp	2.49	2.99
<b>SH 392</b>	Duck Lake	Larimer CR 9	2.52	2.49
<i>Source: NFRMO 2040 Regional Travel Demand Model</i>				

### Analysis Scenarios

The following 2040 RTP Roadway Analysis Scenarios were run to identify the impact of building out I-25 on the transportation network. These scenarios surpass the total amount of funding the NFRMPO is projected to receive between 2016 and 2040 and would need additional sources to be funded. The following scenarios were run representing this unconstrained development:

#### 2040 RTP Roadway Analysis Scenario One: SH 14 to SH 392

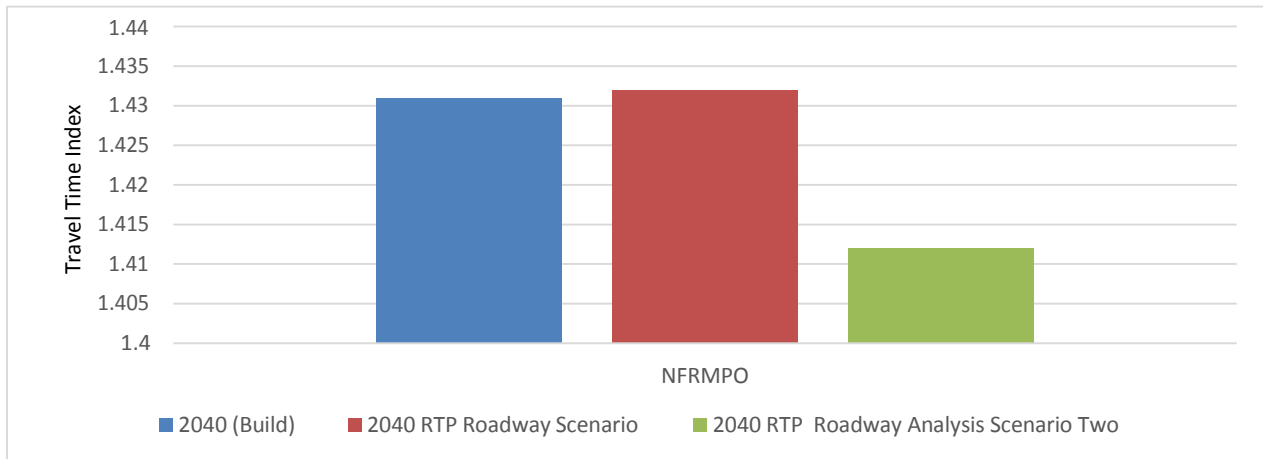
- ▶ Widen I-25 between SH 14 and SH 392, including the Prospect Road interchange, approximately seven miles in length.

#### 2040 RTP Roadway Analysis Scenario Two: SH 14 to NFRMPO Southern Boundary

- ▶ This scenario represents the entire build-out of I-25 in the NFRMPO region. Work would need to be completed on each interchange along the segment, according to the *North I-25 EIS*.

The average VMT increase per-mile added is 0.001 percent between the two 2040 RTP Roadway Analysis Scenarios. The VHT also decreases on average 0.013 percent per-mile. **Figure 8-3** compares the total TTI for all segments in the NFRMPO for the 2040 RTP Roadway Scenario compared to the 2040 RTP Roadway Analysis Scenario Two, the analysis scenario with the most lane-miles added. This demonstrates the change in the average TTI on I-25 in the fiscally constrained scenario to the unconstrained scenario with the most impact. Based on the output, a small capacity change will increase the average TTI slightly and a larger capacity change will decrease the average TTI significantly.

Figure 8-3: Average Travel Time Index (TTI) for the NFRMPO Comparison



## B. Transit Scenario

Fixed-route transit service typically relies on a system of routes, rather than a single route. This concept makes transit scenario planning more difficult than roadway scenario planning. A reasonable transit scenario with the NFRMPO 2040 RTDM was made with the socio-economic data and system-level route data from the various NFRMPO member agencies. The individual system-wide improvements for each transit agency are detailed in this chapter, followed by a summary of regional transit ridership results for the following scenario:

### 2040 RTP Transit Scenario

- ▶ **Transfort – Transfort Strategic Operating Plan Phase 3 and increased headways on routes:**
  - Taft Hill: 30 minute
  - East Mulberry: 30 minute
  - Lemay: 30 minute
  - Trilby/Timberline: 30 minute
  - Harmony Road Enhanced Travel Corridor Improvements
  - Poudre Valley Hospital Transit Center
- ▶ **Greeley-Evans Transit (GET) – New Routes (2016) and increased headways on routes:**
  - Route 1 (previously Red Route): 30 minute
  - Route 2 (previously Gold Route): 30 minute
  - Route 6 (previously Blue Route): 30 minute
- ▶ **City of Loveland Transit (COLT) – Existing Routes (2011)**
- ▶ **Orchards Transit Center**
- ▶ **RTE – Community Connections**
  - Loveland and Greeley/Evans area
  - Fort Collins and Greeley/Evans area
- ▶ **Park and Ride Improvements**
- ▶ **Ozone Season Ride Free Programs**
- ▶ **ADA Sidewalk and Transit Shelters**



The associated cost for each improvement of the scenario is detailed in **Table 8-6**. The cost reflects what is reasonably available for the NFRMPO within fiscal constraint.

<b>Table 8-6: 2040 RTP Transit Scenario Cost of Improvements</b>	
<b>Improvement</b>	<b>Cost</b>
<b>Transfort Strategic Operating Plan Phase 3 and increased headways</b>	
<b>Taft Hill</b>	
Bus Purchase (5 @ \$500,000 each)	<b>\$2,500,000</b>
Operations (\$295,242 each bus)	<b>\$1,476,210</b>
<b>Total</b>	<b>\$3,976,210</b>
<b>East Mulberry</b>	
Bus Purchase (5 @ \$500,000 each)	<b>\$2,500,000</b>
Operations (\$295,242 each bus)	<b>\$1,476,210</b>
<b>Total</b>	<b>\$3,976,210</b>
<b>Lemay</b>	
Bus Purchase (5 @ \$500,000 each)	<b>\$2,500,000</b>
Operations (\$295,242 each bus)	<b>\$1,476,210</b>
<b>Total</b>	<b>\$3,976,210</b>
<b>Trilby/Timberline</b>	
Bus Purchase (5 @ \$500,000 each)	<b>\$2,500,000</b>
Operations (\$295,242 each bus)	<b>\$1,476,210</b>
<b>Total</b>	<b>\$3,976,210</b>
<b>Harmony Enhanced Travel Corridor</b>	
Lemay, Timberline, Ziegler Queue Jump	<b>\$9,520,000</b>
Bus stations and stops	<b>\$4,020,000</b>
Bus Purchase (5 @ \$500,000 each)	<b>\$2,000,000</b>
<b>Total</b>	<b>\$15,540,000</b>
<b>West Elizabeth Enhanced Travel Corridor</b>	
Guideway	<b>\$29,860,000</b>
Bus Purchase (10 @ \$500,000 each)	<b>\$5,000,000</b>
<b>Total</b>	<b>\$34,860,000</b>
<b>Transfer Center (Poudre Valley Hospital Transit Center)</b>	<b>\$4,000,000</b>
<b>Total Transfort Improvement Cost</b>	<b>\$70,304,840</b>
<b>Greeley-Evans Transit (GET) New Routes (2016) and increased headways</b>	
<b>Route 1</b>	
Bus Purchase (5 @ \$500,000 each)	<b>\$2,500,000</b>
Operations (\$176,103 each bus)	<b>\$880,515</b>
<b>Total</b>	<b>\$3,976,210</b>
<b>Table 8-7: 2040 RTP Transit Scenario Cost of Improvements</b>	

Improvement	Cost
<b>Route 2</b>	
Bus Purchase (5 @ \$500,000 each)	\$2,500,000
Operations (\$176,103 each bus)	\$1,476,210
<b>Total</b>	<b>\$3,976,210</b>
<b>Route 6</b>	
Bus Purchase (5 @ \$500,000 each)	\$2,500,000
Operations (\$176,103 each bus)	\$880,515
<b>Total</b>	<b>\$3,976,210</b>
<b>Transfer (Greeley Mall and Downtown Transit Center)</b>	<b>\$6,300,000</b>
<b>Total GET Improvement Cost</b>	<b>\$18,228,630</b>
<b>City of Loveland Transit (COLT) Existing Routes</b>	
<b>Route 100</b>	
Bus Purchase (5 @ \$500,000 each)	\$2,500,000
Operations (\$293,355 each bus)	\$1,466,775
<b>Total</b>	<b>\$3,966,775</b>
<b>Route 200</b>	
Bus Purchase (5 @ \$500,000 each)	\$2,500,000
Operations (\$293,355 each bus)	\$1,466,775
<b>Total</b>	<b>\$3,976,210</b>
<b>Route 300</b>	
Bus Purchase (5 @ \$500,000 each)	\$2,500,000
Operations (\$293,355 each bus)	\$1,466,775
<b>Total</b>	<b>\$3,976,210</b>
Orchards Transfer Center	\$4,000,000
<b>Total</b>	<b>\$15,928,639</b>
<b>RTE Community Connections</b>	
<b>Loveland And Greeley</b>	
Bus Purchase (5 @ \$500,000 each)	\$2,500,000
Operations (\$295,242 each bus)	\$1,476,210
<b>Total</b>	<b>\$3,976,210</b>
<b>Fort Collins and Greeley</b>	
Bus Purchase (5 @ \$500,000 each)	\$2,500,000
Operations (\$295,242 each bus)	\$1,476,210
<b>Total</b>	<b>\$3,976,210</b>
<b>Total Cost of RTE Community Connections</b>	<b>\$7,952,420</b>

**Table 8-8: 2040 RTP Transit Scenario Cost of Improvements**

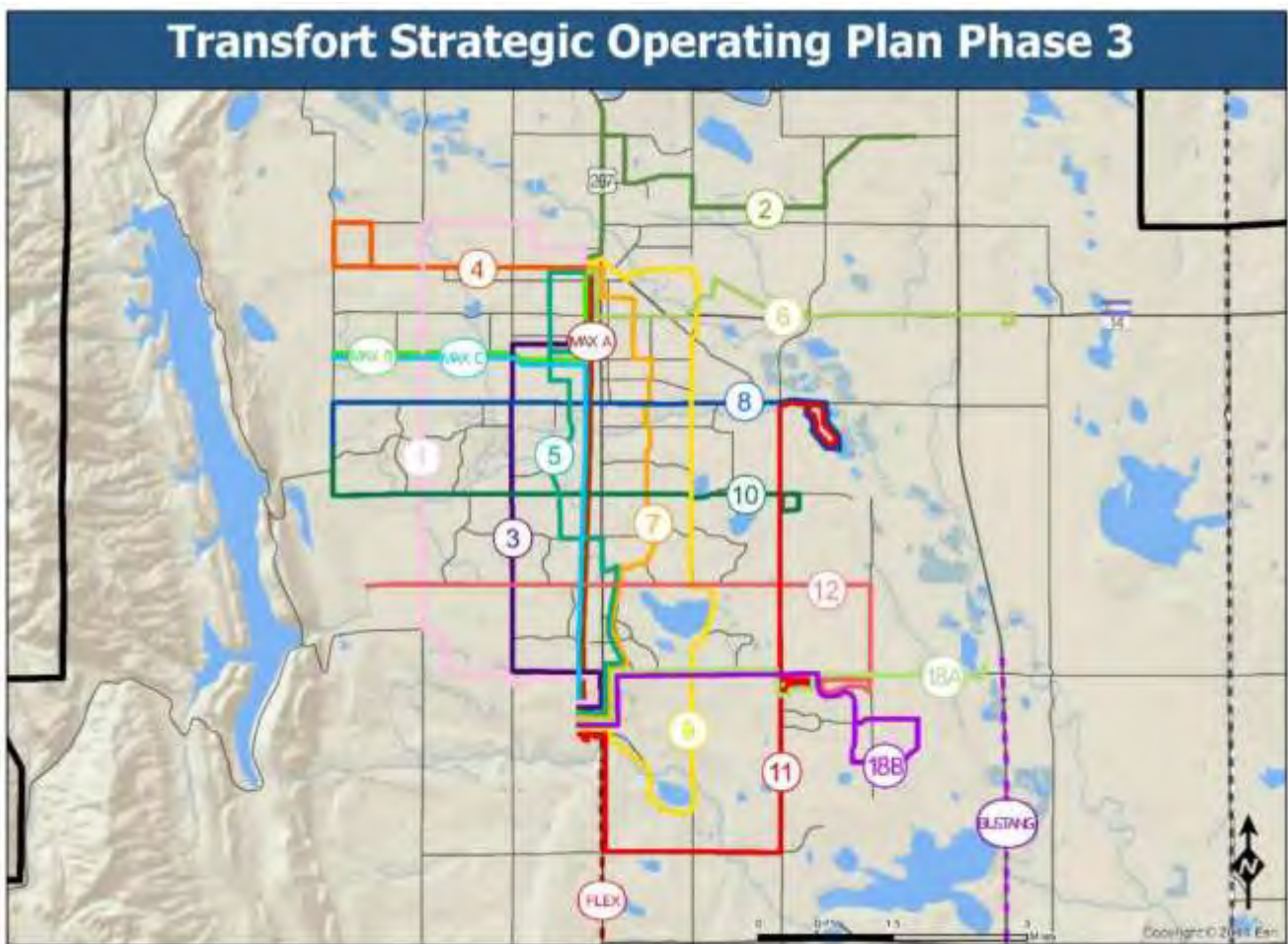
Improvement	Cost
<b>Park and Ride Improvements</b>	
Harmony Transfer Center Parking Garage (1 @ \$16,411/parking spot)	<b>\$4,923,300</b>
Centerra Parking Garage (1 @ \$16,411/parking spot)	<b>\$4,923,300</b>
Promontory Parking Garage (1 @ \$16,411/parking spot)	<b>\$4,923,300</b>
<b>Total</b>	<b>\$14,769,900</b>
<b>Bus Shelters and Sidewalk Program</b>	
Bus shelters (\$10,000 Average)	<b>\$1,500,000</b>
Sidewalks and ADA Accessible Stops	<b>\$19,000,000</b>
<b>Total</b>	<b>\$20,500,000</b>
<b>Miscellaneous Programs</b>	
Ozone Season Ride Free Program	<b>\$5,000,000</b>
Regional Transit App	<b>\$1,000,000</b>
<b>Total</b>	<b>\$6,000,000</b>
<b>Total Cost of 2040 RTP Transit Scenario</b>	<b>\$153,684,429</b>
Source: <u>NFRMO 2040 Regional Travel Demand Model</u>	

### Transfort Strategic Operating Plan Phase 3

The Transit Strategic Operating Plan for the Transfort network was developed in collaboration with the City of Fort Collins - Transfort, the City of Loveland - COLT, and the Poudre School District (PSD). Currently, the model does not take into account those routes designed to serve high school or college students (Transfort Route 21, 22, 23). This is due to the RTDM representing typical regional travel patterns. These routes do not reflect this trend. The Transfort system has access to the Bustang service operated by CDOT.

Based on available funds, the Transfort Strategic Operating Plan: Phase 3 was used as the implementation routes for the Transfort System, **Figure 8-4**. This recommends additional transit growth in Fort Collins, including longer service hours and limited Sunday transit service, as well as expansion of regional service (FLEX) to Berthoud, Boulder, Denver, and Longmont. It assumes the implementation of additional Mason Express (MAX) services which extend outside the Mason Corridor and complete the transition to a full grid network in Fort Collins. For more information see the Transfort Strategic Operating Plan.<sup>59</sup>

Figure 8-4: Transfort Strategic Operating Plan Phase 3



Jun, 2015  
Source: CDOT, NFRMPO

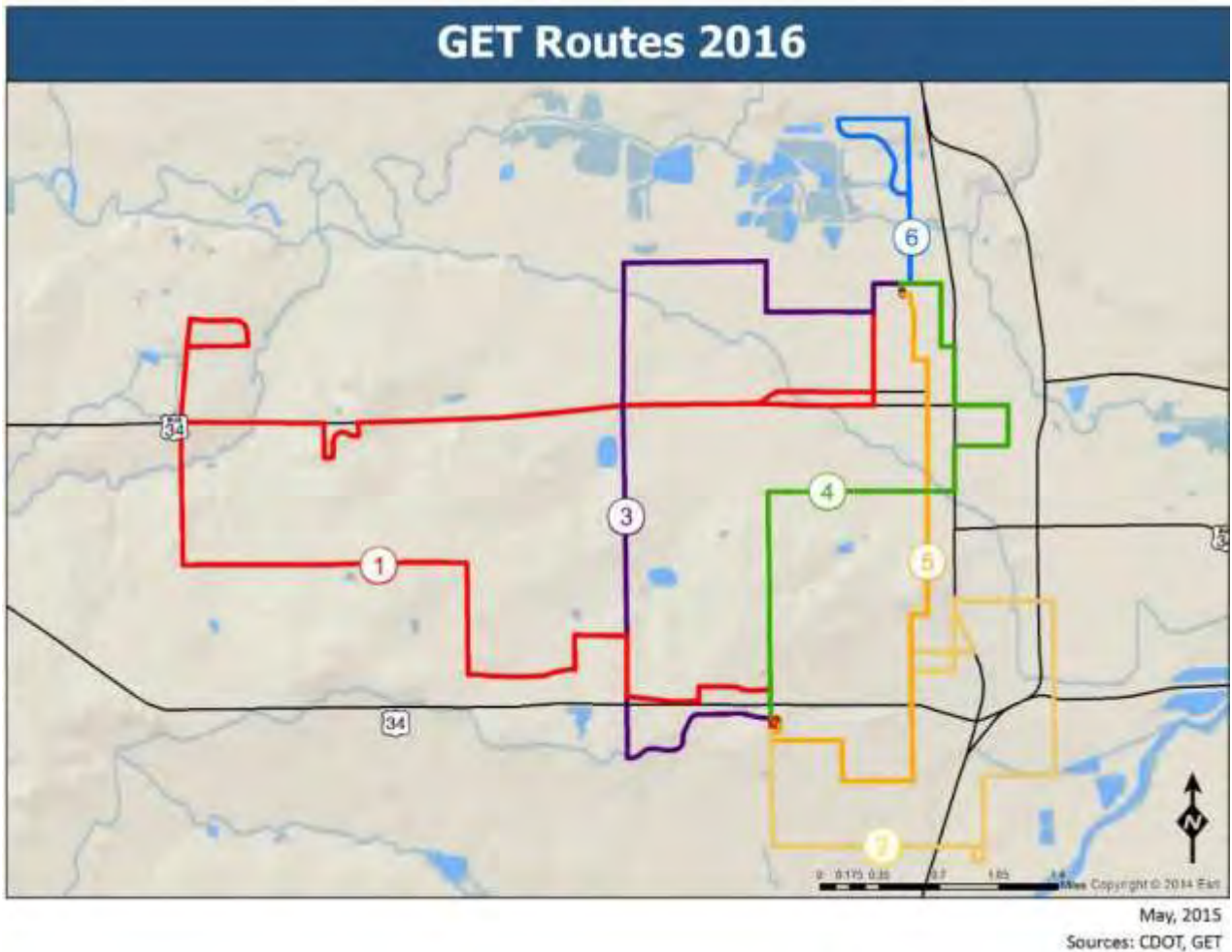
<sup>59</sup> Transfort Strategic Operating Plan, [http://www.ridetransfort.com/img/site\\_specific/uploads/TSP\\_Ch1-7.pdf](http://www.ridetransfort.com/img/site_specific/uploads/TSP_Ch1-7.pdf), 2009



### Greeley-Evans Transit Routes 2016

GET has adjusted their fixed-route services to accommodate the relocation of the downtown transfer center and to generally improve the routes by making them as reliable and efficient as possible. These new routes will begin in January 2016. The new route structure is shown in **Figure 8-5**. The changes to the system include improved connections throughout the city by increasing transfer locations and eliminating loops in favor of straight routes. For more information see *GET Proposed Route Changes*.<sup>60</sup>

Figure 8-5: Greeley-Evans Transit (GET) Routes 2016

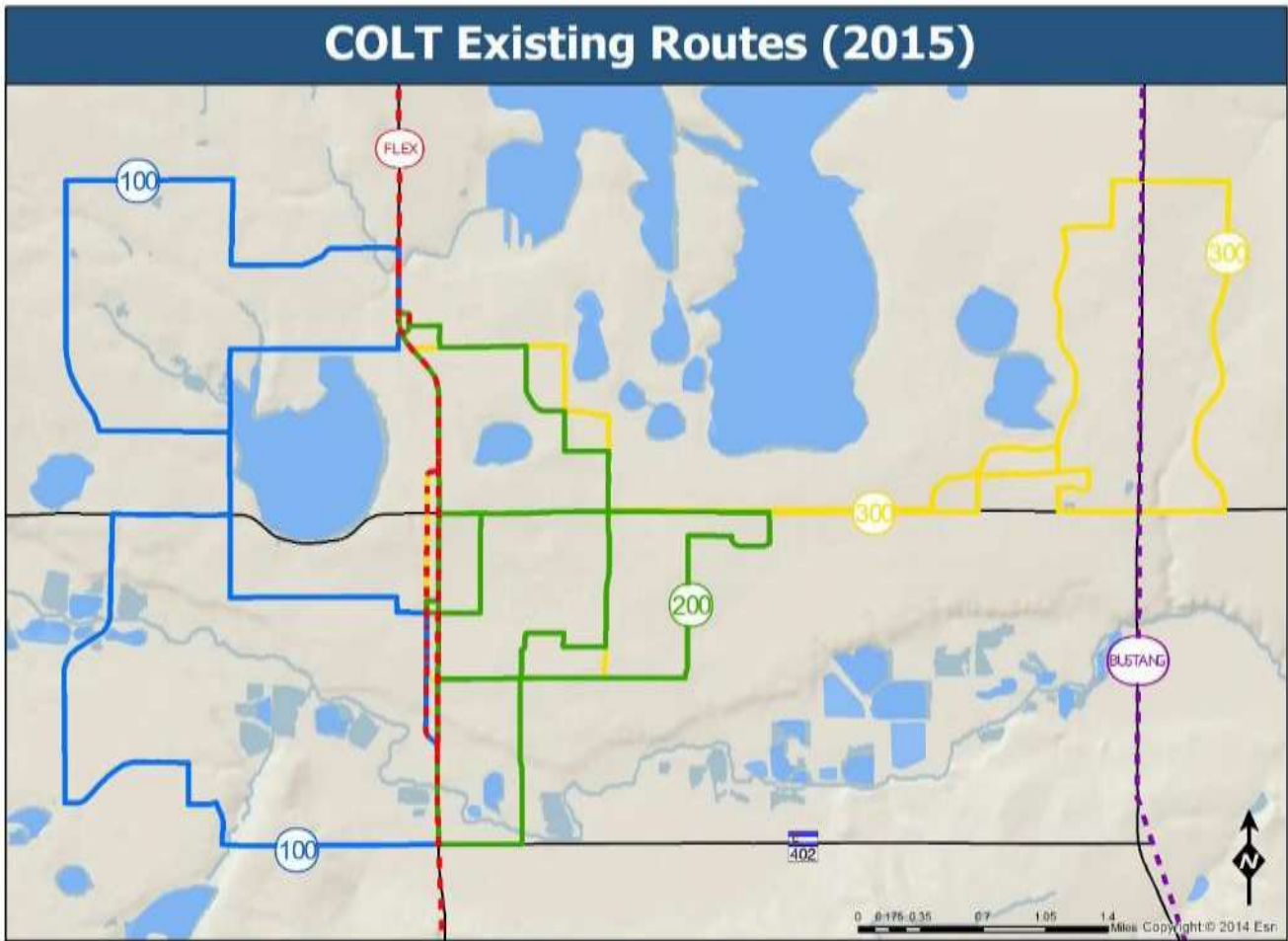


<sup>60</sup> Proposed Fixed Route Changes, <http://greeleygov.com/docs/default-source/Greeley-Evans-Transit/proposed-2015-route-changes.pdf?sfvrsn=2>, 2014

### City of Loveland Transit Routes

COLT currently runs three routes, **Figure 8-6**. Previous updates to the routes were made in 2011, adjusting 2008 routes. Currently, there are no plans to expand or change the routes. The COLT system has access to the FLEX system and Bustang services, operated by Transfort and CDOT, respectively.

**Figure 8-6: City of Loveland Transit (COLT) Existing Routes**

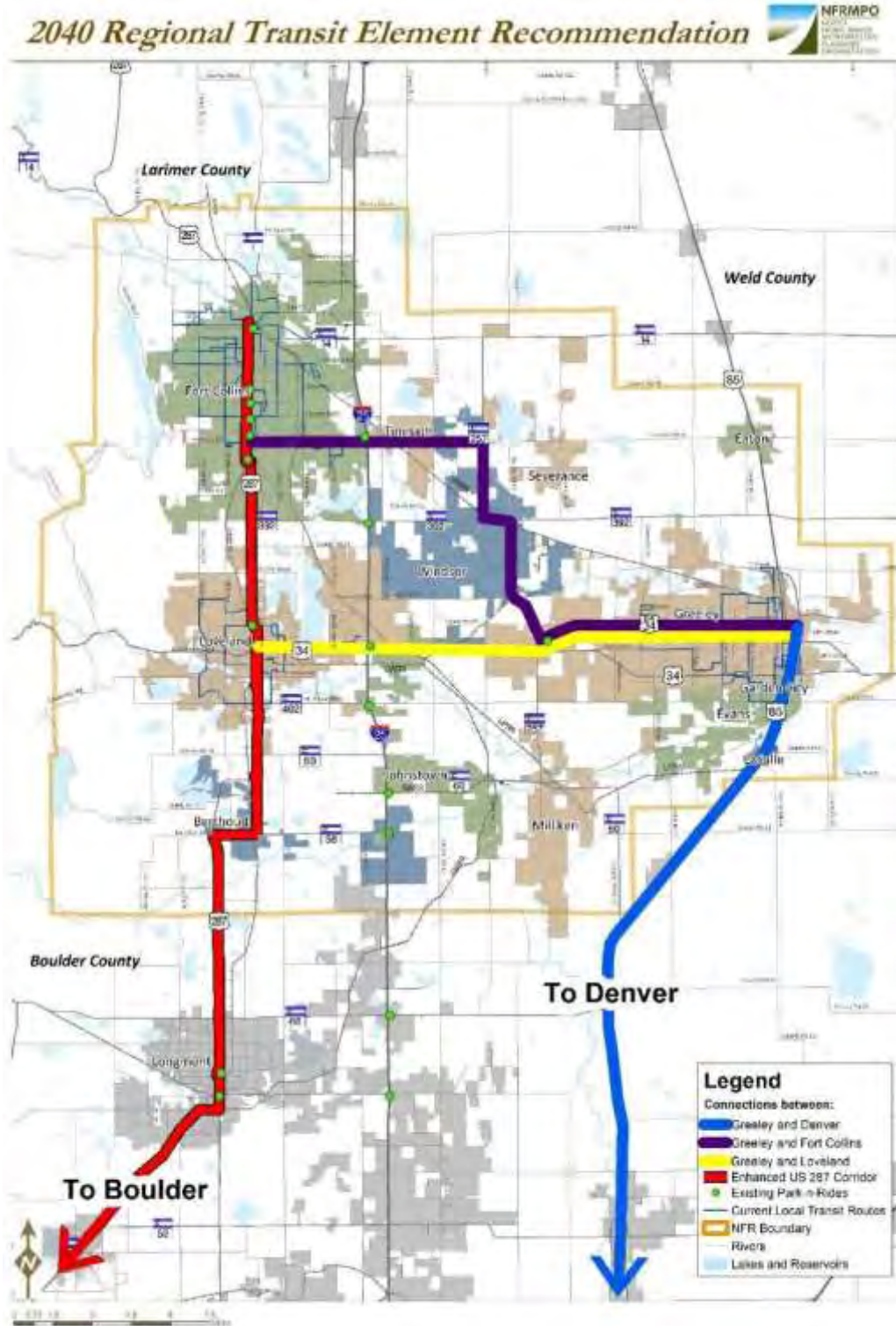


Jun, 2015  
Sources: CDOT, COLT

### Regional Transit Element Community Connections

The community connections selected in the 2040 Regional Transit Element (RTE) are shown in **Figure 8-7** and were used in the 2040 RTP Transit Scenario. The connection between Greeley/Evens area and Denver was not used in the scenario because more than half of the connection is outside the NFRMPO boundary. If this route is considered it will need to have a transit corridor study to accurately reflect ridership forecasts. The Greeley/Evens area and Loveland and Fort Collins and Greeley/Evens area Community Connections were used for the 2040 RTP Transit Scenario as they are completely within the NFRMPO boundary and potential ridership could be determined.

Figure 8-7: Regional Transit Element Community Connections



## Ridership Results

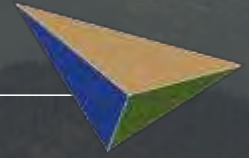
The ridership results of the 2040 RTP Transit Scenario are detailed in **Table 8-7** for each transit agency, community connection, and the NFRMPO region as a whole. The ridership is compared to the 2040 (Build) ridership to show the impact of the improvements. This confirms, that along with scheduled improvements, local ridership has the potential to increase by 75.70 percent with an addition of 2,740 riders on community connection routes.

Table 8-9: Ridership Results		
	Ridership	Percent Increase in Ridership
<b>2040 (Build)</b>		
COLT	718	-
GET	1,637	-
Transfort	16,268	-
<b>Total</b>	<b>18,622</b>	<b>-</b>
<b>2040 RTP Transit Scenario</b>		
COLT	829	15.5%
GET	4,461	172.5%
Transfort	22,633	39.1%
Fort Collins and Greeley	2,274	-
Loveland and Greeley	466	-
<b>Total</b>	<b>30,663</b>	<b>-</b>
<i>Source: NFRMO 2040 Regional Travel Demand Model V404</i>		



# Chapter 9

## Vision Plan



## Chapter 9: Vision Plan

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### A. Regionally Significant Corridor and Regional Bike Corridor Visions

Corridor visioning seeks to develop visions, goals, and objectives for the Regionally Significant Corridors (RSC), defined in **Chapter 2** and shown in **Figure 9-1**, and the Regional Bike Corridors (RBC), defined in the *2013 Regional Bike Plan*, shown in **Figure 9-31**. Each corridor has its own unique transportation characteristics which include one or more modes and facilities within a defined geographic segment, having a length from west to east or north to south. Many existing corridor segments have names which differ from the corridor name, this difference is defined for each jurisdiction the corridor passes through. The visions provide a general description of each corridors current travel modes, primary future travel modes, geographic and social environment, and the priorities of the communities served by the corridor.

The North Front Range Metropolitan Planning Organization (NFRMPO) recognizes corridors identified as regionally significant within the NFRMPO often extend beyond the NFRMPO boundary. The NFRMPO makes an effort to coordinate with the adjacent planning organizations of Upper Front Range (UFR) Transportation Planning Region (TPR) and the Denver Regional Council of Governments (DRCOG) in the development of visions. The visions in this chapter are only for those segments within the NFRMPO boundary.

The 2040 Goals, Objectives, Performance Measures, and Targets (GOPMT) (**Chapter 4**), and specifically the vision statement in **Chapter 1**, defines the overall direction the region wishes to move towards and is an overarching statement for all of the corridor visions:

*“We seek to provide a multi-modal transportation system that is safe, as well as socially and environmentally sensitive for all users that protects and enhances the region’s quality of life and economic vitality.”*

These visions are defined for the NFRMPO’s 2040 Regional Transportation Plan (RTP) and should not be used as a sole source for project implementation, but rather as a guide for communities to gauge current and future conditions on regional corridors.



Figure 9-1: Regionally Significant Roadway Corridors

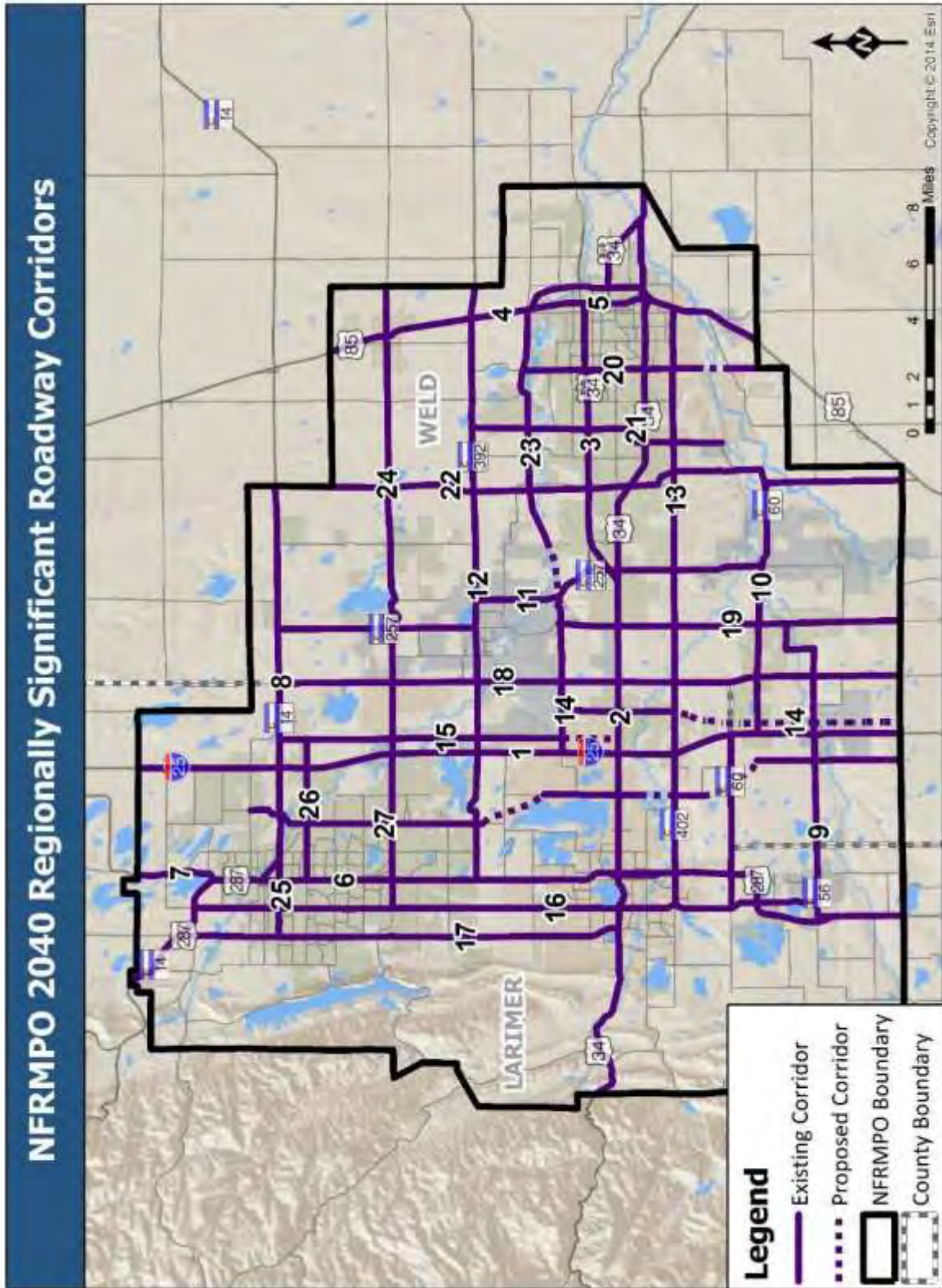
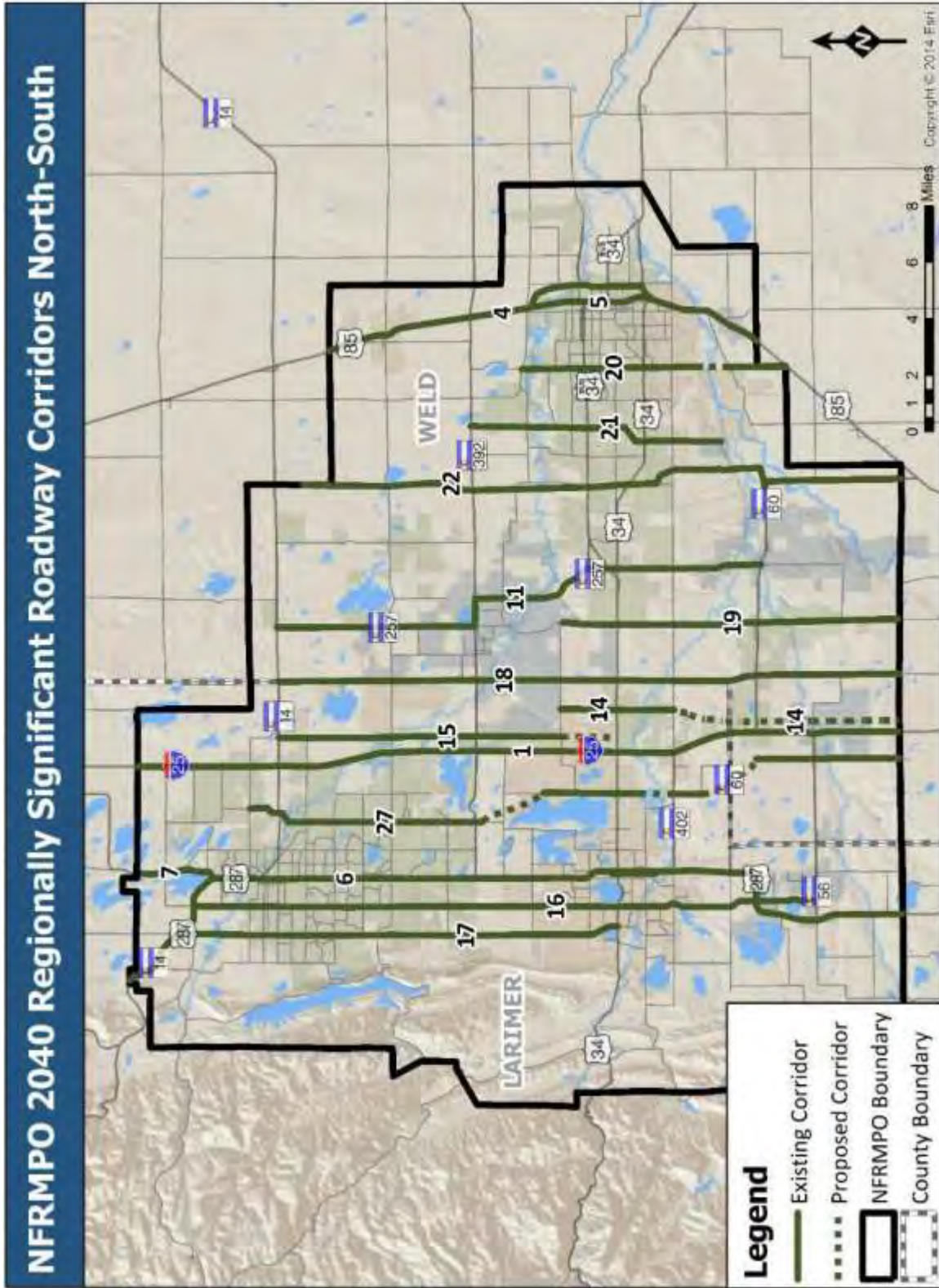


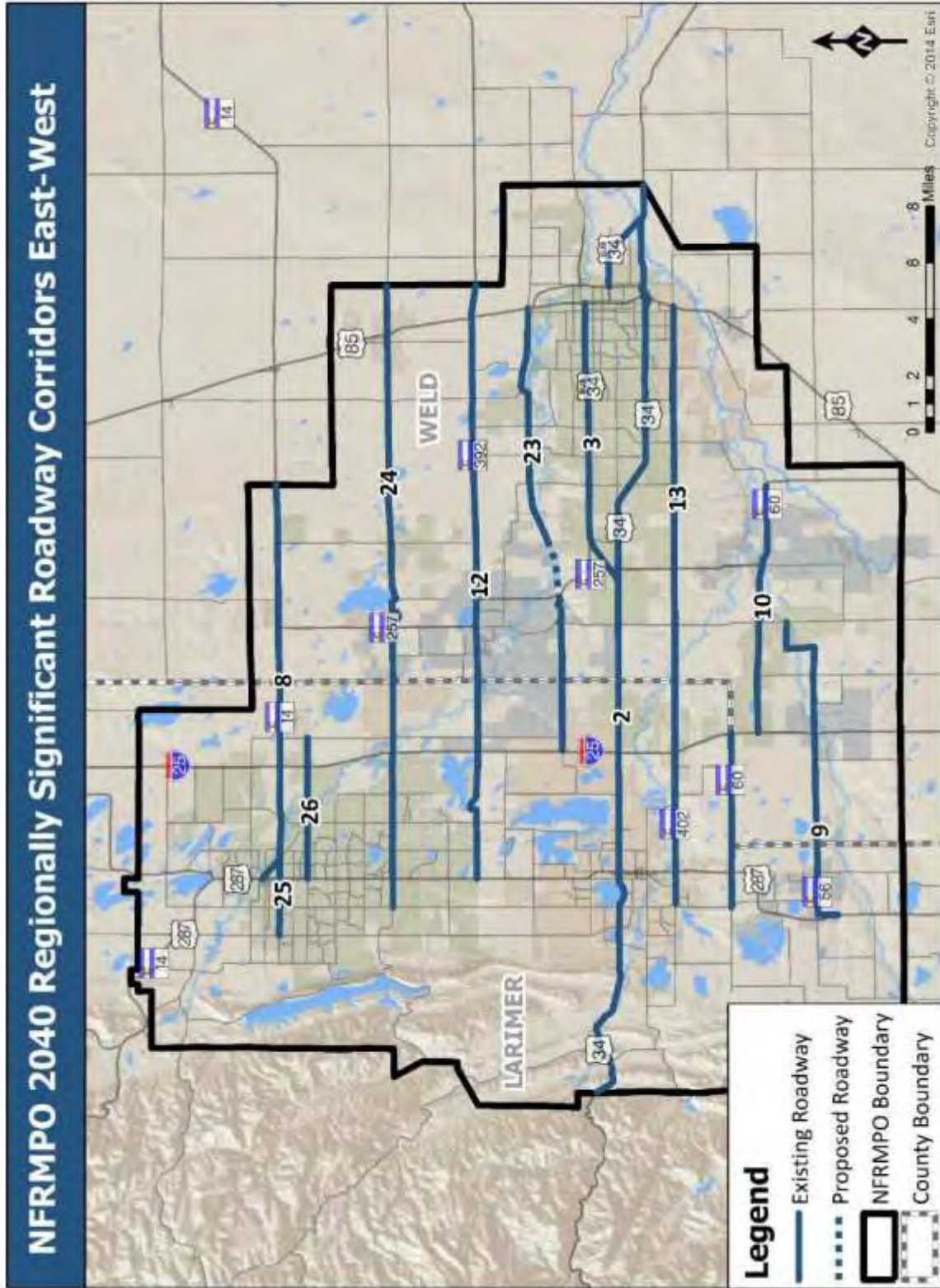
Figure 9-2: Regionally Significant Roadway Corridors North-South



Jun, 2015  
Sources: CDOT, NFRMPO



Figure 9-3: Regionally Significant Roadway Corridors East-West



Jun, 2015  
Sources: CDOT, NFRMPO

**RSC Vision 1: I-25**

RSC 1 extends from Larimer County Road (CR) 56 (northern NFRMPO boundary) to Weld CR 38 (southern NFRMPO boundary). The corridor is primarily four-lanes, two-lanes each direction, with auxiliary lanes. The entire corridor is planned to be six-lanes, three-lanes in each direction, with managed and auxiliary lanes. Currently, the Colorado Department of Transportation (CDOT) provides transit service along the corridor to connect the North Front Range communities to downtown Denver with stops at the Harmony and US 34 Park-n-Ride (PNR) lots.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Berthoud, Fort Collins, Johnstown, Loveland, Timnath, Windsor, Unincorporated Larimer County, and Unincorporated Weld County

*Total Length (miles):* 27

*Vision Statement*

The vision for RSC 1 is to increase mobility and to improve safety and system reliability. This RSC is a Federal Highway Administration (FHWA) - recognized Major Freight Corridor (Camino Real) on the Priority Freight Corridor Network. The Western Transportation Trade Network was developed by the Western Association of State Highway and Transportation Officials (WASHTO). It is a system of highway and rail routes through 17 states, and serves as the principal north-south facility through Colorado connecting Mexico and Canada. Based on historic and projected population and employment levels, both passenger and freight traffic volumes are expected to increase significantly. The communities along the RSC value high levels of mobility, transportation choices, connections to other areas, safety, system preservation, and intermodal connections. The Larimer County Events Complex, Budweiser Events Center, access to major tourist attractions, major commercial development throughout the region and the Fort Collins Port of Entry are located along the RSC, contributing to the activity. The area surrounding this RSC is transitioning from suburban to urban, and the RSC needs to support the movement of commuters, tourists, freight, farm-to-market products, and hazardous materials.

*References*

- ▶ North I-25 Environmental Impact Statement, 2011
- ▶ North I-25 Record of Decision, 2011

**Figure 9-4: RSC 1**





### RSC Vision 2: US 34

RSC 2 stretches from the eastern NFRMPO boundary across the region to the western NFRMPO boundary. The corridor is primarily four-lanes, with a six-lane configuration within the City of Loveland. There has been significant Transportation Demand Management (TDM) investment in the urban portions of Loveland and Greeley. There is transit access on the west to with City of Loveland Transit (COLT) system, on the east with the Greeley-Evans Transit (GET) system, and to Bustang at I-25.

*Primary Investment Need:* Increase mobility

#### *Jurisdictions*

Greeley (Canal Road), Loveland (Eisenhower Boulevard), Unincorporated Larimer County, and Unincorporated Weld County

*Total Length (miles):* 34.5

#### *Vision Statement*

The vision for RSC 2 is to increase mobility and to maintain system quality and improve safety. Future travel modes to be planned for include passenger vehicles, bus service, bus rapid transit, truck freight, and bicycles and pedestrians. The transportation system in the area serves towns, cities, and destinations both along and outside of the RSC. Based on historic and projected population and employment levels, both passenger and freight traffic volumes are expected to increase significantly. The communities along the RSC value high levels of mobility, transportation choices, and connections to other areas, safety, and system preservation. The University of Northern Colorado (UNC) is located on this RSC, contributing to the activity. While the majority of the area surrounding the RSC is transitioning from agricultural to suburban, sections of the RSC through Loveland and Greeley are urbanized.

Figure 9-5: RSC 2

#### *References*

- ▶ US 34 RSC Optimization Plan, 2003
- ▶ US 34 Access Control Plan, 2003
- ▶ US 34 Environmental Assessment/FONSI, 2007
- ▶ North I-25 Environmental Impact Statement, 2011



**RSC Vision 3: US 34 Business Route**

RSC 3 is the US 34 Business Route from the eastern NFRMPO boundary to RSC 2 – US 34. The road is primarily a four-lane facility with the exception of a three-lane, one-way couplet through Downtown Greeley. This corridor has access to the GET transit system.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Greeley (10<sup>th</sup> Street, 9<sup>th</sup> Street) and Unincorporated Weld County

*Total Length (miles):* 13

*Vision Statement*

The vision for RSC 3 is to increase mobility as well as to maintain system quality and improve safety. This facility provides an east-west connection within Greeley. Future travel modes to be planned for include passenger vehicles, bus service, and bicycles and pedestrians. Based on historic and projected population and employment levels, passenger volumes are expected to increase. Users of this RSC support the movement of tourists, commuters, freight, and farm-to-market products to and along the RSC while recognizing the environmental, economic, and social needs of the surrounding area.

*References*

- ▶ US 34 RSC Optimization Plan, 2003
- ▶ US 34 Access Control Plan, 2003
- ▶ US 34 Business Route Environmental Assessment, 2007
- ▶ US 34 Environmental Assessment/FONSI, 2007
- ▶ North I-25 Environmental Impact Statement, 2011

**Figure 9-6: RSC 3**





### RSC Vision 4: US 85

RSC 4 extends from the northern NFRMPO boundary to the southern NFRMPO boundary including Eaton, Evans, Greeley, and LaSalle. The road is primarily a four-lane divided highway with two-lanes in each direction. Evans and Greeley have access to the GET transit system, but Eaton, LaSalle and unincorporated Weld County do not have access to transit service.

*Primary Investment Need:* Increase mobility

#### Jurisdictions

Eaton (Canam Highway), Evans (Canam Highway), Greeley (Canam Highway), LaSalle (Canam Highway), and Unincorporated Weld County (Canam Highway)

*Total Length (miles):* 16

#### Vision Statement

The vision for RSC 4 is to increase mobility and maintain system quality and improve safety. The section of US 85 south of US 34 is on the National Highway System (NHS), while the section to the north of US 34 is a State Highway facility. The RSC provides north-south connections within the Eaton, Evans, Greeley, and LaSalle, with connections to the Denver metropolitan area to the south and Wyoming to the north. Future travel modes to be planned for include passenger vehicles, bus service, truck freight, and freight rail. TDM could be effective in this RSC. The transportation system in the area primarily serves towns, cities, and destinations both along and outside of the RSC. Based on historic and projected population and employment levels, both passenger and freight traffic volumes are expected to increase. The area depends on manufacturing, agriculture, commercial activity, and oil and gas economic activity. Users of the RSC support the movement of commuters, freight, farm-to-market products, and hazardous materials to and through the RSC while recognizing the environmental, economic, and social needs of the surrounding area.

#### References

- ▶ US 85 Access Control Plan, 1999
- ▶ North I-25 Environmental Impact Statement, 2001

Figure 9-7: RSC 4



**RSC Vision 5: US 85 Business Route**

RSC 5 is the US 85 Business Route through Greeley from O Street to RSC 2 – US 34. This RSC is a divided two-lane highway with one lane in each direction. There is access to the GET transit system for this corridor.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Evans, Greeley (8<sup>th</sup> Avenue), and Garden City

*Total Length (miles):* 4.5

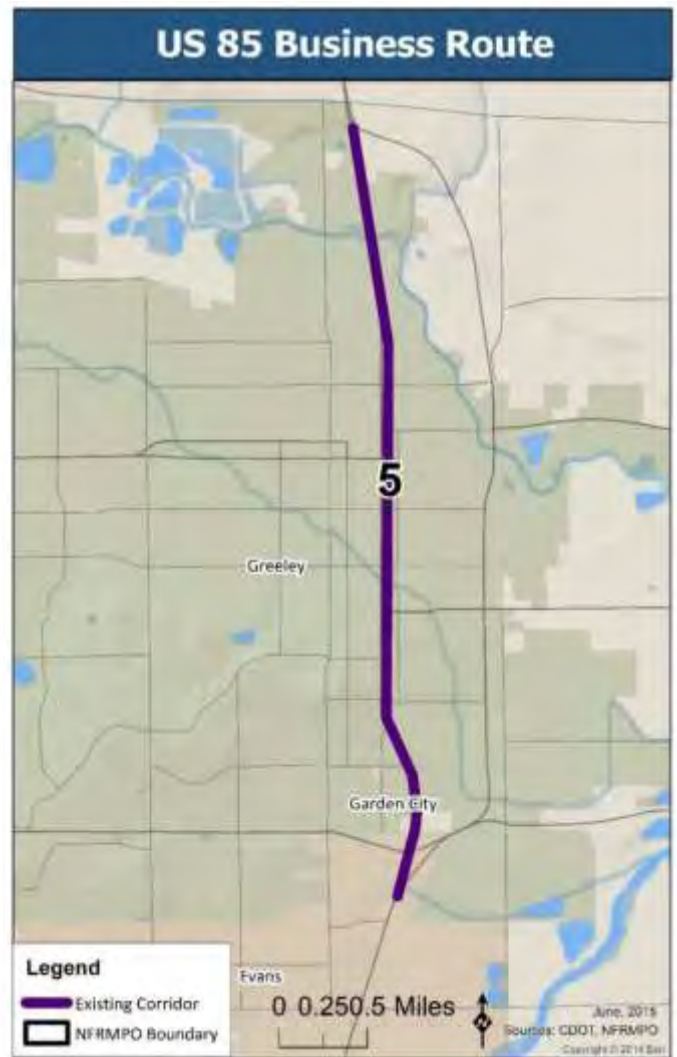
*Vision Statement*

The vision for RSC 5 is to increase mobility as well as maintain system quality and improve safety. The RSC is a State Highway facility, and provides north-south connections within Greeley and Evans. Based on historic and projected population and employment levels, both passenger and freight traffic volumes are expected to increase. The area depends on manufacturing, agriculture, commercial activity, and oil and gas for economic activity. The area surrounding this RSC is diverse and includes urban characteristics through the Greeley area. Users of the RSC support the movement of commuters, freight, farm-to-market products, and hazardous materials to and through the RSC while recognizing the environmental, economic, and social needs of the surrounding area.

*References*

- ▶ US 85 Access Control Plan, 1999

**Figure 9-8: RSC 5**



**RSC Vision 6: US 287**

RSC 6 stretches from the northern NFRMPO boundary to the southern NFRMPO boundary. This RSC is primarily two-lanes in each direction, with the Fort Collins portion being six-lanes. There also is a one-way couplet in Loveland with three-lanes in each direction. There is access to both the COLT and Transfort transit systems.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Berthoud, Fort Collins (College Avenue, SH 14), Loveland (Cleveland Avenue, Garfield Avenue, Lincoln Avenue), Unincorporated Larimer County (College Avenue, SH 14)

*Total Length (miles):* 32.5

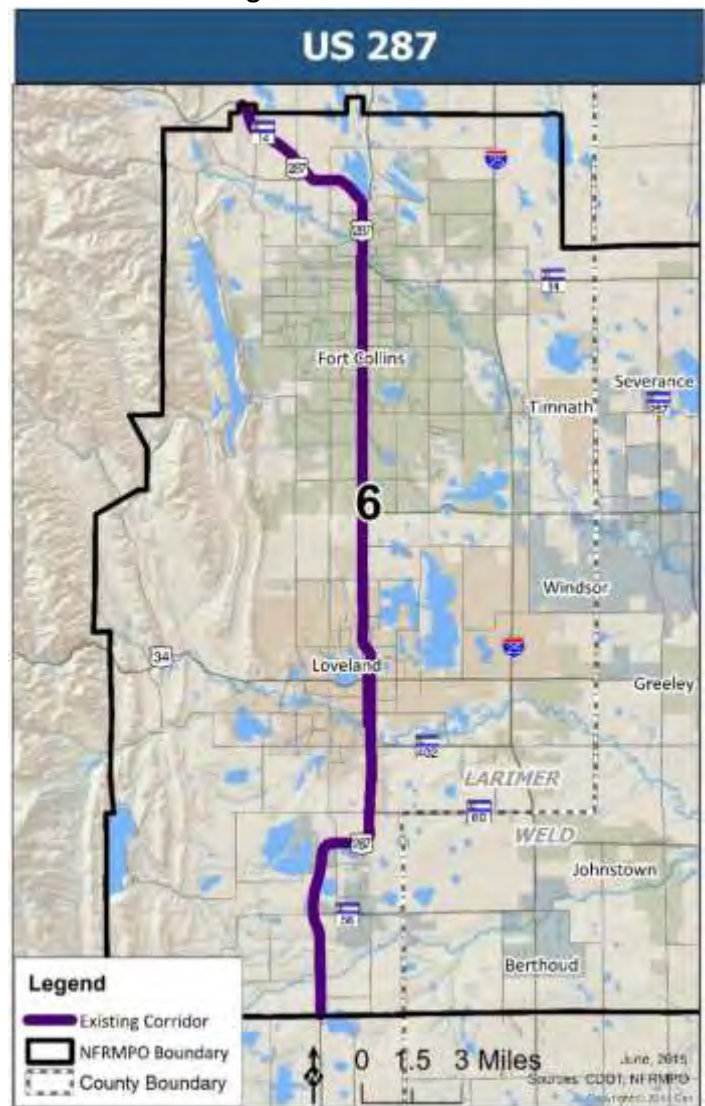
*Vision Statement*

The vision for RSC 6 is to increase mobility as well as to maintain system quality and improve safety. This RSC provides north-south connections within Berthoud, Fort Collins, and Loveland and connections to Denver metropolitan area to the south and north to Laramie, Wyoming and I-80. US 287 is a NHS facility and acts as a main street through both Fort Collins and Loveland. Based on historic and projected population and employment levels, both passenger and freight traffic volumes are expected to increase significantly. Users of this RSC want to retain the character of the area, including the dedicated open space between Fort Collins and Loveland, while supporting the movement of commuters and freight to and through the RSC.

*References*

- ▶ US 287 Access Control Plan, 2002
- ▶ US 287 Environmental Overview Study, 2007
- ▶ US 287 Environmental Assessment/FONSI, 2007
- ▶ North I-25 Environmental Impact Statement, 2011

**Figure 9-9: RSC 6**





**RSC Vision 7: SH 1**

RSC 7 extends from RSC 6 – US 287 on the south to Larimer CR 56 (NFRMPO boundary) on the north. The road is two-lanes, one in each direction. There are no planned improvements to this RSC. The corridor has no access to transit service.

*Primary Investment Need:* Improve safety

*Jurisdictions*

Unincorporated Larimer County (Terry Lake Road, Larimer CR 15)

*Total Length (miles):* 3

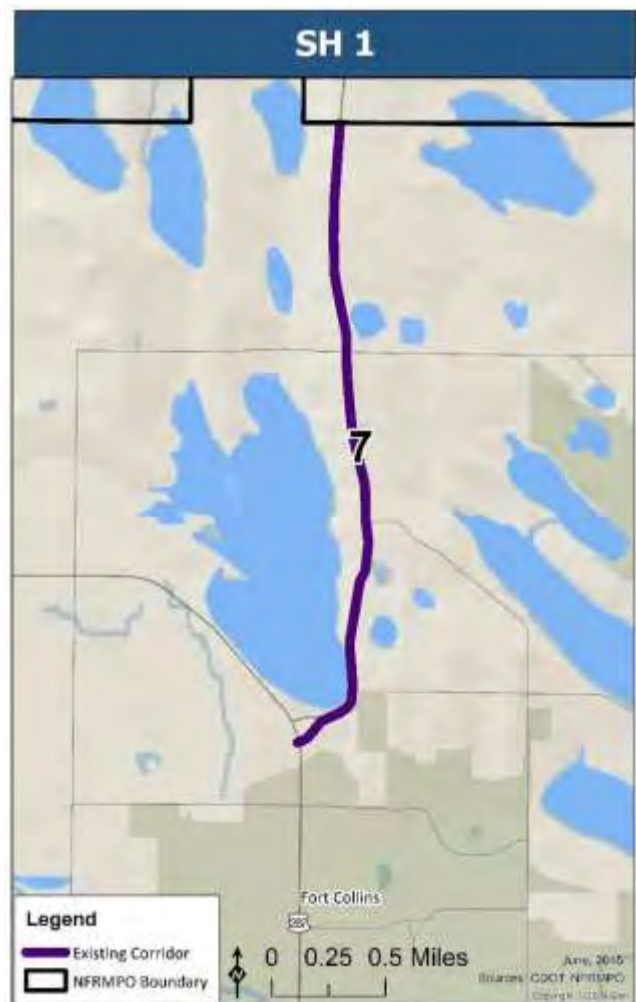
*Vision Statement*

The vision for RSC 7 is to improve safety and increase mobility and maintain system quality. This RSC serves as a local facility, provides commuter access, and makes north-south connections between Wellington and Fort Collins. Future travel modes expected along this RSC include passenger vehicles, bus service, and bicycles and pedestrians. The transportation system in the area primarily serves towns, cities, and destinations along the RSC. Based on historic and projected population and employment levels, passenger traffic volumes are expected to increase, while freight volume will likely remain relatively constant. The communities along the RSC value transportation choices, connections to other areas, and safety. The area served by this RSC is primarily residential, including large lot residential, with a significant number of people living in Wellington working and shopping in Fort Collins. Users of this RSC want to preserve the rural-residential character of the area and support the movement of commuters along the RSC while recognizing the environmental, economic, and social needs of the surrounding area.

*References*

- ▶ Larimer County Transportation Plan, 2006
- ▶ Fort Collins Transportation Master Plan, 2011

**Figure 9-10: RSC 7**





**RSC Vision 8: SH 14**

RSC 8 is located along SH 14 from RSC 6 – US 287 to the eastern NFRMPO boundary (approximately Larimer CR 3). The corridor is four-lanes, two-lanes in each direction with the exception of Riverside Avenue which is four-lanes, two in each direction. This RSC has access to the Transfort transit system.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Fort Collins (Jefferson Street, Mulberry Street, Riverside Avenue), Severance, Unincorporated Larimer County (Mulberry Street), and Unincorporated Weld County

*Total Length (miles):* 14

*Vision Statement*

The vision for RSC 8 is to increase mobility as well as to maintain system quality and improve safety. This RSC serves as a NHS facility between US 287 and I-25. It is a primary connection between downtown Fort Collins and RSC 1 – I-25. Future travel modes to be planned for include passenger vehicles, bus service, truck freight, and bicycles and pedestrians. TDM would likely be effective in this RSC. Based on historic and projected population and employment levels, both passenger and freight traffic volumes are expected to increase. The community along this RSC values high levels of mobility, transportation choices, and connections to other areas, safety, and system preservation. Users of this RSC want to enhance the urban character of the area, support the movement of commuters, freight and hazardous materials to and through the RSC while recognizing the environmental, economic, and social needs of the surrounding area.

Note: This RSC is currently used as a connection for freight and travelers from I-25 to I-80.

*References*

- ▶ Interstate 25/State Highway 14 Interchange Area Study, 1999
- ▶ North I-25 Environmental Impact Statement, 2001
- ▶ US 287/SH 14 Access Management Plan, 2001

**Figure 9-11: RSC 8**



**RSC Vision 9: SH 56**

RSC 9 stretches from RSC 16 – Larimer CR 17 in Berthoud to RSC 19 – Weld CR 17 in Johnstown. The road is two-lanes, one in each direction, to Weld CR 13/Colorado Boulevard. The road continues along Weld CR 44, north on Weld CR 15, and east on Weld CR 46 until reaching Weld CR 17. There has been TDM investment in the urban areas of Berthoud. The western portion of the RSC has access to the FLEX route in Berthoud where connections can be made to COLT, Transfort, and the Regional Transportation District (RTD) systems.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Berthoud (Larimer CR 8, Mountain Avenue, Weld CR 44,), Johnstown (Road 46, Weld CR 15, Weld CR 44), Unincorporated Larimer County, Unincorporated Weld County (Weld CR 44)

*Total Length (miles):* 12

*Vision Statement*

The vision for RSC 9 is to increase mobility as well as to maintain system quality and improve safety. This RSC provides east-west connections within the Berthoud, Johnstown, and unincorporated Larimer and Weld county areas. Future travel modes to be planned for include passenger vehicle, bus service, and truck freight. The transportation system in the area serves towns, cities, and destinations both within and outside of the RSC. Based on historic and projected population and employment levels, both passenger and freight traffic volumes are expected to increase. The communities along the RSC value high levels of mobility, transportation choices, and connections to other areas, safety, and system preservation. They depend on commercial activity and residential development for economic activity in the area. The area surrounding this RSC is transitioning from agricultural to suburban. Users of this RSC want to support the movement of commuters and freight to and through the RSC while recognizing the environmental, economic, and social needs of the surrounding area.

*References*

- ▶ Town of Johnstown Transportation Master Plan, 2008
- ▶ SH 56 Access Control Plan, 2009
- ▶ North I-25 Environmental Impact Statement, 2011

**Figure 9-12: RSC 9**



**RSC Vision 10: SH 60**

RSC 1 extends from RSC 16 – Larimer CR 17 to RSC 1 – I-25 on the western portion and from I-25 to Two Rivers Parkway as the eastern portion. The western portion is two-lanes, while the eastern portion is also two-lanes with TDM investment throughout portions of Johnstown and Milliken. There is no access to transit on this RSC.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Johnstown (1<sup>st</sup> Street), Milliken (Broad Street), Unincorporated Larimer County (42<sup>nd</sup> Street SE, Larimer CR 14), and Unincorporated Weld County

*Total Length (miles):* 15

*Vision Statement*

The vision for RSC 10 is to maintain system quality and improve safety. This RSC includes the east-west portions of SH 60, which is a local facility on the State Highway system. The facility comprises a RSC that provides local area-wide access to higher functional class facilities and makes east-west connections within and between Johnstown, Milliken, and Berthoud. Future travel modes to be planned for include passenger vehicle, bus service, and truck freight. The transportation system in the area serves towns, cities, and destinations both along and outside of the RSC. Based on historic and projected population and employment levels, both passenger and freight traffic volumes are expected to increase. The area surrounding this RSC is transitioning from agricultural to suburban. Users of this RSC want to support the movement of commuters and freight to and through the RSC while recognizing the environmental, economic, and social needs of the surrounding area.

*References*

- ▶ SH 60 Access Control Plan, 2006
- ▶ SH 60 Environmental Overview Study, 2006
- ▶ Town of Milliken Transportation Master Plan, 2008
- ▶ Town of Johnstown Transportation Master Plan, 2008
- ▶ North I-25 Environmental Impact Statement, 2011

**Figure 9-13: RSC 10**





**RSC Vision 11: SH 257**

RSC 11 starts at RSC 8 – SH 14 on the north in Severance and ends RSC 10 – SH 60 on the south in Milliken including an offset in Windsor. The road is two-lanes on the south with added TDM improvements through Windsor. There is no access to transit along this RSC.

*Primary Investment Need:* Maintain system quality

*Jurisdictions*

Greeley (Weld CR 21), Milliken (Weld CR 21), Severance (Weld CR 17), Windsor (7<sup>th</sup> Street, Weld CR 19, Weld CR 68), and Unincorporated Weld County (Weld CR 17, Weld CR 21)

*Total Length (miles):* 18.5

*Vision Statement*

The vision for RSC 11 is to maintain system quality as well as to increase mobility and improve safety. This RSC is on the State Highway system and provides commuter access and makes north-south connections within and between the Windsor and western Greeley areas. The transportation system in the area primarily serves towns, cities, and destinations both along and outside of the RSC. Based on historic and projected population and employment levels, passenger traffic volumes are expected to remain relatively constant, while freight volume will increase. Communities in the area depend on manufacturing, agriculture, and residential development for economic activity in the area. Portions of the area surrounding this RSC are transitioning from rural and agricultural to suburban.

*References*

- ▶ Town of Windsor Comprehensive Plan, 2006
- ▶ Truck Traffic in the Northeastern Quadrant of the NFRMPO Region, 2010
- ▶ North I-25 Environmental Impact Statement, 2011

**Figure 9-14: RSC 11**





**RSC Vision 12: SH 392**

RSC 12 runs from RSC 6 – US 287 on the west in Fort Collins to the eastern NFRMPO boundary in unincorporated Weld County. The road is primarily two-lanes, one in each direction, except in the urban portion of Windsor which is four-lanes, two in each direction. There are TDM improvements along this corridor. There is no access to Transit along this RSC.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Fort Collins (Carpenter Road, Larimer CR 32), Greeley, Windsor (Larimer CR 32, Weld CR 68), Unincorporated Larimer County (Carpenter Road, Larimer CR 32), and Unincorporated Weld County (Weld CR 68)

*Total Length (miles):* 21

*Vision Statement*

The vision for RSC 12 is to increase mobility and maintain system quality and improve safety. This RSC serves as a local facility, provides commuter access, and makes east-west connections within south Fort Collins, Windsor, and unincorporated Weld County. The RSC serves as Main Street through Windsor. Based on historic and projected population and employment levels, both passenger and freight traffic volumes are expected to continue to increase. The area surrounding the western portion of the RSC is suburban, while the areas surrounding the central portion are urban. Eastern portions of the RSC run through agricultural areas. Users of this RSC support the movement of commuters, freight, and farm-to-market products in and through the RSC, while recognizing the environmental (including preservation and minimization/mitigation of impacts to protected public open lands/natural areas), economic, and social needs of the surrounding area.

*References*

- ▶ SH 392 Environmental Overview Study, 2006
- ▶ SH 392 Access Control Plan, 2006
- ▶ Town of Windsor Comprehensive Plan, 2006
- ▶ Fort Collins Transportation Master Plan, 2011

**Figure 9-15: RSC 12**



**RSC Vision 13: SH 402**

RSC 13 extends from RSC 16 – Larimer CR 17 in Loveland through portions of Johnstown, Greeley, and Evans and ends at RSC 4 – US 85. This corridor provides east-west connections to several cities. Currently, this corridor is one-lane in each direction, with the exception of portions in Loveland and adjacent to US 85 in Evans. The road is planned for expansion to a four-lane facility according to Evans, Greeley, and Loveland Transportation Plans, and the SH 402 Environmental Assessment.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Evans (37th Street), Greeley (37th Street, Weld CR 54), Johnstown (Larimer CR 18), Loveland (14th Street, Larimer CR 18), Unincorporated Larimer County (14th Street, Larimer CR 18), and Unincorporated Weld County (Weld CR 54)

*Total Length (miles):* 21

*Vision Statement*

The vision for RSC 13 is to increase mobility as well as to maintain system quality and improve safety. This corridor provides commuter access and makes east-west connections between Loveland, Greeley, Evans, Johnstown, and Windsor. Future travel modes to be planned for include passenger vehicle, bus service, and bicycle and pedestrian facilities. Communities along the corridor value high levels of mobility, transportation choices, and connections to other areas, safety, and system preservation.

*References*

- ▶ State Highway 402 Environmental Assessment, 2007
- ▶ State Highway 402 FONSI, 2008

**Figure 9-16: RSC 13**



**RSC Vision 14: Larimer County Road 3**

RSC 14 extends from RSC 23 – Crossroads Boulevard on the north to the NFRMPO Boundary on the south. This Corridor currently exists in Johnstown and portions of unincorporated Larimer County as a gravel road. This RSC has no access to transit. Johnstown plans to extend this road south to Berthoud as a two- to four-lane road.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Berthoud, Johnstown, Loveland, Windsor, Unincorporated Larimer County, and Unincorporated Weld County

*Total Length (miles):* 12

*Vision Statement*

The vision for RSC 14 is to increase mobility as well as to improve safety and maintain system quality. The RSC serves as off-system parallel arterial to I-25, providing local access off of I-25. Future travel modes could include passenger vehicle, bus service, and bicycle and pedestrian facilities. Based on historic and projected population and employment levels, passenger traffic volumes are expected to remain relatively constant. The area surrounding this RSC is transitioning from rural to suburban, and the RSC needs to support the movement of commuters and farm-to-market products.

*References*

- ▶ Town of Johnstown Transportation Master Plan, 2008
- ▶ Berthoud Comprehensive Plan Update, 2014

**Figure 9-17: RSC 14**





**RSC Vision 15: Larimer County Road 5**

RSC 15 extends from RSC 8 – SH 14 on the north to RSC 2 – US 34 on the south. Part of the corridor is currently one-lane each way, with TDM measures through downtown Timnath and portions of unincorporated Larimer County with subdivisions. As it approaches US 34, the road transitions to four- and then six-lanes as you approach Centerra Parkway.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Fort Collins, Loveland (Fairgrounds Avenue, Centerra Parkway), Timnath (Main Street), Windsor (Fairgrounds Avenue), and Unincorporated Larimer County

*Total Length (miles):* 12

*Vision Statement*

The vision for RSC 15 is increased mobility, improved safety while maintaining system quality. The RSC serves as an off-system parallel arterial to I-25, providing for local access east of I-25. The Larimer County Fairgrounds and Events Complex is located along this RSC and contributes to traffic. Future travel modes should include passenger vehicle, bus service, and bicycle and pedestrian facilities. TDM would be effective in this RSC. Based on historic and projected population and employment levels, both passenger and freight traffic volumes are expected to increase significantly. This area depends on manufacturing, high-tech industries, commercial activity, retail, and residential development for economic activity. The area is transitioning from rural to suburban, and the RSC needs to support the movement of commuters and farm-to-market products.

*References*

- ▶ Town of Windsor Update of 2002 Comprehensive Plan, 2006
- ▶ Timnath Comprehensive Plan, 2013
- ▶ City of Loveland 2035 Transportation Plan, 2012

**Figure 9-18: RSC 15**





**RSC Vision 16: Larimer County Road 17**

RSC 16 extends from RSC 6 – US 287 on the north to RSC 9 – SH 56 on the south. This RSC is four lanes in the urban areas of Fort Collins and Loveland and decreases to two lanes in the suburban and rural areas. This RSC has access to both the COLT and Transfort transit systems.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Berthoud, Fort Collins (Shields Street), Loveland (Taft Avenue), and Unincorporated Larimer County (Shields Street, Taft Avenue)

*Total Length (miles):* 22

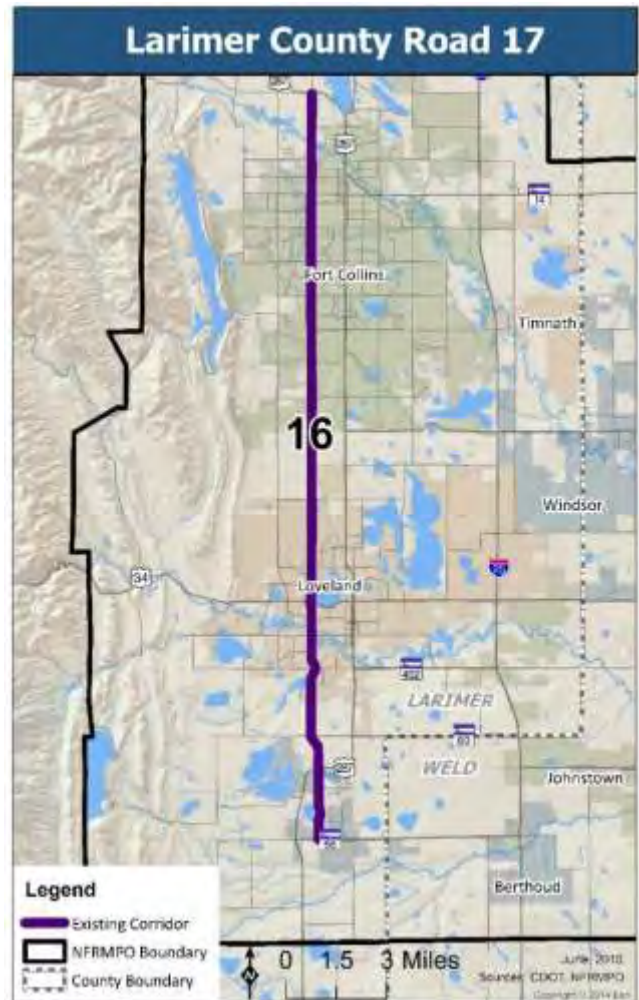
*Vision Statement*

RSC 16 is an off-system facility which provides a connection through residential and commercial areas. Future travel modes to be planned for include passenger vehicle, bus service, and bicycle and pedestrian facilities. Based on historic and projected population and employment levels, passenger volumes are expected to increase significantly, while freight traffic volumes are expected to remain constant. Communities along the RSC depend on commercial activity, residential development, Colorado State University (CSU), governmental agencies, as well as manufacturing and high-tech industries for economic activity in the area. Users of this RSC want to retain the character of the area, including the dedicated open space between Fort Collins and Loveland, while supporting the movement of commuters and freight along the RSC while recognizing the environmental, economic, and social needs of the surrounding area.

*References*

- ▶ Fort Collins Transportation Master Plan, 2011
- ▶ City of Loveland 2035 Transportation Plan, 2012
- ▶ Berthoud Comprehensive Plan Update, 2014

**Figure 9-19: RSC 16**



**RSC Vision 17: Larimer County Road 19**

RSC 17 stretches from RSC 6 – US 287 on the north to RSC 2 – US 34 on the south. The RSC has four-lane segments in the urban areas of Fort Collins and Loveland, while the rural and suburban areas are two-lane. This RSC has access to transit routes on both the COLT and Transfort systems.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Fort Collins (Taft Hill Road), Loveland (Wilson Avenue), and Unincorporated Larimer County (Taft Hill Road, Wilson Avenue)

*Total Length (miles):* 16

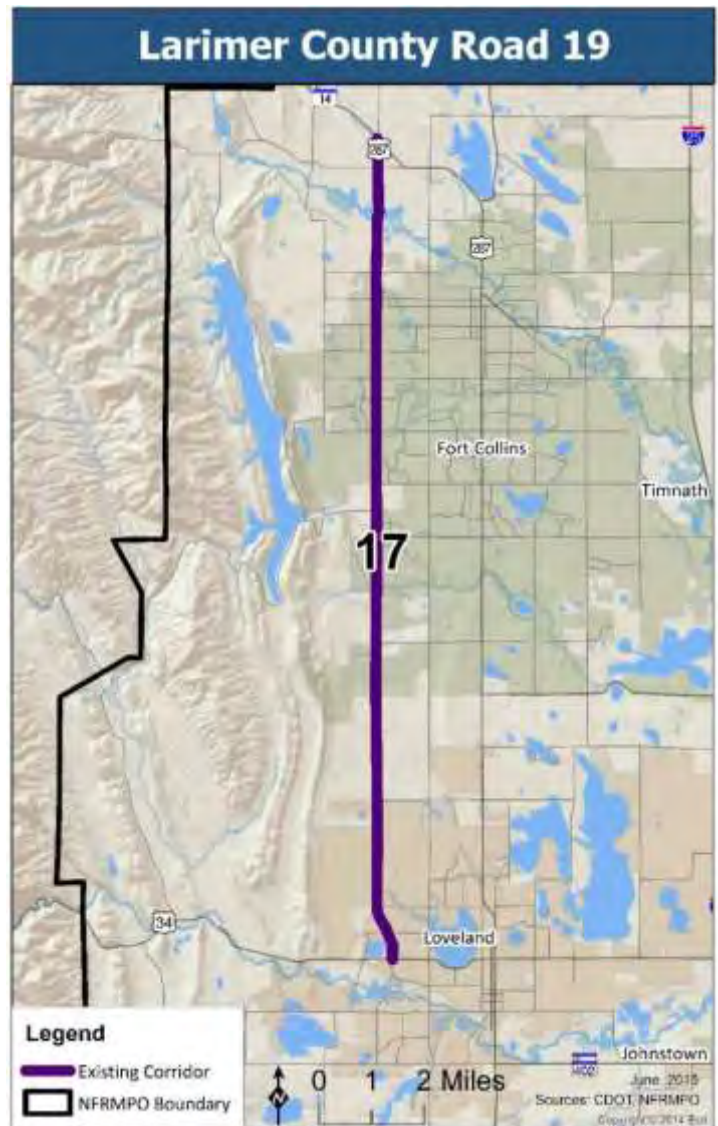
*Vision Statement*

RSC 17 is an off-system facility which provides a connection through residential and commercial areas. Future travel modes include passenger vehicle, bus service, truck freight, and bicycle and pedestrian facilities. The transportation system in the area primarily serves towns, cities, and destinations both within and outside of the RSC. Based on historic and projected population and employment levels, both passenger and freight traffic volumes are expected to increase significantly. Communities in this area depend on commercial activity, residential development, as well as manufacturing and high-tech industries for economic activity in the area. Users of this RSC want to retain the character of the area, including the dedicated open space between Fort Collins and Loveland, while supporting the movement of commuters and freight to and through the RSC while recognizing the environmental, economic, and social needs of the surrounding area.

*References*

- ▶ Fort Collins Transportation Master Plan, 2011
- ▶ City of Loveland 2035 Transportation Plan, 2012

**Figure 9-20: RSC 17**



**RSC Vision 18: Weld County Road 13**

RSC 18 stretches from RSC 8 – SH 14 on the north to the southern NFRMPO boundary. The road is two lanes, one in each direction. Segments of the road are paved while others are unpaved. There are no planned improvements to this RSC. There is no transit service to this corridor.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Johnstown (Larimer CR 1, Colorado Boulevard, County Line Road), Timnath (Colorado Boulevard, Larimer CR 40), Windsor (Colorado Boulevard, Larimer CR 40, Weld CR 13), Unincorporated Larimer County (Colorado Boulevard, Larimer CR 1, Larimer CR 40), and Unincorporated Weld County (Colorado Boulevard)

*Total Length (miles):* 22

*Vision Statement*

The vision for RSC 18 is primarily to increase mobility. RSC 18 serves as an off-system parallel arterial to I-25, providing local access east of I-25. The RSC provides north-south connections throughout the North Front Range area serving towns, cities, and destinations along the RSC. Future travel modes could include passenger vehicle and bicycle and pedestrian facilities. Based on historic and projected population and employment levels, passenger volumes are expected to increase while freight traffic volumes are expected to be relatively constant.

*References*

- ▶ Town of Windsor Update of 2002 Comprehensive Plan, 2006
- ▶ Town of Johnstown Transportation Master Plan, 2008

**Figure 9-21: RSC 18**





**RSC Vision 19: Weld County Road 17**

RSC 19 stretches from RSC 23 – Crossroads Boulevard on the north to the southern NFRMPO boundary. The road is two-lanes, one in each direction. This RSC serves as a main thoroughfare in Johnstown, with TDM measures allowing north-south connections. From Main Street to Weld CR 74, Windsor plans to expand the RSC to a four-lane road while Greeley does not plan to add capacity. Currently, there is no transit service to the RSC.

*Primary Investment Need:* Maintain system quality

*Jurisdictions*

Greeley, Johnstown (Parish Avenue), Windsor (7<sup>th</sup> Street), and Unincorporated Weld County

*Total Length (miles):* 12

*Vision Statement*

The vision for the RSC 19 is to maintain system quality as well as to increase mobility and improve safety. Future travel modes to be planned for in the RSC include passenger vehicle, bus service, bicycles, and truck freight. The transportation system in the area primarily serves towns, cities, and destinations both within and outside of the RSC. Based on historic and projected population and employment levels, passenger traffic volumes are expected to increase, while truck freight volume will remain relatively constant. Communities along the RSC depend on manufacturing, agriculture, and residential development for economic activity. The area surrounding this RSC is transitioning from rural agricultural to suburban. Users of this RSC support the movement of commuters and freight to and through the RSC while recognizing the environmental, economic, and social needs of the surrounding area.

*References*

- ▶ Town of Windsor Comprehensive Plan, 2006
- ▶ Johnstown Area Comprehensive Plan, 2006
- ▶ City of Greeley 2035 Comprehensive Plan, 2011

**Figure 9-22: RSC 19**





**RSC Vision 20: 35th Avenue**

RSC 20 begins at O Street on the north and ends at RSC 4 – US 85 on the south. The majority of RSC 20 is four-lanes, with the remaining segment in Greeley from O Street to 10<sup>th</sup> Street planned for four-lanes, including bike lanes. This RSC has access to the GET transit system.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Evans, Greeley, and Unincorporated Weld County

*Total Length (miles):* 9.5

*Vision Statement*

The vision for RSC 20 is to increase mobility. This is an off-system arterial roadway providing local and regional access. It serves as a feeder to US 34, US 85, and SH 392. Future travel modes are planned to include passenger vehicle and truck freight; TDM, and bike lanes which could be effective in this RSC. Based on historic and projected population and employment levels, passenger traffic volumes are expected to increase around the intersection at the RSC 2. Users of RSC 20 support the movement of commuters in and through the RSC, while recognizing the environmental, economic, and social needs of the surrounding area.

*References*

- ▶ City of Greeley 2035 Comprehensive Transportation Plan, 2011

**Figure 9-23: RSC 20**



**RSC Vision 21: 65th Avenue**

RSC 21 is located in Greeley, from 54<sup>th</sup> Street to RSC 12 – SH 392 along the 59<sup>th</sup> Avenue alignment. RSC 21 is primarily two-lanes, with one segment of four-lanes from 4<sup>th</sup> Street to 20<sup>th</sup> Street in Greeley. The portion from O Street to 37<sup>th</sup> Street is planned to be four-lanes with bike lanes. This RSC has access to the GET transit system.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Evans (Milliken Road), Greeley (Milliken Road, Weld CR 31, Westridge Avenue, 59<sup>th</sup> Avenue), Milliken (Milliken Road), and Unincorporated Weld County (Weld CR 31, 59<sup>th</sup> Avenue)

*Total Length (miles):* 9

*Vision Statement*

RSC 21 is an off-system arterial roadway. It provides local and regional access and makes north-south connections within Greeley, Evans, and Milliken. It serves as a feeder to US 34, US 85, and SH 392. Based on historic and projected population and employment levels, passenger traffic volumes are expected to increase significantly especially south of US 34, while freight volume will remain relatively constant. The communities along the RSC value high levels of mobility, connections to other areas, safety, and system preservation. They depend on commercial activity and residential development for economic activity in the area.

*Reference*

- ▶ City of Greeley 2035 Comprehensive Transportation Plan, 2011

**Figure 9-24: RSC 21**



**RSC Vision 22: 83<sup>rd</sup> Avenue**

RSC 22 stretches from the NFRMPO boundary on the north to the south – approximately Weld CR 27. This RSC is expected to be a primary route for north-south travel in the future. Currently, the road is one-lane in each direction. The cities of Evans and Greeley plan to expand this road to four-lanes. There is access to GET transit service along this corridor.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Evans (77<sup>th</sup> Avenue, 2 Rivers Parkway, Weld CR 27), Greeley (77<sup>th</sup> Ave, 2 Rivers Parkway, Weld CR 27), Milliken (Weld CR 21 ½), and Unincorporated Weld County (77<sup>th</sup> Avenue, 2 Rivers Parkway, Weld CR 27, Weld CR 68/SH 392, Weld CR 64 ½, Weld CR 21 ½)

*Total Length (miles):* 22

*Vision Statement*

The vision for RSC 22 is to increase mobility as well as to improve safety and maintain system quality. The RSC provides local and regional access and makes north-south connections between Greeley, Evans, and Milliken. It serves as a feeder to US 85, SH 392, and SH 14 with connections to the Denver metropolitan area. The transportation system in the area serves towns, cities, and destinations both within and outside of the RSC. Based on historic and projected population and employment levels, passenger traffic volumes and freight volumes are expected to increase. The communities along the RSC value high levels of mobility, connections to other areas, safety, and system preservation. The area depends on commercial activity and residential development for economic activity. The area surrounding RSC 22 is transitioning from rural to suburban. Users of this RSC want to support the movement of commuters to and through the RSC while recognizing the environmental, economic, and social needs of the surrounding area.

*References*

- ▶ City of Greeley 2035 Comprehensive Transportation Plan, 2011
- ▶ City of Evans Transportation Plan, 2004

**Figure 9-25: RSC 22**



**RSC Vision 23: Crossroads Boulevard**

RSC 23 extends from RSC 1 – I-25 on the west to RSC 4 – US 85 on the east. RSC 23 is primarily two-lanes on the existing segments, with a four-lane section in Windsor. The two-lane facility is planned to be a four-lane arterial when completed. Currently, Crossroads Boulevard and O Street do not connect. The City of Greeley plans to connect these segments, making it a major arterial.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Greeley (O Street), Loveland (Larimer CR 26), Windsor (Weld CR 62), and Unincorporated Weld County (O Street, Weld CR 62, Weld CR 64)

*Total Length (miles):* 16

*Vision Statement*

The vision for RSC 23 (off-system arterials) is to increase mobility. These facilities provide commuter access and make east-west connections between Greeley, Loveland, and Windsor. Future travel modes to be planned for include passenger vehicle, bus service, bus rapid transit, and bicycle and pedestrian. Based on historic and projected population and employment levels, passenger traffic volumes are expected to increase. Communities along the RSC depend on manufacturing, high-tech industry, agriculture, commercial activity, and residential development for economic activity in the area. The Larimer County Fairgrounds and Events Complex is located along this RSC, contributing to the activity. While the majority of the area surrounding RSC 23 is transitioning from agricultural to suburban, sections of the RSC in Loveland and Greeley are urbanized. Portions of this RSC support the movement of tourists, commuters, freight, and farm-to-market products in and through the RSC while recognizing the environmental, economic, and social needs of the surrounding area.

*References*

- ▶ City of Greeley 2035 Comprehensive Transportation Plan, 2011
- ▶ City of Loveland 2035 Transportation Plan, 2012

**Figure 9-26: RSC 23**





**RSC Vision 24: Harmony Road**

RSC 24 goes from RSC 16 – Larimer CR 17 in Fort Collins to Weld CR 21 in unincorporated Weld County. The roadway, from the west side in Fort Collins (Harmony Road), is two to three lanes each way until Larimer CR 5 in Timnath where the road drops down to one-lane each way as it travels into unincorporated Weld County. Fort Collins is planning for a six-lane roadway and Timnath plans to widen east to CR 1 in the next few years. The western portion of the RSC has access to the Transfort transit system.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Eaton, Fort Collins (Larimer CR 38), Severance (4<sup>th</sup> Avenue), Timnath, Windsor (Weld CR 74), Unincorporated Larimer County (Larimer CR 38), and Unincorporated Weld County (Weld CR 74)

*Total Length (miles):* 23

*Vision Statement*

The vision for RSC 24 is to increase mobility as well as to maintain system quality and improve safety. This RSC serves as a local facility, provides commuter access, and an east-west connection between south Fort Collins, Timnath, Windsor, Severance, and Eaton. Future travel modes to be planned for include passenger vehicle, bus service, freight trucks, and bicycle and pedestrian facilities. The transportation system in the area serves towns, cities, and destinations both within and outside of the RSC. Based on historic and projected population and employment levels, both passenger and freight traffic volumes are expected to increase. The area adjacent to the western portion of the RSC is urban, while the areas in the central and eastern portions of the RSC are transitioning from agricultural to suburban. Users of this RSC support the movement of commuters, freight, and farm-to-market products in and along the RSC, while recognizing the environmental (including preservation and minimization/mitigation of impacts to protected public open lands/natural areas), economic, and social needs of the surrounding area.

*References*

- ▶ North I-25 Environmental Impact Statement, 2011
- ▶ Timnath Comprehensive Plan, 2013

**Figure 9-27: RSC 24**



**RSC Vision 25: Mulberry Street**

RSC 25 extends from RSC 17 – Larimer CR 19 on the west to Riverside Avenue on the east. This RSC is primarily contained in the urban area of Fort Collins. The road is currently built to capacity with two-lanes in each direction with the exception of the western segment. As the area becomes more suburban the road becomes two-lanes, with one lane in each direction. This RSC has access to Transfort transit routes.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Fort Collins

*Total Length (miles):* 2.75

*Vision Statement*

The vision for RSC 25 is to increase mobility as well as to maintain system quality and improve safety. It is a primary connection between downtown Fort Collins and RSC 17 – Larimer CR 19. Future travel modes to be planned for include passenger vehicles, bus service, and bicycles and pedestrians. Based on historic and projected population and employment levels, passenger volumes are expected to increase. The community along this RSC values high levels of mobility, transportation choices, and connections to other areas, safety, and system preservation. This community depends on manufacturing and commercial activity for economic activity in the area. Users of this RSC want to enhance the urban character of the area, support the movement of commuters, while recognizing the environmental, economic, and social needs of the surrounding area.

*References*

- ▶ Interstate 25/State Highway 14 Interchange Area Study
- ▶ North I-25 Environmental Impact Statement
- ▶ US 287 and SH 14 Access Management Plans

**Figure 9-28: RSC 25**



**RSC Vision 26: Prospect Road**

RSC 26 is within Fort Collins and extends from RSC 15 – Larimer CR 5 to RSC 6 – US 287. The western portion of the road is in a suburban area and is two-lanes, one in each direction, with TDM improvements. The road continues into the urban area maintaining the TDM improvements and adding capacity to make a four-lane segment, two-lanes in each direction. This RSC has access to the Transfort system.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Fort Collins

*Total Length (miles):* 5

*Vision Statement*

The vision for RSC 26 is to increase mobility as well as to improve safety and maintain system quality. This RSC serves as a local off-system facility and makes an east-west connection within central Fort Collins, and provides another access point to CSU, along with access to the Prospect Rest Area and the Colorado Welcome Center west of RSC 1 – I-25. Future travel modes to be planned for include passenger vehicles, bus service, and bicycles and pedestrians. The transportation system in the area serves towns, cities, and destinations both within and outside of the RSC. Based on historic and projected population and employment levels, passenger traffic volumes are expected to increase while freight volumes will remain constant. The community along this RSC values high levels of mobility, transportation choices, and connections to other areas, safety, and system preservation. Users of this RSC want to preserve the character of the area including the wetlands along the section of the RSC between RSC 1 – I-25 and the Poudre River. Users also support the movement of commuters in and through the RSC while recognizing the environmental, economic, and social needs of the surrounding area.

*References*

- ▶ Fort Collins Transportation Master Plan, 2011

**Figure 9-29: RSC 26**



**RSC Vision 27: Timberline Road**

RSC 27 is from Vine Drive on Timberline Road, along Larimer CR 9E, to the southern NFRMPO boundary. The RSC is two-lanes, one in each direction in rural and suburban areas and four-lanes, two in each direction, in commercial and urban areas.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Berthoud (Weld CR 7), Fort Collins (Summit View Drive, Larimer CR 11), Loveland (Boyd Lake Avenue, Larimer CR 9, Larimer CR 30, Unincorporated Larimer County (Boyd Lake Avenue, Larimer CR 7, Larimer CR 11, Larimer CR 30), and Unincorporated Weld County (Weld CR 7)

*Total Length (miles):* 24

*Vision Statement*

The vision for RSC 27 is to increase mobility and improve safety while maintaining system quality. The RSC includes Timberline Road, Larimer CR 9E, and Weld CR 7 which serve as off-system parallel arterials to I-25, providing local access west of I-25. Based on historic and projected population and employment levels, both passenger and freight traffic volumes are expected to increase. The communities along the RSC value high levels of mobility, transportation choices, connections to other areas, safety, system preservation, and intermodal connections. The community members depend on manufacturing, high-tech industries, commercial activity, retail, and residential development for economic activity in the area. The area surrounding this RSC is transitioning from rural to suburban, and the RSC needs to support the movement of commuters.

*References*

- ▶ Fort Collins Transportation Master Plan, 2011
- ▶ City of Loveland 2035 Transportation Plan, 2012
- ▶ Berthoud Comprehensive Plan Update, 2014

**Figure 9-30: RSC 27**

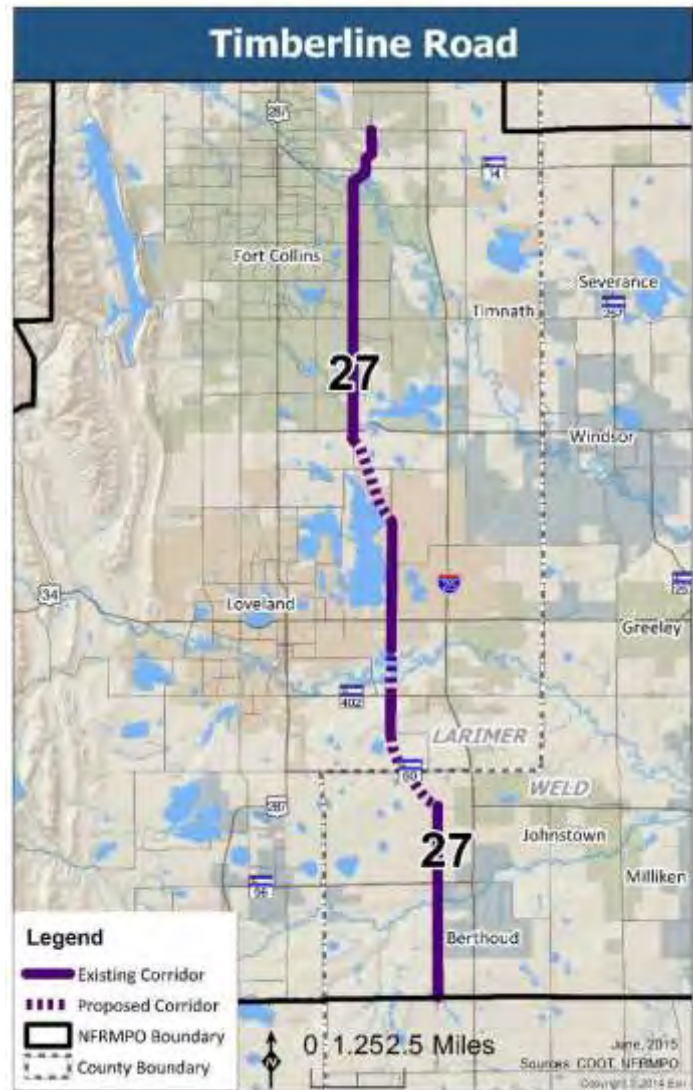




Figure 9-31: Regional Bike Corridors

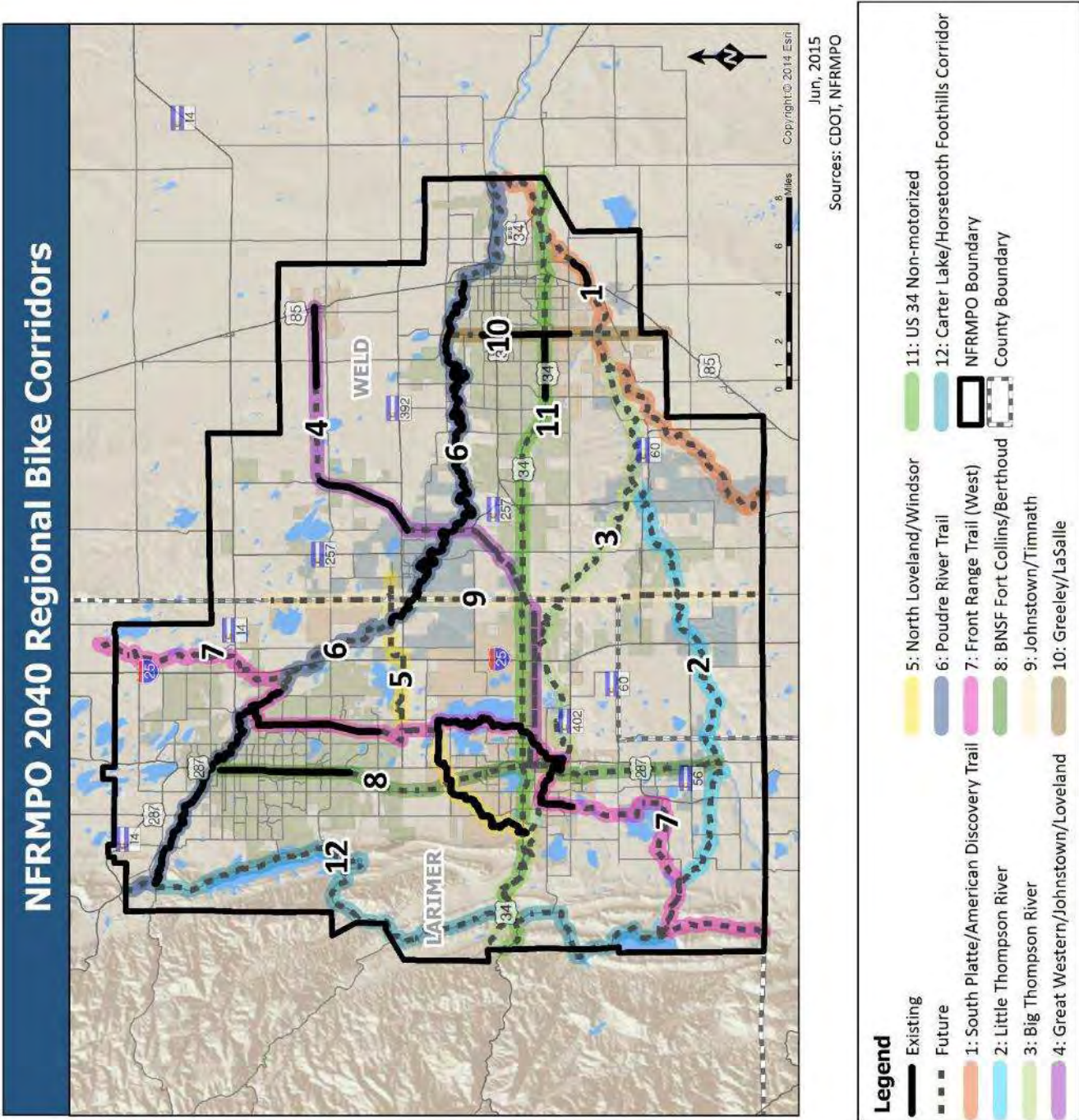
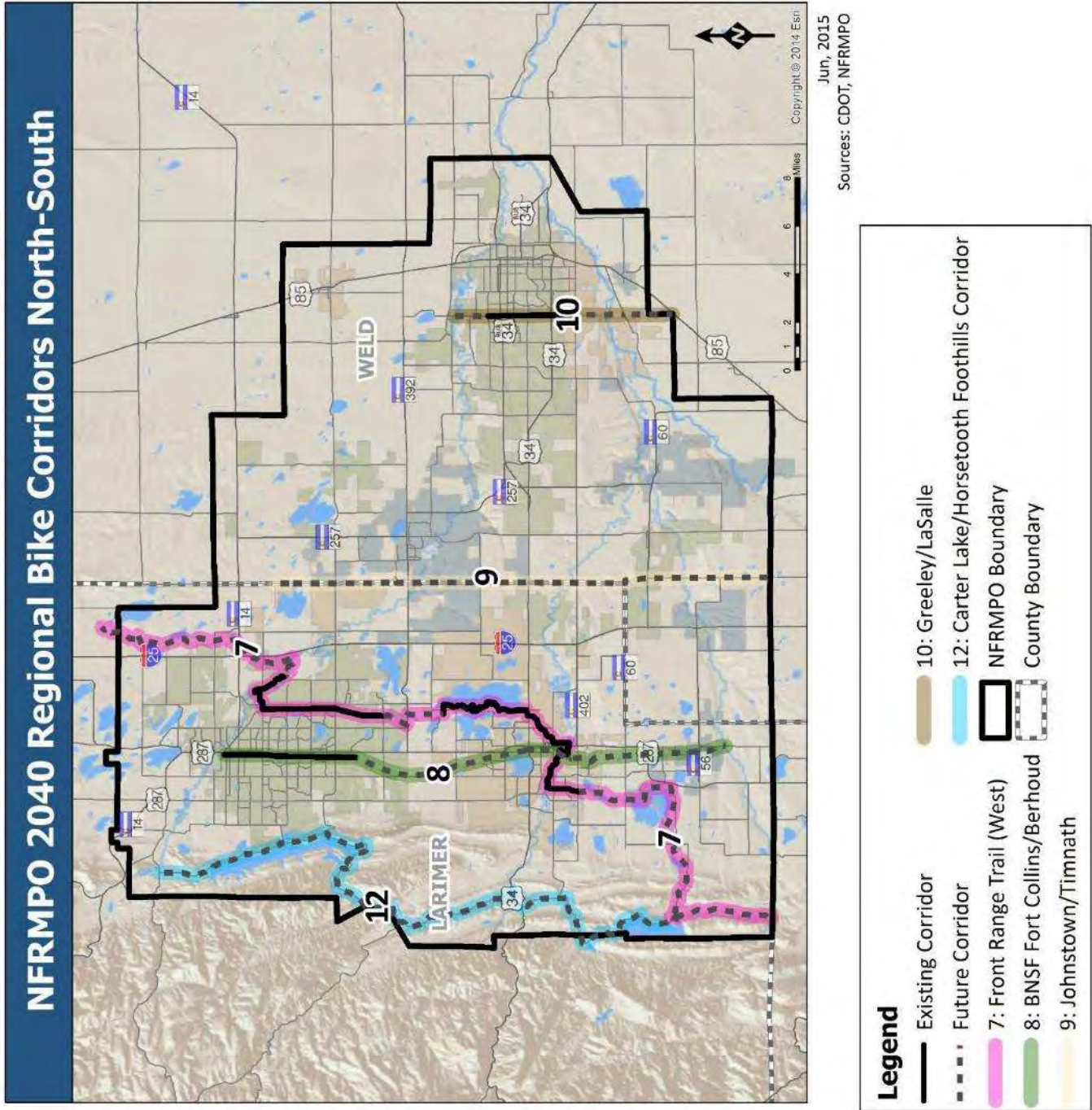




Figure 9-32: Regional Bike Corridors North-South







**RBC 1: South Platte/American Discovery Trail**

RBC 1 stretches from the southern NFRMPO boundary on the west to the eastern NFRMPO Boundary on the east. The RBC is 22 miles in length in Weld County and connects Evans, Greeley, LaSalle, and Milliken. There is one existing segment in Evans connecting US 85 to Riverside Park. The remaining segments are planned with several grant awards received to complete the RBC.

*Primary Investment Need:* Increase safety

*Jurisdictions*

Evans, Greeley, LaSalle, Milliken, and Unincorporated Weld County

*Total Length (miles):* 22

*Vision Statement*

The South Platte River flows through the southeast portion of the NFRMPO region. The RBC represents a future connection between NFRMPO communities and a statewide-, Colorado Front Range Trail, and nationally-recognized corridor, the American Discovery Trail. The RBC is widely referenced by member governments as a shared-use trail along the river corridor ultimately connecting with RBC 6 – Poudre River Trail east of Greeley.

*Reference*

- ▶ NFRMPO Regional Bicycle Plan, 2013

Figure 9-34: RBC 1





**RBC 2: Little Thompson River**

RBC 2 starts at RBC 12 – Carter Lake/Horsetooth Foothills Corridor Regional Bike Corridor on the east to RBC 3 – Big Thompson River on the west. This RBC connects Berthoud, Johnstown, and Milliken. The length of the RBC 25.5 miles, with 10.5 miles in Larimer County and 15 miles in Weld County.

*Primary Investment Need:* Increase safety

*Jurisdictions*

Berthoud, Johnstown, Milliken, Unincorporated Weld County, and Unincorporated Larimer County

*Total Length (miles):* 25.5

*Vision Statement*

RBC 2 provides a true regional connection across the southern portion of the NFRMPO region. This historically-identified corridor connects both Larimer and Weld counties with access to destinations such as Carter Lake, RBC 7 – Front Range Trail (West), I-25 PNR, and downtown Milliken. The preferred alignment for this corridor leaves the Little Thompson River in Berthoud and follows the Dry Creek northwest to Carter Lake. The historical alignment along the Little Thompson is preserved as an alternative alignment.

*Reference*

- ▶ NFRMPO Regional Bicycle Plan, 2013

Figure 9-35: RBC 2



**RBC 3: Big Thompson River**

RBC 3 extends from RSC 2 – US 34 to RBC 1 – South Platte/American Discovery Trail, along the Big Thompson River. RBC 3 is 35 miles in length with 20 miles in Larimer County and 15 miles in Weld County. Currently, one segment has been constructed in Loveland. The eastern segments are planned to be constructed when funds become available. This corridor is a priority for Larimer County to complete in the next 10 years.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Evans, Loveland, Milliken, Unincorporated Weld County, and Unincorporated Larimer County

*Total Length (miles):* 35

*Vision Statement*

RBC 3 provides a regional connection across the central portion of the NFRMPO region. This historically identified RBC will connect both Larimer and Weld counties with access to destinations such as RBC 7 – Front Range Trail (West), Loveland’s Recreation Trail, Devil’s Backbone, and downtown Loveland and Milliken, as well as 15 different schools in the area.

*References*

- ▶ NFRMPO Regional Bicycle Plan, 2013
- ▶ Larimer County Open Land Plan Update, 2015

**Figure 9-36: RBC 3**



**RBC 4: Great Western/Johnstown/Loveland**

RBC 4 begins at RBC 8 – BNSF Fort Collins/Berthoud and ends at RSC 4 – US 85. The RBC is 25 miles in length, with seven miles in Larimer County and 18 miles in Weld County. Windsor recently received NFRMPO TAP funds to construct a segment of the trail connecting Windsor to Eaton.

*Primary Investment Need:* Maintain system quality

*Jurisdictions*

Eaton, Greeley, Johnstown, Loveland, Severance, Windsor, and Unincorporated Weld County

*Total Length (miles):* 25

*Vision Statement*

The RBC follows the alignment of the Great Western Railroad, which once connected Eaton to Loveland. The backbone of the RBC in the 11.7 mile mixed-use recreational trail connecting the towns of Windsor, Severance, and Eaton utilizing the abandoned rail bed of the Great Western Railroad (preserved right-of-way through the provisions of the federal “Rails to Trails” legislation). The remainder of the RBC would follow the remaining active railway (Rail-with-Trails) crossing RBC 6 – Poudre River Trail and I-25 into Loveland’s off-street bicycle network. This corridor provides critical rural access from the northeast portion of NFRMPO region in the region’s core.

*Reference*

- ▶ NFRMPO Regional Bicycle Plan, 2013

**Figure 9-37: RBC 4**





**RBC 5: North Loveland/Windsor**

RBC 5 starts at RBC 3 – Big Thompson River in Loveland to and extends to Weld CR 15 in Windsor. The RBC is 18 miles in length, 17 miles in Larimer County, and one mile in Weld County. This existing segment is the backbone of Loveland’s bicycle network including shared-use trails, bike lanes, and signed bike routes. The remaining segments are planned to be complete in the next 10 years.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Fort Collins, Loveland, Windsor, and Unincorporated Larimer County,

*Total Length (miles):* 18

*Vision Statement*

RBC 5 will support bicycle travel from Windsor in Weld County across the county line into the southern portion of Fort Collins, RBC 12 – Carter Lake/Horsetooth Foothills Corridor and the western arc of Loveland’s Recreation Trail in Larimer County. The trail attempts to route bicycle traffic away from SH 392 along the parallel section of Larimer CR 11 to the north. The trail also leverages the newly constructed bike lanes across the upgraded Fort Collins/Windsor Bridge at SH 392 to access the bicycle lanes and a future shared-use trail on the southern boundary of Fossil Creek Reservoir.

*Reference*

- ▶ NFRMPO Regional Bicycle Plan, 2013

**Figure 9-38: RBC 5**





**RBC 6: Poudre River Trail**

RBC 6 connects to RBC 12 – Carter Lake/Horsetooth Foothills Corridor on the east to the NFRMPO Boundary on the west, along the Poudre River. The RBC is 53 miles in length, with 24 miles in Larimer County and 29 miles in Weld County. This corridor connects Fort Collins, Greeley, Timnath, Windsor, Larimer County, and Weld County.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Fort Collins, Greeley, Timnath, Windsor, Unincorporated Larimer County, and Unincorporated Weld County

*Total Length (miles):* 53

*Vision Statement*

RBC 6 is a nationally-recognized bicycle and pedestrian corridor extending beyond the NFRMPO boundary. The RBC within the NFRMPO region is the most publicly recognized infrastructure in the 2040 RTP and works as a model for the regional collaboration required to construct a trail between multiple jurisdictions. The collaborative effort has received numerous State and federal funding awards. The RBC is recognized as the backbone of the Colorado State Park’s Front Range Trail through Northern Colorado. The segment within Windsor serves both recreational and commuter purposes of bicyclists and pedestrians. The trail offers alternative modes of transportation and is a significant community amenity.

*Reference*

- ▶ NFRMPO Regional Bicycle Plan, 2013

**Figure 9-39: RBC 6**



**RBC 7: Front Range Trail (West)**

RBC 7 extends from the northern NFRMPO boundary to the southern NFRMPO Boundary through Berthoud, Fort Collins, and Loveland. The RBC is 35 miles in length with the majority of the RBC in Fort Collins and Loveland from RBC 6 – Poudre River Trail to RBC 3 – Big Thompson River. The remaining segments are planned for development with many infrastructure obstacles including I-25 and Harmony Road crossings.

*Primary Investment Need:* Increase safety

*Jurisdictions*

Berthoud, Fort Collins, Loveland, and Unincorporated Larimer County

*Total Length (miles):* 35

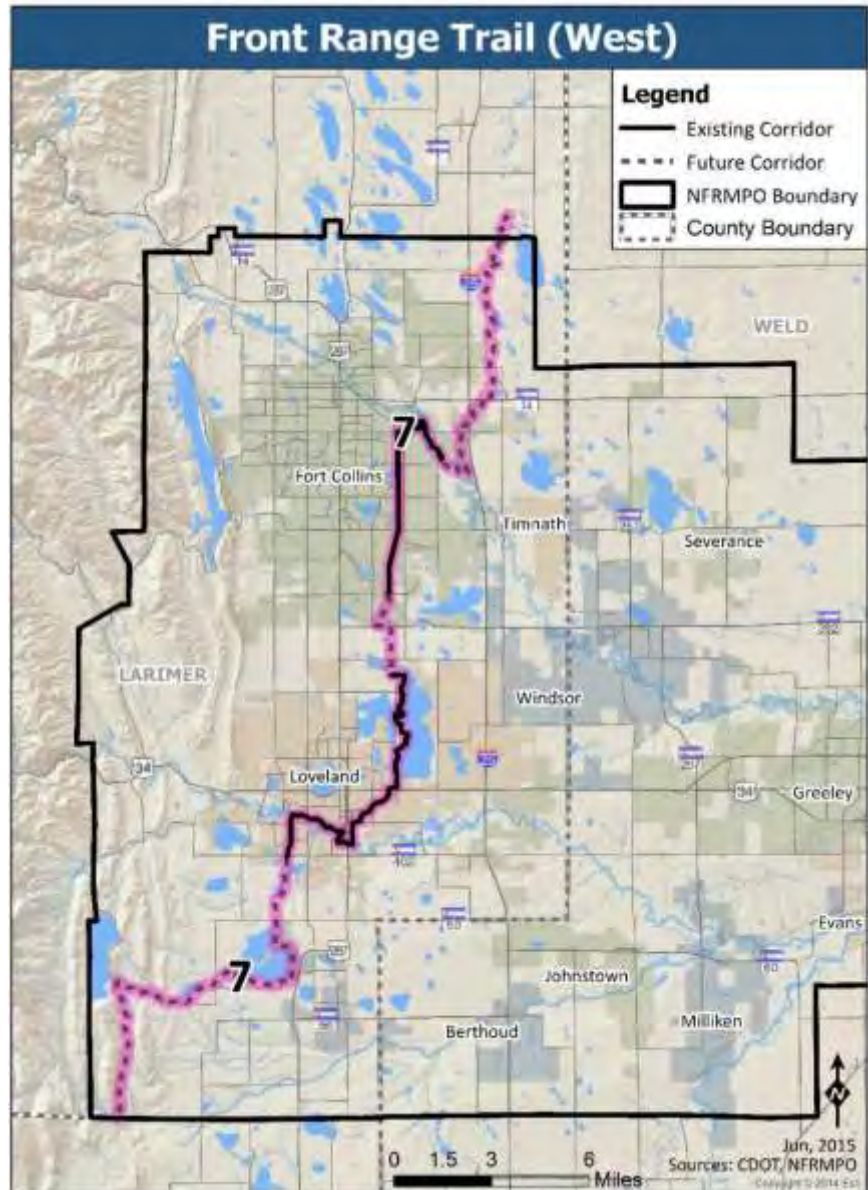
*Vision Statement*

Colorado State Parks recognizes RBC 7 as the western leg of the Front Range Trail in the NFRMPO region. The completed RBC will connect Berthoud, Fort Collins, Loveland, and to Boulder County. The trail connects many open space areas and 43 schools. The trail is recognized by the Colorado State Parks to terminate, in the future, in Cheyenne, Wyoming.

*Reference*

- ▶ NFRMPO Regional Bicycle Plan, 2013

Figure 9-40: RBC 7



**RBC 8: BNSF Fort Collins/Berthoud**

RBC 8 begins in Fort Collins at RBC 6 – Poudre River Trail and connects to RBC 2 – Little Thompson River in Berthoud. RBC 8 is 24 miles in length as is completely within Larimer County. Most recent investment was made by the City of Fort Collins as part of the *Mason Street Transportation Corridor Master Plan*.

*Primary Investment Need:* Increase safety

*Jurisdictions*

Berthoud, Fort Collins, Loveland, and Unincorporated Larimer County

*Total Length (miles):* 24

*Vision Statement*

The historical BNSF railway runs from Fort Collins through Loveland, Larimer County, and Berthoud. RBC 8 parallels the BNSF Railway line (Rails-with-Trails) to connect the downtown areas of all three cities and to 57 schools within the area.

*References*

- ▶ NFRMPO Regional Bicycle Plan, 2013
- ▶ North I-25 Environmental Impact Statement, 2011
- ▶ Mason Street Transportation Corridor Master Plan, 2000

Figure 9-41: RBC 8





**RBC 9: Johnstown/Timnath**

RBC 9 starts at County Road 80/Prospect Road and travels along County Line Road and County Road 13 to County Road 38 on the south. The RBC is 19 miles in length, 13 miles in Larimer County, and six miles in Weld County. There are no existing improvements on this RBC until the roadway is scheduled for maintenance/expansion.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Johnstown, Timnath, Windsor

*Total Length (miles):* 19

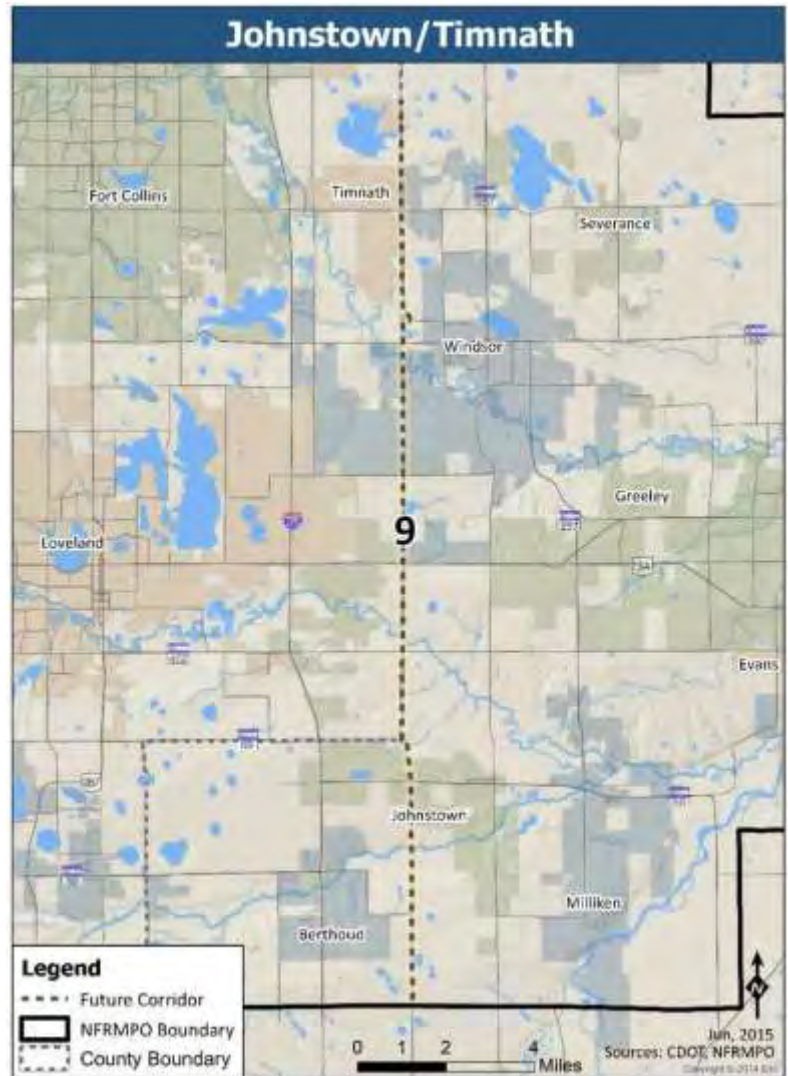
*Vision Statement*

RBC 9 serves as a north-south connection in the NFRMPO Region. The RBC connects Berthoud, Johnstown, Timnath, Windsor, Larimer County, and Weld County with dedicated bike lanes. The corridor strategically follows County Line Road (Colorado Boulevard) to intersect with six RBCs to provide bicycle access for many of the developing NFRMPO communities including RBCs: 3 – Big Thompson River, 4– Great Western/Johnstown/Loveland, 2 – Little Thompson, 5 – North Loveland, 6 – Poudre River Trail, and 11 – US 34 Non-motorized.

*Reference*

- ▶ NFRMPO Regional Bicycle Plan, 2013

**Figure 9-42: RBC 9**





**RBC 10: Greeley/LaSalle**

RBC 10 connects to RBC 6 – Poudre River Trail on the north and US 85 on the south along 35<sup>th</sup> Avenue. RBC 10 is approximately 8.5 miles long within Weld County. The RBC currently exists in Evans and Greeley as shared-use paths. The trail is planned to be completed in the City of Evans and Town of LaSalle Transportation Plans.

*Primary Investment Need:* Increase mobility

*Jurisdictions*

Evans, Greeley, and LaSalle

*Total Length (miles):* 8.5

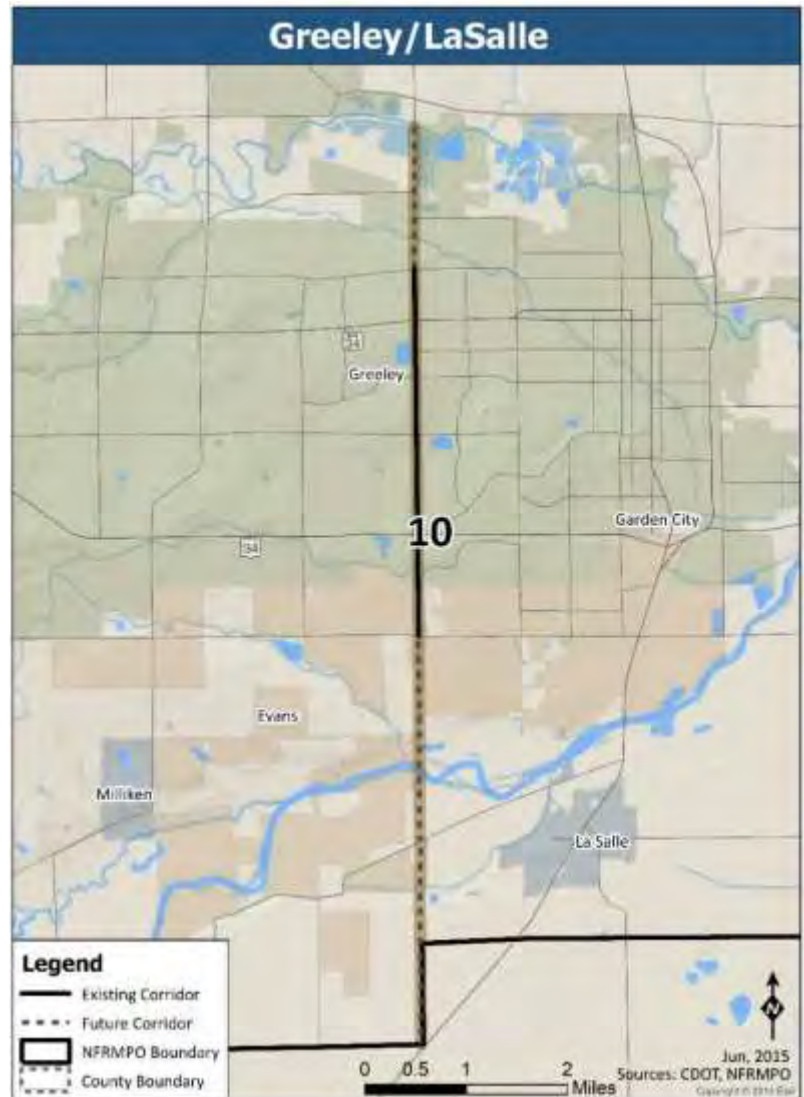
*Vision Statement*

RBC 10 leverages the existing shared-use trail infrastructure along 35<sup>th</sup> Avenue in Greeley to create a RBC extending to LaSalle through Evans. The RBC accommodates the identified desire for north-south bicycle commuting between the communities to access the GET transit system, Aims Community College, Greeley West High School, and various retail centers.

*Reference*

- ▶ NFRMPO Regional Bicycle Plan, 2013

**Figure 9-43: RBC 10**



**RBC 11: US 34 Non-Motorized**

RBC 11 connects RBC 7 – Front Range Trail (west) on the west to RBC 1 – South Platte/American Discovery Trail on the east following US 34. RBC 11 is 21.5 miles in length, with 5.5 miles in Larimer County and 16 miles in Weld County. This RBC connects Loveland, Windsor, Greeley, and Garden City.

*Primary Investment Need:* Increase safety

*Jurisdictions*

Garden City, Greeley, Loveland, Windsor, and Unincorporated Larimer County

*Total Length (miles):* 21.5

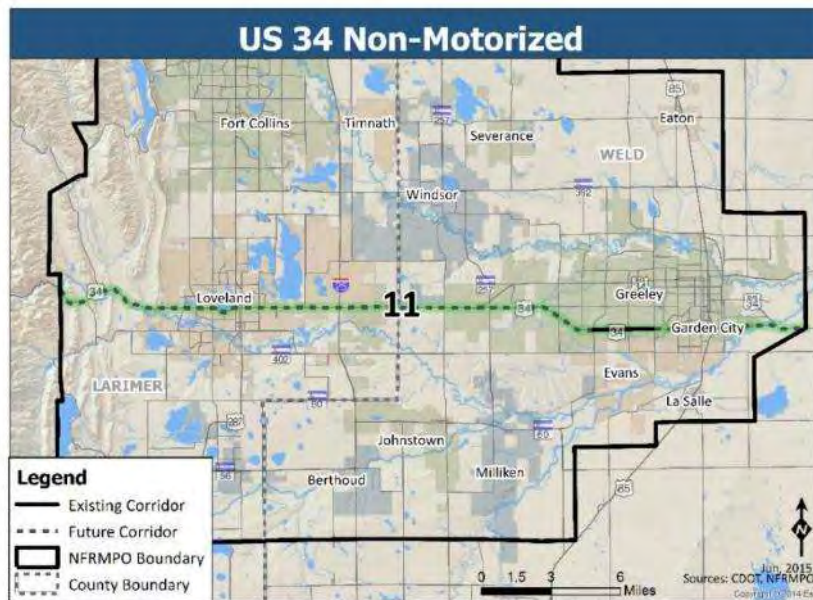
*Vision Statement*

RBC 11 is the only regional corridor to parallel a highway on the State system. The Colorado Transportation Commission’s Bike and Pedestrian Policy Directive 1602.0<sup>1</sup> and subsequent State Statute 43-1-120<sup>2</sup> codifies the accommodation of bicyclists and pedestrians on the State Highway System. The vision for this RBC is a shared-use trail, safely separated from the highway connecting Greeley and Promontory to Centerra, Johnstown, and Loveland. The RBC would leverage, but is not limited to, CDOT’s Right-of-Way on US 34.

*Reference*

- ▶ NFRMPO Regional Bicycle Plan, 2013

**Figure 9-44: RBC 11**



<sup>1</sup> Colorado Commission’s Bike and Pedestrian Policy Directive 1602.0, <https://www.codot.gov/programs/bikeped/documents/1602-0-policy-bike-pedestrian>, 2009

<sup>2</sup> State Statute 43-1-120, [http://tornado.state.co.us/gov\\_dir/leg\\_dir/olls/2013TitlePrintouts/CRS%20Title%2043%20%282013%29.pdf](http://tornado.state.co.us/gov_dir/leg_dir/olls/2013TitlePrintouts/CRS%20Title%2043%20%282013%29.pdf), 2013

**RBC 12: Carter Lake/Horsetooth Foothills Corridor Regional Bike Corridor**

RBC 12 begins at RBC 6 – Poudre River Trail on the north and ends at RBC 2 – Little Thompson Trail River on the south. This RBC follows the existing roadway and is 31 miles in length with wide shoulders. There is no existing or planned investment expected until the roadway is scheduled for maintenance.

*Primary Investment Need:* Increase safety

*Jurisdictions*

Fort Collins and Unincorporated Larimer County

*Total Length (miles):* 31

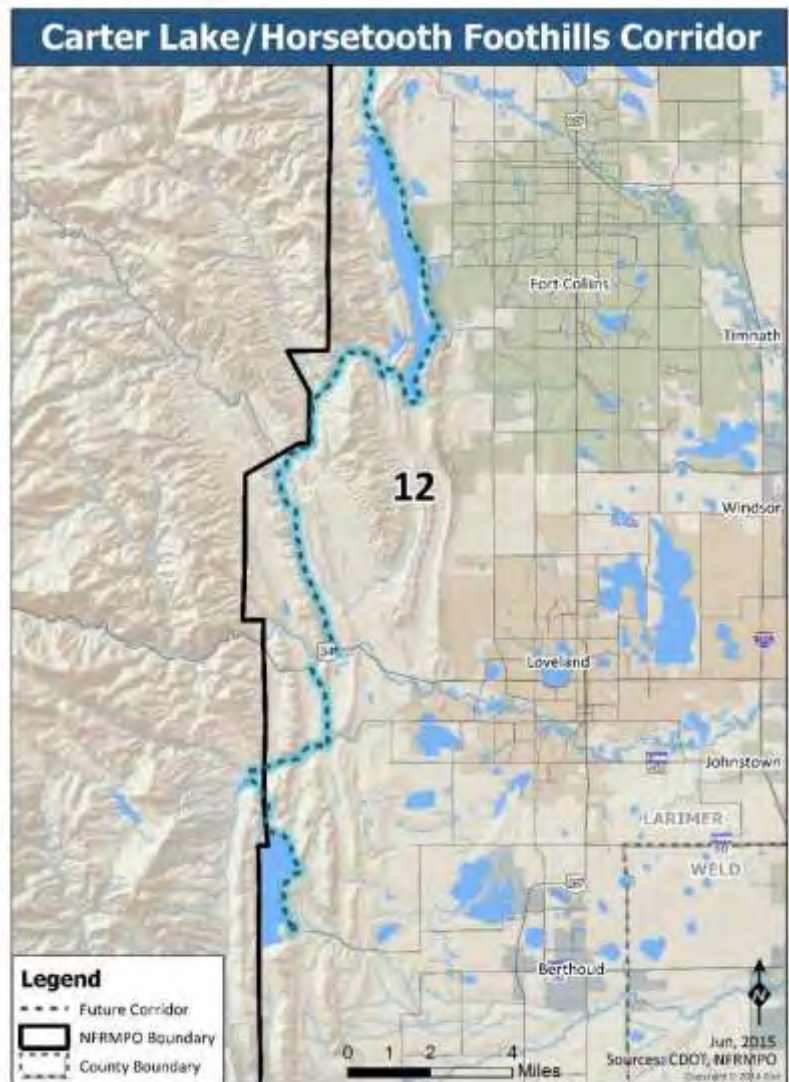
*Vision Statement*

RBC 12 is predominantly a recreational corridor which provides access to many city, county, state parks, and trailheads of the foothills in the western portion of the NFRMPO region. The RBC frequently hosts bicycle and foot races and sporting events. The entire RBC traverses Larimer County and provides strategic local connections to Berthoud, Fort Collins, and Loveland.

*Reference*

- ▶ NFRMPO Regional Bicycle Plan, 2013

Figure 9-45: RBC 12



## B. Transit Vision

The 2040 Regional Transit Element (RTE) recommends nine Regional Transit Corridors (RTC) as priorities for transit investment over the next 25 years. These corridors enhance intra- and interregional connections, creating a network of east-west and north-south routes. Many of the routes would complement existing infrastructure, such as connecting cities to the Bustang service, while others would enhance the mobility of residents by connecting them to education, employment, medical, and social facilities.

The RTCs discussed in this section are suggested corridors and not specific routes. The purpose of these corridors is to create a regional transit system by building on current successes in transit investments. Corridors which connect to other corridors are not shown to final destinations as further studies should determine actual routing. To simplify corridor names, not every community the corridor travels through is named in the RTC.

Each of the corridors corresponds to suggested transit routes within the North I-25 Final Environmental Impact Statement, which established a long-term plan for the North I-25 corridor. Because US 287 and US 85 are parallel facilities to I-25, investment in mobility and connectivity along these routes will benefit those who commute along this corridor.

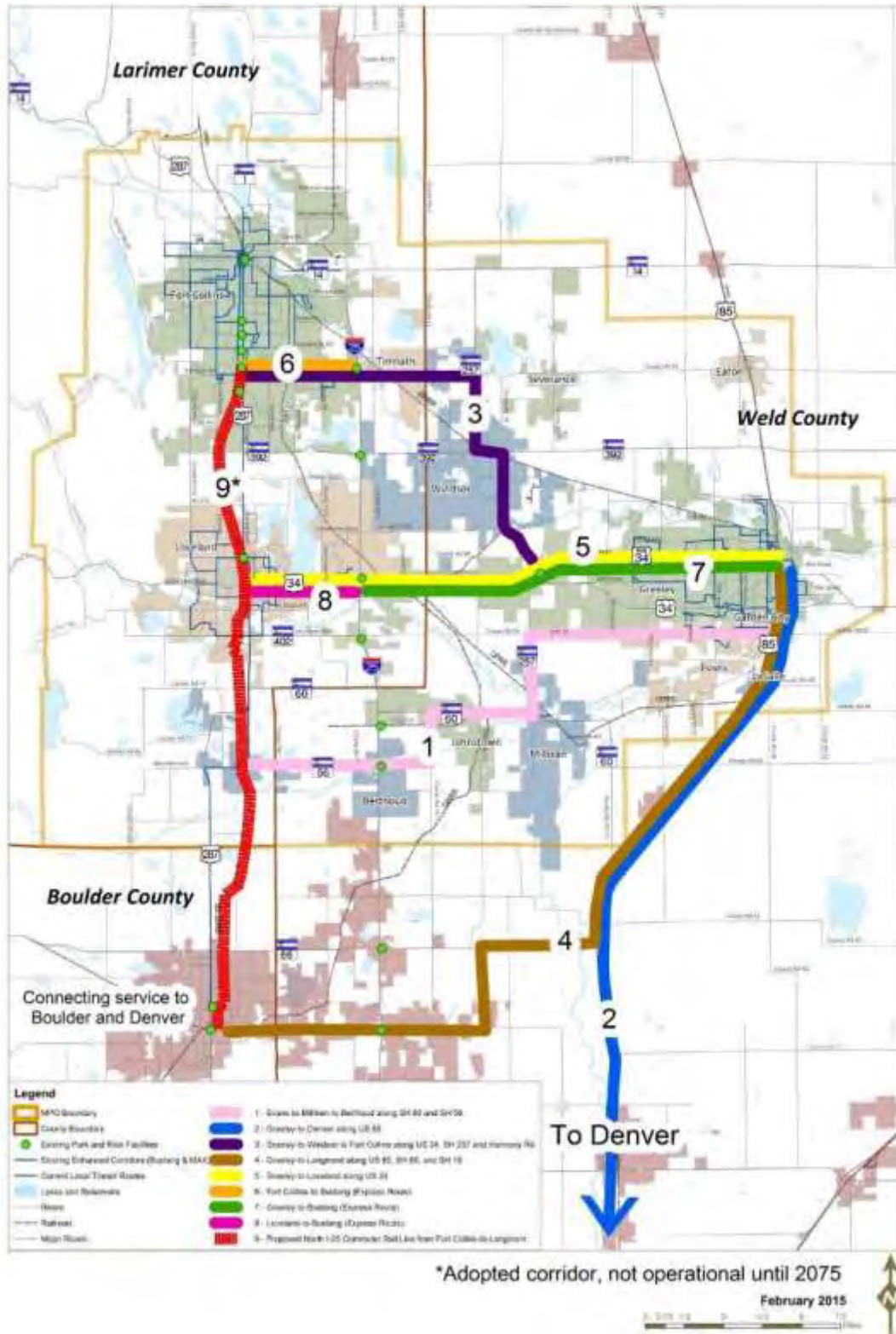
Each corridor has a primary investment need, vision statement, and references. The primary investment need describes the benefits of investing in these corridors. Similarly, the vision statement expands on the benefits of the corridors by explaining the need for the route, how it builds on aspects of local and regional plans, and the advantages of build-out.

**Figure 9-46** illustrates the nine RTCs studied in the *2040 RTE* and the existing local transit systems. Each RTC has its own map to show connections and to provide regional context.

During the *2040 RTE* planning process, NFRMPO staff worked with the three local transit agencies, TAC, and the public to identify a regional transit recommendation for Planning Council's consideration for the next 25 years. The recommendation is included in the *2040 Regional Transit Element Recommendation* portion of this section and is shown in **Figure 9-56**.



Figure 9-46: Regional Transit Element Proposed Corridors





### RTC 1: Evans-to-Milliken-to-Berthoud

*Primary Investment Need:*

Increase regional connectivity, increase mobility

*Jurisdictions:*

Evans, Greeley, Milliken, Johnstown, Berthoud

*Vision Statement*

The vision for RTC 1 is to increase mobility and connectivity to communities along this corridor. A regional demand exists to provide east-west connections via transit to improve mobility, accessibility, and connectivity. The corridor will provide a transit connection between the City of Evans and the towns of Berthoud, Johnstown, and Milliken. This transit connection would provide residents of all four communities with access to medical facilities and social services, additional transit facilities, and a wider range of job opportunities. Additionally, RTC 1 connects to RTCs 2 and 4 allowing further connections within and outside of the region. The corridor also mirrors a route established in the North I-25 Final Environmental Impact Statement, connecting Berthoud to the I-25 Express Bus service and Berthoud PNR.

*References*

- ▶ North I-25 Final Environmental Impact Statement
- ▶ Colorado Statewide Transit Plan, 2015

Figure 9-47: RTC 1



Source: 2040 Regional Transit Element

### RTC 2: Greeley-to-Denver

*Primary Investment Need:*

Increase regional connectivity, Increase mobility, Economic development

*Jurisdictions:* Greeley, Evans, Unincorporated Weld County

*Vision Statement*

The vision for RTC 2 is to connect Greeley to Denver along the US 85 corridor, as identified in the North I-25 Final Environmental Impact Statement. The corridor is meant to serve as a parallel route to I-25, providing high-capacity transit between Evans, Greeley, LaSalle, and communities in the eastern North Front Range region. The route will provide connections to employment opportunities, medical facilities, and other amenities within the Denver Metro area and the eastern North Front Range. A transit route along US 85 would provide access for employees in the manufacturing, agriculture, commercial activity, and oil and gas sectors. The route could also provide additional economic benefits by allowing those in the eastern North Front Range to commute to Evans and Greeley using an alternative mode.

*References*

- ▶ North I-25 Final Environmental Impact Statement
- ▶ Colorado Statewide Transit Plan, 2015

**Figure 9-48: RTC 2**



**Source:** 2040 Regional Transit Element



### RTC 3: Greeley-to-Windsor-to-Fort-Collins

*Primary Investment Need:*

Increase regional connectivity, Increase mobility.

*Jurisdictions:*

Greeley, Windsor, Timnath, Fort Collins

*Vision Statement*

The vision for RTC 3 is to improve regional mobility and connectivity. A regional demand exists to provide east-west connections, especially connecting Greeley to the communities west of I-25. RTC 3 will provide connections to fast-growing Windsor, as well as provide increased mobility and connections between Fort Collins and Greeley. Each city offers a large number of social services, economic opportunities, and additional transit connections. Providing the regional link opens these opportunities to the region as a whole. The section from the Promontory PNR in Greeley to the intersection of CO 392 and CO 257 is mentioned in the North I-25 Final Environmental Impact Statement as a feeder bus to the I-25 corridor.

*References*

- ▶ North I-25 Final Environmental Impact Statement
- ▶ Colorado Statewide Transit Plan, 2015

Figure 9-49: RTC 3



Source: 2040 Regional Transit Element



## RTC 4: Greeley-to-Longmont

### *Primary Investment Need:*

Increase regional connectivity, Increase mobility, Economic development

*Jurisdictions:* Greeley, Evans, Unincorporated Weld County, Longmont

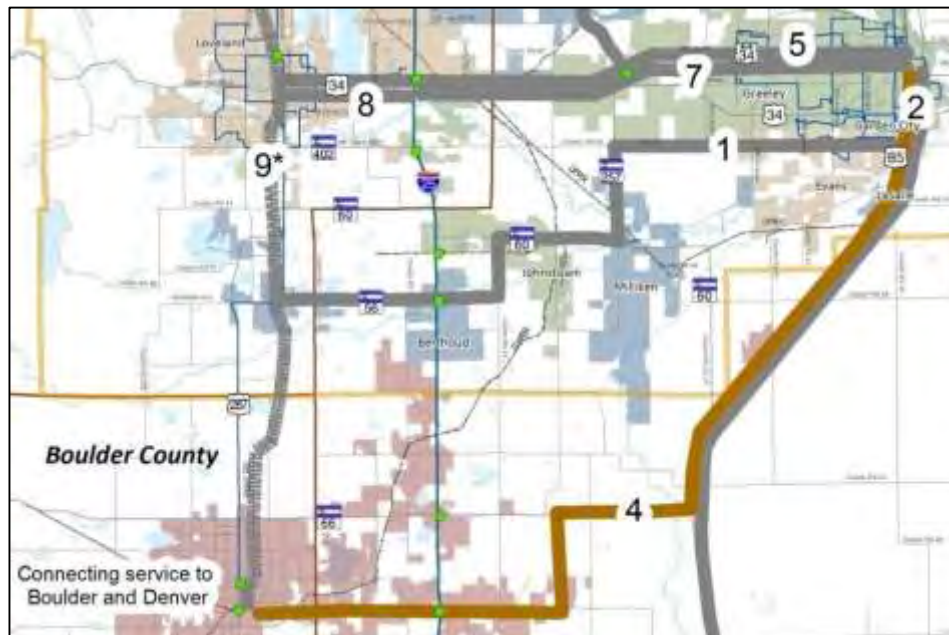
### *Vision Statement*

The vision for RTC 4 is to improve mobility and connectivity. A regional demand exists to provide east-west and north-south connections via transit to improve mobility, accessibility, and connectivity. RTC 4 would provide a transit connection between the cities of Greeley and Longmont. This transit connection would provide residents of both communities with access to medical and social services facilities, additional transit facilities, and a wider range of jobs. Additionally, RTC 4 connects to RTCs 2, 5, 7, and 9, allowing further connections both within and outside of the region.

### *References*

- ▶ North I-25 Final Environmental Impact Statement
- ▶ *Colorado Statewide Transit Plan, 2015*

**Figure 9-50: RTC 4**



*Source: 2040 Regional Transit Element*

**RTC 5: Greeley-to-Loveland**

*Primary Investment Need:*

Increase regional connectivity, Increase mobility

*Jurisdictions:*

Greeley, Unincorporated Larimer County, Johnstown, Loveland

*Vision Statement*

The vision for RTC 5 is to improve connectivity and mobility. Development has occurred along the US 34 corridor connecting Greeley and Loveland, providing new opportunities for shopping, medical facilities, and retail. A previous version of this route, the 34 Xpress, was canceled due to low ridership. Further discussion of potential problems are discussed in the 2040 RTE. Additional development, connectivity to the Bustang service on I-25 at the US 34 PNR, and improved marketing and scheduling should improve the usage of this route. A demand exists for connecting communities west of I-25 with Greeley.

RTC 5 will provide a separate service from RTCs 7 and 8 by providing a complete, local route between Loveland and Greeley, in addition to connecting to the I-25 Bustang service. Whereas those two routes exist to provide links to the Bustang service, RTC 5 exists to provide connections within and between the two cities.

*References*

- ▶ North I-25 Final Environmental Impact Statement
- ▶ Colorado Statewide Transit Plan, 2015

**Figure 9-51: RTC 5**



*Source: 2040 Regional Transit Element*

**RTC 6: Fort Collins-to-Bustang (Express Route)**

*Primary Investment Need:*

Increase regional connectivity, Improve mobility.

*Jurisdictions:* Fort Collins

*Vision Statement*

The vision for RTC 6 is to provide connections and increase mobility between two other regional transit services. The route between Fort Collin’s South Transit Center and the Harmony PNR will provide a connection between the I-25 Bustang service, beginning in July 2015, and the future commuter rail service to Longmont and Denver. The North I-25 Final Environmental Impact Statement suggests this route as a feeder bus to bus service on I-25. Additionally, the Harmony Road corridor has seen increased development in high-tech jobs, health care, and retail.

*References*

- ▶ North I-25 Final Environmental Impact Statement

**Figure 9-52: RTC 6**



*Source: 2040 Regional Transit Element*

### RTC 7: Greeley-to-Bustang (Express Route)

*Primary Investment Need:*

Increase regional connectivity, Improve mobility.

*Jurisdictions:* Greeley and Loveland

*Vision Statement*

The vision for RTC 7 is to provide express connections between downtown Greeley and the I-25 Bustang route (Centerra PNR). The corridor complements RTCs 5 and 8. The corridor intersects five additional corridors, creating a true regional connection. A regional demand exists to provide east-west connections, especially connecting Greeley to other transit corridors, I-25, and the development along the corridor.

*References*

- ▶ North I-25 Final Environmental Impact Statement

Figure 9-53: RTC 7



*Source: 2040 Regional Transit Element*



### RTC 8: Loveland-to-Bustang (Express Route)

*Primary Investment Need:*

Increase regional connectivity, Improve mobility.

*Jurisdictions:* Loveland

*Vision Statement*

The vision for RTC 8 is to provide express connections between downtown Loveland and the I-25 Bustang route (Centerra PNR). The corridor complements RTCs 5 and 7. The corridor intersects five additional corridors, creating a true regional connection. A regional demand exists to provide east-west connections, especially connecting Loveland to other transit corridors, I-25, and the development along the corridor.

*References*

- ▶ North I-25 Final Environmental Impact Statement

Figure 9-54: RTC 8



Source: 2040 Regional Transit Element

## RTC 9: Proposed North I-25 Commuter Rail Line from Fort Collins-to-Longmont

### *Primary Investment Need:*

Increase regional connectivity, Increase mobility, Provide economic development opportunity.

*Jurisdictions:* Fort Collins, Unincorporated Larimer County, Loveland, Berthoud, Longmont

### *Vision Statement*

The North I-25 Environmental Impact Statement established RTC 9 as a priority for the region due to the additional capacity offered by high-frequency, higher capacity trains. Additional capacity means more people can be moved in the congested US 287 corridor and can act as a reliever route to the I-25 corridor as well. The corridor parallels the existing BNSF Railway trackage from Fort Collins to Longmont. At the route's southern end, it would connect to RTD's North Metro Rail Line and continue to Denver Union Station. At its northern end, the route would connect to Transfort's MAX bus rapid transit line at the South Fort Collins Transit Center to Old Town Fort Collins. The areas near stations in Berthoud, Fort Collins, Longmont, and Loveland offer new districts for economic development. The North I-25 Environmental Impact Statement 2015 Commuter Rail Update requires the commuter rail operate on a separate, parallel track in the corridor, as well as improvements to at-grade rail crossings and to provide a road for the railway's maintenance and emergency vehicles. The improvements would increase BNSF's freight capacity and efficiency as well within the corridor.

### *References*

- ▶ North I-25 Environmental Impact Statement
- ▶ North I-25 EIS Commuter Rail Update

**Figure 9-55: RTC 9**



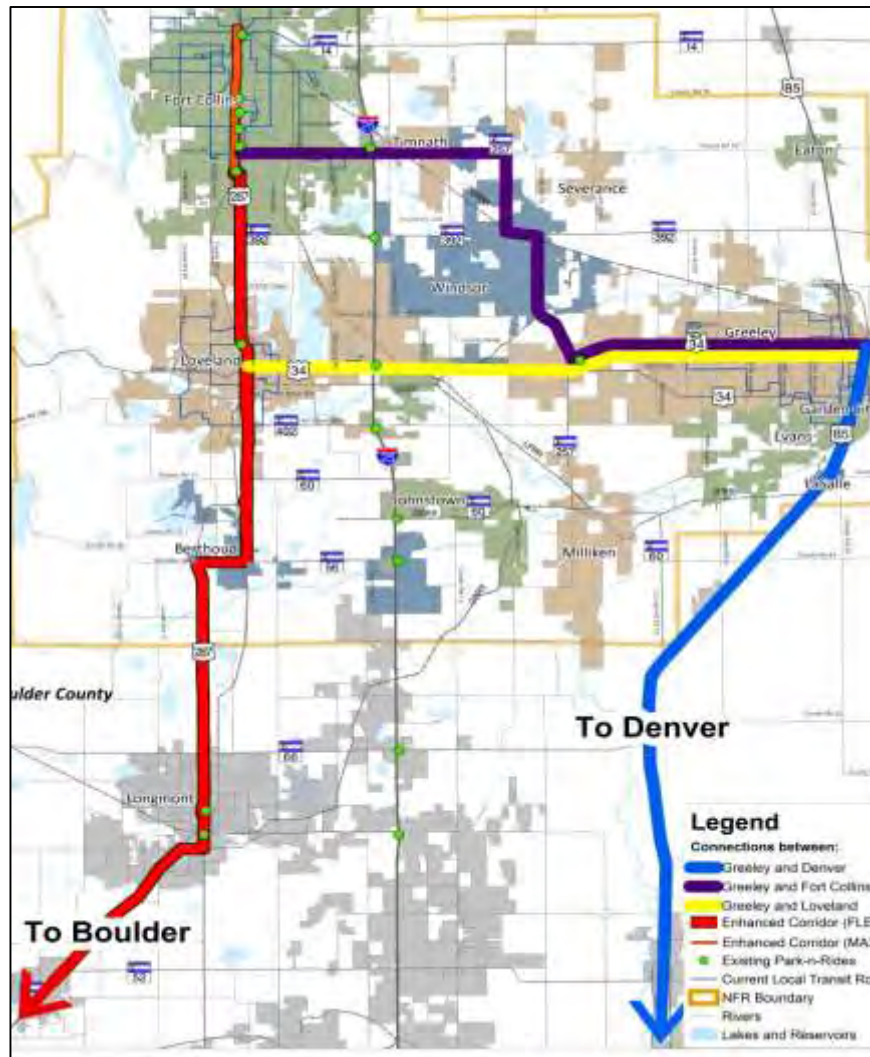
*Source: 2040 Regional Transit Element*

### 2040 RTE Recommendation

For the 2040 RTE, the NFRMPO recommendation is based on discussions with the three local transit agencies, TAC, and input received during the public outreach phase. Staff also considered results from the transit portion of the 2040 Regional Travel Demand Model (RTDM) and previously completed studies, specifically the 2013 *North Front Range Transit Vision Feasibility Study*. To move forward with the recommendation, communities within the region will need to work together and build upon existing relationships. The 2040 RTE recommendation includes:

- ▶ Further study into the transit connections between:
  - Fort Collins and Greeley;
  - Greeley and Loveland; and
  - Greeley and Denver.
- ▶ Additional service and investment along the US 287 corridor.

Figure 9-56: 2040 RTE Recommendation Map



Source: 2040 Regional Transit Element







### Fort Collins – Loveland Municipal Airport

#### *Primary Investment Need:*

Provide economic development opportunity

#### *Vision Statement*

The vision for the Fort Collins – Loveland Municipal Airport (FNL) is to create a diversified facility which supports general aviation, regional air carrier services, and business opportunities. Development of airport property is aided by its location along I-25 and the Union Pacific Railroad. With the loss of the only commercial air service in the region, the airport is opening space for economic development activities. Both Fort Collins and Loveland have prioritized the economic development of the airport's facilities. These activities include manufacturing, maintenance, overhaul, and repair. The Fort Collins – Loveland Municipal Airport is within an aviation development zone which offers new businesses within the airport boundaries a \$1,200 tax credit per new employee. Recent investments in the airport amount to nearly \$14M through 2015 and include additional snow removal equipment, runway weather information system, and new surfaces stressed to handle over 180,000 pounds. These improvements can and should be marketed to attract further business.

#### *References*

- ▶ Fort Collins – Loveland Airport Strategic Plan
- ▶ Fort Collins – Loveland Airport Informational Brochure

### Greeley – Weld County Airport

#### *Primary Investment Need:*

Provide economic development opportunity.

#### *Vision Statement*

The vision for the Greeley – Weld County Airport (GXY) is to continue operating and expanding as a general and corporate aviation facility. The airport completed a new terminal/administration building, runway and taxiway system, and infrastructure improvements between 2000 and 2003. The current Master Plan was completed in 2004 and focuses on hangar improvement and business development. There are no plans to expand the airport or to offer commercial or freight services through the airport. Runway rehabilitation is expected to begin in 2016, which will continue to allow the airport to expand for private aircraft. Economic and business development in both aviation and non-aviation areas is important to the future of the airport. The airport may lease land to house a solar panel farm in the northwest section of the airport property, which could produce up to 3.6M kilowatt hours annually. Taking advantage of existing relationships, the airport will continue to offer flight training days and providing its facilities to Aims Community College, and events for the Greeley Chamber of Commerce.

#### *References*

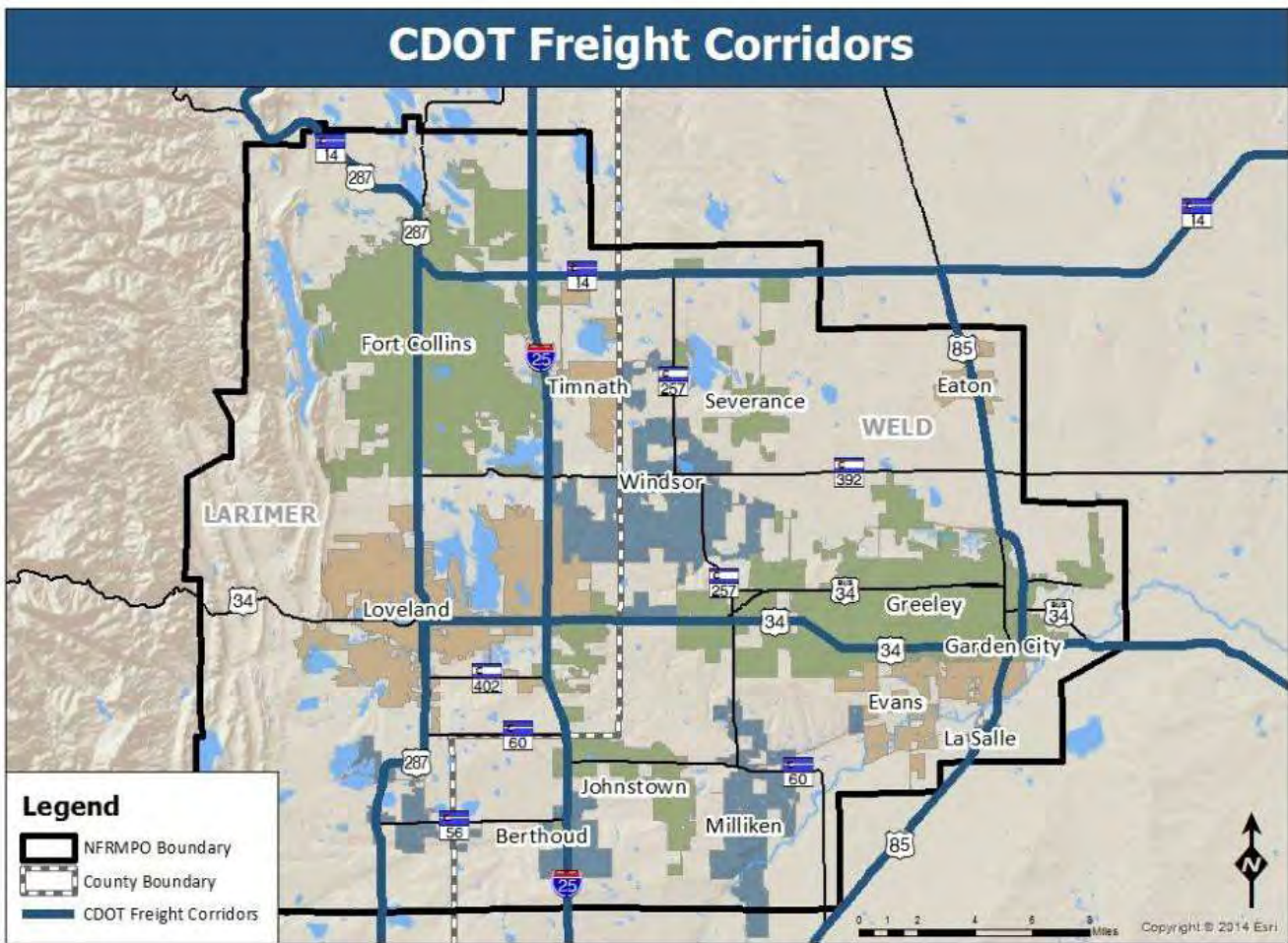
- ▶ Greeley – Weld County Airport Master Plan

D. Freight Vision

Freight traffic within the North Front Range region has continued to increase as the population in the State and region grows. In 2015, CDOT completed their first statewide freight plan, the *State Highway Freight Plan*. In this plan, CDOT identified Freight Corridors throughout the State. The corridors identified within region are: I-25, US 34, US 85, US 287, and SH 14, **Figure 9-54**.

Much like the Regionally Significant Corridor, Transit, and Aviation Visions, the Freight Vision highlights the primary investment needs, vision statement, and references. The vision statement provides information on how the NFRMPO can address and integrate freight into the regional planning processes.

Figure 9-58: CDOT Freight Corridors



Apr, 2015  
Sources: CDOT, 2015



## Regional Freight Vision Plan

### *Primary Investment Need:*

Increase mobility, Improve safety, Economic development

### *Vision Statement*

FHWA estimates freight tonnage will increase by nearly 45 percent over 2012 levels by the year 2040, from 19.7 Billion to 28.5 Billion, respectively. This huge increase in freight movement will place even greater demands on the nation's transportation system. It is critical for transportation planning agencies 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.

In the fall of 2015, NFRMPO staff will begin work on a region wide freight plan. To help inform the freight plan, current data sources will be reviewed and new data sources will be investigated. Additionally, the regional freight plan will include public involvement, freight stakeholder identification, Regionally Significant Freight Corridor identification, a freight system analysis, a Project Prioritization Process, and recommendations.

### *References*

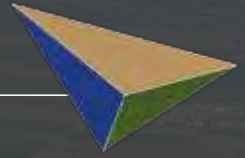
- ▶ CDOT State Highway Freight Plan, 2015
- ▶ FHWA Freight Facts and Figures 2013
- ▶ Colorado State Freight and Passenger Rail Plan, 2012



# Chapter 10

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## Financial Plan



Aerial View of Milliken. Image Credit: Town of Milliken



## Chapter 10: Financial Plan

The 2040 Financial Plan is based on the financial forecast identified from the Colorado Department of Transportation (CDOT) Program Distribution and from discussion with the local communities and how these resources are allocated to the Regionally Significant Corridors (RSCs) outlined in *Chapter 2* and *Chapter 9*. The Financial Plan has been developed by the North Front Range Transportation and Air Quality Planning Council (NFRFTAQPC), the NFR Technical Advisory Committee (TAC), CDOT, and local communities to project anticipated revenues used for transportation improvements on the various corridors during the life of the 2040 plan.

### A. Funding Program Distribution

On February 20, 2014, the Colorado Transportation Commission (CTC) passed Resolution #TC-3139 approving Program Distribution for FY2016 – 2040 which identified federal sources anticipated to fund the various transportation programs listed in this section. Estimates of available federal, State, and local funding for the 2040 RTP period from FY2016 to FY2040 are included in **Table 10-1**. These are considered by CDOT and local communities to be reasonable estimates of what will be available for the timeframe of the 2040 RTP. Sources for these revenue projections include CTC program distribution estimates, the FY2016-2019 North Front Range Metropolitan Planning Organization (NFRMPO) Transportation Improvement Program (TIP), and local government impact fee and funding estimates. All funding estimates are shown in deflated FY 2016 dollars.

**Table 10-1: FY2016-2040 Funding Estimates (shown in FY2016 \$)**

Funding Program		Amount (thousands)
Federal / State Funds	Regional Priority Program	\$54,230
	FASTER Safety	\$70,569
	FASTER Bridge Enterprise	\$11,631
	Highway Safety Investment Program	\$37,601
	Transportation Alternatives Program (TAP)	\$11,153
	Surface Transportation Program – Metro (STP-Metro)*	\$59,381
	Congestion Mitigation and Air Quality (CMAQ)	\$68,485
	FASTER Transit Local	\$1,794
	Asset Management – Maintenance	\$242,415
	Asset Management – Surface Treatment	\$178,285
	Asset Management – Structures On-System	\$31,731
	FTA §5307	\$86,129
	FTA §5310	\$10,433
	FTA §5311	\$3,250
FTA §5339	\$8,786	
Local Funds	Local Impact Fees	\$158,642
	Local General Funds	\$109,800
	Local Tax	\$188,305
<b>Total</b>		<b>\$1,332,620</b>

*\*STP-Metro funds exclude an estimated \$13.6 M for NFRMPO Operations through 2040*

Funding estimates total \$1.33 B for the timeframe of the 2040 Regional Transportation Plan (RTP). Federal and State funds account for \$875.87 M, or 66 percent of the total. Local funding, including local government and private contributions, are projected to be \$456.75 M, or 34 percent of the total.

As individual projects are added to the TIP, they are assumed not to be regionally significant in terms of air quality impacts unless they trigger an air quality conformity determination. Air quality significant projects are defined by the NFRMPO if they:

- ▶ Add a travel lane at least one mile in length, or complete a regional connection;
- ▶ Add a new intersection on principal arterials or above;
- ▶ Add new interchanges or grade separated intersections;
- ▶ Major improvements to existing interchanges, excluding drainage improvements and ramp widening;
- ▶ Regional transit projects between jurisdictions;
- ▶ Regional transit projects on fixed guideways that offer a significant alternative to regional highway travel; or
- ▶ Add or delete a major bus routes with 3,000 riders per day, taking into account existing service levels.

Program applicants are required to coordinate with the NFRMPO to ensure consistency with the current RTP and the TIP. Similarly, communication with CDOT is necessary to facilitate coordination between regional and statewide plans and programs. The consistency requirement is considered to be met with the Statewide Transportation Improvement Program (STIP) if demonstrated at the RTP and TIP level. This enables the projects awarded funds under the discretionary programs to be interpreted as eligible for inclusion in the STIP. Projects included in the NFRMPO TIP and the STIP selected from the funding programs are consistent with the goals and objectives of the 2040 RTP.

### **CDOT Controlled Highway Programs**

Projects in the NFRMPO TIP and the CDOT STIP are selected from the following programs through processes involving statewide competition, program-specific applications, or CDOT Region 4 are typically considered to be consistent with the goals and objectives of this plan:

- ▶ **Regional Priorities Program (RPP):** The goal of this program is to implement regionally significant projects identified through the transportation planning process. These funds are flexible in use and are allocated to the regions by the CTC on an annual basis. The allocations are based on regional population, CDOT on-system lane miles, and CDOT on-system truck Vehicle Miles Traveled (VMT).
- ▶ **FASTER Funds:** In the spring of 2009, the State of Colorado passed legislation to impose fees to generate revenue for transportation within the State. The fees are assessed on vehicle registration, rental cars, and an increase to oversize and overweight vehicle permits. For CDOT, Funding Advancements for Surface Transportation and Economic Recovery Act of 2009 (FASTER) funds are broken into three programs: Bridge, Safety, and Transit. FASTER Bridge is administered through the Colorado Bridge Enterprise, which targets funding to address Colorado's deficient bridges and for 2040 RTP purposes is considered and included as a CDOT program.
  - **FASTER Safety:** Created by the Colorado General Assembly, funds roadway safety projects including construction, reconstruction, or maintenance of projects needed to enhance the safety of the State and federal highway system. Collected fees are distributed by CDOT to cities, towns, and counties based on crash data weighted by the National Safety Council. Estimates include cost per fatality, injury, or other crash types.
  - **FASTER Bridge Enterprise:** This program was formed in 2009 to finance, repair, reconstruct and replace bridges designated as structurally deficient or functionally obsolete.



- **FASTER Transit:** A CDOT administered, statewide program implemented to promote, plan, design, finance, operate, maintain, and contract for transit services such as passenger rail, buses, and advanced guideway systems.

### ▶ **Asset Management**

- **Maintenance:** This program evaluates maintenance levels of service on the State Highway system. The CTC has established specific grade levels as objectives for the various activities associated with the maintenance program.
- **Surface Treatment:** This program identifies the remaining service life of the State Highway system to determine where the surface treatment funding should be used in meeting the CTC's goals. In 2013, the Transportation Commission set an objective of having 80 percent of the State Highway system rated as high-drivability (10+ years) or moderate-drivability (four to 10 years) remaining life.
- **Bridge Program (Structures On-System):** This program identifies the condition of every bridge on the Federal and State highway systems to determine where bridge funding should be allocated. The purpose of the Bridge Program is to finance, repair, reconstruct, and replace bridges designated as structurally deficient or functionally obsolete.

### **NFRMPO Controlled FHWA Programs**

The NFRT&AQPC selects projects to receive funding from the following programs, through an approved call for projects process. The most recent call for projects was completed in December 2014 for the FY2016-2019 TIP. These projects represent the first four years of the 2040 RTP.

- ▶ **Transportation Alternatives Program (TAP):** TAP was authorized under MAP-21 legislation to provide funding for programs and projects defined as transportation alternatives. These programs include, but are not limited to, on-road and off-road bicycle and pedestrian facilities, infrastructure for non-driver access to public transportation, recreational trail program projects, and safe routes to school projects. TAP replaced and consolidated the Transportation Enhancements Program previously authorized under The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFTEA-LU), recreational trail program, and safe routes to school programs, which were separate programs.
- ▶ **Surface Transportation Program Metro (STP-Metro):** These Federal Highway Administration (FHWA) funds are sub-allocated to urbanized areas with populations over 200,000. The sub-allocation is based on each area's share of the urbanized areas in the U.S. Funds may be used on a wide variety of highway transportation improvement projects, as defined in 23 U.S.C. 123.<sup>3</sup> This is one of the most flexible federal funding sources available.
- ▶ **Congestion Mitigation and Air Quality (CMAQ) Improvements:** CMAQ funds are FHWA funds restricted to improvements which contribute to attainment or maintenance of National Ambient Air Quality Standards (NAAQS). CMAQ funds are eligible for air quality improvement projects, including ITS,

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<sup>3</sup> <http://www.fhwa.dot.gov/map21/docs/title23usc.pdf>



alternative fuel vehicles and vehicle retrofitting, non-motorized improvements, and alternative fuel bus purchases and replacements. CMAQ funds used for transit purposes can be flexed from FHWA to Federal Transit Administration (FTA) funds, including limited transit operations.

### FTA Programs

FTA allocates funding based on formulas or projections from previously reported data. The total amount available for a program is based on funding authorized under MAP-21 and is apportioned according to population and other reported data. There are two transit providers that receive FTA funds based on population in the region: the City of Fort Collins (Transfort) and Greeley-Evans Transit (GET):

- ▶ **Transfort** receives funds based on an urbanized area formula program for areas with a population between 200,000 and 999,999. Transfort receives FTA funds on behalf of the Fort Collins – Loveland – Berthoud Transportation Management Area (TMA), which also includes the VanGo™ vanpool program.
- ▶ **GET** receives funds based on an urbanized area formula program for areas with a population between 50,000 and 199,999. GET uses the FTA funds to provide services to the Greeley – Evans area.

The two transit providers produce a program of projects each fiscal year based on FTA apportionments as published annually in the Federal Register. The program includes projects to be carried out using funds made available based on the urbanized area formulas. These projects include capital transit improvements, bus purchase and rehabilitation, bus facility upgrades, maintenance, and operations. The transit providers program of projects are amended into the TIP as they are received. The FTA requires all projects be included in the TIP and STIP before funds can be obligated. CDOT also administers some FTA funding programs through a competitive process.

The following formula programs are anticipated to continue to be available for transit funding in the region:

- ▶ **FTA §5307 Urbanized Area Formula Program:** This program makes federal resources available to urbanized areas for transit capital and operating assistance. Urbanized areas those areas with a population of 50,000 or more as designated by the U.S. Census Bureau.
- ▶ **FTA §5310 Transportation for Elderly Persons and Persons with Disabilities Program:** This program supports the purchase of vehicles for transportation of the elderly and individuals with disabilities. It is used by a variety of non-profit and public agencies. In Colorado, §5310 funds can also be used for mobility management program and project implementation.
- ▶ **FTA §5311 Rural & Small Urban Areas Non-urbanized Areas Program:** This formula based program provides funding in support of public transportation in rural areas with population of less than 50,000.
- ▶ **FTA §5339 Bus and Bus Facilities Program:** This program provides capital funding to replace, rehabilitate, and purchase buses and related equipment, and to construct bus-related facilities.

Projects selected to receive discretionary program funding are also included in the TIP and STIP. The discretionary programs for transit projects are not formula-based and typically result in a competitive application process:

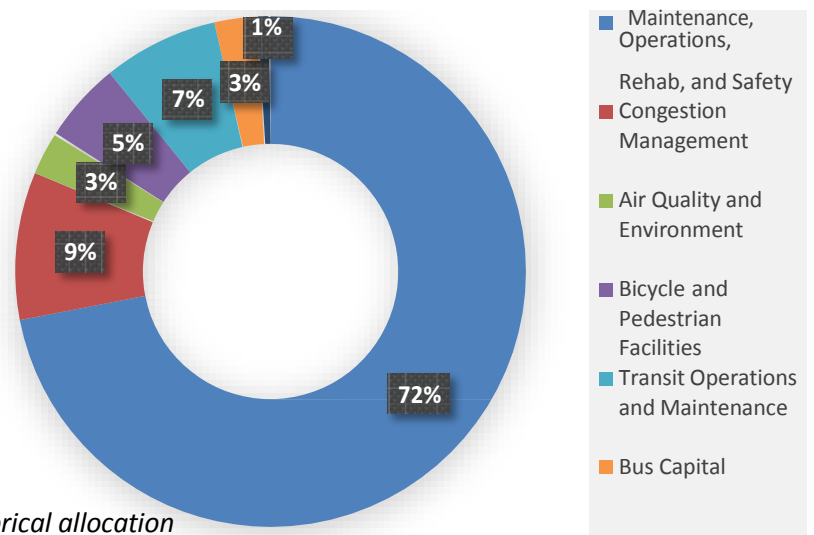


**Local Programs and Fees**

- ▶ **Impact Fees:** Impact fees are development charges imposed to fund capital projects intended to offset the impacts caused by a proposed development. Impact fee projections are based on information from the 2010 NFRMPO Transportation Impact Fee Report. For the purposes of the 2040 RTP, it is estimated that 50 percent of the generated transportation impact fees would be used on RSCs.
- ▶ **General Funds:** General funds typically are the primary operating funds for municipalities. The general funds represented in the 2040 RTP are specifically directed towards transportation system improvements and maintenance. For the purposes of the 2040 RTP, it is estimated that 50 percent of the general funds would be used on RSCs.
- ▶ **Local Tax:** Funds generated by sales, use, and property tax can be transferred to general funds, allocated to transportation, or directed towards capital projects. Tax funds represented in the 2040 RTP are specifically directed towards transportation system improvements.
  - **Fort Collins Building on Basics 2.0:** Fort Collins began collecting a capital improvement tax in 1973 as part of the general election cycle. The current improvement tax, an extension of the 2005 Building on Basics (BOB) initiative, is a 0.25 percent sales tax for the construction of certain capital projects. BOB 2.0 was approved by voters on April 7, 2015 and covers a 10 year period, including FY2016-2025. The 2040 RTP assumes BOB would be granted a third extension through FY2035, and 30 percent of BOB funds would be spent on RSCs in Fort Collins.
  - **Fort Collins 0.25 Percent Sales Tax:** In April 2015, Fort Collins residents voted to approve an extension of a 0.25 percent sales tax to fund the street maintenance program for a 10 year period covering FY2016-2025. The 2040 RTP assumes the sales tax would be granted another extension through FY2035, and 15 percent of the funds would be spent on RSCs in Fort Collins.
  - **City of Greeley:** Greeley utilizes sales tax for roadway maintenance and capital construction. The 2040 RTP assumes the Greeley sales tax would be extended for the life of this plan, and 50 percent of funds would be spent on RSC's in Greeley.
  - **City of Loveland:** Current tax revenues for transportation in Loveland include sales tax, use tax, and property tax.

The 2040 RTP assumes the Loveland sales tax would be extended for the life the plan, and 50 percent of funds would be spent on RSC's in Loveland.

**Figure 10-1: Estimates of Available Funding Allocation\***



**B. Resource Allocation**

Resource allocation is a process which estimates funds which are reasonably anticipated to become available over the time frame of this 2040 RTP. The NFRMPO intends to distribute the limited funding available for

*\*Based on historical allocation*

regional transportation system improvements to best achieve the vision and goals of the 2040 RTP. Figures presented in **Table 10-2** were derived from historical funding trends in the FY2012-2017 and the FY2016-2019 TIPs. **Figure 10-1** shows the percentage breakdown of how funding resources are anticipated to be allocated based on historical funding trends.

<b>Table 10-2: Estimates of Available Funding Allocation (FY2016 \$ shown in thousands)*</b>								
<b>Funding Program</b>	<b>Roadway Maintenance, Operations, Rehab,</b>	<b>Congestion Management</b>	<b>Air Quality and Environment</b>	<b>Bicycle and Pedestrian Facilities</b>	<b>Transit Operations and Maintenance</b>	<b>Bus Capital</b>	<b>Paratransit Capital</b>	<b>Total</b>
Regional Priority Program (RPP)	\$24,950	\$29,280	\$0	\$0	\$0	\$0	\$0	\$54,230
FASTER Safety	\$50,669	\$19,760	\$0	\$140	\$0	\$0	\$0	\$70,569
FASTER Bridge Enterprise	\$11,631	\$0	\$0	\$0	\$0	\$0	\$0	\$11,631
Highway Safety Investment Program	\$37,601	\$0	\$0	\$0	\$0	\$0	\$0	\$37,601
TAP	\$0	\$0	\$0	\$11,153	\$0	\$0	\$0	\$11,153
STP-Metro	\$39,785	\$13,064	\$0	\$6,532	\$0	\$0	\$0	\$59,381
CMAQ	\$0	\$17,120	\$23,970	\$3,425	\$3,425	\$20,545	\$0	\$68,485
FASTER Transit Local	\$0	\$0	\$0	\$0	\$1,794	\$0	\$0	\$1,794
Asset Management – Maintenance	\$242,415	\$0	\$0	\$0	\$0	\$0	\$0	\$242,415
Asset Management – Surface Treatment	\$178,285	\$0	\$0	\$0	\$0	\$0	\$0	\$178,285
Asset Management – Structures On-System	\$31,731	\$0	\$0	\$0	\$0	\$0	\$0	\$31,731
FTA §5307	\$0	\$0	\$0	\$0	\$86,129	\$0	\$0	\$86,129
FTA §5310	\$0	\$0	\$0	\$0	\$0	\$0	\$10,433	\$10,433
FTA §5311	\$0	\$0	\$0	\$0	\$3,250	\$0	\$0	\$3,250
FTA §5339	\$0	\$0	\$0	\$0	\$0	\$8,786	\$0	\$8,786
Local Impact Fees	\$126,915	\$17,450	\$5,552	\$8,725	\$0	\$0	\$0	\$158,642
Local General Funds	\$87,840	\$12,078	\$3,843	\$6,039	\$0	\$0	\$0	\$109,800
Local Tax	\$130,032	\$16,475	\$4,321	\$31,495	\$0	\$5,982	\$0	\$188,305
<b>Total</b>	<b>\$961,854</b>	<b>\$125,227</b>	<b>\$37,686</b>	<b>\$67,509</b>	<b>\$94,598</b>	<b>\$35,313</b>	<b>\$10,433</b>	<b>\$1,332,620</b>
<b>Percentage</b>	<b>72%</b>	<b>9%</b>	<b>3%</b>	<b>5%</b>	<b>7%</b>	<b>3%</b>	<b>1%</b>	<b>100%</b>

\*Based on historical allocation

### C. North I-25 Corridor

In 2014, the NFRT&AQPC voted to direct funds toward transportation improvements on the North I-25 Corridor within the NFRMPO Boundary. The Council chose to commit \$5 M in STP-Metro funds over the four year period of the FY2016-2019 TIP to two regionally significant projects to help alleviate congestion on I-25 in the region. Those projects are included in **Table 10-3**.

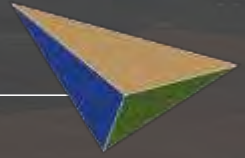
Project Name	Funding Program	Federal	State	Local	Total
North I-25 Corridor (Denver to Fort Collins)	Regional Priorities Program (RPP)	\$1,090	--	--	\$34,090
	RAMP	--	\$28,000	--	
	FASTER Safety	--	\$5,000	--	
I-25 Post EIS Design & ROW	RPP	\$3,203	\$801	--	\$4,004
I-25 Truck Climbing Lane	STP-Metro	\$3,000	--	--	\$3,000
I-25 / Crossroads Boulevard	STP-Metro	\$2,000	--	--	\$2,000
Total:					\$43,094

The Corridor Vision for I-25, RSC 22, is discussed in detail in **Chapter 9** and includes a summary of investments needed along the North I-25 Corridor.



# Chapter 11

## Congestion Management Process



Aerial View of Severance. Image Credit: Town of Severance





## Chapter 11: Congestion Management Process

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### A. Introduction

New residents are moving into the North Front Range region every day. Offering travelers' safe, convenient transportation alternatives can reduce vehicular congestion on the regional roadway system. The North Front Range Metropolitan Planning Organization's (NFRMPO) Congestion Management Process (CMP) creates a performance-based plan to track regional congestion.

Now, more than ever, residents of the North Front Range region are incorporating walking, bicycling, and transit in their daily commutes. Intelligent Transportation Systems (ITS) and Travel Demand Management (TDM) principles are reducing regional congestion by increasing efficiency and highlighting new mode choices.

In the sections that follow, the steps to create a CMP are outlined. Consistent, ongoing data collection efforts will supply information for annual CMP reporting. The goal of CMP reporting is to create a performance-based CMP for the region.

### B. Background

#### Purpose of the CMP

The purpose of a CMP is to identify the process for collecting congestion data, develop performance measures used to report congestion data to the public, and guide funding toward projects and strategies which most effectively address congestion. The 2015 CMP Report augments existing plans in the metropolitan transportation planning process, while annual CMP reports track transportation system performance.

Federal requirements state regions with a population over 200,000 in urbanized areas (UZAs), also known as Transportation Management Areas (TMAs), must develop and maintain a CMP and use it to make informed transportation planning decisions. The 2015 CMP Report identifies congested Regionally Significant Corridors (RSCs), develops strategies to mitigate the congestion, and provides a way to monitor the effectiveness of the strategies.

#### Requirements for a CMP

The current funding authorization bill, Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21) requires consideration first be given to strategies which reduce single-occupant vehicle (SOV) travel and improve the efficiency of the existing transportation system. All reasonable strategies must be analyzed before a capacity increasing improvement is proposed as a congestion management technique.

Federal regulations (23 CFR Part 450.320)<sup>4</sup> specify an effective CMP should include:

- ▶ Methods to monitor and evaluate the performance of the multi-modal transportation system, identify the causes of recurring and nonrecurring congestion, identify and evaluate alternative strategies,

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<sup>4</sup> 23 CFR 450.320 – Congestion Management Process in Transportation Management Areas. GPO U.S. Government Publishing Office. <http://www.gpo.gov/fdsys/granule/CFR-2011-title23-vol1/CFR-2011-title23-vol1-sec450-320>

provide information supporting the implementation of actions, and evaluate the efficiency and effectiveness of implemented actions;

- ▶ Defined objectives and performance measures to assess congestion and evaluate congestion reduction and mobility enhancement strategy effectiveness;
- ▶ Establish a data collection and system performance monitoring program that defines the extent and causes of congestion, determines the causes of congestion, and evaluates the efficiency and effectiveness of implemented actions;
- ▶ Identifies and evaluates the anticipated performance and benefits of both traditional and non-traditional congestion management strategies;
- ▶ Identifies an implementation schedule, responsibilities, and potential funding sources for each strategy; and
- ▶ Identifies a process for periodic assessment of the efficiency and effectiveness of implemented strategies.

MAP-21 legislation requires performance measures, targets, plans, and reporting. This performance and outcome-based program ensures States invest resources in projects which collectively make progress toward the achievement of national goals. The legislation outlines seven national goal performance areas, highlighted in **Table 11-1**.

Table 11-1 MAP-21 Seven National Performance Areas	
Goal Area	National Goal
Safety	To achieve a significant reduction in traffic fatalities and serious injuries on all public roads
Infrastructure Condition	To maintain the highway infrastructure asset system in a state of good repair
Congestion Reduction	To achieve a significant reduction in congestion on the National Highway System (NHS)
System Reliability	To improve the efficiency of the surface transportation system
Freight Movement and Economic Vitality	To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development
Environmental Sustainability	To enhance the performance of the transportation system while protecting and enhancing the natural environment
Reduced Project Delivery Delays	To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices

**Source:** FHWA MAP-21 Performance Management<sup>5</sup>

<sup>5</sup> FHWA. Performance Management. Fact Sheet. <http://www.fhwa.dot.gov/map21/factsheets/pm.cfm>

Three of the national goals directly pertain to the CMP: Congestion Reduction, System Reliability, and Freight Movement and Economic Vitality. **Section D** of this chapter discusses strategies to alleviate congestion.

### History of the NFRMPO CMP

Originally, the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) introduced the concept of Congestion Management Systems (CMS). The CMS was created to collect congestion data, enhance the tools for data management and modeling, expand the use of ITS, and encourage regional cooperation and coordination.

In 1998, the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) continued the CMS requirement. In 2005, the Safe Accountable Flexible Efficient Transportation Equity Act - A Legacy for the Users (SAFETEA-LU) was signed into law to continue this effort by requiring the use of a Congestion Management Process in TMAs. MAP-21, the current federal transportation bill, signed into law in 2012, maintains the CMP requirement, but requires enhanced monitoring, reporting of congestion, reliability, and formalized performance measures.

The NFRMPO was designated as a TMA in 2002, following the 2000 US Census. In 2004, FHWA accepted a Congestion Management Framework in lieu of a Congestion Management System, given the short timeframe between the NFRMPO's TMA designation and the publication of the *2030 Regional Transportation Plan (RTP)*. In 2007, the NFRMPO expanded the framework into a full CMP and integrated it with the 2035 RTP.

During the development of the *2010 CMP* and *2035 RTP* in 2007, the NFRMPO's Technical Advisory Committee and Planning Council identified the Tier One RSCs to be the focus of the CMP in the North Front Range. Tier One corridors included I-25, US 34, US 287, and their parallel facilities although data was only collected for the main corridor. For the *2040 RTP*, the NFRMPO has moved away from tiers to individual corridors. All congested roadway RSCs are included in the *2015 CMP* data collection and analysis. The RSCs can be found in **Table 2-1** in **Chapter 2**.

The *2010 CMP* concluded with two possible modifications to the CMP in the future, including:

- ▶ Update the identification of currently congested corridors based on actual data collected through the region-wide data collection program, rather than using travel demand model results.
- ▶ Reconsider the network for which the CMP applies; the CMP may not be as appropriate to rural portions of the Tier One corridors as the portions that are in urban areas.

Over the last year, NFRMPO members have begun collecting real-time travel data in the region (**Section C**). As the data accumulates, longitudinal studies will be possible. In the interim, the NFRMPO's RTDM will be used to identify corridors to deploy data collection devices along with local expertise.

## **Vision, Goals, and Objectives of the Congestion Management Process**

The vision statement for the 2015 CMP Report is:

*The North Front Range Metropolitan Planning Organization strives to objectively reduce congestion on regionally significant corridors using TDM strategies.*

Four NFRMPO CMP specific goals and objectives were developed to support this vision, including:

### **Goal 1: Improve Efficiency**

Objective: Reduce congestion with cost-effective, non-roadway-widening solutions that use technology to the best advantage, such as traffic management, TDM, and ITS.

### **Goal 2: Increase Mobility**

Objective: Make non-SOV transportation modes (walking, bicycling, transit, carpooling, and vanpooling) more available, convenient, safe, and attractive for everyone.

### **Goal 3: Improve Safety**

Objective: Reduce crashes for all modes, focusing especially on improving safety for pedestrians and bicyclists and on reducing the number of incident-related crashes.

### **Goal 4: Increase Reliability**

Objective: Increase travel time reliability while reducing user exposure to traffic incidents, crashes, and work zones.<sup>6</sup>

Two performance measures outlined in **Chapter 4** from the 2040 RTP adopted Goals, Objectives, Performance Measures, and Targets (GOPMT) are specific to the CMP, **Figure 11-1**.

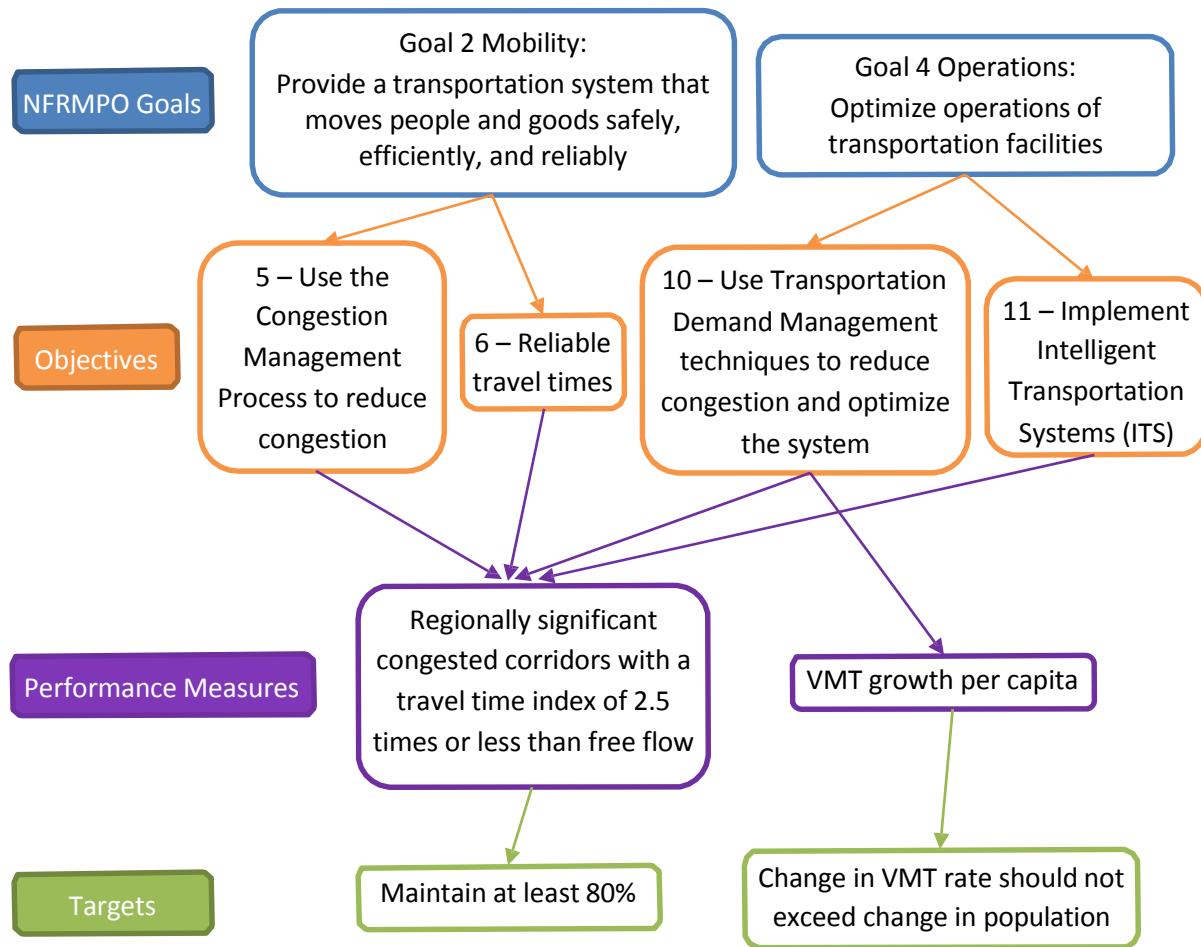
The performance measures in the 2040 RTP GOPMTs match CMP objectives. To help complete the picture of regional congestion transit performance measures have been selected and are detailed in **Section D** of this chapter.

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<sup>6</sup> Boston Region MPO Congestion Management Process. 2013. Chapter 1. <http://www.ctps.org/Drupal/cmp>



Figure 11-1: 2040 RTP-CMP Specific Goals, Objectives, Performance Measures, and Targets



### Integration in the Planning Process

The CMP has the potential to create an efficient transportation system, increase mobility, and maximize the utility of limited resources. It enables the NFRMPO to measure system performance in a systematic manner. The CMP is tied to the federally required RTP and helps to inform the NFRMPO Transportation Improvement Program.

While the RTP provides a vision for transportation planning in the North Front Range region, the TIP programs funding for regional transportation projects. The CMP helps inform these documents and projects with congestion information. Furthermore, corridor studies, transit efficiency, and non-motorized projects benefit from data collected through the CMP.

### C. Quantifying Congestion

Often, sources of congestion occur together. Weather events can easily create unsafe driving situations resulting in crashes. Special events can cause drivers to avoid certain areas resulting in congestion along a less traveled corridor. A lack of parallel facilities and a lack of transportation options for pedestrians, bicyclists, and transit users can result in high levels of unrestrained SOV demand.



### Congestion

There are two types of congestion: recurring and non-recurring.

Recurring congestion includes:

- ▶ Unrestrained demand
  - Lack of Other Modes
  - Land Use
- ▶ Insufficient capacity
  - Lack of Parallel Facilities
  - Roadway Capacity
- ▶ Ineffective management of capacity
  - Operations – Inefficient signal timing and progression and/or lack of auxiliary lanes.
  - A lack of TDM techniques such as carpool/vanpool programs or congestion pricing.

*Seven root causes of congestion:*

1. *Physical bottlenecks*
2. *Traffic incidents*
3. *Work zones*
4. *Weather*
5. *Traffic control devices*
6. *Special events*
7. *Fluctuations in normal traffic*

*Source: Focus on Congestion Relief, FHWA*

Non-recurring congestion:

- ▶ Temporary events
  - Traffic Incidents - Crashes, traffic stops, at-grade railroad crossings, and/or breakdowns
  - Weather Events
  - Special Events
  - Work Zones
  - Emergencies<sup>7</sup>

Congestion management is the “application of strategies to improve transportation system performance and reliability by reducing the adverse impacts of congestion on the movement of people and goods.”<sup>8</sup>

### Regionally Significant Corridors

Previously, the CMP only focused on the Tier 1 RSCs, but the scope has expanded to include all congested RSCs. The RSC designation allows the NFRMPO to maximize the use of limited transportation funding. Information about RSC location can be found in **Chapter 2**. Information about congested RSCs can be found in **Chapter 9**.

### Congestion Management Data Sources

#### *Regional Travel Demand Model*

The NFRMPO and member jurisdictions use the 2040 NFRMPO RTDM as a tool to forecast traffic and travel demand in communities within the model area. The primary purpose of the travel model is to support the RTP and air quality conformity analysis, but the information can be helpful for the CMP as well. The model can help

<sup>7</sup> Traffic Congestion and Reliability: Trends and Advanced Strategies for Congestion Mitigation. FHWA Office of Operations. 12.4.2013.

[http://www.ops.fhwa.dot.gov/congestion\\_report/executive\\_summary.htm](http://www.ops.fhwa.dot.gov/congestion_report/executive_summary.htm)

<sup>8</sup> Congestion Management Process: A Guidebook. U.S. Department of Transportation, FHWA. April 2011. Pg. 1.



to evaluate proposed roadway projects, potential impacts of proposed development projects, and various transportation studies of the region, subareas, and corridors.

The model identifies which roadway links are currently congested and those with the potential to be congested by calculating free flow speed, travel time, and capacity. This information is then used to see if congestion management performance measures are being met. Project sponsors and stakeholders use this and other information to select projects to relieve congestion in the region. The model is regularly updated by the NFRMPO to reflect current conditions using the most recent and available data. Until regional Bluetooth counters are operational, the RTDM will be used to generate maps to highlight congested areas in the region.

*FHWA National Performance Measurement Research Data Set*

The National Performance Measurement Research Data Set (NPMRDS) is a historical archive of average travel times by calendar day, in 5-minute increments, covering the NHS. FHWA has purchased HERE North America, LLC (formerly Nokia/NAVTEQ) travel time data for DOT and MPO use. The regional NPMRDS coverage is highlighted in **Figure 11-2**.

Three categories of travel time data are collected: passenger vehicles, freight vehicles, and a category with both groups combined. No modeling or historical data is applied if probe data does not exist for a particular epoch and no record is provided. Some outliers are included in the dataset, but clearly invalid probe data are discarded. Invalid probe data includes zero-speed vehicles, off-road vehicles, and vehicle headings that do not correspond with existing corridors.

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*Class 7 trucks have a gross vehicle weight rating (GVWR) between 26,001 – 33,000 lbs.*

*Class 8 trucks 33,001 lbs. or above. Both Classes require a Class B license to operate in the US.*

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*Source: U.S. Department of Energy*

The data for personal vehicles is gathered from multiple sources including: mobile phones, vehicles, and personal navigation devices. Data for freight vehicles is gathered by the American Transportation Research Institute (ATRI) and is sourced from Class 7 and 8 trucks.<sup>9</sup>

Archived datasets include only Interstates for the period of October 2011 to June 2013. Monthly datasets began in July 2013, in 5-minute increments for the entire NHS. The datasets are broken down by Transportation Management Center (TMC), an industry standard referencing system streets, segments, and roads typically from intersection to intersection.

*INRIX Travel Time and Volume Data Set*

INRIX provides nationwide real-time traffic information, historical traffic information, traffic forecasts, travel times, travel time polygons, and traffic counts to businesses and individuals. Travel time data is collected through Global Positioning System (GPS) enabled devices including cell phones and connected cars. The collected travel information is housed on the Ritis website where users can analyze the data in a number of ways, including:

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<sup>9</sup> Vehicle Weight Classes & Categories. U.S. Department of Energy. Alternative Fuels Data Center. <http://www.afdc.energy.gov/data/>



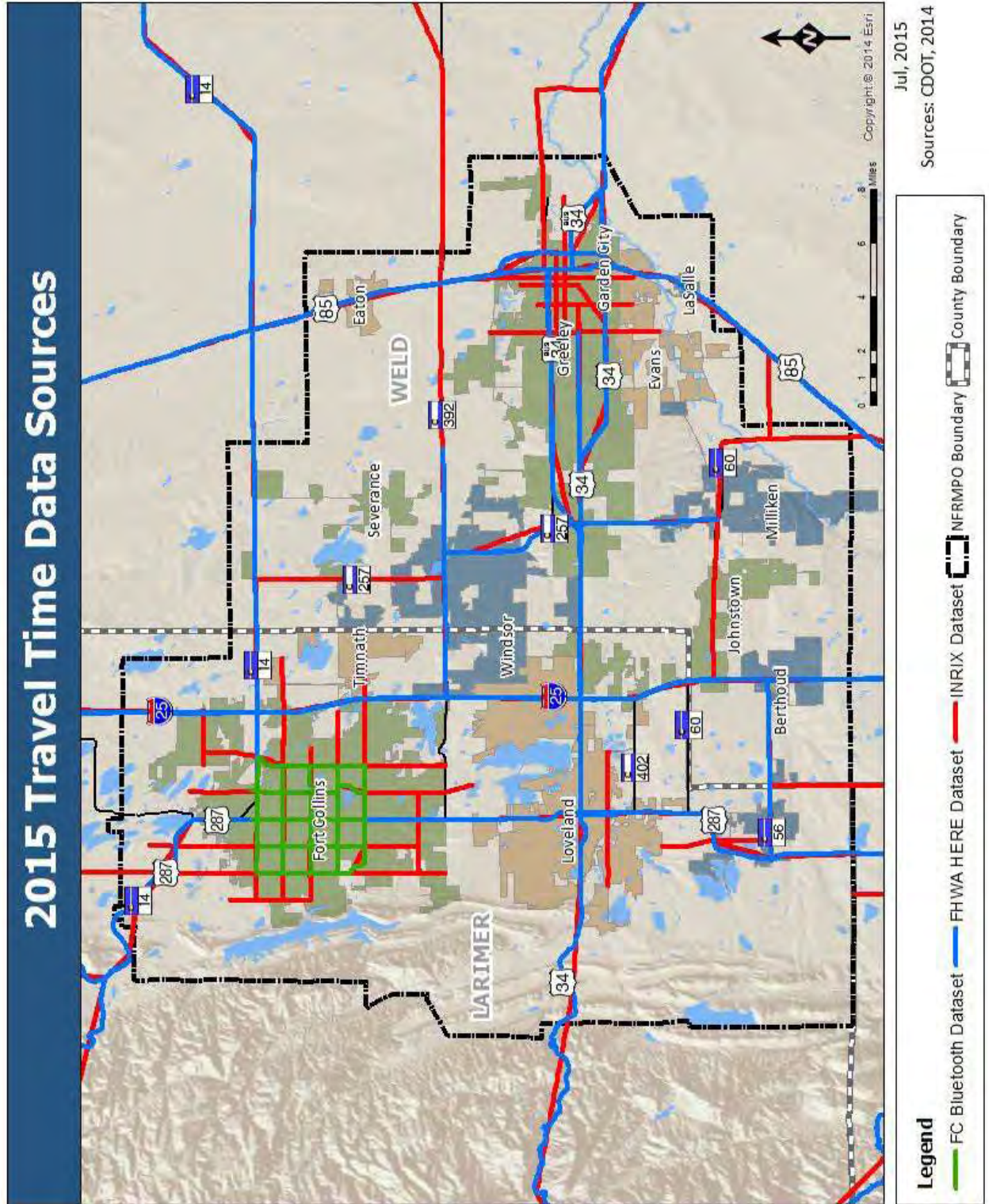
- ▶ **Region Explorer** – Explores the relationships between bottlenecks and traffic events in real-time and in the past.
- ▶ **Congestion Scan** – Describes the rise and fall of congested conditions on a stretch of road.
- ▶ **Performance Charts** – Highlights performance metric information over time.
- ▶ **Bottleneck Ranking** – Explains which roadway bottlenecks have the greatest impact.
- ▶ **Trend Map** – Creates an animated map of roadway conditions.
- ▶ **Performance Summaries** – Reports on Buffer Time Index, Planning Time Index, and other performance metrics.
- ▶ **User Delay Cost Analysis** – Assigns a dollar value on how much a road’s performance impacts its users.

Highlighting a segment of INRIX probe data allows the user to see segment length, current speed, average speed, reference speed (free-flow), confidence score, and travel time (minutes) across a full day. Additionally, depending on location a number of additional layers can be incorporated in the regional analysis, including:

- ▶ **Incidents and Events**
- ▶ **Dynamic Message Signs (DMS)**
- ▶ **Traffic Detectors**
- ▶ **Road Weather**
- ▶ **Radio Scanners**
- ▶ **Evacuation Support**
- ▶ **Public Transit**
- ▶ **Weather Alerts**



Figure 11-2: 2015 Travel Time Data Sources



**Figure 11-3: Fort Collins Bluetooth Counter Locations**



**Source:** Fort Collins, Division of Traffic Operations

*Fort Collins Bluetooth Dataset*

In June 2014, the City of Fort Collins, Division of Traffic Operations began installing a series of 30 Bluetooth traffic counters at major intersections across the City (**Figure 11-3**). The Fort Collins Bluetooth counters are also highlighted in **Figure 11-2** with the FHWA NPMRDS HERE travel time dataset.

Operational since October 2014, these counters wirelessly connect to cell phones, headsets, music players, and navigation systems using Media Access Control (MAC) protocols. Unique identifiers from these devices are not associated with any specific user or account, eliminating any ability to gather private information.

*City of Loveland, City of Greeley, and Colorado Department of Transportation Bluetooth Counters*

Currently, the City of Loveland, the City of Greeley, and the Colorado Department of Transportation (CDOT) are in the process of researching Bluetooth counters for intersections in their communities or region. To create a robust regional dataset the NFRMPO will be assisting with the purchase of counters for CDOT and the cities of Fort Collins, Loveland, and Greeley. Counter purchasing will begin in summer 2015, with counters coming online by late 2015. A substantial portion of the regional transportation network is expected to be covered by 2017.

*NFRMPO Congestion Survey*

In 2014, the NFRMPO conducted a regional congestion survey. The purpose of the survey was to better understand the region’s perspective on transportation congestion. The 12 question survey had approximately 200 respondents from the 15 NFRMPO member communities. The majority of respondents lived in Fort Collins (42 percent) and an even larger group worked in Fort Collins (71 percent). The two largest respondent groups were in the 30-44 and 55-64 age ranges. Approximately, 42 percent of respondents had a household income above \$100,000 a year. Additionally, they were highly educated with 38 percent holding a college degree and 43 percent with a post graduate degree.

Almost 86 percent of respondents drove alone as their primary commute method; however, nearly nine percent chose a bicycle for transportation. Heavy traffic and congestion was primarily attributed to, ‘too many people on the road’ and ‘unorganized or ineffective traffic lights.’ Split between three answers, survey participants believed heavy traffic or congestion means ‘6-10 miles per hour less than the posted speed’, ‘11-15 miles per hour less than the posted speed’, and ‘at a complete stop at a location other than a traffic light or stop sign.’

Heavy traffic and congestion was reported to occur ‘every day’ (43 percent) or ‘a few times a week’ (48 percent). The three most important factors in considering travel included ‘minimize time spent in heavy traffic’, ‘minimize travel time’, and ‘reliability of travel time.’ On a multiple answer question the main methods used to avoid heavy traffic included taking a different route (56 percent) or changing driving time (30 percent); however, 37 percent said they were unable to avoid traffic. An overwhelming margin (95 percent) stated congestion had gotten worse compared to congestion five years ago.

The complete list of survey questions can be found in **Appendix A**.

#### D. Strategies to Alleviate Congestion

##### Congestion Performance Measures

The focus of the 2015 CMP is the effective movement of people and goods. Throughout a normal day, congestion can occur for all users and all modes in the region.

**Table 11-2** identifies CMP performance measures the NFRMPO will report in the Annual CMP Reports.

Table 11-2: Implemented Congestion Performance Measures	
CMP Performance Measure	Description
Travel Time Index (TTI)*	Ratio of average peak travel time to an off-peak (free-flow) standard. A value of 1.25 indicates that the average peak travel time is 25% longer than off peak travel times.
Vehicle Miles Traveled (VMT)*	Measurement of miles traveled by vehicles in a specified region over a specified time period. Calculated per person for all trips or for specific destinations including home, work, commercial, etc.
Transit Performance Measures	On Time Performance – Percentage of time a bus remains on published schedule. Passengers per Hour per Direction indicates travel patterns and system capacity. Passengers per Mile per Gallon is a measure of transit system use and fuel efficiency.

\*These performance measures are from the NFRMPO 2040 RTP GOPMT. The transit performance measures are specific to the 2015 CMP Report.

The Travel Time Index and Transit Performance Measures are explained in greater detail in the following sections.

##### *Travel Time Index (TTI)*

Currently, the NFRMPO is transitioning from volume over capacity (V/C) congestion measurements (2010 CMP) to Travel Time Index (TTI) as a primary measure of regional congestion. V/C measurements can appear acceptable in near-gridlock situations because the roadway’s carrying capacity has been ‘maximized.’ In reality, a roadway with a lower V/C ratio can move more vehicles over the same given time period, but the corridor can appear under-utilized. TTI offers a more consistent view of vehicle congestion. The NFRMPO has estimated TTI information using the NFRMPO’s RTDM.<sup>10</sup> TTI is defined as:

*The ratio of the travel time during the peak period to the time required to make the same trip at free-flow speeds. A value of 1.3, for example, indicates a 20-minute free-flow trip requires 26 minutes during the peak period.<sup>11</sup>*

<sup>10</sup> North Front Range 2012 Base Year Regional Travel Model Technical Documentation. 2015.

<http://nfrmpo.org/ResourcesDocuments/2040RTP.aspx>

<sup>11</sup> Glossary of Mobility-Related Terms. Texas A&M Transportation Institute. Urban Mobility Information.

<http://mobility.tamu.edu/ums/media-information/glossary/>



Maps of the 2012 regional TTI and 2040 regional TTI can be found in **Chapter 7**.

Over the next two years, the NFRMPO will transition to the collection and use of TTI information from the FHWA HERE dataset, INRIX dataset, and Bluetooth counters discussed in **Section C**. In the future, posted speed limits will be used as the baseline for free-flow travel time.

### *Vehicle Miles Traveled (VMT)*

VMT is the number of miles traveled by vehicles within a specified region, during a specified time period. Modeling VMT requires estimates of trip generation (origin) and trip length. As the region's population continues to grow, an increase in VMT is expected. A reduction in VMT rates can be used to show environmental benefits through reduced emissions, fuel usage, roadway wear, and vehicle wear. Land use planning principles, such as infill development or mixed use development can be used to help reduce VMT.

### *Transit Performance Measures*

Future CMP reporting will use three performance measures for transit including:

- ▶ **On Time Performance:** The percentage of time a bus remains on its published schedule. This performance metric indicates the ability for the traveling public to rely on posted times.
- ▶ **Passengers per Mile per Gallon:** Requires the calculation of a Passengers per Mile metric and a vehicle mile per gallon figure. Subsequently, the number of Passengers per Mile is multiplied by the vehicle's mile per gallon figure resulting in a figure that can be compared to other vehicles. For vehicles using compressed natural gas (CNG) a gasoline gallon equivalent (GGE) comparison will be calculated.
- ▶ **Passengers per Hour per Direction:** Requires the number of Passengers per Hour multiplied by a directional coefficient, unless it is collected immediately with the passenger boarding/exiting. The resulting figure is useful when examining travel patterns.

Currently, not all regional transit providers can supply passenger direction information. As additional passenger tracking technology comes online, this information will be collected. Furthermore, not all regional transit providers collect on time performance measurements in the same manner. Transit providers will transition to comparable on time performance collection methods as older buses are retired.

### **Transportation Demand Management (TDM)**

The NFRMPO completed the Long Range Transportation Demand Management Plan in December 2010. TDM strategies are actions which improve transportation system efficiency by altering transportation system demand rather than through roadway capital expansion. TDM is about increasing transportation system carrying capacity through operational efficiencies or reducing demand. **Chapter 2** covers existing TDM practices in the NFRMPO region.

### *Intent and Methods of Transportation Demand Management*

Federal regulations specify all reasonable congestion management strategies must be evaluated and deemed ineffective or infeasible prior to the consideration of a roadway capacity increase as a congestion management approach. A common misconception of TDM is it is focused strictly on "getting people out of their cars." Rather there are many ways to improve the efficiency of the existing transportation network.





### *Transportation Demand Management Strategies*

TDM strategies can use voluntary or mandatory mechanisms to reduce demand. Eight common TDM strategies include:

- ▶ **Road Pricing:** Programs which charge drivers based on their usage of the roadway. Congestion pricing includes price variations based on time of day and level of congestion.
- ▶ **Parking Management and Parking Pricing:** 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.
- ▶ **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.
- ▶ **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.
- ▶ **Ridesharing and HOV Lanes:** Ridesharing is two or more people traveling in a vehicle to their destination. HOV lanes incentivize ridesharing by offering travelers who rideshare a less congested travel lane, preferred parking, etc.
- ▶ **Transit Incentives:** Businesses or other organizations can offer reduced or free fares to incentivize the use of transit by employees.
- ▶ **Transit Improvements:** Improving the availability, efficiency, reliability, convenience, and comfort of transit incentivizes traveler's use of the network.
- ▶ **Telework:** Working from home reduces the frequency of employees needing to commute to an employment location.<sup>12</sup>

Additional TDM measures were recommended by the NFRMPO in the Long Range Transportation Demand Management Plan, including:

- ▶ **TDM Workshops:** Targeted to employees, a workshop would highlight TDM practices an employer could use to encourage healthy, safe, effective transportation practices.
- ▶ **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.
- ▶ **Employer Transportation Assessment Program:** NFRMPO staff assist local businesses in the creation of a TDM policy for employees.
- ▶ **ITS Improvements:** Covered in the ITS section of this chapter.

### **Intelligent Transportation Systems (ITS)**

ITS improves transportation safety and mobility and enhances productivity through the integration of advanced communications technologies into transportation infrastructure and vehicles. Encompassing a broad range of wireless and wire-line communications ITS enriches existing roadway system operations in a cost effective

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<sup>12</sup> Reference Sourcebook for Reducing Greenhouse Gas Emissions from Transportation Sources. Chapter 5 Transportation Demand Management Strategies. U.S. Department of Transportation, Federal Highway Administration.

[http://www.fhwa.dot.gov/environment/climate\\_change/mitigation/publications\\_and\\_tools/reference\\_sourcebook/page05.cfm#s1](http://www.fhwa.dot.gov/environment/climate_change/mitigation/publications_and_tools/reference_sourcebook/page05.cfm#s1)



manner.<sup>13</sup> ITS can apply to all forms of transportation and has the capacity to improve safety, reduce vehicle wear, shrink delay, and lessen fuel consumption.

### *Intelligent Transportation Systems in Northern Colorado*

In 2011, CDOT, the NFRMPO, and local jurisdictions developed the CDOT Region 4 Intelligent Transportation Systems Strategic Implementation Plan.<sup>14</sup> The plan serves as the guiding document for ITS projects to 2021, and identifies the funding needs, recommended deployment time frames, and potential funding sources. **Chapter 2** covers ITS information, funded ITS projects, and ITS on BRT.

## Transit Congestion Management Strategies

### *Bus Rapid Transit*

BRT is “an integrated system of facilities, equipment, services, and amenities that improves the speed, reliability, and identity of bus transit.”<sup>15</sup> 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. This high-frequency service offers not only congestion mitigation benefits, but also community development benefits. The constant availability of a bus is attractive to travelers, residents, and business owners.

A number of facilities augment the capacity and usefulness of BRT. To eliminate conflicts with slower vehicles, BRT can use dedicated right-of-way lanes in the median. Station platforms level with the bus floor accelerate passenger boarding time and allow wheelchairs and strollers to easily roll on or off the bus. Off-board fare collection systems allow passengers to pre-pay before using the BRT. To decrease intersection wait times BRT is sometimes prioritized in the signal queue. Emergency vehicles also benefit from BRT by having an additional travel lane.

### *Operational Transit Congestion Management Measures*

A number of factors can be incorporated in transit service strategies which can be implemented to further enhance the effectiveness of transit. The factors include:

- ▶ Pricing Factors
  - Reduction or elimination of fares
- ▶ Service Quantity Factors
  - Increasing service hours including Sunday service
  - Reducing the time between transit vehicles
  - Reducing transfer time
  - Prioritizing transit vehicles at traffic signals

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<sup>13</sup> About ITS. US Department of Transportation, Office of the Assistant Secretary for Research and Technology Intelligent Transportation Systems Joint Program Office. <http://www.its.dot.gov/faqs.htm>

<sup>14</sup> CDOT Region 4 Intelligent Transportation Systems Strategic Implementation Plan. Colorado Department of Transportation. June 2011. [http://www.cotrip.org/content/itsplans/CDOTRegion%204%20ITS%20Strategic%20Implementation%20Plan\\_06-30-11.pdf](http://www.cotrip.org/content/itsplans/CDOTRegion%204%20ITS%20Strategic%20Implementation%20Plan_06-30-11.pdf)

<sup>15</sup> TCRP Report 118. Bus Rapid Transit Practitioner’s Guide. Transportation Research Board. 2007. Washington, D.C. [http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp\\_rpt\\_118.pdf](http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_118.pdf)



- Focusing routes on high density corridors or locations
- ▶ Service Quality Factors
  - Transit stop amenities
  - Off-board fare collection
  - Bus scheduling information
  - Station and in-route safety
  - Customer service
  - Cleanliness<sup>16</sup>

Reducing or eliminating fares can play a large role in increasing transit ridership. Currently, free transit passes for CSU, UNC, and some K-12 students incentivize use of the transit network. During the 2014-2015 school year GET ridership numbers increased 313 percent among elementary, middle, and high school students with identification for the Ride Free with ID program, approximately 47,000 rides.

Adjacent land use practices compound the usefulness of transit. For college students transit connects residential facilities with campus. Businesses along transit routes are encouraged by the accessibility transit offers and employers are incentivized to locate near transit to offer transportation options for employees.

In Fort Collins, a Transit-Oriented Development (TOD) Overlay Zone was developed to focus growth around the MAX BRT system along the Mason Street corridor. Running north-south through Fort Collins the Mason Street corridor connects residents to a mix of housing, office, and retail opportunities. The MAX BRT system along Mason Street increases economic opportunity, active lifestyle choices, and access to employment options while reducing vehicular congestion. This concentration of accessible development reduces resident's transportation costs while increasing property values near the BRT system.

In 2009, Transfort adopted their Transit Strategic Operating Plan which focuses on creating a productive transit system rather than a system with complete citywide coverage. Similarly, GET is reconfiguring transit routes in 2016 to increase productivity by reducing coverage. A bus service offering frequent service ensures maximum ridership by encouraging potential riders to make a mode shift. Offering service Saturday and Sunday further increases the utility of transit. Service quality is an important factor in continued ridership and permanent mode shift. Riders are willing to continue using transit when safe, clean, and convenient travel is offered.

### Traffic Incident Management

A traffic incident is any occurrence that impedes the normal flow of traffic on a highway, including crashes, vehicle breakdowns, and spilled loads. According to FHWA:

*Traffic Incident Management (TIM) consists of a planned and coordinated multi-disciplinary process to detect, respond to, and clear traffic incidents so that traffic flow may be restored as safely and quickly*

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<sup>16</sup> Taylor, Brian D. & Fink, Camille N.Y. The Factors Influencing Transit Ridership: A Review and Analysis of the Ridership Literature. UCLA Department of Urban Planning Working Paper. 9/4/2013. Los Angeles, CA.

<http://www.uctc.net/papers/681.pdf>

*as possible. Effective TIM reduces the duration and impacts of traffic incidents and improves the safety of motorists, crash victims and emergency responders.*<sup>17</sup>

The TIM program is part of the FHWA's Emergency Transportation Operations (ETO) and plays a critical role in ensuring consistent traffic flow in the NFRMPO region. TIM activities are typically categorized into five overlapping functional areas:

- ▶ Detection and Verification
  - Detection: the determination that an incident of some type has occurred.
  - Verification: the determination of the precise location and nature of the incident.
- ▶ Traveler Information
  - The communication of incident related information to motorists who are at the scene of the incident, approaching the scene of the incident, or not yet departed from work, home, or other location.
- ▶ Response
  - The activation of a "planned" strategy for the safe and rapid deployment of the most appropriate personnel and resources to the incident scene.
- ▶ Scene Management and Traffic Control
  - Scene Management: the coordination and management of resources and activities at or near the incident scene, including personnel, equipment, and communication links.
  - Traffic Control: the process of managing vehicular traffic around the scene of the incident.
- ▶ Quick Clearance and Recovery<sup>18</sup>
  - Clearance: the safe and timely removal of a vehicle, wreckage, debris, or spilled material from the roadway.
  - Recovery: the restoration of the roadway to its full capacity.

These functional areas incorporate a number of operational agencies to assist in traffic incident recovery. Typically, the agencies responsible for incident recovery include: CDOT, State and local law enforcement, Fire/EMS, local jurisdictions, coroners, courtesy patrols, and towing/recovery agencies.

#### *Traffic Incident Management in Northern Colorado*

Between 2001 and 2011, the I-25 corridor between SH 7 and the Wyoming border experienced a 2.4 percent annual growth rate in Annual Average Daily Traffic (AADT) and a 27 percent increase in traffic

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<sup>17</sup> Traffic Incident Management. U.S. Department of Transportation. Federal Highway Administration. Emergency Transportation Operations. [http://ops.fhwa.dot.gov/eto\\_tim\\_pse/about/tim.htm](http://ops.fhwa.dot.gov/eto_tim_pse/about/tim.htm)

<sup>18</sup> Best Practices in Traffic Incident Management. U.S. Department of Transportation. Federal Highway Administration. Emergency Transportation Operations. September 2010. <http://ops.fhwa.dot.gov/publications/fhwahop10050/ch2.htm>



demand. Between 2006 and 2010, there were 545 crashes resulting in injuries or fatalities (an average of 103 per year).<sup>19</sup>

In June 2012, CDOT released the I-25 Traffic Incident Management Plan or TIMP. The plan covers the entire length of I-25 in the NFRMPO region. The purpose of the TIMP is to, “provide a planned, coordinated, and cooperative approach to detecting and removing incidents and restoring traffic capacity as quickly and safely as possible.”<sup>20</sup>

The I-25 TIMP offers a number of recommendations to improve incident response, including: consistent, compatible communication technology between responding agencies for an informed emergency response; creation of specific detour plans and procedures in advance to accelerate opening travel corridors; increasing the visual coverage of transportation corridors with cameras and other ITS solutions to accelerate knowledge of the scene; installing additional variable message signs (VMS) to help motorists make informed decisions about entering or leaving a corridor; unifying the command system dispatch agencies use to communicate; and establishing a standing project management team to evaluate the performance of incident plans.

## E. Next Steps

### Future Congestion Data Collection

#### *Travel Time Datasets*

In addition to the NPMRDS, INRIX, and the City of Fort Collins Bluetooth Dataset, the NFRMPO will be assisting the cities of Fort Collins, Greeley, Loveland, and CDOT purchase and install Bluetooth counters. These counters will be placed at signalized intersections along congested RSCs near each of the communities. Using overlapping locations the community datasets will be used to validate each other. In the future, these datasets will be used to inform the Annual CMP Reports. The datasets will increase in value as a collection of longitudinal information is created. Staff will use the collected information to compile reports and recommend strategies to alleviate regional congestion.

#### *NFRMPO Regional Travel Demand Model Update*

The NFRMPO RTDM is updated prior to the RTP, approximately every four years. This is done to accurately reflect the transportation infrastructure network and refine the criteria the model uses to forecast future conditions. As the travel time datasets become more robust they will supply the model with accurate information to ensure validity. In the interim years, the NFRMPO staff will be updating the model to add the speed limit data to all of the links in the model to allow the TTI to be calculated using the speed limit.

### Annual CMP Performance Measure Reports

The NFRMPO releases an annual CMP Performance Measure Report each spring. Using data collected throughout the year based on the criteria listed in **Section D**, the region’s demographic data, congestion trends

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<sup>19</sup> Traffic Incident Management. U.S. Department of Transportation. Federal Highway Administration. Emergency Transportation Operations. [http://ops.fhwa.dot.gov/eto\\_tim\\_pse/about/tim.htm](http://ops.fhwa.dot.gov/eto_tim_pse/about/tim.htm)

<sup>20</sup> I-25 Traffic Incident Management Plan, SH 7 to Wyoming State Line. Colorado Department of Transportation. June 2012.



and transportation system performance is quantified for analysis. This analysis is used to inform regional priorities in the RTP and project selection for the TIP.

The NFRMPO 2015 CMP will use the performance measures listed in **Section D**:

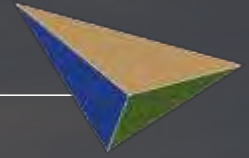
- ▶ Travel Time Index (TTI)
- ▶ Vehicle Miles Traveled (VMT)
- ▶ Transit Performance Measures

Additionally, the NFRMPO will include information on:

- ▶ Historical Transportation Trends
- ▶ Crashes (Passenger Vehicles, Trucks, Bicycle, Pedestrian)
- ▶ Transit Ridership
- ▶ VanGo™ Ridership
- ▶ Transportation Demand Management (TDM) Practices
- ▶ Programmed and Implemented Projects
  - The CMP's Role in Project Selection
  - Selected Projects
  - Implemented Projects
- ▶ External Influences on the Transportation Network
  - Gas Prices
  - Population and Unemployment Statistics
  - Transportation Funding and Gas Tax

# Chapter 12

## Implementation Plan





## Chapter 12: Implementation

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### A. Introduction

The North Front Range Metropolitan Planning Organization's (NFRMPO) 2040 Regional Transportation Plan (RTP) sets the stage for transportation planning in the region for the next 25 years. While this is a long-term transportation plan, the climate of funding, projects, population, and employment are constantly evolving. With this in mind, the need to update or amend the 2040 RTP may arise.

### B. Plan Amendment Process

The NFRMPO updates the RTP every four years, as required by federal law for all air quality nonattainment and maintenance areas. However, between RTP updates, amendments to the RTP may be necessary. Amendments can be triggered by new regionally significant projects or by substantially modified project descriptions. A plan amendment could also be necessary if substantial changes in financial resources occur not anticipated during this 2040 Plan process.

To initiate a plan amendment, a local agency, the Colorado Department of Transportation (CDOT) provides information to the NFRMPO outlining the specific amendment request along with a clear justification for the amendment or the source of the new funding. NFRMPO staff review the request and determine how the request should be processed. The Technical Advisory Committee (TAC) and NFRMPO Planning Council approve all amendments prior to submission to CDOT and the Federal Highway Administration (FHWA). If the amendment requires an air quality conformity determination, it must complete that process prior to the Plan Amendment being adopted.

### A. Transportation Improvement Program (TIP)

The NFRMPO is responsible for the creation and adoption of a Transportation Improvement Program (TIP) for the region at least every four years. FHWA and Federal Transit Administration (FTA) determine if the TIP is consistent with the adopted RTP and if it was produced through the continuing, cooperative, and comprehensive (3C) transportation planning process. This requires the NFRMPO to produce and maintain a multi-year TIP, fiscally constrained by program and year. The FY2016-2019 TIP presents a four-year program of multi-modal projects using a combination of federal, state, and local funds, and identifies the type of improvement, the funding source(s), the sponsoring entity(ies), and an implementation schedule. Projects in the TIP must come from an approved RTP, follow the Congestion Management Process (CMP) outlined therein, and in nonattainment areas, it must show conformity according to air quality budgets outlined in the Statewide Implementation Plan (SIP). The TIP is included without changes in the Statewide Transportation Improvement Program (STIP), developed by CDOT and approved by the Governor.

Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21) requires the TIP include:

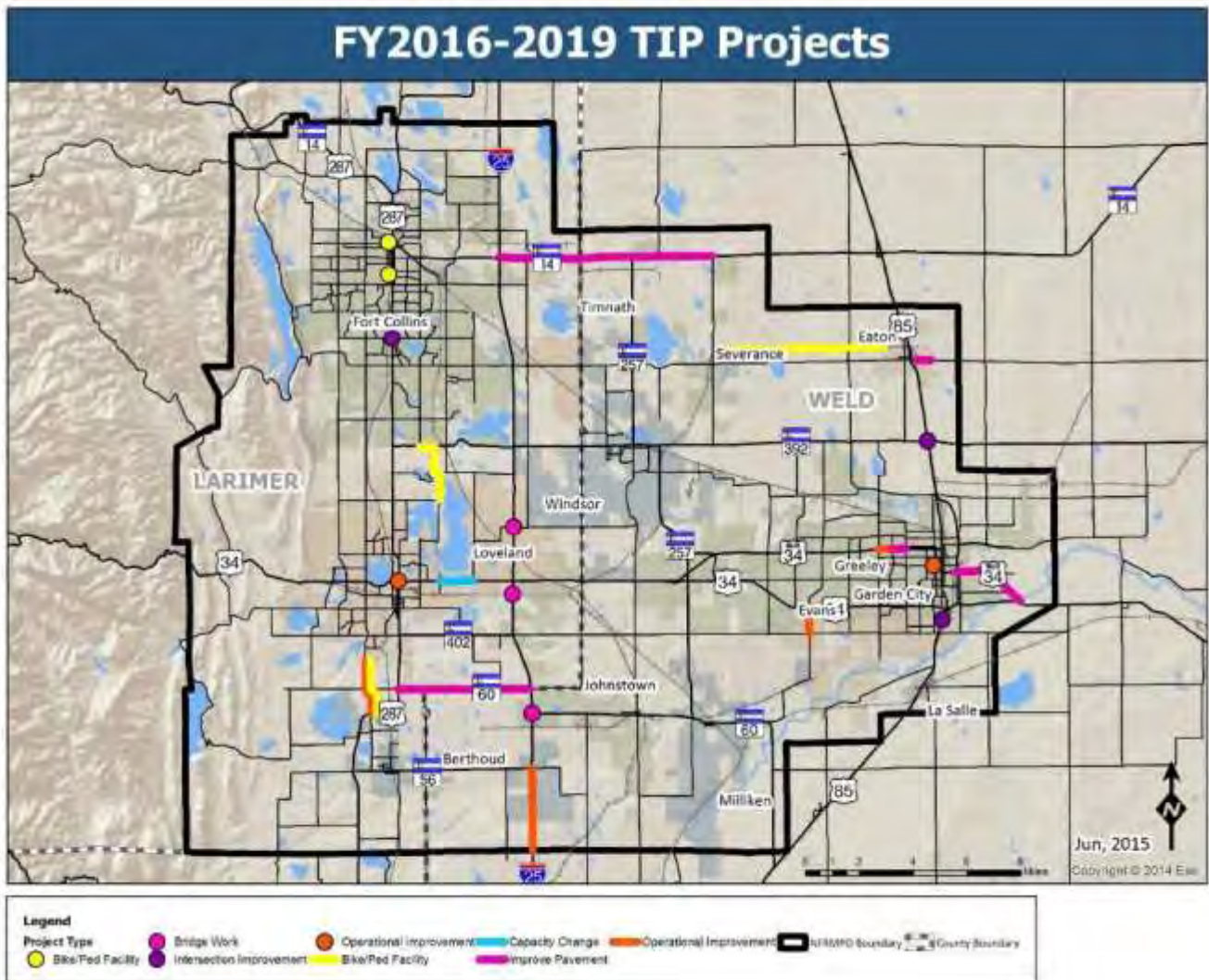
- ▶ To the maximum extent practicable, a description of the anticipated effect of the TIP toward achieving the performance targets established in the 2040 RTP, linking investment priorities to those performance targets.



- ▶ A priority list of proposed federally supported projects and strategies to be carried out within each four-year period after the initial adoption of the TIP.
- ▶ A financial plan which demonstrates how the TIP can be implemented, indicating resources from public and private sources reasonably expected to be available to carry out the program, and identifying innovative financing techniques to finance projects, programs, and strategies.
- ▶ In air quality nonattainment and maintenance areas, the TIP shall give priority to timely implementation of Transportation Control Measures (TCMs) contained in the applicable SIP in accordance with the Environmental Protection Agency’s (EPA) transportation conformity regulations.

Figure 12-1 shows the location of projects included in the FY2016-2019 TIP.

**Figure 12-1: FY2016-2019 TIP Projects**



## B. Fiscal Constraint

MAP-21 requires the 2040 RTP include sufficient financial information for demonstrating projects included in the RTP can be implemented using funds reasonably expected to become available over the life of the plan (FY2016–2040). Fiscal constraint means the total cost of all transportation projects and expenditures cannot exceed projected financial resources available. To demonstrate project fiscal constraint, the NFRMPO worked with local communities to determine regionally significant construction projects to be completed by 2040 (see *2040 RTP Regionally Significant Corridors* section). Available funds to implement these projects are derived from eligible federal, state, and local funds outlined in the *Roadway Maintenance, Operations, Rehab, and Safety* and *Congestion Management* categories included in **Chapter 10, Table 10-1**. Eligible programs include Regional Priority Program (RPP), Funding Advancements for Surface Transportation and Economic Recovery Act (FASTER) Safety, Highway Safety Investment Program (HSIP), STP-Metro, and local funds. The NFRMPO estimates \$583.5M should reasonably become available over the life of the 2040 RTP to complete regionally significant projects on Regionally Significant Corridors (RSCs). **Table 12-1** identifies available capacity funds, FY2016-2019 TIP programmed projects, and the 2040 RTP modeled capacity project costs.

<b>Table 12-1: 2040 RTP Regionally Significant Fiscal Constraint (FY2016 \$ shown in thousands)</b>	
<b>Anticipated Funds for Capacity Projects</b>	<b>Amount</b>
Federal and State Funds Available	\$215,109
Local Funds Available	\$368,452
<b>Total</b>	<b>\$583,561</b>
FY2016-2019 TIP Programmed Projects*	\$17,049
<b>Remaining Capacity Funds Available</b>	<b>\$566,512</b>
2040 RTP Modeled Regionally Significant Project Costs	\$566,399
<b>Difference</b>	<b>\$113</b>

\*Includes projects programmed using RPP, FASTER Safety, and/or STP-Metro funding.

## C. 2040 RTP Regionally Significant Projects

A 2040 RTP Regionally Significant Project is any fiscally constrained project that impacts the roadway network on a RSC, defined in **Chapter 2**. This includes any capacity or non-capacity air quality project on a RSC, such as additional lane-miles or new intersections, and includes a specific funding source. A funding source is required to ensure a realistic forecast. All member jurisdictions, including CDOT, were asked to provide information on projects that fit this criteria, with a year of improvement between 2015 and 2040. These project lists were collected for the 2040 RTP and are included in the 2040 NFRMPO RTDM. These projects are shown in **Figure 12-2**. Individual project information is detailed in **Table 12-2**.







**Table 12-7: 2040 RTP Regionally Significant Projects**

Project Map Number	Street Name	From	To	Number of Lanes		Year of Improvement	Cost (thousands)	Funding Source
				Before	After			
<b>2015-2024 Network</b>								
1	59 <sup>th</sup> Avenue	20 <sup>th</sup> Street	US 34 Bypass	2	3	2015	\$1,500	Greeley – Capital Improvement Program
2	65 <sup>th</sup> Avenue	US 34 Bypass	Weld CR 54	2	4	2015	\$3,000	Greeley – Road Development Funds
3	I-25 Southbound	Approximately Mile Marker 247	Approximately Mile Marker 249	2	3	2015	\$9,700	NFRMPO – STP-Metro Funds
4	SH 402	St. Louis Avenue	Boise Avenue	2	4	2015	\$6,000	Loveland Transportation Capital Improvement Plan Funds – CDOT
5	65 <sup>th</sup> Avenue	37 <sup>th</sup> Street	49 <sup>th</sup> Street	2	4	2016	\$1,000	Evans – Capital Projects Street Fund Future Development
6	35 <sup>th</sup> Avenue	37 <sup>th</sup> Street	49 <sup>th</sup> Street	2	4	2016	\$1,000	Evans – Capital Projects Street Fund Future Development
7	Harmony Road	RR tracks	Three Bell Parkway (Larimer CR 3)	2	4	2016	\$3,325	Timnath – General Fund/Adjacent Development





**Table 12-2: 2040 RTP Regionally Significant Projects**

Project Map Number	Street Name	From	To	Number of Lanes		Year of Improvement	Cost (thousands)	Funding Source
				Before	After			
				<b>2015-2024 Network (Cont.)</b>				
8	US 287	Shields Street	LaPorte Bypass	2	4	2016	\$22,000	CDOT – FASTER Safety/RAMP
9	37 <sup>th</sup> Street	35 <sup>th</sup> Avenue	Two Rivers Parkway	2	4	2018	\$1,500	Evans – Capital Projects Street Fund Future Development
10	Harmony Road	Three Bell Parkway (Larimer CR 3)	Lathem Parkway (Larimer CR 1)	2	4	2018	\$3,500	Timnath – General Fund/Adjacent Development
11	35 <sup>th</sup> Avenue	49 <sup>th</sup> Street	Weld CR 35 & Weld CR 394	0	4	2020	\$1,500	Evans – Capital Projects Street Fund Future Development
12	59 <sup>th</sup> Avenue	4 <sup>th</sup> Street	C Street	2	4	2020	\$2,400	Greeley – Road Development Funds
13	Boyd Lake Avenue	Larimer CR 20C	US 34	2	4	2020	\$1,988	Loveland – Transportation Capital Improvement Plan Funds
14	Boyd Lake Avenue	US 34	Canal	2	4	2020	\$2,732	Loveland – Centerra Metro District
15	Crossroads Boulevard	Centerra Parkway	Larimer CR 3	2	4	2020	\$2,365	Loveland – Transportation Capital Improvement Plan Funds

**Table 12-2: 2040 RTP Regionally Significant Projects**

Project Map Number	Street Name	From	To	Number of Lanes		Year of Improvement	Cost (thousands)	Funding Source
				Before	After			
<b>2015-2024 Network (Cont.)</b>								
16	Harmony Road	College Avenue	Boardwalk Drive	4	6	2020	\$9,349	Fort Collins – Street Oversizing Fund, Developer Contribution, Sales Tax
17	Larimer CR 3	Weld CR 50	Larimer CR 18	0	2	2020	\$7,605	Johnstown – Johnstown/Adjacent Developers
18	SH 392	17 <sup>th</sup> Street	Larimer CR 3	2	4	2020	\$1,500	Windsor – Road Impact Fee and Adjacent Development
19	Taft Ave.	Arkins Branch	US 34	4	4 (Center turn lane and 1 Lanes)	2020	\$10,509	Loveland – Transportation Capital Improvement Plan Funds
20	US 34	Denver Avenue	Boyd Lake Avenue	4	6	2020	\$5,245	Loveland – Transportation Capital Improvement Plan Funds - CDOT
21	US 34	Rocky Mountain Avenue	I-25	4	6	2020	\$2,066	Loveland - Centerra Metro District
<b>2025-2034 Network</b>								
22	83 <sup>rd</sup> Avenue	US 34 Business (10 <sup>th</sup> Street)	US 34 Bypass	2	4	2025	\$5,900	Greeley – Road Development Funds
23	Crossroads Boulevard	Great Western Drive	SH 257	0	3	2025	\$5,000	Windsor – Road Impact Fee & Adjacent Development





**Table 12-2: 2040 RTP Regionally Significant Projects**

Project Map Number	Street Name	From	To	Number of Lanes		Year of Improvement	Cost (thousands)	Funding Source
				Before	After			
				<b>2025-2034 Network (Cont.)</b>				
24	Larimer CR 3	US 34	Crossroads Boulevard	0	2	2025	\$8,073	Loveland – Transportation Capital Improvement Plan Funds
25	Prospect Road	North Summitview Drive	I-25	2	4	2025	\$7,500	Fort Collins – Street Oversizing Fund, Developer Contribution, Sales Tax
26	Prospect Road	I-25	Growth Management Area Boundary	2	4	2025	\$3,000	Fort Collins – Street Oversizing Fund, Developer Contribution, Sales Tax
27	US 34	Centerra Parkway	Kendall Parkway (Larimer CR 3E)	4	6	2025	\$5,568	Loveland – Centerra Metro District
28	Timberline Road	Trilby Road	Kechter Drive	2	4	2025	\$15,000	Fort Collins – Street Oversizing Fund
29	Timberline Road	Kechter Drive	Battlecreek Drive	2	4	2025	\$2,003	Fort Collins – Street Oversizing Fund, Developer Contribution, Sales Tax
30	Larimer CR 18	I-25 Frontage Road	Weld CR 13	2	4	2030	\$13,890	Johnstown – Adjacent Developers

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**Table 12-8: 2040 RTP Regionally Significant Projects**

Project Map Number	Street Name	From	To	Number of Lanes		Year of Improvement	Cost (thousands)	Funding Source
				Before	After			
<b>2025-2034 Network (Cont.)</b>								
31	SH 60	I-25	Weld CR 15	2	4	2030	\$17,363	Johnstown – CDOT
32	US 34	Boyd Lake Avenue	Rocky Mountain Avenue	4	6	2030	\$4,291	Loveland –Transportation Capital Improvement Plan Funds - CDOT
33	US 34	I-25	Centerra Parkway	4	6	2030	\$2,543	Loveland – Transportation Capital Improvement Plan Funds - CDOT
<b>2035-2040 Network</b>								
34	59 <sup>th</sup> Avenue	US 34 Bypass	20 <sup>th</sup> Street	2	4	2035	\$3,500	Greeley – Road Development Funds
35	83 <sup>rd</sup> Avenue	Weld CR 54	Weld CR 64	2	3	2035	\$7,000	Greeley – Road Development Funds
36	Boyd Lake Avenue	SH 402	Larimer CR 20E	2	4	2035	\$6,300	Loveland – Transportation Capital Improvement Plan Funds





Table 12-9: 2040 RTP Regionally Significant Projects

Project Map Number	Street Name	From	To	Number of Lanes		Year of Improvement	Cost (thousands)	Funding Source
				Before	After			
				<b>2035-2040 Network (Cont.)</b>				
37	I-25	Weld CR 38	SH 56	2	4	2035	\$85,000	CDOT Strategic Projects, Strategic Transit A, Local Funds (City of Loveland), Flexible Funds – RTP, Other STP Metro, CMAQ, FASTER Safety (1)
38	I-25	SH 392	SH 14	2	4	2035	\$137,000	CDOT Strategic Projects, Strategic Transit A, Local Funds (City of Loveland), Flexible Funds – RTP, Other STP Metro, CMAQ, FASTER Safety
39	North Fairground Avenue/Larimer CR 5)	Rodeo Road	71 <sup>st</sup> Street (Larimer CR 30)	2	4	2035	\$3,000	Loveland – Transportation Capital Improvement Plan Funds
40	O Street	SH 85	83 <sup>rd</sup> Avenue	1	3	2035	\$4,700	Greeley – Road Development Funds
41	O Street	83rd Avenue	Weld CR 23	0	3	2035	\$7,400	Greeley – Road Development Funds
42	Shields Street	Fossil Creek Drive	Harmony Road	2	4	2035	\$6,500	Fort Collins – Street Oversizing Fund



**Table 12-2: 2040 RTP Regionally Significant Projects**

Project Map Number	Street Name	From	To	Number of Lanes		Year of Improvement	Cost (thousands)	Funding Source
				Before	After			
<b>2035-2040 Network (Cont.)</b>								
43	SH 402	Approximately Heron Drive	I-25	2	4	2035	\$33,378	Loveland – Transportation Capital Improvement Plan Funds – CDOT
44	SH 402	US 287	St. Louis Avenue	2	4	2035	\$3,000	Loveland – Transportation Capital Improvement Plan Funds – CDOT
45	Taft Avenue/ Larimer CR 17	SH 60/Larimer CR 14	28 <sup>th</sup> Street Southwest/ Larimer CR 16	2	4	2035	\$6,123	Loveland – Transportation Capital Improvement Plan Funds
46	Taft Avenue	US 34	22 <sup>nd</sup> Street	4	4 (Center turn Lane and Bike Lanes)	2035	\$7,314	Loveland – Transportation Capital Improvement Plan Funds
47	Taft Avenue	28 <sup>th</sup> Street Southwest	14 <sup>th</sup> Street Southwest	4	4 (Center turn Lane and Bike Lanes)	2035	\$3,920	Loveland – Transportation Capital Improvement Plan Funds
48	Weld CR 54	35 <sup>th</sup> Avenue	Weld CR 17	1	3	2035	\$6,800	Greeley – Road Development Funds
49	Weld CR 56	US 34 Bypass	Weld CR 17	0	2	2035	\$21,000	Greeley – Road Development Funds



## D. Environmental Mitigation Analysis

The Safe, Accountable, Flexible, Efficient Transportation Equity Act – a Legacy for Users (SAFETEA-LU) introduced the requirement for MPOs and state DOTs to identify potential environmental mitigation activities in their long range plans. MAP-21 continued and expanded these requirements.<sup>21</sup> These activities should be developed alongside federal, State, land management, and regulatory agencies. Federally funded transportation projects are required to complete the National Environmental Policy Act (NEPA) process, as discussed in **Chapter 5**. As part of the NEPA process, transportation projects must analyze potential impacts to the environment. Federal Register *40 CFR § 1500.1(b): Purpose* describes the NEPA process as a way to help public officials make decisions based on an understanding of environmental consequences and to take actions that protect, restore, and enhance the environment.<sup>22</sup>

NFRMPO staff analyzed the potential impacts of transportation projects according to the environmental features detailed in **Chapter 5**. Transportation projects included are from the FY2016-2019 TIP and the 2040 RTP Regionally Significant Projects list. Project impacts are shown in **Table 12-3**. Total columns show the number of projects in each category; for example, there are four intersection projects which impact at least one resource and 14 projects within Flood Zones. It is important to note projects may be counted in more than one category because they may impact more than one environmental resource. As a result, column totals may be more than the total number of planned projects.

Transportation projects affect each environmental resource differently, depending on the resource's location within the region. The most impacted resource is Energy Production due to the span of the Wattenberg Gas Field across much of Weld County. Wetlands may potentially be affected by 22 proposed projects. Only one Historical and Archeological Site may be impacted by these projects. Three transportation projects will be located atop the Laramie-Fox Hills aquifer (Water Resources), while 14 projects will be located within a 100-year flood zone according to the available Federal Emergency Management Agency (FEMA) data. Four projects will be built within potential Conservation Areas. As each project moves forward, the respective agencies/jurisdictions will need to study individual project impacts on each environmental resource.

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<sup>21</sup> 49 U.S.C. 5303: <http://www.fta.dot.gov/documents/chap53MAP21.pdf>

<sup>22</sup> 40 CFR § 1500.1(b): <http://environment.fhwa.dot.gov/projdev/tdmmitig2.asp>

Table 12-5: Environmental Mitigation Analysis							
Project Type (Total Number of Projects Planned)	Number of Projects Potentially Impacting Resources <sup>23</sup>						
	Historical and Archeological Sites	Flood Zones	Water Resources	Wetlands	Conservation Areas	Energy Production	Total Impacts
Bridge (3)	0	0	0	0	0	2	2
Intersection Improvement (4)	0	0	0	0	1	3	4
Bike/Ped Facility (5)	0	0	0	1	0	1	2
Operational Improvement (6)	0	0	0	2	0	4	6
Pavement (5)	0	3	1	2	0	4	10
Capacity (52)	1	11	2	17	3	23	57
Total	1	14	3	22	4	37	

Figures 12-3 through 12-9 map the transportation projects in relation to the region’s environmental resources. Figures 12-3 through 12-8 show each resource individually. Figure 12-9 shows the number of resources each project may impact, with projects ranging from zero impacted resources to five. It is important to note a project’s inclusion on this list does not guarantee the project will impact a given environmental resource; rather, the project should be aware of its potential impacts and work to mitigate any potential issues.

<sup>23</sup> Projects may be present in more than one column, reflecting the multiple resources the project may impact. Total number of projects affecting resources may be more than actual number of projects.



Figure 12-3: Historic and Archaeological Sites (2040 RTP)

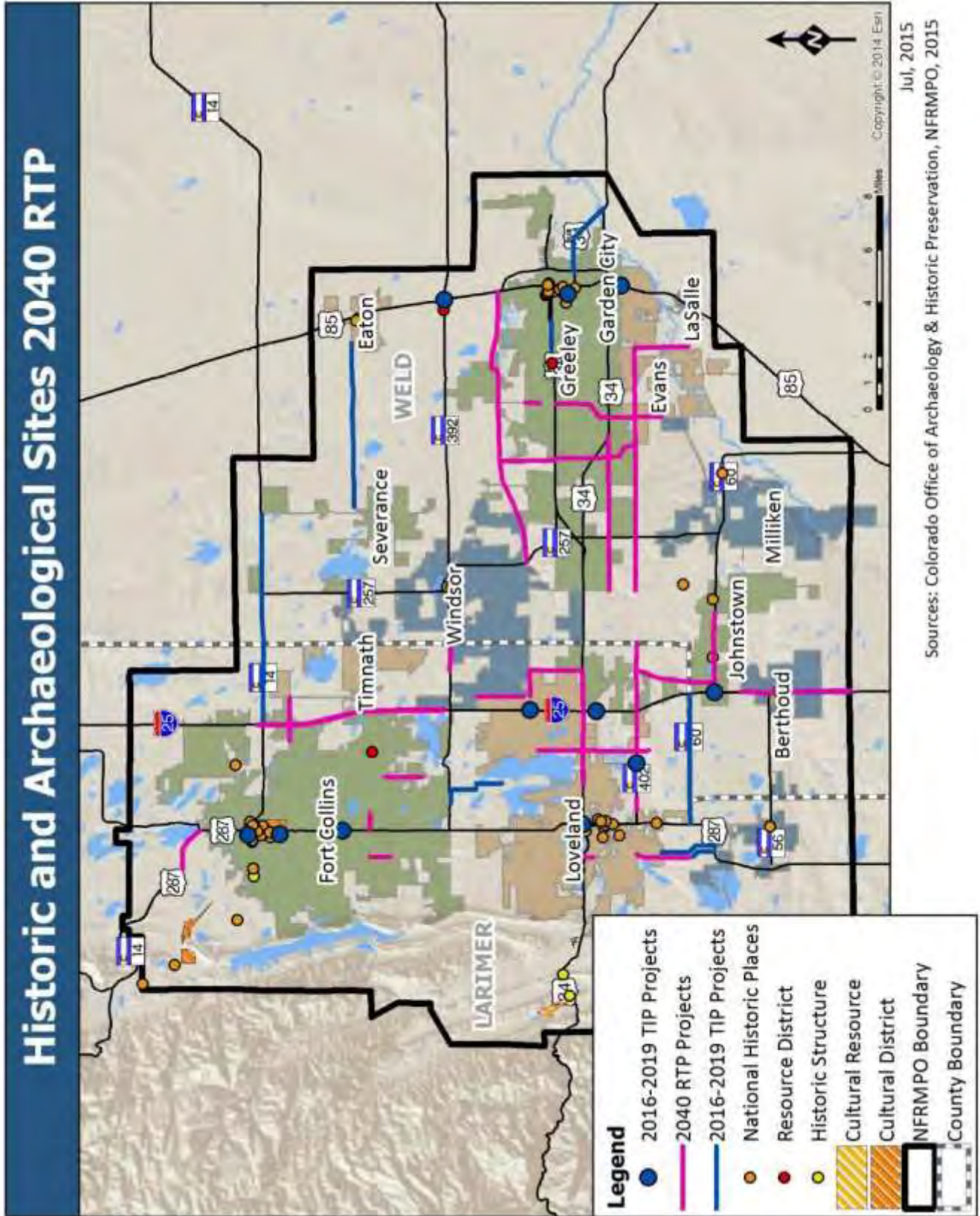
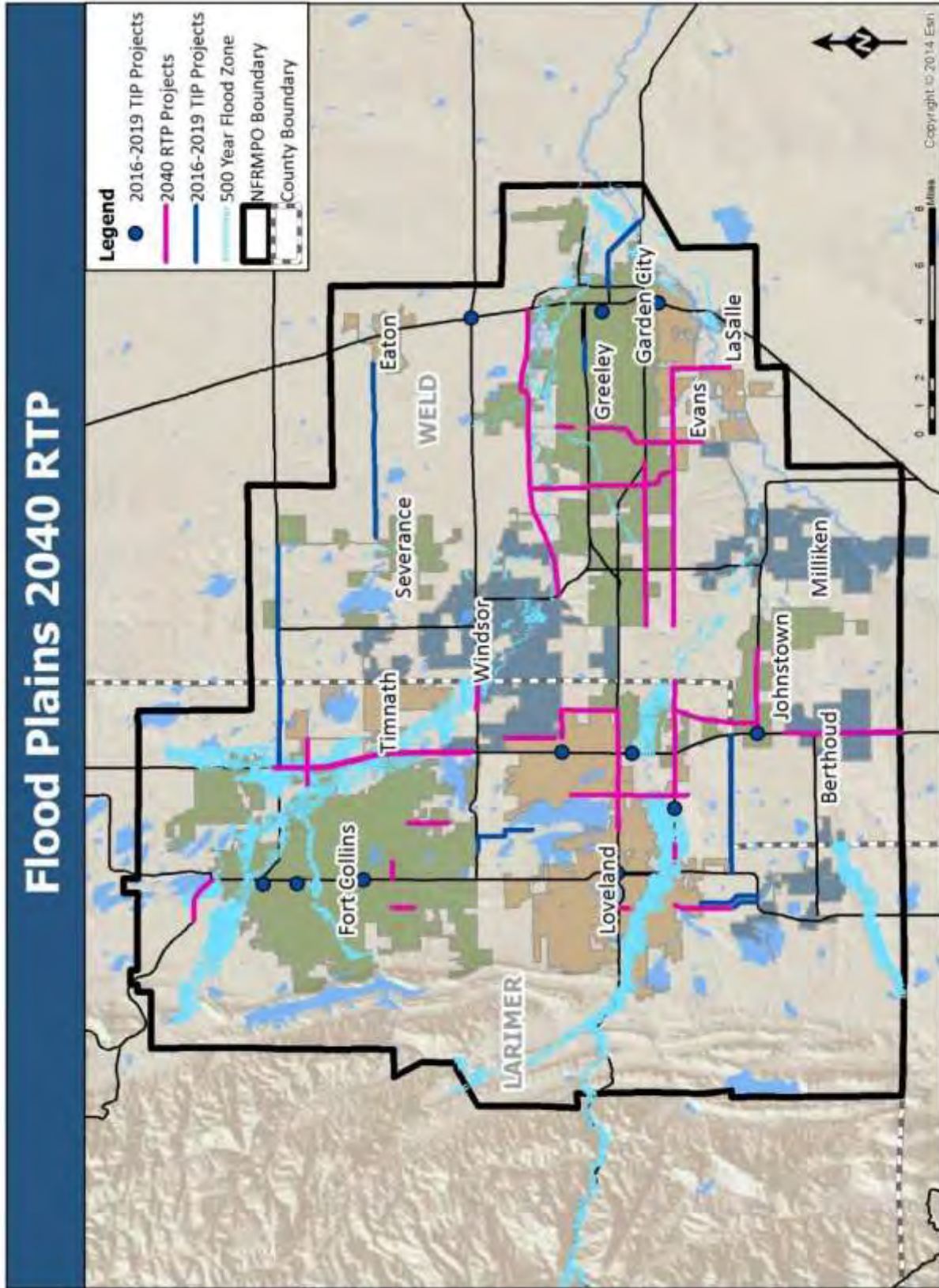




Figure 12-4: Flood Plains (2040 RTP)



Jul, 2015

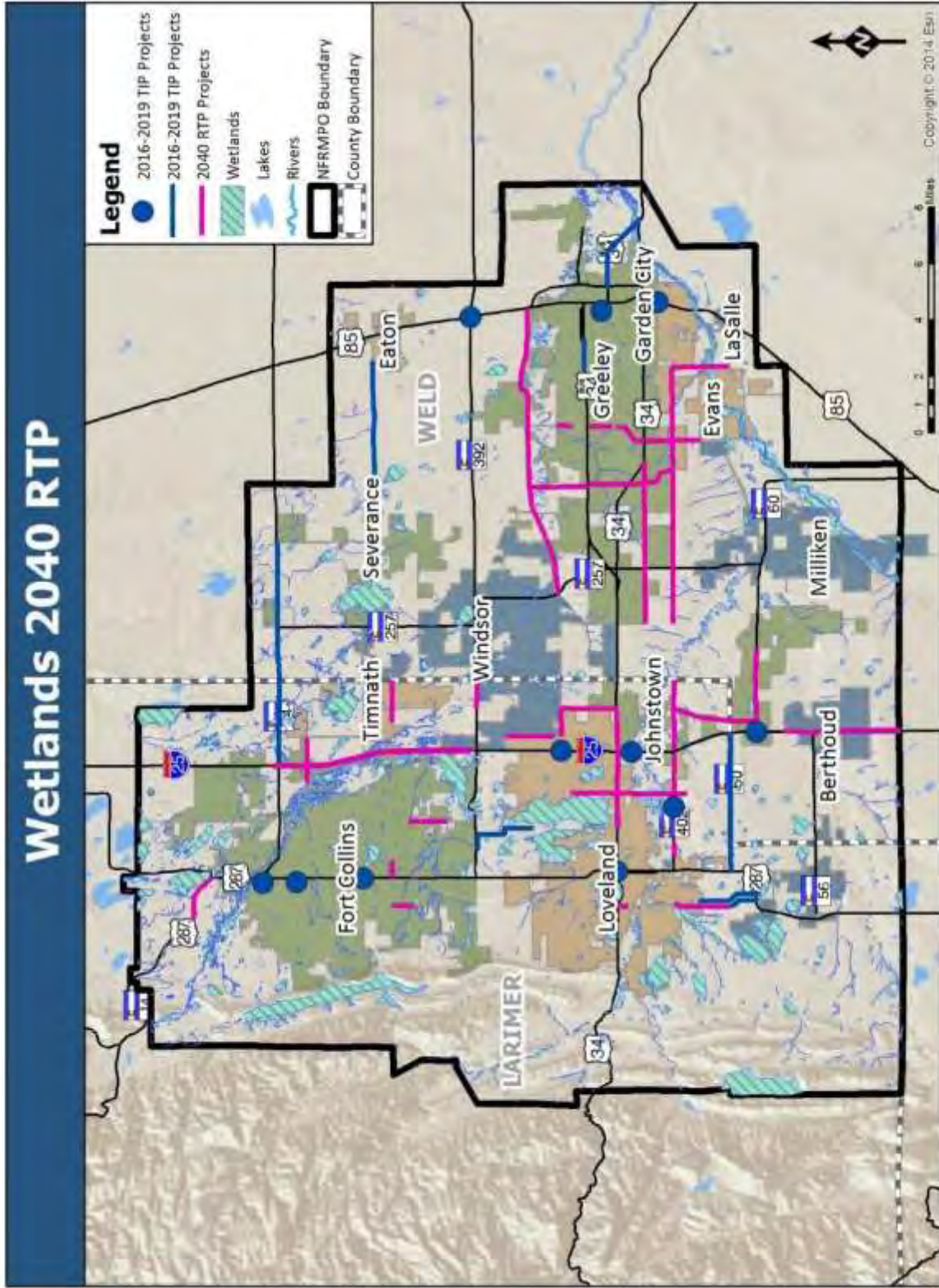
Sources: CDOT, US Forest Service, FEMA 2014







Figure 12-6: Wetlands (2040 RTP)



Jul, 2015

Sources: US Fish and Wildlife Service, 2015



Chapter 12: Implementation  
 Figure 12-7: Conservation Areas (2040 RTP)

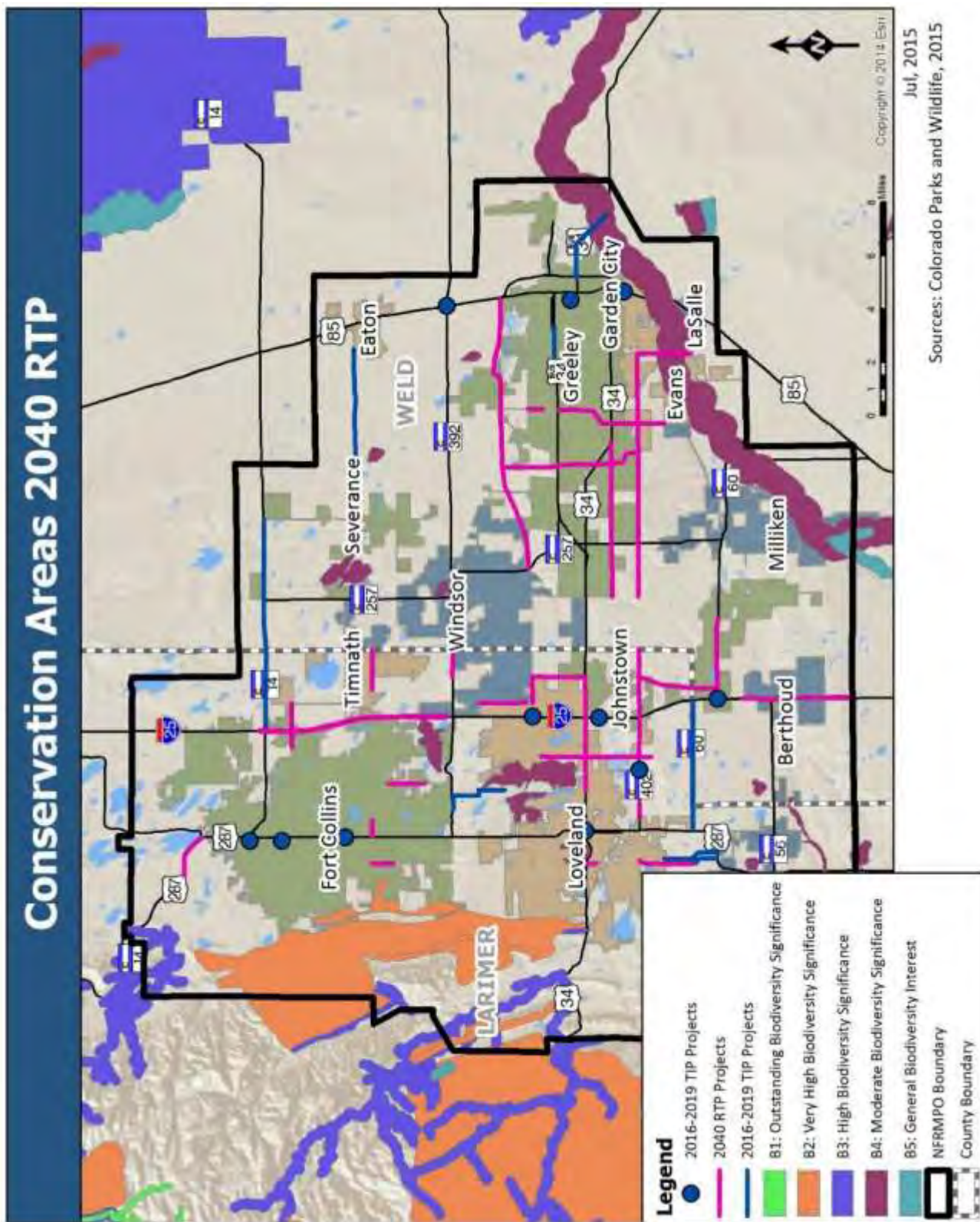
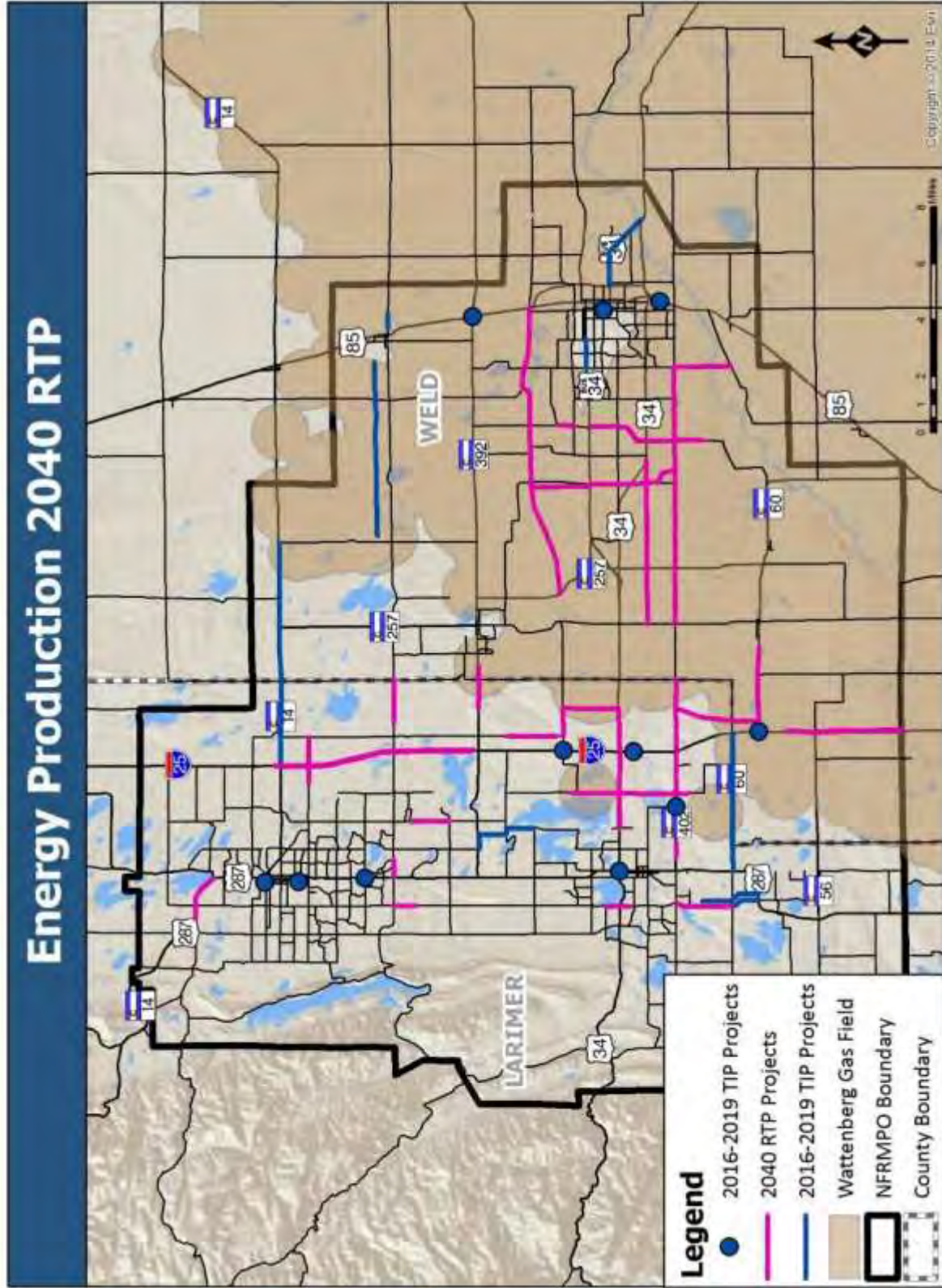




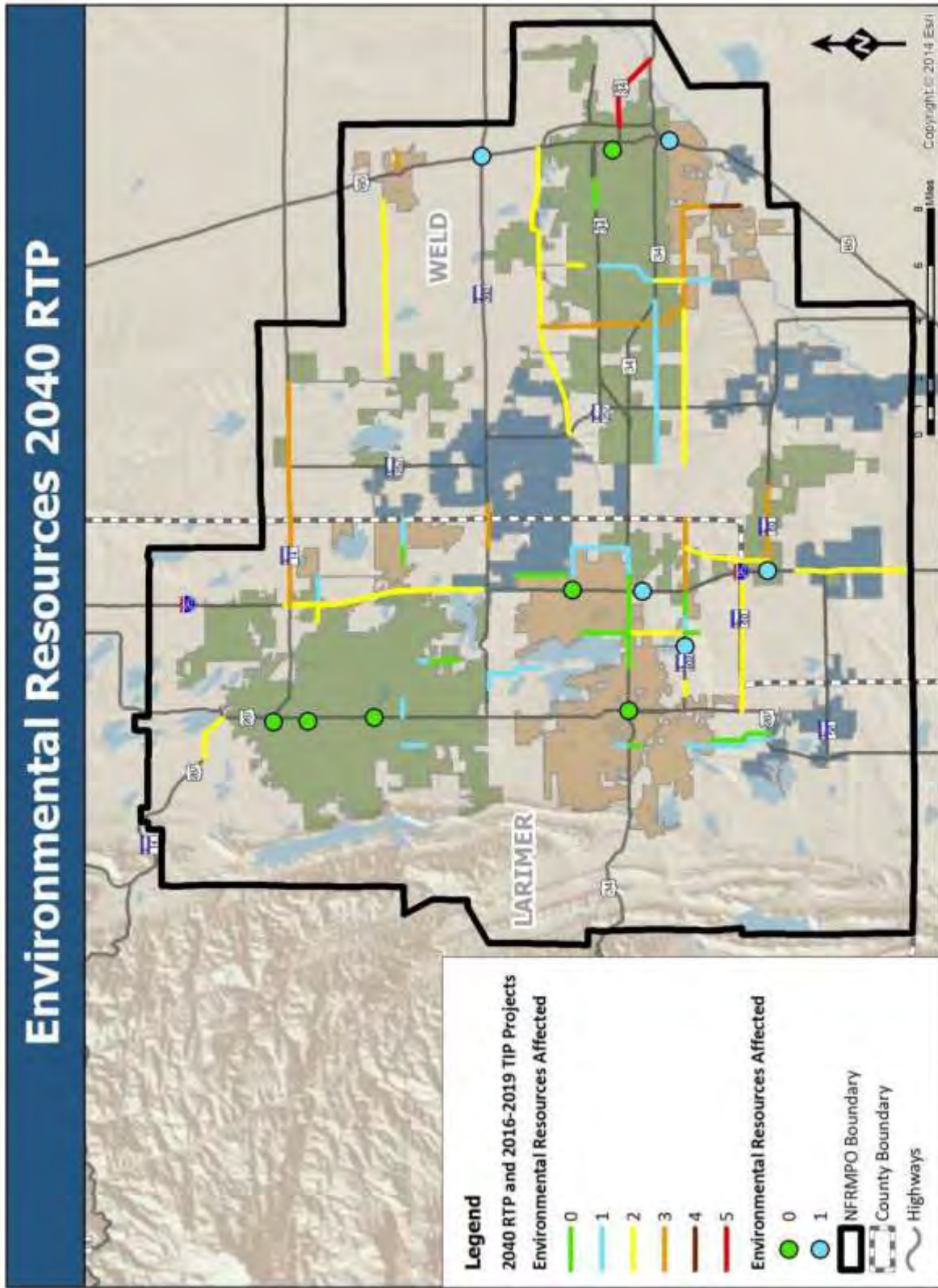
Figure 12-8: Energy Production (2040 RTP)



Jul, 2015  
Sources: Colorado Oil and Gas Conservation Commission, 2015



Figure 12-9: Environmental Resources (2040 RTP)



Aug. 2015  
 Sources: CDOT, US Forest Service, FEMA 2014; Colorado Office of Archaeology & Historic Preservation, Colorado Parks and Wildlife, US Fish and Wildlife Service, NFRMPO, 2015

### E. Environmental Justice Analysis

As explained in **Chapter 3**, Executive Order 12898 requires federal agencies to address adverse human health and environmental impacts or effects of its programs on Environmental Justice (EJ) populations. An EJ analysis is required on all projects included in the 2040 RTP and FY2016-2019 TIP to determine these impacts. Projects within ¼-mile of or adjacent to an EJ population are considered to be EJ. If it does not, the project is considered Non-EJ. The benefits and burdens of each project must be examined on all EJ and Non-EJ projects, and an overall analysis on projects in the RTP determines if it meets EJ requirements. The analysis process follows the three guiding principles outlined in DOT order 5610.2(a) listed in **Chapter 3**.

**Table 12-4** lists the total number of EJ and Non-EJ projects included in the FY2016-2019 TIP. The FY2016-2019 TIP contains a fiscally constrained list of projects covering the first four years of funding in the RTP. **Table 12-5** includes all projects on Regionally Significant Corridors (RSCs) in the North Front Range Region that are modeled for air quality purposes. **Figure 12-10** shows all of the EJ and Non-EJ projects.

An overall EJ analysis of projects included in the FY2016-2019 TIP and RTP shows 49 percent of projects are being completed in EJ areas, while 31 percent of the overall funding is being spent in EJ areas. Non-EJ areas contain 51 percent of projects being completed and 69 percent of overall funding spent. **Table 12-6** includes an EJ analysis of projects by type. EJ areas benefit from the addition of bicycle and pedestrian, operational improvement, intersection improvement, and pavement improvement projects. While 42 percent of capacity projects are being completed in or adjacent to EJ areas, only 28 percent of capacity project funds are being spent on those projects. Capacity projects could present a burden to an EJ area by separating communities and creating an unsafe environment for bicyclists and pedestrians crossing roadways.

Transit projects included in the FY2016-2019 TIP are not included **Figure 12-10**, but project totals are included in the overall EJ analysis. The three major transit operators in the region have received Congestion Mitigation and Air Quality (CMAQ) funds to purchase new alternative fuel buses. Since the three transit operators provide services in EJ areas, all three projects are considered to be a benefit to EJ areas.

Table 12-6: FY2016-2019 TIP EJ Projects (FY2016 \$ shown in thousands)			
Totals	EJ Areas	Non-EJ Areas	Total
Total Number of Projects	17	10	27
	63%	37%	100%
Total Investment Amount	\$34,972	\$13,847	\$48,819
	72%	28%	100%





Table 12-7: 2040 RTP EJ Projects (FY2016 \$ shown in thousands)			
Totals	EJ Areas	Non-EJ Areas	Total
Total Number of Projects	20	29	49
	40%	60%	100%
Total Investment Amount	\$159,022	\$418,077	\$577,099
	20%	80%	100%

Table 12-8: EJ Projects by Type (FY2016 \$ shown in thousands)			
Totals	EJ Areas	Non-EJ Areas	Total
Bike/Ped Facility	3	2	5
	\$1,814	\$1,251	\$3,065
Bridge Work	0	3	3
	\$0	\$2,555	\$2,555
Intersection Improvement	2	2	4
	\$3,283	\$5,000	\$8,283
Operational Improvement	5	1	6
	\$5,468	\$3,316	\$8,784
Capacity Change	21	29	50
	\$160,322	\$418,077	\$578,399
Improve Pavement	3	2	5
	\$14,206	\$1,725	\$15,931
Transit	3	0	3
	\$8,901	\$0	\$8,901
Total	37	39	76
	\$193,994	\$431,924	\$625,918

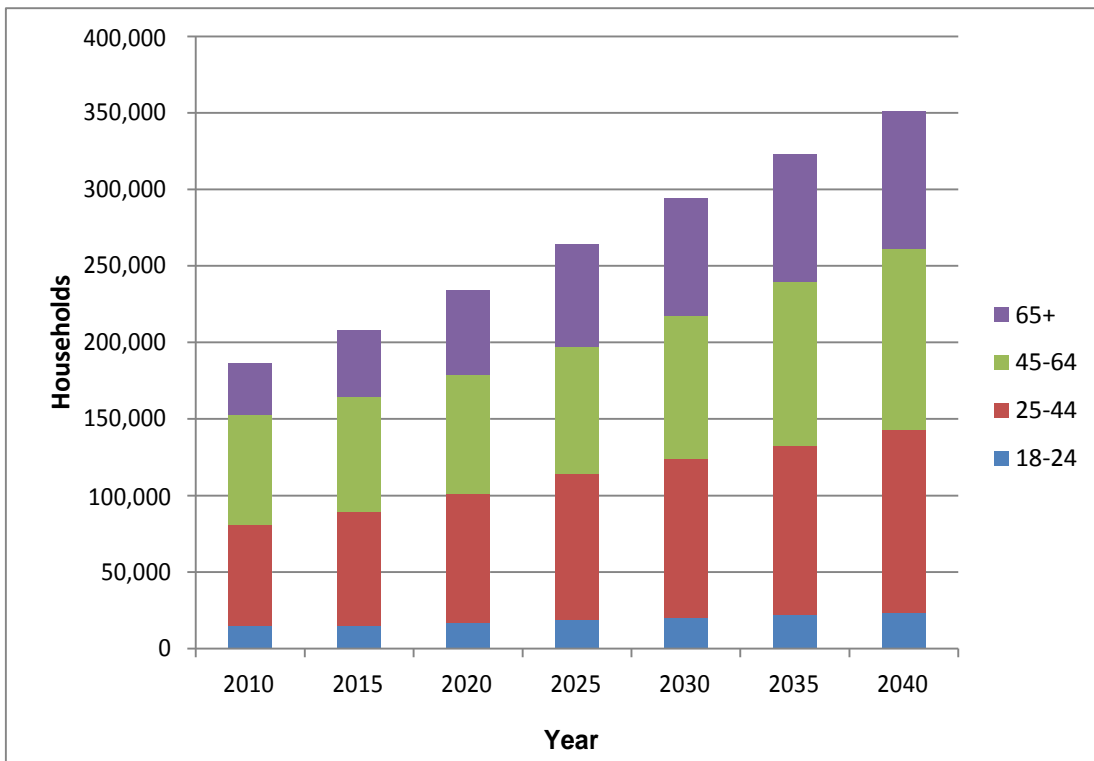


C. Emerging Trends

The North Front Range region has experienced rapid growth in recent years, resulting in an area with a 2012 population of approximately 450,000. This growth is continuing and population projections show by 2040, the North Front Range area population will double. This population growth will place an even greater demand on the movement of people and goods on an already stressed and aging transportation system.

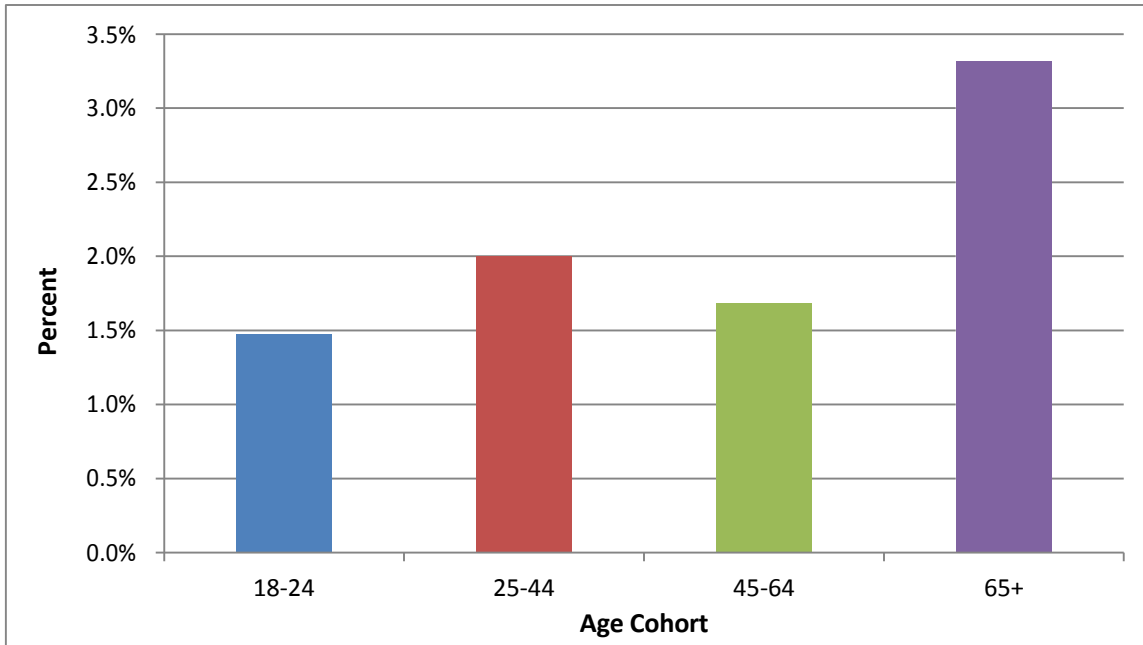
This population growth will occur in all age cohorts; however, households headed by the oldest cohort, those aged 65 years and older, will grow the fastest due to the area’s popularity with retirees. This cohort will grow from 18 percent of the population in 2010, to 26 percent of the population by 2040. This equates to a growth rate of over 166 percent, from 33,000 to over 90,000. Additionally, this cohort will increase more than three percent every year on average through 2040. This is over twice the growth rate for the group with the smallest gains, the 18-24 cohort. The average annual growth rate for all segments is shown in **Figures 12-11 and 12-12**.

**Figure 12-11: Household Growth by Head of Household Age Group, 2010-2040**



*Source: 2040 Economic and Demographic Forecast North Front Range Metropolitan Planning Organization (NFRMPO), 2013*

Figure 12-12: Average Annual Household Growth Rate by Age Group, 2010-2040



Source: 2040 Economic and Demographic Forecast North Front Range Metropolitan Planning Organization (NFRMPO), 2013

Knowing the age group growth projection rates is important to the transportation planning process as it allows time to plan to better meet the specific transportation needs of the age groups. Based on this projection, providing more transportation options for the senior population should be a priority in the region over the next 25 years.

Future transportation trends the region should consider in future planning efforts could include, but are not limited to:

- ▶ Seniors needing transportation to medical appointments, the grocery store, and social events, etc.;
- ▶ A higher number of people commuting via bicycle, transit, or walking versus automobiles;
- ▶ Decreased transportation funding;
- ▶ Higher gas prices; and
- ▶ New and emerging transportation technologies, including self-driving automobiles.

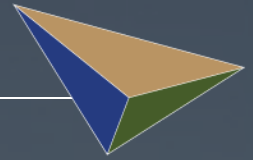
As the region moves toward 2040, these emerging trends will need to be factored into the transportation planning process and into the allocation of transportation funds to those projects providing the greatest benefit to the region’s population.



# Appendix A

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## Public Involvement



# Appendix A: Public Involvement

## A. 2040 RTP Public Involvement Meeting Log

Date	Event	Purpose	Staff Present	Participants	Respondents	Location	Notification
5/27/2014 through 10/9/2014	2014 Congestion Survey	Feedback about congested corridors within the region for use in the 2015 CMP and 2040 RTP	N/A	General public	226	N/A	
12/18/2014	Larimer County Mobility Council	Guidance for outreach events, EJ populations, General feedback	Gordon	LCMC Members	5	NFRMPO Offices	Website, Twitter, Meeting Agenda
1/18/2015 through 9/3/2015	2040 RTP Survey	Obtain feedback about regional transportation issues and how people commute/travel	N/A	General public	362	N/A	Website, Blog, Twitter, VanGo listserv, NFRMPO Newsletter listserv, Planning Council listserv, TAC listserv, Events
1/26/2015	Greeley Citizens Transportation Advisory Board	Gain feedback about transit recommendations, general feedback about transportation issues and concerns	Gordon, Karasko	GCTAB Members, General public	10	Downtown Greeley Recreation Center	Website, Twitter, Meeting Agenda
1/27/2015	Weld County Mobility Council	Guidance for outreach events, EJ populations, general feedback about transportation issues and concerns	Gordon	WCMC Members	10	Greeley History Museum	Website, Twitter, Meeting Agenda
2/2/2015	Loveland Transportation Advisory Board	Discussion of regional transportation issues, general feedback	Horn, Karasko	LTAB Members, General public	8	2525 W 1 <sup>st</sup> Street, Loveland	Website, Twitter, Meeting Agenda
2/9/2015	GET Route Change Open House	Discussion of transit issues in region, general feedback about transportation issues and concerns	Gordon, Johnson, Karasko	General public	15	Downtown Greeley Recreation Center	Website, Twitter

2/10/2015	Loveland Public Library Outreach Event	General feedback about regional transportation issues and concerns	Gordon, Horn, Johnson	General public	5	Loveland Public Library	Website, Twitter
2/12/2015	Transfort South Transit Center Outreach Event	Discussion of transit issues in region, general feedback about transportation issues and concerns	Gordon, Johnson	General public	6	South Transit Center, Fort Collins	Website, Twitter
2/17/2015	Colorado State University Student Union Outreach Event	General student feedback about regional transportation issues and concerns	Buckley, Gordon, Horn	CSU Students	50	Student Union, Colorado State University	Website, Twitter, ASCSU listserv
2/18/2015	Fort Collins Transportation Board	General feedback about regional transportation issues and concerns	Buckley, Johnson, Karasko	FCTB Members, General public	3	215 N Mason St, Fort Collins	Website, Twitter, Meeting Agenda
3/12/2015	US 85 Coalition Meeting	General feedback about regional transportation issues and concerns	Johnson, Karasko	US 85 Coalition Members, General Public	5	Eaton Town Hall	Website, Twitter, Meeting Agenda
3/26/2015	Highway 287 Corridor Coalition	General feedback about regional transportation issues and concerns	Gordon, Karasko	Highway 287 Corridor Coalition	7	Loveland Public Library	Website, Twitter, Meeting Agenda
4/3/2015	Greeley Chamber of Commerce Local Government and Business Affairs Committee (LGBAC) Meeting	General business feedback about regional transportation issues and concerns	Buckley, Gordon	LGBAC Members	6	Greeley Chamber of Commerce Office	Website, Twitter, Meeting Agenda
5/6/2015	Fort Collins Planning, Development, and Transportation Open House	General feedback about regional transportation issues and concerns	Gordon, Johnson, Karasko	General public	5	Everyday Joe's, Fort Collins	Press Release, Website, Twitter, Meeting Agenda
6/6/2015	Johnstown BBQ Day	Feedback about RTE Recommendation, Draft Plan, Regional transportation issues and concerns	Gordon, Johnson	General public	8	Parish Park, Johnstown	Website, Twitter

6/6/2015	Berthoud Day	Feedback about RTE Recommendation, Draft Plan, Regional transportation issues and concerns	Buckley, Horn	General public	15	Berthoud Town Park	Website, Twitter
6/15/2015	Weld County Transportation Summit	Feedback about RTE Recommendation, Draft Plan, Regional transportation issues and concerns	Gordon, Horn, Karasko	Government officials, General Public	3	Island Grove Regional Park, Greeley	NFRMPO Website, Transportation Summit Website, Twitter
7/11/2015	Eaton Days	Feedback about RTE Recommendation, Draft Plan, Regional transportation issues and concerns	Buckley, Johnson	General Public	6	Eaton Town Park, Eaton	NFRMPO Website, Twitter
7/18/2015	LaSalle Day	Feedback about RTE Recommendation, Draft Plan, Regional transportation issues and concerns	Gordon, Horn	General Public	12	Main Park, LaSalle	NFRMPO Website, Twitter
8/8/2015	Beef N Bean Day	Feedback about RTE Recommendation, Draft Plan, Regional transportation issues and concerns	Buckley, Gordon	General Public	15	Lola Park, Milliken	NFRMPO Website, Twitter
8/8/2015	Community Safety Day	Feedback about RTE Recommendation, Draft Plan, Regional transportation issues and concerns	Horn, Johnson	General Public	9	Sam's Club Parking Lot, Evans	NFRMPO Website, Twitter
8/15/2015	Severance Day	Feedback about RTE Recommendation, Draft Plan, Regional transportation issues and concerns	Buckley, Karasko	General Public	3	Lakeview Park, Severance	NFRMPO Website, Twitter
8/21-8/22/2015	Old Fashion Corn Roast Festival	Feedback about RTE Recommendation, Draft Plan, Regional transportation issues and concerns	Gordon, Karasko	General Public	65	Downtown Loveland	NFRMPO Website, Twitter

## B. Summary of Public Input

### Outreach Events

NFRMPO staff attended events throughout the 2040 RTP outreach phase. Staff recorded notes from these events and have summarized them by theme in **Table A-1**. The themes include: bicycle and pedestrian; roads; transit; and other. Surveys were provided at these events and are summarized in the *2015 Survey* section of this **Appendix**.



Table A-0-1: Public Outreach Themes	
Theme	Comments
Bicycle and Pedestrian	<ul style="list-style-type: none"> <li>• Provide regional bicycle trail connections between cities</li> <li>• Create bicycle facilities along Mulberry Street</li> </ul>
Roads	<ul style="list-style-type: none"> <li>• Fix and expand US 34 through Loveland</li> <li>• Expand I-25 between Fort Collins and Longmont</li> <li>• Fix congestion on College Avenue during afternoon commute</li> </ul>
Transit	<ul style="list-style-type: none"> <li>• Provide east-west transit connection between Greeley and Loveland</li> <li>• Provide transit connection between Greeley and Fort Collins</li> <li>• Provide connection points for COLT, GET, and Transfort</li> <li>• Educate public about innovative transportation funding, tools, facilities, and technologies</li> <li>• Research why transit initiatives like 34 Xpress and the Regional Transportation Authority failed in the past</li> <li>• Provide a transit connections to Denver and Denver International Airport</li> <li>• Connect Windsor and Timnath to COLT and Transfort</li> <li>• Provide a connection from Laporte and Wellington to Fort Collins</li> <li>• Extend service hours and, frequency on FLEX</li> <li>• Encourage COLT, GET, and Transfort to introduce a regional transit pass</li> <li>• Expand service hours and frequency to college campuses</li> </ul>
Other	<ul style="list-style-type: none"> <li>• Ensure the transportation system is equitable and affordable for aging and low income populations</li> </ul>

## Survey Results

### 2014 Congestion Survey

The 2014 Congestion Survey was created for the 2014 CMP Annual Report and asked participants to describe the causes, effects, and implications of congestion in the region. Major survey themes are summarized in **Table A-2**.

**Table A-0-2: 2014 Survey Themes**

Theme	Comments
Alternatives	<ul style="list-style-type: none"> <li>• Provide public transit alternatives to driving on I-25</li> <li>• Complete the bicycle trail between Timnath and Fort Collins</li> <li>• Provide a rail passenger corridor linking the communities of the Front Range</li> <li>• Encourage businesses to provide flexible work schedules to spread out traffic</li> <li>• Encourage use of public transit, carpooling/sharing, bicycle and pedestrian facilities</li> </ul>
Coordination	<ul style="list-style-type: none"> <li>• Coordinate construction projects to provide additional alternative routes</li> <li>• Coordinate traffic signals to allow efficient movement of cars, including longer left turn signals</li> <li>• Coordinate street crossings with MAX, freight railroads, trails, and cars</li> </ul>
Safety, Education, & Enforcement	<ul style="list-style-type: none"> <li>• Reduce tailgating and distracted driving</li> <li>• Enforce cell phone restrictions while driving to ensure drivers are attentive to the road</li> <li>• Enforce speed limits</li> <li>• Ensure drivers drive in right lane on I-25 and merge safely</li> <li>• Educate drivers to stay in proper lane when turning</li> </ul>
Roads	<ul style="list-style-type: none"> <li>• Expand I-25 to three lanes in each direction between Longmont and the Colorado/Wyoming border</li> <li>• Expand US 34 to three lanes in each direction through Loveland</li> <li>• Provide additional east-west route between Loveland and Greeley</li> <li>• Provide alternate route between Fort Collins and southeast Larimer County</li> <li>• Connect Kechter Road in Fort Collins to River Pass Road in Timnath</li> <li>• Widen Harmony Road east of I-25</li> <li>• Build railroad overpasses at Harmony Road and Mason Street; Horsetooth Road and Mason Street; Mason Street and Drake Road; Mason Street and Prospect Road</li> <li>• Enhance ITS systems by alerting drivers to accidents and delays before they enter I-25</li> <li>• Limit truck traffic on Berthoud Hill due to slower speeds, dangerous passing</li> </ul>
Other	<ul style="list-style-type: none"> <li>• Prioritize projects to ensure projects with highest need are handled first</li> <li>• Move Port of Entry away from Exit 268 (Prospect Road)</li> <li>• Work with freight railroads to encourage freight movement outside of commuting hours</li> <li>• Work with State and federal governments to increase transportation funding, and keep it in line with growth and inflation</li> <li>• Use Bluetooth and location data from smartphones to analyze traffic patterns and optimize traffic signals</li> </ul>

### *2040 Regional Transportation Plan Survey*

The 2040 Regional Transportation Plan Survey was created in 2015 to gather feedback about transportation issues, concerns, and habits of residents in the region. The feedback helped to guide the creation of the 2040 Regional Transportation Plan and the 2040 Regional Transit Element. Major themes are summarized in **Table A-3**.

**Table A-0-3: 2015 Survey Themes**

Theme	Comments
Bicycle and pedestrian	<ul style="list-style-type: none"> <li>• Add trail connections between Fort Collins and Loveland</li> <li>• Improve bicycle trails outside of cities</li> <li>• Build safe crossing for Poudre River Trail across I-25 to Fort Collins</li> <li>• Expand bicycle trail to Southeast Fort Collins</li> <li>• Increase bicycle parking</li> <li>• Ensure sidewalks are ADA-accessible</li> <li>• Create a dedicated bicycle trail along US 85</li> <li>• Create a bicycle trail from Berthoud to Fort Collins</li> </ul>
Highways	<ul style="list-style-type: none"> <li>• Expand capacity on I-25 from SH 66 to SH 14</li> <li>• Expand capacity on US 34</li> <li>• Improve US 287 through the region, including surface treatment</li> <li>• Expand SH 402</li> <li>• Create a diagonal connection between northwest Greeley and Fort Collins</li> <li>• Signal improvement at County Route 17 and US 34</li> <li>• Signal improvement along 10<sup>th</sup> Avenue in Greeley</li> </ul>
Local roads	<ul style="list-style-type: none"> <li>• Build roundabout at Canyon Avenue &amp; Magnolia Street</li> <li>• Improve intersections at College Avenue and Trilby Road; Timberline Road and Horsetooth Road; and the Harmony Road Corridor</li> <li>• Improve intersection at Taft Avenue and 43<sup>rd</sup> Street</li> </ul>
Transit	<ul style="list-style-type: none"> <li>• Provide transit connection on US 34 between Greeley and Loveland</li> <li>• Provide additional transit along US 287</li> <li>• Provide transit connection to Denver, Denver International Airport, and metro Park-n-Rides</li> <li>• Provide longer service hours in Fort Collins, including Sundays and late nights</li> <li>• Build light rail between Fort Collins, Greeley, and Loveland</li> <li>• Provide transit connections between Evans, Greeley, and Windsor</li> <li>• Provide quicker local bus routes within cities</li> <li>• Provide connections to Wellington and Laporte</li> <li>• Expand MAX routes to other important corridors, including to Loveland</li> <li>• Provide bus route to southeast Fort Collins</li> <li>• Enable regional cohesion between municipal transportation hubs</li> <li>• Create a bus route from Eaton to downtown Greeley</li> <li>• Expand service on US 287 south of Harmony Road to ensure connections to senior and social services along corridor</li> <li>• Provide a transit connection between Fort Collins and Windsor</li> <li>• Provide rail transit between Fort Collins and Cheyenne, WY</li> <li>• Improve lighting at bus stops</li> </ul>
Other	<ul style="list-style-type: none"> <li>• Build cities at human scale, not for cars</li> <li>• Convert Old Town Fort Collins to a car-free zone</li> <li>• Expand MPO to include Estes Park</li> <li>• Decrease number of at-grade railroad crossings throughout region</li> </ul>



## C. Public Meeting Notes

Below are the notes taken by staff at the public outreach events. These are comments received in addition to the *2040 Regional Transportation Plan* survey responses.

### Greeley Citizen Transportation Advisory Board

**Date:** January 26, 2015

**Time:** 3:00 p.m. – 4:30 p.m.

**Location:** City of Greeley Recreation Center, 651 10th Avenue, Greeley, CO 80631

- What is the projected ridership for Bustang? (total and per route) Number of trips per day?
- Looking at the next 25 years, buses getting people from Greeley around the region is not enough. To get people out of their cars, you need to make it fast and worth people getting out of their cars. Light rail, monorail, lots of new technologies out there. Need to be a leader, not a follower. A bus by 2040 is not enough; want to see a bus by next year. Need to look at new technologies. Great resources within the State the MPO can use.
- Need to keep the public educated, encourage the MPO to look online for great speakers to discuss new technologies (light rail). Have speakers come in to prepare the public to ask for something more than a bus. Maybe they do not know to ask for more than a bus. Have citizens think outside of the box.
  - Rail is very expensive; many communities are turning to BRT with a dedicated lane to speed up travel time. Using BRT to lay the groundwork to bridge to light rail (i.e. US 36).
  - There is so much more out there than light rail, many new technologies. Have people who know about these new technologies come out and present to the public to educate people. There are things that are less expensive than light rail out there. Want to keep people from thinking the plan is static and to think about possibilities beyond what we know and are familiar with in the State of Colorado.
  - Zappos does a speaker series about urban issues and is currently revitalizing downtown Las Vegas. This is something we could bring to the region.
- Another important thing to bring up is things that have not worked in the past (like the US 34 Xpress) and identifying why it didn't work in the first place. Bring to the public's attention why it did not work, but why it will work this time.
- Will the draft chapters/plan be put on the website for public comment?
- Are you considering affordability? So far east, we have a huge population that simply cannot afford transit let alone rail or their own vehicles. Have no way to get to places they need to go (hospitals, medical appointments, etc.).

### **Loveland Transportation Advisory Board**

**Date:** February 2, 2015

**Time:** 4:00 p.m. – 6:00 p.m.

**Location:** 2525 W First Street, Loveland, CO

- Survey data can be skewed because of participants chosen in a certain area instead of depicting an accurate picture of reality. What are the demographics for your survey? How are you trying to reach people?
- When is the plan scheduled to be finished? When will the survey close?
- A great example of an event to go to is the Sustainable Living event. There will be a wide range of people at this event.
- People are always against rail. A resident in Denver did not want the train because it was not going to his home.

### **Greeley-Evans Transit Open House**

**Date:** February 9, 2015

**Time:** 1:00 p.m. – 4:00 p.m.

**Location:** City of Greeley Recreation Center, 651 10th Avenue, Greeley, CO 80631

- Create a Regional Transit Agency that allows transfers and a regional transit fare.
- Reinstate the 34 Xpress for access between Loveland and Greeley.
- Improve transit/transportation on east side of I-25.
- Create a guest speaker series to educate the public about transportation technology, issues, etc.
- Update the US 85 Commuter Bus plan to a commuter rail line.
- Change RTE Corridor 3 to run from Downtown Fort Collins Transit Center, down College/287, to Harmony, across to 257 and on to Greeley.
- There are no east-west transit connections between Greeley/Evans and Fort Collins/Loveland.
  - There is a need to bring back 34 Express. The route should run from the Greeley Transit Center to Orchards Shopping Center in Loveland.
  - There is a need for improved connections to medical campuses and more accessible shopping areas.
- Create a transit hub at Centerra to connect the three local transit agencies.
- Extend I-25 Bustang to Greeley.
- Insurance, gas, and car payments make it hard to own a car in this region.
- The region has a good bicycle route network, but there should be more connections throughout the region.

**Loveland Public Library**

**Date:** February 10, 2015

**Time:** 10:00 a.m. – 12:00 p.m.

**Location:** Loveland Public Library, 300 North Adams Avenue, Loveland, CO

- There is a need to provide a bus to Denver.
- There is a need to provide better transit to connect to DIA directly to this region. It is inconvenient to connect at Union Station.
- We need commuter rail to Denver.
- Fix US 34.

**Transfort South Transit Center**

**Date:** February 12, 2015

**Time:** 3:00 p.m. – 5:00 p.m.

**Location:** South Transit Center, 4915 Fossil Blvd, Fort Collins, CO 80525

- Provide a transit connection on Taft Avenue in Loveland.
- Transportation connections in Windsor and Timnath (COLT/Transfort transfers).
- Work with local businesses like Costco and Walmart.
- East/West connection between Loveland and Greeley.
- I-25 – worst spots are between Fort Collins and Longmont, 144<sup>th</sup> to Denver.
- Trucks – education and enforcement about the rules of the road.
- Fort Collins Airport extension for routes.
- Extend Corridor #6 along SH392, Fort Collins to Windsor.
- Connect to Laporte and Wellington.
- I approve of the commuter rail.
- Provide more service on FLEX.

**Colorado State University**

**Date:** February 17, 2015

**Time:** 12:30 p.m. – 2:30 p.m.

**Location:** Colorado State University, Lory Student Center, Fort Collins, CO 80523

- Provide additional parking on campus for CSU students.
- Hourly transit service can lead to congested buses during inclement weather, after classes end.
- Ensure transit service is in line with class schedules, including running after night classes end.
- Provide frequent transit service to dorms and student apartments.
- Buses on Routes 31 and 32 can bunch – stagger the buses to create even and consistent service.
- The routes serving CSU follow circuitous routes.
- Provide additional transit routes between North Front Range and Denver, including Bustang and commuter rail service.
- Improve the intersection of College and Harmony.
- Create a bicycle trail or path along the Mulberry corridor.
- It is hard to get around the region without a car.
- Provide efficient signal timing at the Plum St & Shield St intersection.
- Provide east-west transit connections between Fort Collins and Greeley.
- Provide a shuttle to ski resorts.
- Provide transit connections to Wellington and Laporte.
- Work with railroad companies to reduce delays at at-grade crossings.

**Fort Collins Transportation Board**

**Date:** February 18, 2015

**Time:** 6:00 p.m. – 9:00 p.m.

**Location:** 215 N Mason St, Fort Collins

- *Number of trips per day?*
- What are you expecting from the Board today?
- What do you plan to do with this plan?



**US 85 Coalition**

**Date:** March 12, 2015

**Time:** 6:30 p.m. – 8:30 p.m.

**Location:** Eaton Town Hall, Eaton

- What is the role of the MPO in transportation?
- What is the timeline for this plan?

**US 287 Corridor Coalition**

**Date:** March 26, 2015

**Time:** 2:30 p.m. – 4:00 p.m.

**Location:** Loveland Public Library, Loveland

- You should show the expansion of the FLEX route to Boulder on the RTE map.
- Recommend expanded and enhanced service on US 287, including FLEX and MAX.

**Greeley Chamber of Commerce Local Government and Business Affairs Committee Meeting**

**Date:** April 3, 2015

**Time:** 7:30 a.m. – 9:00 a.m.

**Location:** Greeley Chamber of Commerce, Greeley

- What is the role of the MPO? Where does it get its authority?
- How does MPO funding work? How can Greeley get money to complete more transportation projects?
- Can the MPO work with the railroads to reduce traffic delays at at-grade crossings?

**Fort Collins Planning, Development, and Transportation Open House**

**Date:** May 6, 2015

**Time:** 5:00 p.m. – 7:00 p.m.

**Location:** Everyday Joe's, Fort Collins

- The MPO should work with the Poudre School District as they build new schools.

### **Johnstown BBQ Day**

**Date:** June 6, 2015

**Time:** 10:00 a.m. – 4:00 p.m.

**Location:** Parish Park, Johnstown

- Provide education for bicyclists and cars about the rules of the road.
- Clean bike lanes of debris for safer bicycle corridors.
- Preference for biking on roads for speed rather than trails.
- Partner with Strava or other apps to allow data sharing to see where people are bicycling to prioritize routes and improvements.
- Trails are good for running.
- Need to provide a transit connection between Milliken and Greeley to connect medical trips and the elderly.
- Congestion on I-25 and US-34 varies between AM and PM peak hours – there is a big difference between morning and night.
- Provide transit connections to Berthoud.
- Improve I-25 using transit.
- Provide a train to Denver.
- Provide bicycle facilities outside of just roads because they are a hazard for bicyclists.
- Provide safety and education for bicyclists and drivers.
- Elderly population does not want to drive everywhere.
- Connect Johnstown to transit through all areas.
- Reduce congestion.
- Expand I-25.
- Provide a transit link between Johnstown to CSU.

### **Berthoud Day**

**Date:** June 6, 2015

**Time:** 12:00 p.m. – 5:00 p.m.

**Location:** Town Park, Berthoud

- What does the MPO do? What is its role in the community?
- What projects are being funded in the TIP?
- The MPO should study and invest in more east-west transit routes.
- More bus stops for the FLEX service should be provided in Berthoud.

### **Weld County Transportation Summit**

**Date:** June 15, 2015

**Time:** 7:30 a.m. – 2:00 p.m.

**Location:** Island Grove Regional Park, Greeley

- Traffic on SH 402 is unbearable. It is difficult to get in and out of our subdivision.
- Need to provide better access for elderly populations to medical, shopping, groceries, etc.

### **Eaton Days**

**Date:** July 11, 2015

**Time:** 10:00 a.m. – 3:00 p.m.

**Location:** Town Hall, Eaton

- Bicycle paths should not take priority over highways. There is limited funding and it should be put toward roads.
- I-25 needs to expand to 8 lanes.
- Bicycle pedestrian connections for US-85.
- Provide bicycle paths and crossings on US-85.

### **LaSalle Day**

**Date:** July 18, 2015

**Time:** 11 a.m. – 3:00 p.m.

**Location:** Main Park, LaSalle

- “No complaints in Garden City!”
- WCR 394 needs repair and in-town maintenance. There is a lot of traffic.
- US 34 and US 85 need six lanes of traffic.
- There should be bus service connecting US 85 to Denver.
- WCR 394 needs maintenance. There are infrastructure problems because communities keep annexing land but cannot maintain existing roads.
- Is there any more information about the shuttle to Red Rocks? There should be a shuttle to connect to entertainment districts.
- There should be later transit service on weekends and on Sunday. I run a shuttle on Sundays because there are people who cannot attend church without bus service.
- LaSalle is in need of additional sidewalks.

- There should be commuter transit in LaSalle to Greeley and Evans.
- We should be aware that expansion can happen in the Plains where there is open space to build. Communities along US 85 such as Eaton have a lot of space to grow.
- There should be a LaSalle to Greeley bus route.
- There should be bicycle and pedestrian connections in small communities for safety and commuting. Specifically, we should look at Kersey, LaSalle, Johnstown, and Milliken.

**Beef N Bean Day**

**Date:** August 8, 2015

**Time:** 11:00 a.m. – 3:00 p.m.

**Location:** Lola Park, Milliken

- I-25 between SH 66 and Fort Collins forces me to use backroads to get around. I feel unsafe at all times.
- US 34 between Loveland and Greeley needs to be improved. Traffic depends on time of day.
- US 34 has too many traffic signals.
- I-25 and Crossroads Boulevard needs to be improved. It was hard to leave after the Larimer County Fair last week.
- SH 402 can get very congested because there are only two lanes.
- I avoid all roundabouts along US 34, especially at Boise, Madison, and Medical Center of the Rockies.
- I-25 needs additional capacity and funding, especially between Mead and Fort Collins. It is especially bad around US 34 and Windsor.
- There should be more north/south arterials, like Colorado Boulevard. They can be used as alternatives for I-25.
- There should be more respect for farmers and farms in Weld County. People speed off the Interstate and compete with tractors.
- There should be additional recreational trails between Johnstown and Milliken. There aren't any currently.
- There should be rail transit along the I-25 corridor and a Bustang stop for Johnstown.
- I use backroads to avoid I-25. I cannot guarantee consistent timing otherwise.
- Pave WCR 46 to CR19.
- There is a lot of traffic out of Johnstown.
- Do not invest in anything else. We do not have enough money to take care of what we have now.



### **Community Safety & Awareness Fair**

**Date:** August 8, 2015

**Time:** 9:00 a.m. – 2:00 p.m.

**Location:** Sam's Club Parking Lot, Evans

- I-25 third lane needs to be built and not be a toll lane.
- Ault and Eaton should be connected by transit.
- Evans to LaSalle: bike route because you can't use the sidewalk.
- I like the regional connections.
- There is a lack of communication for transit resources in the area. School facilities need to know there is a connection.
- Wider Bike Lane on 65<sup>th</sup> Avenue is good because a middle school might be going in there.
- Hill-n-Park transportation needed.
- There should be light rail to Loveland.
- US 85 should have transit to Denver – as far as Brighton.
- I bike because of the congestion.

### **Severance Days**

**Date:** July 11, 2015

**Time:** 11 a.m. – 3:00 p.m.

**Location:** Lakeview Park, Severance

- I-25 is too congested.

### **Old-Fashioned Corn Roast Festival**

**Date:** August 22, 2015

**Time:** 8:00 a.m. – 6:00 p.m.

**Location:** Railroad Avenue, Loveland

- Railroad crossings are an issue in Fort Collins.
- My husband's car has been hit so many times on US 85, he installed a dash cam on his car.
- Accident near intersection of US 85 and US 85 Business north of Greeley – unsafe section of road.
- There should be more frequent COLT routes. I want Dial-a-Ride service that will take you to multiple places on the same trip. I still have a car but need somebody else to drive me.
- I-25 should be a six lane highway. I don't support toll lanes. Freeways should stay free.

- There are no alternatives to driving to Denver.
- There is too much time wasted on planning and not enough time on implementing.
- There should be a Loveland to Fort Collins express bus.
- More Bike to Work days may lead to less traffic and congestion in Loveland.
- There should be a Loveland to Fort Collins bike route.
- We live at LCR 16 and LCR 9 and do not support the Boyd Lake Avenue extension. It would cut through farmland and agriculturally preserved land.
- I-25 should be widened to three lanes. Money should be diverted from parks to pay for this. There should be rail parallel to I-25 and it should happen before 2075. Transportation here is not as bad as it is in Northern Virginia.
- There should be more money for transit in Loveland. There should be a FLEX-style transit route for US 85 from Greeley.
- I support railroads and the planned route but the route should be flexible.
- Good job to have the FLEX extension to Boulder from Fort Collins. Commuter rail is also a good idea.
- US 85 is a parking lot.
- The region should look at US 287 because it is super busy.
- Are there any extensions planned for MAX?
- It is unsafe to be a pedestrian on Eisenhower. People drive in the bike lane on Timberline. There should be more red light cameras. There should be a specific license for people depending on the cars they drive. I am willing to pay more for my pick-up truck because it weighs more.
- I am interested in Commuter Rail from Fort Collins to Denver. I am interested in transit in the region.
- Signal timing should be changed to allow more time for left turns in Fort Collins.
- I support transit in the region. Young kids aren't driving as much but can't afford to live in Fort Collins. I want to spend more time in Fort Collins but can't enjoy myself as much because I have to drive home. I would enjoy a commuter rail to Denver to see shows at the Pepsi Center. Transit should connect cities in Northern Colorado so create a regional cohesion. I can't always get to appointments because there is not enough transit.
- I don't take transit because there are no stops nearby. Is there no bus from Greeley to Loveland anymore?
- There should be a public vote on projects because this is a democracy.
- There should be North/South and East/West bike-only routes in Fort Collins.
- There is no bike path to Mountain View High School or Centerra. The bike lane on Boyd Lake Avenue should be extended. The Windsor exit is bad on I-25. Fort Collins should be connected to Loveland by bike route.
- There should be transit from Eaton to both Fort Collins and Greeley. US 85 is a big route for freight so transit should be used to offset some of the trucks.
- There should be more bike trails to connect towns and cities within Larimer County. You should deal with the traffic in the region.
- I have to drive a car alone but I-25 is horrid. I support commuter rail to Denver but this needs to happen before 2075.
- Front Range trail is a priority for US 287. Commuter rail needs to happen.

- Roads should consider all users. I grew up in the Netherlands, where roads are built with bike paths. They do not need to be retrofitted.
- US 287 is super congested.
- Build intercity rail from Cheyenne to Albuquerque/New Mexico.
- Congestion on I-25 is creeping past Wellington. There are a lot of fatalities along I-25 and it seems worse than usual.
- I would ride transit if it ran more places. I could ride it to the grocery store when time isn't an issue.
- US 34 between Loveland and Johnstown has gotten very congested.
- I-25 should be expanded. Toll lanes should be considered. I used VanGo for 18 years.
- There should be High Occupancy Vehicle (HOV) and Electric Vehicle Lanes on I-25.
- Bustang should run on the weekends.
- I support the FLEX extension to Boulder.
- There should be commuter rail to Denver. I-25 should be expanded.
- US 85 has issues.
- I will not use I-25. I use local roads instead.
- When will the 3<sup>rd</sup> lane on I-25 be added? Traffic is horrible. I don't even go to Denver anymore because it's so bad.
- Shared Right of Way with freight rail for a starter transit service would be a service I would use.
- County Road 27 needs a bike trail because it leads right to Bobcat Ridge and an elementary school. There are tons of bikers along that road. It's only a matter of time before something happens. Blind curves are dangerous for bicyclists. People slow down at curve but it is still 45 MPH.
- 7<sup>th</sup> Street and Garfield roundabout is dangerous. Slows traffic but it is hard to see. Tourists get lost at Madison and Eisenhower.
- Martin Marietta's new plant will cause truck and traffic gridlock. It will be a mess. The McWhinney property that will be developed into a truck transfer/transportation station/facility will make the traffic even worse. The proposed stop light at 13<sup>th</sup> Street and US 34 and the acceleration lane over the Great Western Railroad will not help.
- There should be trail connections between Fort Collins and Loveland.
- MAX hours should be extended.
- Get more people to work from home.
- US 34 has gotten very bad near Centerra. People misuse left turn lane at Centerra. People slow to 30-35 when going west on US 34.
- Arrivals and departures should be synchronized between FLEX, COLT, Transfort and RTD.
- Some trails do not allow dogs and this is unfair.
- Bustang is a good thing. There should be commuter rail to Denver. There should be a bike trail between Fort Collins and Timnath.
- There is no bus line to Denver.
- Expand I-25 to three lanes at least as far as Mulberry St. I drive local roads to avoid driving on I-25.

## D. 2014 Congestion Survey (online) – Questions

1. Where do you live?
  - a. Berthoud
  - b. Eaton
  - c. Evans
  - d. Evans
  - e. Fort Collins
  - f. Garden City
  - g. Greeley
  - h. Johnstown
  - i. LaSalle
  - j. Loveland
  - k. Milliken
  - l. Severance
  - m. Timnath
  - n. Windsor
  - o. Larimer County
  - p. Weld County
2. Where do you work or volunteer?
  - a. Berthoud
  - b. Eaton
  - c. Evans
  - d. Evans
  - e. Fort Collins
  - f. Garden City
  - g. Greeley
  - h. Johnstown
  - i. LaSalle
  - j. Loveland
  - k. Milliken
  - l. Severance
  - m. Timnath
  - n. Windsor
  - o. Larimer County
  - p. Weld County
3. What is your primary commute method?
  - a. Drive alone
  - b. Bus
  - c. Carpool/vanpool
  - d. Bicycle
  - e. Walk
4. What do you think causes heavy traffic and congestion? Check all that apply.
  - a. Too many people on the road
  - b. Unorganized or ineffective traffic signals
  - c. Weather
  - d. Aggressive drivers
  - e. Drivers disobeying traffic rules
  - f. Road conditions
  - g. People who drive too slow
5. Heavy traffic/congestion means I am:
  - a. Driving at the posted speed
  - b. Driving 1-5 miles per hour less than the posted speed
  - c. Driving 6-10 miles per hour less than the posted speed
  - d. Driving 11-15 miles per hour less than the posted speed
  - e. At a complete stop at a location other than traffic signal or stop sign
6. How often do you experience heavy traffic or congestion?
  - a. Every day
  - b. A few times a week
  - c. A few times a year
7. Please select up to three factors you consider important when making travel decisions (route choice, travel method, departure time) for your commute trip.
  - a. Minimize distance traveled
  - b. Avoid freeway travel
  - c. Reliability of travel time
  - d. Minimize costs (gas, transit pass, etc.)



- e. Avoid high accident locations
  - f. Minimize travel time
  - g. Minimize time spent in heavy traffic
  - h. Avoid roads with signals
  - i. Route with amenities along the way (school, shopping)
8. How do you avoid traffic?
- a. I am unable to avoid it
  - b. I change my driving time
  - c. I do not drive
  - d. I take a different route
  - e. I take the bus, walk, or bike
9. Compared to five years ago, would you say traffic congestion has...
- a. Gotten worse
  - b. Gotten better
  - c. Stayed about the same
10. What category below includes your age?
- a. 18-29
  - b. 30-44
  - c. 45-54
  - d. 55-64
  - e. 65 or older
11. What is your household income category?
- a. Less than \$25,000 per year
  - b. \$25,000 to \$49,999 per year
  - c. \$50,000 to \$74,999 per year
  - d. \$75,000 to \$99,999 per year
  - e. Over \$100,000 per year
12. What is the highest level of education you have completed?
- a. Less than High School Graduate
  - b. Graduated from High School (GED)
  - c. Some College/Trade School (Associates, no 4-year degree, Technical)
  - d. College graduate (Bachelors)  
Post graduate (Study/Degree)
13. Do you have any additional comments?

## E. 2014 Congestion Survey – Answers

1. Where do you live?		
Berthoud	0.5%	1
Eaton	1.4%	3
Evans	0.5%	1
Fort Collins	41.7%	88
Garden City	0.5%	1
Greeley	2.8%	6
Johnstown	1.4%	3
LaSalle	0.5%	1
Loveland	10.9%	23
Milliken	0.0%	0
Severance	0.0%	0
Timnath	21.8%	46
Windsor	11.4%	24
Unincorporated Larimer County	6.2%	13
Unincorporated Weld County	0.5%	1
Other (please specify)		17

2. Where do you work or volunteer?		
Berthoud	3.1%	6
Eaton	1.0%	2
Evans	0.0%	0
Fort Collins	71.4%	137
Garden City	0.0%	0
Greeley	10.9%	21
Johnstown	1.6%	3
LaSalle	0.5%	1
Loveland	14.6%	28
Milliken	0.5%	1
Severance	0.5%	1
Timnath	2.6%	5
Windsor	5.2%	10
Unincorporated Larimer County	2.6%	5
Unincorporated Weld County	2.1%	4
Other (please specify)		30

<b>3. What is your primary commute method?</b>		
Drive alone	85.5%	189
Bus	0.0%	0
Carpool/vanpool	5.0%	11
Bicycle	8.6%	19
Walk	0.9%	2
Other (please specify)		6

<b>4. What do you think causes heavy traffic and congestion? Check all that apply.</b>		
Too many people on the road	71.4%	150
Unorganized or ineffective traffic lights	50.0%	105
Road conditions	23.8%	50
People who drive too slow	20.0%	42
Drivers disobeying traffic rules	19.5%	41
Aggressive drivers	14.8%	31
Weather	10.0%	21
Other (please specify)		63

<b>5. Heavy traffic/congestion means I am:</b>		
Driving at the posted speed	1.4%	3
Driving 1-5 miles per hour less than the posted speed	12.0%	26
6-10 miles per hour less than the posted speed	49.1%	106
11-15 miles per hour less than the posted speed	41.7%	90
At a complete stop at a location other than a traffic signal or stop sign	39.4%	85
Other (please specify)		18

<b>6. How often do you experience heavy traffic/congestion?</b>		
Every day	42.8%	95
A few times a week	47.7%	106
A few times a year	9.5%	21

**7. Please select up to 3 factors you consider important when making travel decisions (route choice, travel method, departure time) for your commute trip.**

Minimize time spent in heavy traffic	69.7%	154
Minimize travel time	52.0%	115
Reliability of travel time	48.9%	108
Minimize distance traveled	38.5%	85
Avoid high accident locations	20.8%	46
Avoid roads with signals	22.2%	49
Avoid freeway travel	19.9%	44
Minimize costs (gas, transit pass, etc.)	14.5%	32
Route with amenities along the way (school, shopping)	8.1%	18
Other (please specify)		16

**8. How do you avoid heavy traffic?**

I am unable to avoid it	36.5%	80
I change my driving time	30.1%	66
I do not drive	3.7%	8
I take a different route	56.2%	123
I take the bus, walk or bike	10.0%	22
Other (please specify)		12

**9. Compared to five years ago, would you say traffic congestion has:**

Gotten Worse	94.5%	208
Gotten Better	0.5%	1
Stayed about the same	5.0%	11

**10. Which category below includes your age?**

18-29	5.5%	12
30-44	28.6%	63
45-54	19.5%	43
55-64	30.5%	67
65 or older	15.9%	35

**11. What is your household income category?**

Less than \$25,000 per year	1.5%	3
\$25,000 to \$49,999 per year	14.4%	29
\$50,000 to \$74,999 per year	21.9%	44
\$75,000 to \$99,999 per year	20.4%	41
Over \$100,000	41.8%	84



12. What is the highest level of education you have completed?		
Less than High School Graduate	0.0%	0
Graduated from High School (GED)	4.2%	9
Some College/Trade School (Associates, no 4 year degree, Technical)	15.1%	32
College Graduate (Bachelors)	37.7%	80
Post Graduate (Study/Degree)	42.9%	91

F. 2040 Regional Transportation Plan Survey – Questions

Name: \_\_\_\_\_

Community where you live: \_\_\_\_\_

Community where you work: \_\_\_\_\_

[ ] Not applicable

For information about future meetings:

Email: \_\_\_\_\_

[ ] Sign up for Electronic Newsletter

1. What are your most common modes of commuting? (check up to 3)

- Transit/Park-n-Ride
- Drive alone
- Work from home
- Walk
- Carpool / Vanpool
- Bike
- Not applicable

2. If you use an alternative commute mode (bike, bus, walk, vanpool, carpool), what motivated you to do so? (check all that apply)

- Cost or time savings
- Convenience / Do not want to worry about parking
- Improve air quality / Environmental reasons
- Save wear and tear on personal vehicle
- Health reasons / Increase physical activity
- Other: \_\_\_\_\_
- Not applicable

3. If you drive alone to work, what are your main reasons for doing so? (check all that apply)

- Need car at work for personal or company business
- Prefer to drive own car or no shared ride available
- Need to transport children
- Infrequent or no transit option
- Irregular work schedule
- Other: \_\_\_\_\_
- Not applicable

4. Would you be willing to pay an additional tax to fund regional transportation projects?

- Yes
- No
- If no, what funding source do you recommend? \_\_\_\_\_

5. Using \$1 Million from the hypothetical tax in Question #4 to spend on transportation projects in the region, what percentage would you assign to the categories below?

- |                                  |                            |
|----------------------------------|----------------------------|
| Additional Capacity: _____       | Safety: _____              |
| Intersection Improvements: _____ | Signal timing: _____       |
| Non-motorized (bike/ped): _____  | Local transit (bus): _____ |
| Regional transit (bus): _____    | Rail transit: _____        |
| Other: _____                     |                            |



## G. 2040 Regional Transportation Plan Survey – Answers

A. Geography of Survey Responses				
Community	Live		Work	
	Percent	Count	Percent	Count
Berthoud	1.6%	6	0.5%	2
Eaton	0.3%	1	0.0%	0
Evans	0.3%	1	0.5%	2
Fort Collins	49.7%	183	39.7%	148
Garden City	0.0%	0	0.0%	0
Greeley	7.4%	28	9.7%	36
Johnstown	2.1%	8	0.3%	1
LaSalle	0.3%	1	0.0%	0
Loveland	22.3%	84	8.8%	33
Milliken	0.8%	3	0.0%	0
Out of Region/Other	6.6%	25	37.5%	140
Severance	0.0%	0	0.0%	0
Timnath	0.0%	0	0.0%	0
Windsor	3.5%	13	0.3%	1
Larimer County	4.0%	15	1.6%	6
Weld County	2.1%	8	1.6%	6

1. What are your most common modes of commuting? (check up to 3)		
Transit/Park-n-ride	19.1%	72
Drive alone	60.5%	228
Work from home	15.1%	57
Walk	19.1%	72
Carpool / Vanpool	45.6%	172
Bike	26.3%	99
Not applicable	1.1%	4

2. If you use an alternative commute mode (bike, bus, walk, vanpool, carpool), what motivated you to do so? (check all that apply)		
Cost or time savings	58.5%	209
Convenience / do not want to worry about parking	41.7%	149
Improve air quality / Environmental reasons	40.6%	145
Save wear and tear on personal vehicle	47.3%	169
Health reasons / Increase physical activity	30.3%	108
Not applicable	19.1%	68
Other (please specify)		39



**3. If you drive alone to work, what are your main reasons for doing so? (check all that apply)**

Need car at work for personal or company business	30.4%	104
Prefer to drive own car or no shared ride available	16.4%	56
Need to transport children	5.0%	17
Infrequent or no transit option	20.5%	70
Irregular work schedule	32.5%	111
Not applicable	36.0%	123
Other (please specify)		27

**4. Would you be willing to pay an additional tax to fund regional transportation projects?**

Yes	69.4%	261
No	20.2%	76
If no, what funding source do you recommend?	10.4%	39

**5. If you were given money from the hypothetical tax in Question 4 to spend on transportation projects in the region, what categories would you fund? (check up to 3)**

Additional capacity	32.8%	115
Intersection Improvements	18.2%	64
Safety	18.5%	65
Signal timing	18.8%	66
Non-motorized (bike/ped)	23.4%	82
Regional transit (bus)	42.2%	148
Local transit (bus)	28.5%	100
Rail transit	56.7%	199
Other (please specify) or Not applicable		38

H. 2040 RTP Presentation

## 2040 Regional Transportation Plan

(location)



## Public Outreach

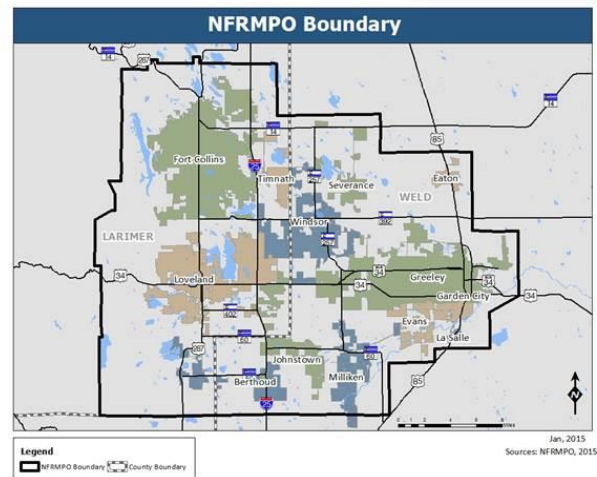
(date)

2040 Regional Transportation Plan

## Overview: NFRMPO



- Regional Transportation Planning and Air Quality Agency
- 15 member communities in the North Front Range along the I-25 corridor
- Bring together local jurisdictions to create a cohesive regional transportation future

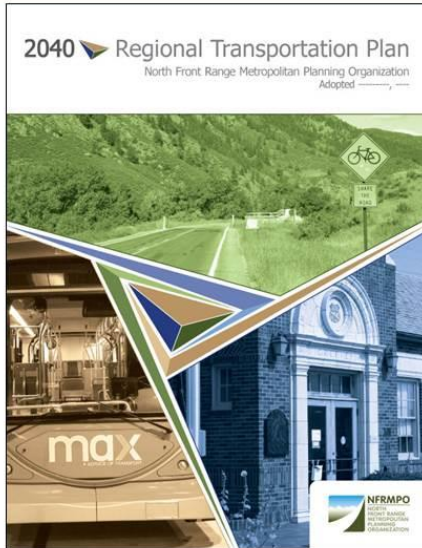


## Public Outreach

2

2040 Regional Transportation Plan

# Overview: Regional Transportation Plan



- Identifies current and future needs based on demographics, travel demand model, and population and employment projections
- Considers the regional roadway, non-motorized and transit systems, environmental features, safety and security

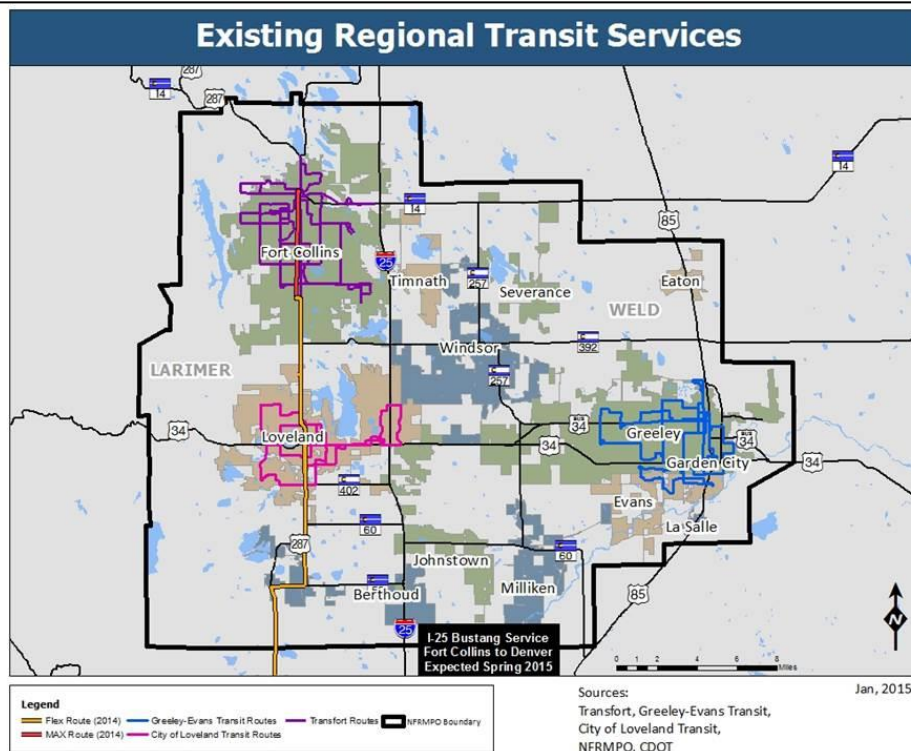
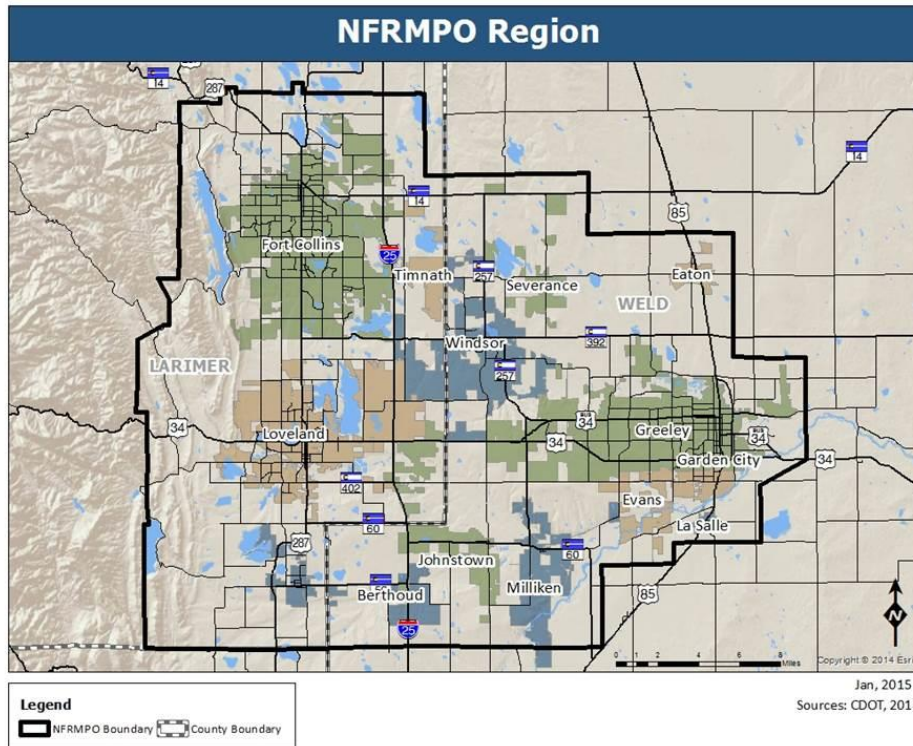
## Public Outreach

2040 Regional Transportation Plan

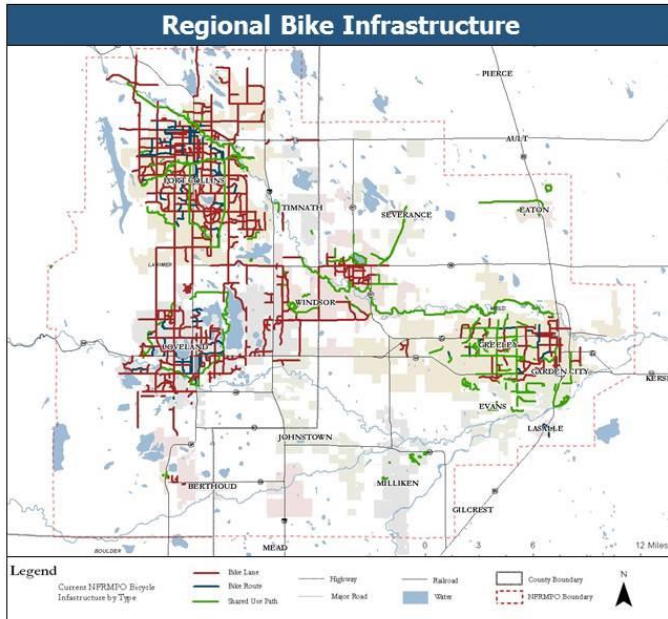
3

### 4 Goals, Objectives, Performance Measures, Targets

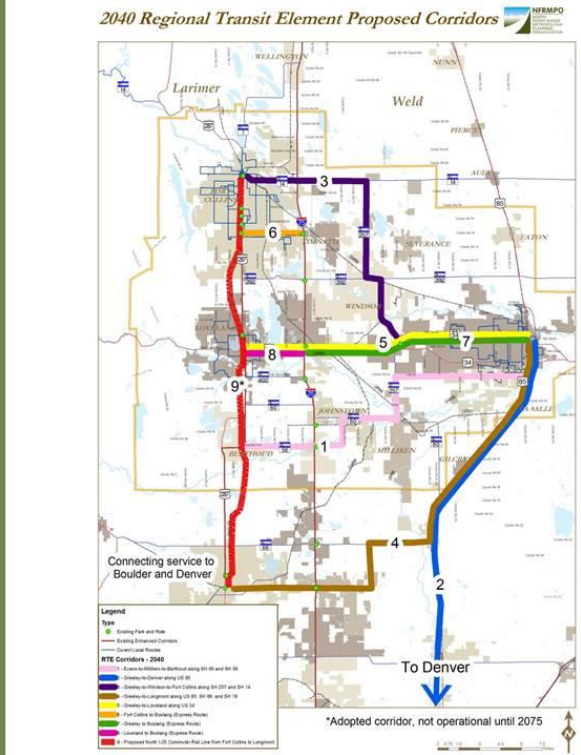
2040 Regional Transportation Plan Goals, Objectives, Performance Measures, and Targets													
Value Statement													
We seek to provide a multi-modal transportation system that is safe, as well as socially and environmentally sensitive for all users that protects and enhances the region's quality of life and economic vitality.													
Adopted on: September 4, 2014													
GOAL	Goal 1 ECONOMIC DEVELOPMENT/QUALITY OF LIFE			Goal 2 MOBILITY			Goal 3 MULTI-MODAL			Goal 4 OPERATIONS			
MPO GOAL	Foster a transportation system that supports economic development and improves residents' quality of life			Provide a transportation system that moves people and goods safely, efficiently, and reliably			Provide a multi-modal system that improves accessibility and transportation system continuity			Optimize operations of transportation facilities			
NATIONAL GOAL	Infrastructure condition, freight movement and economic vitality, environmental sustainability			Safety, congestion reduction, system reliability			Infrastructure condition, system reliability			Congestion reduction, freight movement and economic vitality, project delivery			
OBJECTIVE	1. Conforms to air quality requirement	2. Maintain transportation infrastructure and facilities to minimize the need for replacement or rehabilitation	3. Investment in infrastructure	4. Reduce number of severe traffic crashes	5. Use the Congestion Management Process (CMP) to reduce congestion	6. Reliable travel times	7. Support Transportation Services for all including the most vulnerable and transit dependent populations	8. Implement RTE, Regional Bicycle Plan, and North I-25 EIS	9. Develop infrastructure that supports alternate modes and connectivity	10. Use Transportation Demand Management techniques to reduce congestion and optimize the system	11. Implement Intelligent Transportation Systems (ITS)	12. Enhance transit service in the NFR	13. Reduce project delivery time frame
PERFORMANCE MEASURE	1. Air quality conformity tests on plans and programs		2,3. Number of facility samples with poor surface condition	3. Bridges with a sufficiency rating below 50.0	4. Five-year rolling average of injury and fatal crashes	5,6,10,11. Regionally significant congested corridors with a travel time index of 2.5 times or less than free flow	7. Population and essential destinations within para-transit and demand response service area within the MPO boundary	8,9. Non-motorized facilities per capita	8,12. Fixed-route revenue hours per capita within service areas	9. Transit service vehicles within useful life parameters established by FTA	10. VMT growth per capita	12. Fixed-route ridership per capita within service areas	
TARGET (over 4 years)	Passes Conformity		Reduce by 1%	Less than 5% of bridges	No increase in crashes	Maintain at least 80%	At least 85%	Increase by at least 2%	Increase by 30%	Maintain 75%	Change in VMT should not exceed change in population	Increase by 10%	
2040 RTP PLAN POLICY	3. Support freight performance in partnership with COOT		13. Process TIP amendments on a quarterly schedule										







- NFRMPO Regional Bicycle Plan completed in 2013 and incorporated into RTP
- Existing Facilities include:
  - 374 Miles of On-Street Bicycle Lanes
  - 83 Miles of On-Street Bicycle Routes
  - 207 Multi-Use Off-Street Routes



- Updated Regional Transit Element incorporating regional transit investment options for 2040 RTP
- Focus on intra- and interregional connections
- Investment in I-25 Corridor via CDOT's Bustang service requires community connectors

**RTE Corridors - 2040**

1	Evans-to-Miliken-to-Berthoud along SH 60 and SH 56
2	Greeley-to-Denver along US 85
3	Greeley-to-Windsor-to-Fort Collins along SH 257 and SH 14
4	Greeley-to-Longmont along US 85, SH 66, and SH 19
5	Greeley-to-Loveland along US 34
6	Fort Collins to Bustang (Express Route)
7	Greeley to Bustang (Express Route)
8	Loveland to Bustang (Express Route)
9	Proposed North I-25 Commuter Rail Line from Fort Collins to Longmont

## Survey



- How do you typically commute?
- Why do you commute the way you do?
- Would you be willing to pay an additional tax for regional transportation projects?
- How would you spend the tax revenue?

## Public Outreach

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2040 Regional Transportation Plan

## Next Steps



- Ongoing public outreach
- Survey results
- Incorporate public input to:
  - Guide and finalize transportation goals, outlook
  - Finalize Regional Transit Element, corridor recommendations
- Draft document



## Public Outreach

10

2040 Regional Transportation Plan

## Stay Involved



- Future regional events:  
[www.nfrmpo.org/Projects/2040RTP.aspx](http://www.nfrmpo.org/Projects/2040RTP.aspx)
- Active social media presence (Twitter, Blog)  
<http://twitter.com/NFRMPO>      <http://nfrmpo.blogspot.com/>
- Newsletter: <http://nfrmpo.org/News/Newsletter.aspx>
- Online survey: <https://www.surveymonkey.com/s/NFR2040RTP>
- Interactive outreach tools

## Public Outreach

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2040 Regional Transportation Plan

## Contact the MPO



### For more information:

#### Alex Gordon

Transportation Planner  
[agordon@nfrmpo.org](mailto:agordon@nfrmpo.org)  
(970) 416-2025

#### Becky Karasko, AICP

Regional Transportation Planning Director  
[rkarasko@nfrmpo.org](mailto:rkarasko@nfrmpo.org)  
(970) 416-2257

### Project website:

[www.nfrmpo.org/Projects/2040RTP.aspx](http://www.nfrmpo.org/Projects/2040RTP.aspx)

## Public Outreach

12

2040 Regional Transportation Plan



# Appendix B

## Air Quality Conformity

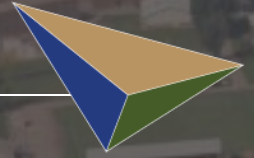


Image Credit: Town of Windsor



## Appendix B: Air Quality Conformity

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### A. Overview

The North Front Range Metropolitan Planning Organization (NFRMPO) is required to conduct an air quality conformity determination on the fiscally constrained 2040 Regional Transportation Plan (RTP) to determine conformance with the State Implementation Plan (SIP) for the following maintenance and nonattainment areas:

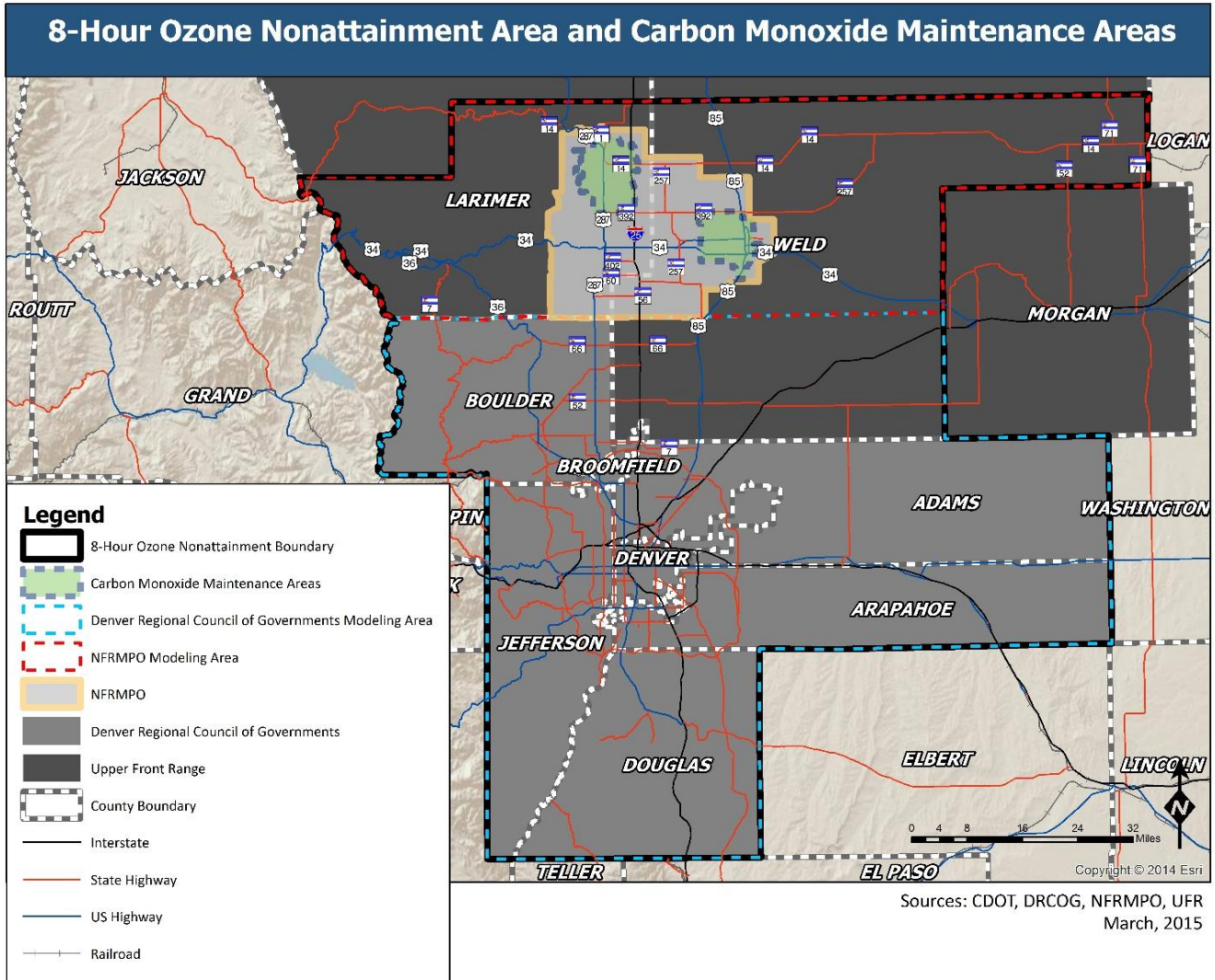
- ▶ Denver-North Front Range (Northern Subarea) 8-Hour Ozone Nonattainment Area;
- ▶ Fort Collins Carbon Monoxide (CO) Maintenance Area; and
- ▶ Greeley CO Maintenance Area.

Conformity determinations are performed through the use of the latest mobile emissions model released by the Environmental Protection Agency (EPA). For this analysis the Motor Vehicle Emissions Simulator 2014 (MOVES2014) was used. The NFRMPO Regional Travel Demand Model provides the necessary inputs of vehicle miles of travel (VMT), travel speed by area type and time of day, and roadway function class.

The Colorado Department of Public Health and Environment (CDPHE) runs MOVES2014 and prepares emissions tables for CO and ozone. The emissions are compared with the allowable motor vehicle emissions budgets to determine if the NFRMPO passes conformity for the two pollutants.

Based on the quantitative conformity analyses, the NFRMPO 2040 RTP demonstrates conformity with the SIP, as described in the next sections for CO and ozone.

Figure B-1: 8-Hour Ozone Nonattainment Area and Carbon Monoxide Maintenance Areas



## B. 8-Hour Ozone Conformity

The CO conformity determination for Fort Collins and Greeley can be found in the document entitled: **“Denver-North Front Range (Northern Subarea) 8-Hour Ozone Conformity Determination for the North Front Range Metropolitan Planning Area 2040 Fiscally Constrained Regional Transportation Plan and the FY 2016-2019 Transportation Improvement Program and for the Northern Subarea of the Upper Front Range Transportation Planning Region 2040 Regional Transportation Plan and for the Northern Subarea of the Upper Front Range Transportation Planning Region portion of the Colorado FY 2016-2019 State Transportation Improvement Program,”** adopted on July 9, 2015. The conformity determination document is available on the NFRMPO website at: <http://www.nfrmpo.org/AirQuality.aspx>.

Based on the quantitative conformity analysis, the NFRMPO 2040 RTP demonstrates conformity for the 8-hour ozone standard using the 8-hour ozone emissions budgets for the Northern Subarea.

Table B-1: 8-Hour Ozone Conformity for Denver-North Front Range (Northern Subarea) (Emission Tons per Day)					
	SIP Budgets	2015	2025	2035	2040
<b>Volatile Organic Compounds (VOC)</b>	<b>19.5</b>	9.99	7.08	4.45	4.10
<b>Oxides of Nitrogen (NOx)</b>	<b>20.5</b>	16.95	8.61	4.39	3.89
<b>Pass/Fail</b>		<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

### C. Fort Collins and Greeley Carbon Monoxide Conformity

The CO conformity determination for Fort Collins and Greeley can be found in the document entitled: **“Fort Collins and Greeley Carbon Monoxide Maintenance Areas Conformity Determination for the North Front Range Metropolitan Planning Area 2040 Fiscally Constrained Regional Transportation Plan and FY 2016-2019 Transportation Improvement Program,”** adopted on July 9, 2015. The conformity determination document is available on the NFRMPO website at: <http://www.nfrmpo.org/AirQuality.aspx>

The emissions tests show the budgets for Fort Collins and Greeley from the most current approved SIP (as described in 40 CFR 93.118) for the horizon years and the results of the conformity tests, which passed in all years.

Table B-2: Fort Collins Emissions Test (Tons per Day)						
	SIP Budget	2015	2023	2025	2035	2040
<b>Carbon Monoxide (CO)</b>	<b>94</b>	36.91	31.65	13	28	12.77
<b>Pass/Fail</b>		<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

Table B-3: Greeley Emissions Test (Tons per Day)						
	SIP Budget	2015	2019	2025	2035	2040
<b>Carbon Monoxide (CO)</b>	<b>60</b>	22.79	20.24	14.27	9.25	9.32
<b>Pass/Fail</b>		<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

# Appendix C

## RTP Amendments



Image Credit: Denver Post



## Appendix C: RTP Amendments

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### A. 2040 RTP Amendment: Resolutions



**RESOLUTION NO. 2017-01**  
**OF THE NORTH FRONT RANGE TRANSPORTATION & AIR QUALITY PLANNING COUNCIL**  
**ADOPTING CONFORMITY DETERMINATIONS**  
**FOR THE NORTH FRONT RANGE METROPOLITAN PLANNING AREA 2040 FISCALLY**  
**CONSTRAINED REGIONAL TRANSPORTATION PLAN AMENDMENT**  
**AND THE FY2018-2021 TRANSPORTATION IMPROVEMENT PROGRAM**  
**AND FOR THE NORTHERN SUBAREA OF THE UPPER FRONT RANGE TRANSPORTATION**  
**PLANNING REGION 2040 REGIONAL TRANSPORTATION PLAN, THE 2040 UPPER FRONT**  
**RANGE TRANSPORTATION PLANNING REGION RTP, AND COLORADO FY2017-2020**  
**STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM**

**WHEREAS**, 49 CFR PART 613 §450.324 requires development through continuing, cooperative, and comprehensive (“3C”) multimodal transportation planning process of a fiscally constrained Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP) for Metropolitan Planning Organizations (MPOs); and

**WHEREAS**, the Planning Council as the MPO is the agency responsible for developing and amending the RTP and TIP; and

**WHEREAS**, portions of the cities of Fort Collins and Greeley are currently designated as maintenance areas for carbon monoxide (CO) for which the Planning Council performs conformity determinations; and

**WHEREAS**, the Planning Council through a Memorandum of Agreement (MOA) (2008) has agreed to perform ozone conformity determinations for the Northern Subarea of the Denver-North Front Range 8-hour ozone nonattainment area which includes portions of Larimer and Weld counties outside the MPO contained in the Upper Front Range Transportation Planning Region (UFRTPR); and

**WHEREAS**, Section 93.110(a) of the conformity rule requires conformity determinations based on the most recent planning assumptions in force at the time of conformity analysis; and


**WHEREAS**, the planning assumptions for the Northern Subarea were updated prior to conformity analysis, updating from forecast year 2035 to 2040; and


**WHEREAS**, the air quality conformity determinations conducted on the MPO’s fiscally constrained 2040 RTP Amendment and FY2018-2021 TIP, and the Colorado FY2017-2020 Statewide TIP (STIP) using the 2040 planning assumptions were within the federally approved emissions budgets; and

**WHEREAS**, the Planning Council received no public comment opposing the finding of conformity during the public comment period or during the public hearing;

**NOW, THEREFORE, BE IT RESOLVED BY North Front Range Transportation & Air Quality Planning Council**, the fiscally constrained 2040 RTP Amendment, FY2018-2021 TIP, the 2040 Upper Front Range, and the Colorado FY2017-2020 STIP conform to the State Implementation Plan (SIP) demonstrating positive air quality conformity determinations.

Passed and adopted at the regular meeting of the North Front Range Transportation & Air Quality Planning Council held the 2<sup>nd</sup> day of February, 2017.

  
\_\_\_\_\_  
Kevin Ross, Chair

ATTEST:  
  
\_\_\_\_\_  
Terri Blackmore, Executive Director



**RESOLUTION NO. 2017-02  
OF THE NORTH FRONT RANGE TRANSPORTATION  
& AIR QUALITY PLANNING COUNCIL  
ADOPTING THE 2040 REGIONAL TRANSPORTATION PLAN (RTP) AMENDMENT**

**WHEREAS**, 49 CFR PART 613.100 and 23 CFR 450.322 require the development through the continuing, cooperative, and comprehensive (“3C”) multimodal transportation planning process of a fiscally constrained Regional Transportation Plan (RTP) for Metropolitan Planning Organizations (MPOs); and

**WHEREAS**, pursuant to the aforementioned legislation, the North Front Range Transportation & Air Quality Planning Council (Planning Council) was designated by the Governor of the State of Colorado as the MPO agency responsible for carrying out the transportation planning process, and for developing and amending the RTP; and

**WHEREAS**, the Cities of Fort Collins and Greeley are currently designated as Maintenance Areas for Carbon Monoxide (CO) and the North Front Range also is within the Denver-North Front Range (Northern Subarea) 8-Hour Ozone Nonattainment Area, and the Planning Council was designated by the Governor of the State of Colorado as the lead Air Quality Planning Agency for Carbon Monoxide; and

**WHEREAS**, the Planning Council is responsible for determining conformity of all of its transportation plans and programs with the Clean Air Act, as amended, 1990, and the State Implementation Plan (SIP) for air quality. The RTP shall be reviewed and updated at least every four years in air quality Nonattainment and Maintenance Areas; and

**WHEREAS**, the transportation programming process shall address no less than a 20-year planning horizon as of the effective date. The effective date being established by the date of the conformity determination issued by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA); and


**WHEREAS**, the Planning Council approves the 2040 RTP Amendment and submits copies for informational purposes to the Governor;

**NOW, THEREFORE, BE IT RESOLVED BY North Front Range Transportation & Air Quality Planning Council**, finds that the 2040 Regional Transportation Plan (RTP) Amendment, per Resolution No. 2017-02, is in conformance with the requirements of 49 CFR 613.100 and 23 CFR 450.322.

Passed and adopted at the regular meeting of the North Front Range Transportation & Air Quality Planning Council held the 2<sup>nd</sup> day of February, 2017.

  
\_\_\_\_\_  
Kevin Ross, Chair

ATTEST:

  
\_\_\_\_\_  
Terri Blackmore, Executive Director

## B. Colorado Air Quality Control Commission Conformity Concurrence





**COLORADO**  
**Air Quality Control Commission**  
Department of Public Health & Environment

Dedicated to protecting and improving the health and environment of the people of Colorado

Ms. Terri Blackmore, Executive Director  
North Front Range Metropolitan Planning Organization  
419 Canyon Avenue, Suite 300  
Fort Collins, CO 80521

December 15, 2016

The Colorado Air Quality Control Commission (AQCC) has reviewed your agency's conformity determinations for its Regional Transportation Plan and FY2018-2021 Transportation Improvement Program (TIP). The AQCC agrees that the North Front Range Metropolitan Planning Organization's (NFRMPO) 2040 Fiscally Constrained Regional Transportation Plan Amendment, FY 2018-2021 TIP, the Upper Front Range's (UFR) 2040 Regional Transportation Plan, and the NFRMPO portion of the Colorado FY 2017-2020 Statewide Transportation Improvement Program (STIP), as of December 15, 2016, conform to the State Implementation Plan (SIP) and emissions budgets for ozone precursors and carbon monoxide.

The North Front Range Metropolitan Planning Organization's and the Air Pollution Control Division's analyses indicate that emissions budgets for these pollutants will not be exceeded in any of the project or plan horizon years. Therefore, the AQCC concurs with this conformity determination.

Should you have any questions regarding the AQCC's action, please contact Paul Lee at the APCD, at 303-692-3127 or at [paul.lee@state.co.us](mailto:paul.lee@state.co.us).

Sincerely,

John Clouse, Chair  
Air Quality Control Commission

Cc: Tim Russ, U.S. EPA, Region 8  
Bill Haas, FHWA  
Steve Cook, DRCOG  
Rose Waldman, CDOT  
Paul Lee, APCD



## C. US Department of Transportation Conformity Finding



## D. 2040 RTP Amendment: I-25 Expansion





**COLORADO**

**Department of Transportation**

Region 4

10601 W. 10<sup>th</sup> Street  
Greeley, CO 80634  
(970) 350.2103 (Fax) 350.2181

September 8, 2016

Ms. Terri Blackmore  
Executive Director, North Front Range MPO  
419 Canyon Avenue, Suite 300  
Fort Collins, CO 80521

Dear Ms. Blackmore,

RE: 2040 Regional Transportation Plan Amendment Request

On behalf of the Colorado Department of Transportation (CDOT), please accept the 2040 Regional Transportation Plan Amendment Request to expand the scope of I-25. Through regional efforts, significant new financial resources were secured to construct immediate improvements to this critical corridor.

Within the next four years, one new express lane in each direction, replacement/rehabilitation of four key pairs of bridges, ITS, transit and safety components, and replacement of portions of the existing facility will be constructed within the North Front Range. CDOT will employ a Design-Build contractor to expedite opening the new lanes to the public.

Future work planned for the I-25 corridor includes reconstructing interchanges, extension of express lanes, and additional safety work. The attached schedule identifies adequate resources to complete future interstate components, which are included in the preferred alternatives identified in the North I-25 Final Environmental Impact Statement and Record of Decision, as re-evaluated.

We look forward to a timely amendment approval to the 2040 Regional Transportation Plan in order to proceed with this essential work.

Sincerely,

Johnny Olson, P.E.  
Region 4 Transportation Director

JWO:KS:mbc

Attachment

pc: Corey Stewart / Heather Paddock / Scott Rees  
J. Eussen / K. Schneiders  
File



## 2040 RTP Amendment Request Form 2016



**Due to NFRMPO Staff no later than 5:00 p.m. Friday, September 16, 2016**

Requesting Agency Information		
<b>Project Sponsor Agency:</b> Colorado Department of Transportation	<b>Agency Contact:</b> Johnny Olson	<b>Telephone:</b> 970/ 350-2101
<b>Mailing Address:</b> 10601 West 10th Street	<b>Email Address:</b> <a href="mailto:j.olson@state.co.us">j.olson@state.co.us</a>	
<b>City:</b> Greeley	<b>State:</b> CO	<b>ZIP Code:</b> 80631
<b>Additional Financial Sponsors (if applicable):</b> Berthoud, Evans, Fort Collins, Johnstown, Larimer County, Loveland, Timnath, Weld County, Windsor, McWhinney Development		
Project Description		
<b>Project Name:</b> North I-25: SH56 to SH14	<b>Jurisdiction(s):</b> Berthoud, Fort Collins, Johnstown, Larimer County, Loveland, Timnath, Weld County, Windsor	
<b>Project Location (attach map of project location as well):</b> North I-25 and associated areas	<b>Project Type</b> Mobility, Bridge, Safety, Operations, Transit, Non-Motorized vehicles	
<b>Project Limits (to and from):</b> SH56 (MP 250) - SH14 (MP 270)	<b>Project Length (miles):</b> 20 miles	
<b>Is this part of an ongoing project? If so, please describe.</b> Yes. The North I-25 Final Environmental Impact Statement (FEIS) studied from Denver Union Station to SH14 in Fort Collins. This amendment continues implementing the outcomes of the FEIS.		
<b>Project Description:</b> Includes construction of 2 Express Lanes (one each direction), reconstruction of failing pavement, repairs or replacement of appropriate mainline I-25 structures, interchange improvements, park & ride replacement / enhancement, accommodate regional trail connections ITS technology throughout the corridor and other related safety / operational improvements. The first project will begin construction in early 2018 with opening in late 2020.		
<b>Project Phase(s), if applicable (Construction, Design, ROW, etc.):</b> Design / ROW / Utilities / Construction	<b>Fiscal Year(s) of Construction:</b> First project 2018-2020	
<b>Reason for Amendment request:</b> New transportation funding sources have emerged since the passage of the FAST Act in December 2015. Through cooperative efforts, all \$237 million needed to complete the first construction project was identified for immediate programming. Other reasonably anticipated revenues will be accumulated to fully fund the corridor improvements.		
2040 RTP Goals, Objectives, Performance Measures, and Targets		
Indicate which MPO Performance Measure(s) the project supports. If the project does not support one of the Goals listed		
MPO Goal	<u>Performance Measure(s)</u>	Project Impact
<b>Goal 1:</b> Foster a transportation system that supports economic development and improves residents' quality of life	-Conforms to Air Quality Conformity -Investment in Infrastructure	The project's primary objective is to construct one express lane in each direction from SH56 to SH14. The project will complement the I25: SH392 to SH14 in currently listed the 2040 NFR fiscally constrained plan by expanding the project scope and length. The project will improve mobility and provide a sustainable alternative to congestion along North I-25. High Occupancy Vehicles (HOV) and public transit vehicles (buses, express bus) would use the express lanes free of charge while Single Occupant Vehicles (SOV) would pay a toll to use these lanes. The mixture of SOV tolled and HOV/Transit non-tolled vehicles using the lanes would be managed through variable pricing for SOVs to maintain free flow conditions within the express lanes, even during peak travel hours. The rehabilitation and replacement of key bridges in the corridor are sound investments that will allow the final alignment of I-25 to be constructed in the near future. All of these improvements reduce vehicle idling by keeping traffic moving along the corridor.
<b>Goal 2:</b> Provide a transportation system that moves people and goods safely, efficiently, and reliably	Reliable travel times	Installation of express lanes, with associated operational and safety improvements throughout the project segments encourages transit, carpooling, and vanpooling as viable transportation options by providing reliable travel times and uncongested travel flow.
<b>Goal 3:</b> Provide a multi-modal system that improves accessibility and transportation system continuity	-Support transportation services for all including the most vulnerable and transit dependent populations. -Implement RTE, Regional Bike Plan and North I-25 EIS	Provides travelers with transportation choices – carpooling, vanpooling, public transit, or paying to use express lanes while driving alone. Project enables a critical connection of the Cache La Poudre Regional trail to be constructed by local agencies, which is part of the Governor's 16 in 16 focus, as well as improving Bustang Regional transit service reliability by relocating the US34 Park & Ride to Kendall Parkway and constructing bus-only slip ramps to reduce travel time. Bustang provides critical connections between Northern Colorado and the Denver Metro area by connecting to bus and rail service in Denver Union Station. Via DUS, users can connect to national travel on Amtrak or national / international travel options at Denver International Airport. All of these activities are components of the I25 FEIS Preferred Alternative.

<b>Goal 4:</b> Optimize operations of transportation facilities	-Use TDM techniques to reduce congestion and optimize the system. -Implement ITS -Reduce project delivery time frame	Carpooling / vanpooling services will be enhanced through more reliable travel times due to free use of the express lane. The installation of state of the industry ITS components will aid the express lanes tolling and operations, as well as increased traveler information (travel time, ramp metering, etc). By utilizing Design / Build methodology, the project will be constructed quickly while taking advantage of contractor creativity.
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**How does the project support the MPO Goal(s)? (Please attach all relevant data)**

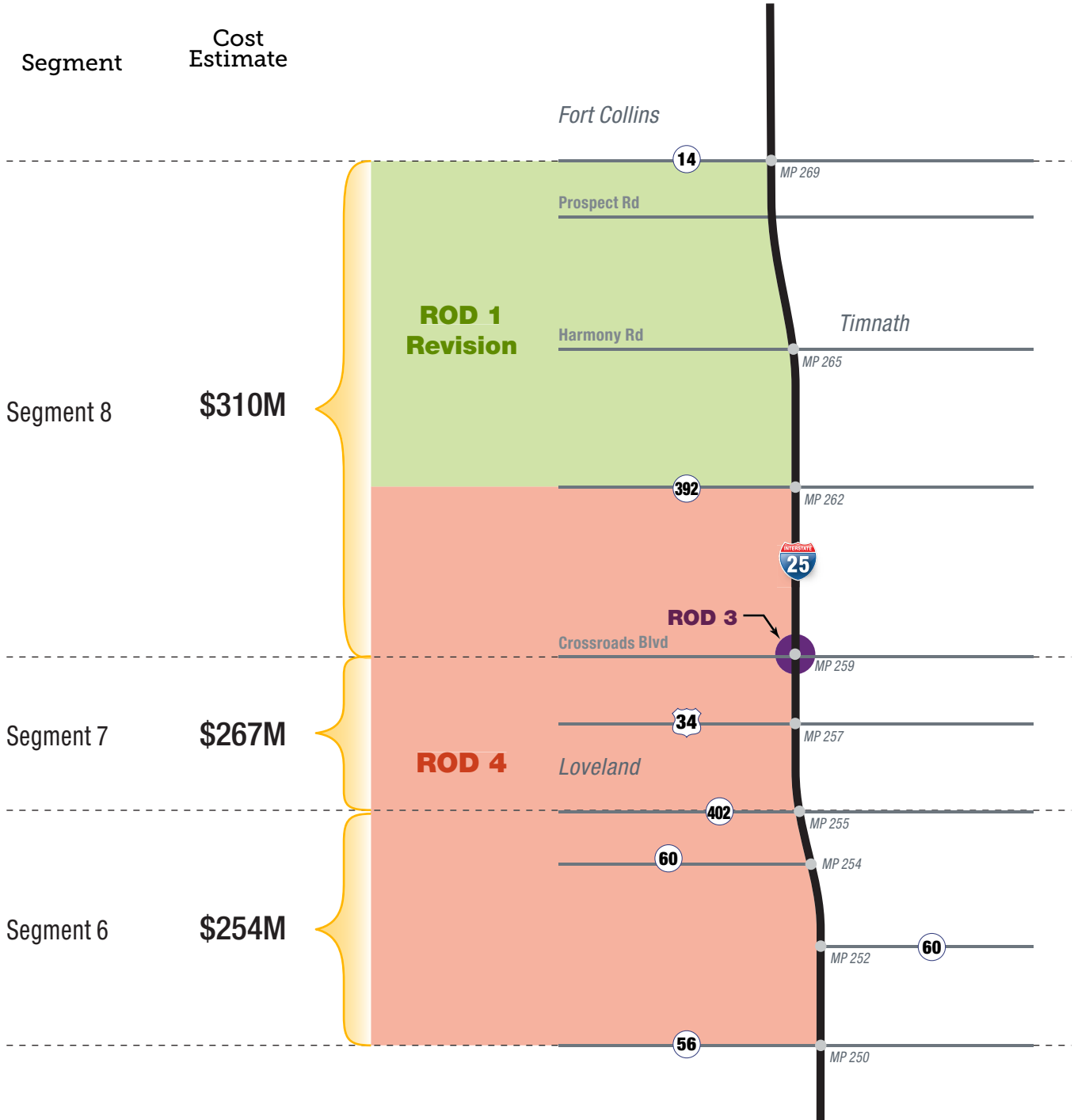
<b>Project Funding</b>			
Type (Federal, State, Local, Local Over Match, Other)	Source	Amount	Fiscal Year to be Programmed
See attached			
<b>Total Project Cost</b>		<b>\$</b>	<b>-</b>

<b>Supporting documentation attached or linked (optional):</b> <i>i.e. Studies, Master Plans, Comprehensive Plans</i>	<a href="https://www.codot.gov/projects/north-i-25-eis">https://www.codot.gov/projects/north-i-25-eis</a> <a href="https://www.codot.gov/projects/NorthI-25/additional-information/tiger">https://www.codot.gov/projects/NorthI-25/additional-information/tiger</a> <a href="https://www.codot.gov/projects/NorthI-25/i-25-managed-lanes-traffic-operations-analysis">https://www.codot.gov/projects/NorthI-25/i-25-managed-lanes-traffic-operations-analysis</a>
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**Submit completed form to Becky Karasko at [bkarasko@nfrmpo.org](mailto:bkarasko@nfrmpo.org) no later than 5:00 p.m. on Friday,**

# North Front Range MPO

## North I-25 - Regional Transportation Plan Amendment





North I-25 Plan Amendment to NFR MPO: SH56 to SH14  
Cost Estimates by Segment

NFR Plan Amendment Element	Est Costs (millions)	Revenues									
		2017	2018	2019	2020	2021	2022-2025	2026-2030	2031-2035	2036-2040	
<b>Segment 8 - SH 392 to SH 14 (ROD1)</b>	<b>2015\$</b>										
One express lane in each direction (approx 7 miles)											
Prospect Interchange											
SH 14 Interchange											
GWRR Bridges											
Pourde River bridges											
Kechter Bridge											
<b>Subtotal Seg 8</b>	<b>\$ 310</b>	<b>\$ -</b>	<b>\$ 40</b>	<b>\$ 25</b>	<b>\$ 25</b>	<b>\$ 29</b>	<b>\$ 19</b>	<b>\$ 142</b>	<b>\$ -</b>	<b>\$ 30</b>	
<b>Segment 7 SH 402 to SH 392 (ROD4)</b>											
One express lane in each direction (approx 7 miles)											
Big Thompson Bridges, GWRR, LCR 20 & Frontage Rd											
Interim US 34 Interchange (Par-Clo)											
UPRR Kendall Parkway Bridges											
<b>Subtotal Seg 7</b>	<b>\$ 267</b>	<b>\$ 10</b>	<b>\$ 25</b>	<b>\$ 40</b>	<b>\$ 40</b>	<b>\$ 16</b>	<b>\$ 5</b>	<b>\$ 101</b>	<b>\$ 29</b>	<b>\$ -</b>	
<b>Segment 6 SH 402 to SH 56 (ROD 4)</b>											
One express lane in each direction (approx 5 miles)											
SH 60 interchange											
LCR 16 bridges											
SH 402 Interchange											
<b>Subtotal Seg 6</b>	<b>\$ 254</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 60</b>	<b>\$ 13</b>	<b>\$ 91</b>	<b>\$ 90</b>	
<b>Corridor Total (Millions)</b>	<b>\$ 830</b>	<b>\$ 10</b>	<b>\$ 65</b>	<b>\$ 65</b>	<b>\$ 65</b>	<b>\$ 45</b>	<b>\$ 84</b>	<b>\$ 256</b>	<b>\$ 120</b>	<b>\$ 120</b>	

**Open in 2020** SH402 to SH14: 1 express lane / each direction, replace/rehab 4 pairs of bridges, ITS, safety, Kendall Pkwy Park & Ride

**Open in 2025** SH56 to SH14: 1 express lane / each direction: SH56 to SH402, SH402 Interchange Reconstruction

**Open in 2030** SH56 to SH14: SH14, Prospect, US34 Interchange Reconstruction+ mainline reconstruction

**Open in 2035** SH56 to SH14: SH60 Interchange Reconstruction + mainline reconstruction

**Open in 2040** SH56 to SH14: LCR16 bridges replacement + mainline reconstruction

# North I-25 Plan Amendment to NFR MPO: SH56 to SH14

## Fund Sources

<i>Fund Source (millions)</i>	<b>FY17</b>	<b>FY18</b>	<b>FY19</b>	<b>FY20</b>	<b>FY21</b>	<b>FY22 - 25</b>	<b>FY26-30</b>	<b>FY31-35</b>	<b>FY36-40</b>	<b>Total</b>
RPP- NFR					\$ 2	\$ 8	\$ 10	\$ 10	\$ 10	\$ 42
RPP I25 Design					\$ 1	\$ 5	\$ 6	\$ 6	\$ 6	\$ 23
FASTER Safety					\$ -	\$ 11	\$ 14	\$ 14	\$ 14	\$ 52
Tolling Revenue					\$ -	\$ -	\$ 5	\$ 25	\$ 25	\$ 55
Surface Treatment					\$ 10	\$ 40	\$ 50	\$ 50	\$ 50	\$ 200
TC Contingency	\$ 5	\$ 23	\$ 60	\$ 22	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 110
Loan				\$ 18	\$ 32	\$ -	\$ -	\$ -	\$ -	\$ 50
Strategic Transit*	\$ -	\$ 5			\$ -	\$ -	\$ 41	\$ -	\$ -	\$ 46
RoadX	\$ -	\$ 2			\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2
FASTLANE State Allocation	\$ -	\$ 15		\$ 15	\$ -	\$ 15	\$ 15	\$ 15	\$ 15	\$ 90
Local	\$ 5	\$ 5	\$ 5	\$ 10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 25
TIGER Award	\$ -	\$ 15			\$ -	\$ -	\$ -	\$ -	\$ -	\$ 15
Strategic Funds*					\$ -	\$ -	\$ 64	\$ -	\$ -	\$ 64
Flexible Funds - RTP*					\$ -	\$ -	\$ 22	\$ -	\$ -	\$ 22
Loveland \$ (I25 / US34)*					\$ -	\$ -	\$ 15	\$ -	\$ -	\$ 15
STP-Metro / CMAQ*					\$ -	\$ 5	\$ 15	\$ -	\$ -	\$ 20
	\$ 10	\$ 65	\$ 65	\$ 65	\$ 45	\$ 84	\$ 256	\$ 120	\$ 120	\$ 830
	\$ 10			TIP	\$ 240					

\*Funds previously identified in 2040 Plan for ROD1 (\$137 M)



**COLORADO**  
Department of  
Transportation

### Travel Time Savings

The table below provides an overview of the travel times and the time savings by direction of travel.

**Table 2: Travel Times and Savings During Peak and Shoulder Periods (2020-2040)**

		2020		2025		2030		2035		2040	
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
Scenario	Lane Type	Travel Time for Corridor (Minutes)									
Baseline	GP Lane	18.7	16.3	20.4	17.7	22.2	17.2	22.7	17.6	23.3	18.9
Build	GP Lane	17.0	15.8	18.6	17.2	17.4	16.4	17.8	16.8	21.6	17.0
	Managed Lane	13.9	13.7	15.2	14.9	14.1	13.9	14.5	14.2	15.2	14.1
Travel Time Savings	GP Lane	1.6	0.5	1.8	0.5	4.8	0.8	4.9	0.8	1.7	1.9
	Managed Lane	4.8	2.6	5.2	2.8	8.0	3.3	8.2	3.4	8.1	4.8

### Travel Time Savings – Value of Time

The travel time savings were converted from hours to dollars. This is performed by assuming that travel time is valued as a percentage of the average wage rate, with different percentages assigned to different trip purposes. This analysis used the DOT's Recommended Hourly Value of Travel Time Savings as shown below in Table 4, and assumes the mix of personal and business travel to be consistent with the DOT's national distribution for local travel by surface modes.

**Table 3: Hourly Values of Travel Time Savings, All-Commercial Drivers**

Category of Travel	Hourly Value of Travel Time Savings (\$2016)
Personal	\$ 13.28
Business	\$25.64
All Purpose*	\$13.85
Commercial Truck Driver	\$27.47

In April 2016, a Benefit Cost Analysis was performed as part of the TIGER grant application. The project that was analyzed was the addition of express lane SH 14 to SH 402. This RTP amendment (SH 392 to SH 56) overlaps the BCA project limits between SH 392 and SH 402. The project will deliver a variety of benefits, including reductions in travel times and vehicle accidents. Below is a summary of the key benefits that support the goals of the MPO that will be delivered by the project.

**Table 1: Key Benefits Delivered by Long Term Outcomes (2021 – 2040)**

	7% Discount (\$2016)	3% Discount (\$2016)
<b>Economic Competitiveness Benefits</b>		
Travel Time Savings	\$ 124.9	\$ 211.6
Mode Shift Vehicle Operating Savings	\$ 28.0	\$ 47.7
Bus Travel Time Savings	\$ 5.5	\$ 9.4
Bus Operating Savings	\$ 0.9	\$ 1.5
Inventory Savings	\$ 0.0	\$ 0.1
Freight Operating Savings	\$ 37.2	\$ 61.3
Bike Mode Shift Vehicle Operating Savings	\$ 1.2	\$ 2.1
<b>Safety Benefits</b>		
Mode Shift Safety Savings	\$ 28.7	\$ 49.6
Bike Mode Shift Safety Savings	\$ 1.3	\$ 2.2
<b>State of Good Repair Benefits</b>		
Maintenance Savings	\$ 0.5	\$ 0.4
Residual Value	\$ 14.7	\$ 36.6
<b>Environmental Sustainability Benefits</b>		
Idling Emissions Reductions	\$ 0.2	\$ 0.4
Idling CO2 Savings	\$ 1.1	\$ 1.1
Mode Shift Emissions Savings	\$ 4.3	\$ 6.9
Mode Shift CO2 Savings	\$ 4.1	\$ 4.1
Freight Idling Emissions Savings	\$ 0.5	\$ 0.9
Freight Idling CO2 Savings	\$ 0.2	\$ 0.2
Bike Mode Shift Emissions Savings	\$ 0.2	\$ 0.3
Bike Mode Shift CO2 Savings	\$ 0.2	\$ 0.2
<b>Total Benefits</b>	<b>\$ 253.8</b>	<b>\$ 436.6</b>
Total Cost	\$ 206.5	\$ 239.4
<b>Benefit-Costs Ratio</b>	<b>1.23</b>	<b>1.82</b>



# BENEFIT COST ANALYSIS

COLORADO DEPARTMENT OF TRANSPORTATION'S (CDOT'S)  
TIGER PROPOSAL, *LEVERAGING ECONOMIC, ENVIRONMENTAL  
AND SOCIAL BENEFITS THROUGH I-25 NORTHERN COLORADO  
EXPANSION*

Prepared for

Colorado Department of Transportation

April 18<sup>th</sup> 2016

**AECOM**

4225 Executive Square, Suite 1400  
La Jolla, CA 92037  
858.812.9292 Fax: 858.812.9293

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## SECTION 1 INTRODUCTION

A benefit-cost assessment (BCA) was conducted for the North I-25 Widening Project (I-25 Project) for submission to the U.S. Department of Transportation (DOT) to support the discretionary grant application of the Colorado Department of Transportation for the 2016 TIGER program. This analysis was conducted in accordance with the DOT's 2016 supplement to its *2014 Benefit-Cost Analysis Guidance for Tiger Grant Applicants* for a 23 year assessment period beginning with capital outlays in 2018 through to 2020 and operations from 2021 to 2040.

The I-25 Project is to take place along a 14 mile corridor (assessment corridor) of Interstate 25 (I-25) which runs north to south in Weld and Larimer Counties in northern Colorado. I-25's local, regional and national importance is multifaceted. It is the only major highway connecting Denver and the Fort Collins/Region, represents both a designated nuclear route and a major evacuation route. I-25 comprises the majority of the CanAm Highway, one of the major north-south freight corridors in the central United States which allows for the movement of goods to and from Canada and Mexico into the United States.

Currently, I-25 experiences significant congestion during several weekday periods between Fort Collins and Loveland. During the morning peak and shoulder periods, the majority of northbound traffic in the assessment corridor experiences levels of service (LOS) ratings of E or F; during the evening peak and shoulder periods, both directions of travel experience LOS ratings of D, E or F throughout the entirety of the assessment corridor. This congestion leads to significant delays for transit users and the drivers of private and commercial vehicles. Without the I-25 Project, forecast growth in vehicles will further exacerbate the already congested and unsatisfactory traffic conditions in the assessment corridor.

To address the congestion problems prevalent throughout the assessment corridor, the I-25 Project proposes a number of works which would aim to improve efficiency, safety and resiliency across multiple modes of travel. These works include:

- The rehabilitation or reconstruction of the existing two general purpose lanes and introduction of a separated managed lane in each direction along the entirety of the assessment corridor;
- The widening or replacement of four sets of bridges to accommodate the addition of managed lanes and the raising of specific bridges to improve their resiliency in the face of future flood events;
- The development of a Park and Ride facility and bus slips near the US34/I-25 which will generate significant time savings for transit users;
- The construction of the Kendall Parkway Underpass (in conjunction with the replacement of the Union Pacific Railroad Bridge) at Centerra which will alleviate congestion on US34 and facilitate more efficient multimodal access to the Park and Ride facility; and
- The construction of the an approximately one mile segment connecting the Fort Collins and Poudre Bike Trails, thus linking up over 40 miles of trail that allow for bikers to seamlessly ride from Fort Collins to Greeley. This trail segment's construction is enabled by the reconstruction and raising of the deck height of the Cache Le Poudres bridges.

The realization of I-25 Project will deliver a variety of benefits, most notably reductions in travel times through the corridor during weekdays, reductions in vehicle accidents and improvements in freight efficiency.



Notable impacts that the I-25 Project will deliver benefits for long term outcomes criteria include the following summarized in Table 1.

**Table 1: Key Benefits Delivered by Long Term Outcomes (2021 – 2040)**

	<b>7% Discount (\$2016)</b>	<b>3% Discount (\$2016)</b>
<b>Economic Competitiveness Benefits</b>		
Travel Time Savings	\$ 124.9	\$ 211.6
Mode Shift Vehicle Operating Savings	\$ 28.0	\$ 47.7
Bus Travel Time Savings	\$ 5.5	\$ 9.4
Bus Operating Savings	\$ 0.9	\$ 1.5
Inventory Savings	\$ 0.0	\$ 0.1
Freight Operating Savings	\$ 37.2	\$ 61.3
Bike Mode Shift Vehicle Operating Savings	\$ 1.2	\$ 2.1
<b>Safety Benefits</b>		
Mode Shift Safety Savings	\$ 28.7	\$ 49.6
Bike Mode Shift Safety Savings	\$ 1.3	\$ 2.2
<b>State of Good Repair Benefits</b>		
Maintenance Savings	\$ 0.5	\$ 0.4
Residual Value	\$ 14.7	\$ 36.6
<b>Environmental Sustainability Benefits</b>		
Idling Emissions Reductions	\$ 0.2	\$ 0.4
Idling CO2 Savings	\$ 1.1	\$ 1.1
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<b>Total Benefits</b>	<b>\$ 253.8</b>	<b>\$ 436.6</b>
Total Cost	\$ 206.5	\$ 239.4
<b>Benefit-Costs Ratio</b>	<b>1.23</b>	<b>1.82</b>

Source: AECOM

## **SECTION 2 BENEFITS ANALYSIS ASSUMPTIONS**

The BCA evaluates the benefits and costs of implementing the I-25 Project against the no action scenario in which the I-25 Project does not occur. The analysis utilizes information from a number of sources from

both government agencies and consultants engaged by the applicant, as well a number of assumptions which are compliant with DOT guidance.

## **2.1 ANALYTICAL ASSUMPTIONS**

### **2.1.1 Assumptions – General**

#### ***2.1.1.1 Discount Rates***

Consistent with the DOT's guidance for TIGER grants, and with OMB Circular A-4<sup>1</sup>, real discount rates of 3 and 7 percent have been used for this analysis. Project investments are expressed in constant 2016 dollars. In instances where assumptions, cost estimates or benefit valuations are expressed in dollar values for other years, the Chained Price Index information from the White House Office of Management and Budget's Gross Domestic Product and Deflators<sup>2</sup> have been used to bring these to 2016 dollar figures.

#### ***2.1.1.2 Evaluation Period***

The evaluation period in this assessment is 23 years, extending from 2018 through to the end of 2040. This evaluation period begins in the year in which capital expenditures for the I-25 Project are to begin, plus twenty years of operations of the managed lanes and other associated works of the I-25. This analysis assumes that construction of the I-25 Project will begin in 2018 will continue through to 2020. Operations of the managed lanes along the assessment corridor will begin in the first quarter of 2021. All benefits and costs are assumed to occur at the end of the year, with benefits beginning to be accrued in 2021, the same year that operation is scheduled to commence.

#### ***2.1.1.3 Key Benefit-Cost Evaluation Measures***

This benefit-cost analysis converts potential gains (benefits) and losses (costs) resulting from the implementation of the I-25 Project into monetary units and compares them. The following two common benefit-costs evaluation measures are included in this analysis.

##### **2.1.1.3.1 Net Present Value (NPV)**

NPV compares the net benefits (benefits less costs) after being discounted to present values using the real discount rate assumption. The NPV provides a perspective on the overall dollar magnitude of cash flows over time in \$2016.

##### **2.1.1.3.2 Benefit Costs Ratio (BCR)**

The BCR expresses the relation of discounted benefits to discounted costs as a measure of the extent to which the project benefits either exceed or fall short of their associated costs.

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<sup>1</sup> White House Office of Management and Budget. *Circular A-4: Guidelines for Discount Rates for Benefit-Cost Analysis of Federal Programs*. September 17, 2003. Accessed from [https://www.whitehouse.gov/omb/circulars\\_a004\\_a-4/](https://www.whitehouse.gov/omb/circulars_a004_a-4/)

<sup>2</sup> White House Office of Management and Budget. *Historical Tables, Table 10.1 – Gross Domestic Product and Deflators Used in the Historical Tables 1940-2021*. Accessed from <https://www.whitehouse.gov/omb/budget/Historicals>

## 2.1.2 Assumptions – Travel Demand and Travel Time

### 2.1.2.1 Travel Demand Assumptions

In July 2014, Muller Engineering Company, Inc. (Muller) produced a technical memorandum for the Colorado Department of Transportation (CDOT) entitled *I-25 Managed Lanes Traffic Operations Analysis – Final* (I-25 Managed Lanes Study). This memorandum complemented a study entitled *Traffic and Revenue Assessment of Tolled Express Lanes Scenarios* (T&R Study), produced in the same month by CDM-Smith. Estimations on the total number of trips within the corridor as well as revenue generated by the managed lanes under the build scenario were updated by CDM-Smith in their 2016 draft technical memorandum *Traffic and Revenue Update of Tolled Express Lanes: Scenario 3c*. Together, these documents modeled the Average Weekday Daily Traffic (AWDT) for the assessment corridor, estimating the volume of traffic within the assessment corridor between 5am and 7pm each weekday, as well as the travel times, average speeds in general purpose and managed lanes, and revenue generated by the use of the managed lanes.

The benefit evaluation within this analysis assesses only the daily AWDT as described above as it is only during this fourteen hour period on weekdays that congestion currently occurs within the assessment corridor. Travel time savings and associated benefits are assessed for only two periods during the weekdays, 6:45am – 8:30am and 3pm – 7pm. These two periods represent the times of the day when congestion along the corridor is most pronounced, as well as the only time for which travel time savings between the two scenarios have been modelled. While thousands of vehicles utilize this corridor outside of these time periods throughout the week and over the weekend, congestion levels and travel time savings have not been modelled for this times and thus are not assessed within this analysis.

### 2.1.2.2 Traffic Volumes in Assessment Corridor

Volumes under the baseline and build scenarios for both northbound and southbound traffic within the assessment corridor have been derived from Muller’s and CDM-Smith’s AWDT data for the years 2015, 2025 and 2035, with volume estimates for 2020, 2030 and 2040 inter-and extrapolated from this data. The overall reduction in vehicle volumes between the two scenarios is assumed to be reflective of mode shift from single passenger vehicles to carpooling (high occupancy vehicles or HOV 3+) and to public transit.

Traffic volumes for a representative segment of the assessment corridor under both scenarios, are shown in Table 2.

**Table 2: Traffic Volumes in Assessment Corridor (2020-2040)**

Scenario	2020	2025	2030	2035	2040
Baseline	77,801	82,161	86,765	91,627	96,761
Build	73,225	76,369	79,648	83,068	86,635
Decrease in Traffic Volumes	4,577	5,792	7,117	8,559	10,127

Source: CDM – Smith (2016), Muller (2014), AECOM

### 2.1.2.3 Travel Demand Sources and Forecast Years

The travel demand data used in this analysis was extracted from aforementioned studies conducted in 2014 and 2016 by Muller and CDM-Smith, respectively. These studies in turn utilized the travel demand models

(COMPASS) from the Denver Regional Council of Governments (DRCOG) and North Front Range Metropolitan Planning Organization (NFRMPO) as the basis for developing their traffic and revenue travel demand model.

Scenarios used for the analysis were the no-action (baseline) and Scenario 3c (build scenario) from the T&R Study. Both scenarios forecast average weekday trips within the corridor and travel times within the assessment corridor for 2015, 2025 and 2035. The build scenario forecasts travel times for both the assessment corridor’s managed and general purpose lanes.

#### 2.1.2.4 Bicycle Commuter Data

Projected ridership for bike commuters utilizing the Poudre River trail connection enabling them to commute to/from Fort Collins from Windsor and Greeley was developed by Atkins<sup>3</sup>. Their analysis utilized a variety of US Census Bureau data<sup>4</sup> coupled with Colorado Department of Health demographic information to estimate bike commuters. Atkin’s forecasts estimate a current range of bicycle commuters between the cities of between 35-150. For the BCA analysis, an assumption of 90 round trips per day was used, split evenly between those commuting to Fort Collins from Windsor and from Greeley.

The bicycle commuting analysis assumes annual growth in commuters of 2.2% in line with the assumed growth rate of the North Front Range travel demand model. This assumption sees the number of bicycle commuters using the Poudre River Trail rise to approximately 160 by the end of the assessment period.

Given the section of the trail completing the Poudre River Trail does not exist in the baseline study, all bicycle commuters using this trail in the build scenario are considered to be part of the mode shift from single passenger vehicles to other forms of transportation. Accordingly, the impacts and benefits delivered from this mode shift to bicycle has been assessed along other forms of mode shift (to carpooling and Bustang).

#### 2.1.2.5 Travel Time Savings

Travel time savings estimations were derived from Muller’s 2014 study. Travel times were estimated for both north- and southbound traffic for the entire length of the assessment corridor. Travel time savings for 2020 and 2030 were interpolated from the 2015 and 2025 estimates; 2040 travel time savings were extrapolated from 2035 data. Table 3 provides an overview of the travel times and the time savings across the assessment period by direction of travel.

**Table 3: Travel Times and Savings During Peak and Shoulder Periods (2020-2040)**

		2020		2025		2030		2035		2040	
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
Scenario	Lane Type	Travel Time for Corridor (Minutes)									
Baseline	GP Lane	18.7	16.3	20.4	17.7	22.2	17.2	22.7	17.6	23.3	18.9
Build	GP Lane	17.0	15.8	18.6	17.2	17.4	16.4	17.8	16.8	21.6	17.0

<sup>3</sup> Atkins. *Poudre River Trail Connection: Projected Commuter Bicycling Rate*. April 2014

<sup>4</sup> United State Census Bureau. *Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics (LODES)*. 2014 database.

United State Census Bureau. *American Community Survey*. 2013



	Managed Lane	13.9	13.7	15.2	14.9	14.1	13.9	14.5	14.2	15.2	14.1
<b>Travel Time Savings</b>	<b>GP Lane</b>	<b>1.6</b>	<b>0.5</b>	<b>1.8</b>	<b>0.5</b>	<b>4.8</b>	<b>0.8</b>	<b>4.9</b>	<b>0.8</b>	<b>1.7</b>	<b>1.9</b>
	<b>Managed Lane</b>	<b>4.8</b>	<b>2.6</b>	<b>5.2</b>	<b>2.8</b>	<b>8.0</b>	<b>3.3</b>	<b>8.2</b>	<b>3.4</b>	<b>8.1</b>	<b>4.8</b>

Source: Muller (2014), AECOM

### 2.1.2.6 Annualization Factor

This analysis considers various benefits and costs resulting from changes to the commuter bus service Bustang, which provides express bus services between the three locations in the assessment corridor (Fort Collins, Harmony Road and US34/I25 Interchange) and downtown Denver. As Bustang does not operate on weekends or holidays, an annualization factor of 260 days of weekday operations per annum has been assumed. This same annualization factor was used by CDM-Smith and Atkins when developing forecasts of traffic volumes and tolling revenue, respectively, within the assessment corridor

### 2.1.2.7 Value of Time

Travel time savings are converted from hours to dollars. This is performed by assuming that travel time is valued as a percentage of the average wage rate, with different percentages assigned to different trip purposes. This analysis has used the DOT's Recommended Hourly Value of Travel Time Savings<sup>5</sup>, as shown below in Table 4, and assumes the mix of personal and business travel to be consistent with the DOT's national distribution for local travel by surface modes.

**Table 4: Hourly Values of Travel Time Savings, All-Commercial Drivers**

<b>Category of Travel</b>	<b>Hourly Value of Travel Time Savings (\$2016)</b>
Personal	\$ 13.28
Business	\$25.64
All Purpose*	\$13.85

<sup>5</sup> United States Department of Transportation. *Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis*. 2014. Accessed from <https://www.transportation.gov/sites/dot.gov/files/docs/BCA%20Resource%20Guide%202016.pdf>

Commercial Truck Driver	\$27.47
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\*Distribution for local travel by surface modes: 95.4% personal, 4.6% business.  
Source: US Department of Transportation (2014)

As per the DOT’s guidance, a real growth rate of 1.2% per annum has been assumed for the value of time figures and is applied to all years in the analysis after 2016.

### **2.1.2.8 Vehicle Miles Travelled**

Vehicle miles travelled (VMT) are used in a variety of benefits and costs categories including: safety, emissions, and operations and maintenance. In both the baseline and build scenarios, the total VMT for the assessment corridor is forecast to decrease over time, though at differing magnitudes. Personal vehicle VMT was estimated by assessing the number of forecast trips within the corridor, point of origin, and direction of travel, and applying these to the distance travelled within the corridor. Commercial truck VMT was estimated using the number of annual truck trips through the corridor, with the number of trucks as a percentage of traffic volumes derived from CDOT’s recent historical road share information.

Bustang VMT was estimated by using CDOT’s data on point of boarding/alighting and ridership. A further assumption is that passengers using Bustang only travel to and from the Denver Union Station and that there is no intraregional travel on Bustang within the assessment corridor. For Bustang ridership attributed to mode shift or inducement, the additional distance between the Denver Union Station and the southern point of the assessment corridor – a round trip distance of 77.8 miles – has been included in VMT avoided on a per passenger basis. The rationale for this assumption is that passengers choosing to use transit will thus avoid travelling the distance to and from Denver in a personal vehicle.

### **2.1.2.9 Vehicle Hours Travelled**

Vehicle hours travelled (VHT) is used in a variety of benefits and costs categories including: safety, emissions, and operations and maintenance. Vehicle hours used in this analysis comprise the estimates of travel times avoided for personal vehicles and commercial trucks under the baseline and build scenarios.

### **2.1.2.10 Average Vehicle Occupancy**

Average vehicle occupancy allows for the estimation of total travel time savings. This analysis assumes an average vehicle occupancy of 1.67 for the build scenario, as taken from the DOT’s 2009 National Household Travel Survey data.

## **2.1.3 Assumptions – Vehicle Operation**

### **2.1.3.1 Vehicle Operating Costs**

The I-25 Project is not expected to induce increased traffic volumes; rather, the I-25 Project will increase the corridor’s capacity to accommodate a higher volume of traffic associated with regional population and employment growth and an expected increase in freight volumes on Colorado’s highways of approximately 75 percent over the next 25 years.<sup>6</sup> The I-25 Project assumes a greater efficiency of travel as opposed to a driver of greater traffic volumes. Concurrently, the build scenario assumes that significant mode shift to

<sup>6</sup> Colorado Department of Transportation. *State Highway Freight Plan*. 2015. Accessed from <http://colorado-transportationmatters.com/wp-content/uploads/2013/04/Colorado-State-Highway-Freight-Plan.pdf>

carpooling or use of transit will occur with the advent of managed lanes. This in turn leads to a large quantum of vehicle miles travelled that would otherwise occur if the build scenario was not implemented. Accordingly, operating costs and savings are calculated on both operating hours and on VMT avoided.

Vehicle operating costs comprise both fuel and non-fuel costs for commercial vehicles, including buses.

### 2.1.3.1.1 Personal Vehicles

Operating costs for personal vehicle are derived from the American Automobile Association's (AAA) 2015 estimation of on road operating costs per VMT. These include three variable costs (gas, maintenance, and tires) and half of the car's depreciating value. An overview of the assumptions for the per-mile operating costs for personal vehicles is shown in Table 5.

**Table 5: Average Personal Automobile Operating Costs per VMT**

<b>Operating Cost Component</b>	<b>\$/VMT</b>
Gas, maintenance, and tires	\$ 0.17
Depreciation	\$ 0.12
<b>Total</b>	<b>\$ 0.29</b>

Source: Department of Energy (2015)

VMT avoided was calculated by annualizing the number of trips avoided due to the implementation of the I-25 Project and multiplying this by half the length of the corridor (as point of origin in the traffic volumes is not known) to determine VMT avoided. This value was then applied to the average operating cost per mile to determine the benefit in operating savings.

### 2.1.3.1.2 Commercial Trucks

The operating costs for commercial trucks comprise vehicle and driver based costs and are expressed on an hourly basis. This analysis has used the American Transportation Research Institute's 2015 Average Margin Costs per Hour as the benchmark for hourly truck operating costs<sup>7</sup>. ATRI's hourly driver based costs have been adjusted nominally to match the DOT's suggested guidance for the value of time of a commercial truck drive. This analysis uses the more conservative assumption, shown in Table 6, along with all other components comprising the hourly operating costs for commercial trucks.

**Table 6: Average Truck Operating Costs per Vehicle Hour Traveled**

<b>Vehicle Based</b>	<b>\$2016</b>
Fuel-Oil Costs	\$ 23.98
Truck/Trailer Lease or Purchase Payments	\$ 8.84
Repair and Maintenance	\$ 6.50
Truck Insurance Premiums	\$ 2.98
<b>Driver Based</b>	
Driver Pay (Adjusted per TIGER BCA Guidance)	\$ 27.47
Driver Benefits	\$ 5.30
<b>Total</b>	<b>\$ 75.85</b>

<sup>7</sup> American Transportation Research Institute. An Analysis of the Operational Costs of Trucking. 2015. Accessed from <http://atri-online.org/wp-content/uploads/2015/09/ATRI-Operational-Costs-of-Trucking-2015-FINAL-09-2015.pdf>

Source: ATRI (2015)

### 2.1.3.2 Vehicle Operating Costs – Bustang

For Bustang’s express services between the Northern I25 Corridor and Denver, a figure of \$159 per operating hour of each bus, as provided by CDOT, has been used in this analysis. This analysis has assumed that that operating cost will remain constant throughout the assessment period.

### 2.1.4 Assumptions – Infrastructure Operations and Maintenance

#### 2.1.4.1 Operations and Maintenance Costs – General Purpose and Managed Lanes

The baseline figure for operations and maintenance (O&M) cost of the general purpose and managed lanes is \$14,200 per lane mile per annum, representative CDOT’s average per lane O&M expenditure over the past three years.

For the build scenario, under which general purpose lanes will be rehabilitated and new managed lanes introduced, an operations and maintenance cost comparable to current CDOT maintenance costs for newly rehabilitated highways of \$7,200 per lane mile per annum has been assumed for the first 10 years of operation. For the remaining 10 years of the assessment period, the annual O&M cost will rise to current baseline scenario assumption of \$14,200 (in \$2016) per lane mile.

An overview of the O&M cost for general purpose and managed lanes is shown in Table 7.

**Table 7: Operations and Maintenance Costs – General Purpose and Managed Lanes**

	<b>Baseline (2021-2040)</b>	<b>Build (2021-2030)</b>	<b>Build (2031-2040)*</b>
	<b>\$/Lane Mile</b>		
O&M Costs - General Purpose and Managed Lanes	\$ 14,200	\$ 7,300	\$ 14,200

\*A section of the general purpose lane will be rehabilitated asphalt pavement in 2020 will be replaced in 2030. Accordingly, the O&M cost for this section from 2031-2040 will be \$7,300 per lane mile per annum.

Source: Colorado Department of Transportation

#### 2.1.4.2 Operations and Maintenance Costs – Bridges

The build scenario proposes that certain bridges in the assessment corridor be widened and rehabilitated while others are proposed to be replaced. In the absence of maintenance schedules for both the bridges proposed for widening and rehabilitation and those proposed for replacement, this analysis assumes that operations and maintenance costs of these structures will be equal to 0.5% of the capital cost per annum.

Baseline O&M costs for bridges are largely comprised of scheduled maintenance and repairs. Other maintenance costs are associated with unscheduled maintenance as well as inspections and repairs following flood events. Current O&M costs for structures within the assessment corridor are not available. To allow for equal consideration of O&M costs for the baseline scenario, this analysis assumes that O&M costs of these structures will be equal to an annual 0.5% of the capital cost associated with the widening and replacement of these structures in the build scenario. Under this rationale, there is no different in O&M costs for bridges between the baseline and build scenario.



### 2.1.4.3 Operations and Maintenance Costs – Bus Related Infrastructure

As the bus slips are within the interstate corridor, their annual maintenance cost has been included within the annual O&M costs for general purpose and managed lanes described in 2.1.4.1. Maintenance costs for the Park and Ride facility will comprise utilities and cleaning, and for the parking lot: snow removal, striping, and ad hoc resurfacing. These annual O&M costs are assumed to be equal to 3% of the facility's capital cost (excluding right of way) or approximately \$82,200 per annum.

### 2.1.5 Assumptions - Safety

The analysis assumes that there will be neither an increase nor decrease in the incidence of accidents due to any structural changes to the highway network. Rather, changes in the number of accidents would be determined largely by any changes in VMT. This approach captures the change in the occurrence of accidents as related to the difference in VMT between the baseline and build scenarios. It does not, however, account for increased safety expected from road improvements such the segregation of the general purpose lanes from the managed lanes.

While it is not captured in this analysis, a reduction in VHT could also lead to a decrease in the incident of accidents. As most accidents on interstate corridors comprise rear end and sideswipe collisions during congestion, lower average levels of congestion and a higher average rate of travel, as indicated by a decreased travel time through the corridor, would likely result in an reduction in the incidence of accidents.

The rate of occurrence of accidents for automobiles is benchmarked to the Bureau of Transportation Statistic's Motor Vehicle Safety Data for 2016, while the rate of occurrence for buses was benchmarked to Federal Highway Administration's data from 2013<sup>89</sup>. The rate of occurrence for each per one hundred million vehicle miles is shown below in Table 8.

**Table 8: Auto and Bus Accidents by Type per 100,000,000 VMT**

	Rate per 100M VMT	
	Car	Bus
<b>Fatalities</b>	1.1008	0.5
<b>Injured persons</b>	80.0628	67.59857143
<b>Crashes</b>	190.3076	62.08428571

Source: Department of Transportation (2013)

<sup>8</sup> Bureau of Transportation Statistics. *Table 2-17: Motor Safety Data*. Updated March 2015. Accessed from [http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national\\_transportation\\_statistics/html/table\\_02\\_17.html](http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_statistics/html/table_02_17.html)

<sup>9</sup> Federal Highway Administration. *Transit Incidents, Fatalities and Injuries*. Modified 2014. Accessed from <https://www.fhwa.dot.gov/policy/2013cpr/chap4.cfm>

In order to convert the abovementioned accident rates into the appropriate Abbreviated Injury Scale (AIS) category for calculating benefits and costs, national statistics from the National Highway Traffic and Safety Administration were used. Each of the AIS categories represents a level of severity of injury ranging from AIS – 0 (No Injury) to AIS – 6 (Not-Survivable). Table 9 below provides an overview of each category as a proportion of all possible non-fatal accident injuries.

**Table 9: Abbreviate Injury Scale Categories and Percentage of Occurrence**

Category	% of occurrence
AIS 1 – Minor	88.46%
AIS 2 – Moderate	8.28%
AIS 3 – Serious	2.39%
AIS 4 – Severe	0.69%
AIS 5 – Critical	0.18%

Source: NHTSA (2011)

AIS categories can be given a monetized value representative of a fraction of Monetized values for fatalities, and all ranges of injuries categorized on the AIS Scale, are addressed within the DOT’s guidance for “Treatment of the Economic Value of a Statistical Life (VSL)”, and assigned a value representative of a fraction of VSL, as shown in Table 10.

**Table 10: Value of Injury and Recommended Monetary Value**

Category	Fraction of VSL	Recommended Monetary Value (\$2016M)
AIS 1 – Minor	.003	\$0.029
AIS 2 – Moderate	.0047	\$0.451
AIS 3 – Serious	.105	\$1.008
AIS 4 – Severe	.266	\$2.554
AIS 5 – Critical	.593	\$5.693

Source: Department of Transportation (2015)

## 2.1.6 Assumptions – Emissions

A reduction in VMT along the assessment corridor will create environmental and sustainability impacts relating to automobile, commercial truck and bus travel. Five types of emissions are identified, measured and monetized: volatile organic compounds (VOC), particulate matter (PM2.5 and PM10), carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>) and nitrogen oxide (NO<sub>x</sub>).

### 2.1.6.1 Emissions Quantification

Emission rates differ between vehicle types and depending on fuel efficiency, average speed and driving conditions. This analysis uses emissions factors from the Environmental Protection Agency (EPA) and

Federal Transit Administration (FTA), which provides emissions factors for automobiles, commercial trucks and buses<sup>1011</sup>.

This analysis uses two different approaches to quantify emissions generated under the build scenario utilizing both VMT and VHT. Mode shift from personal vehicles to HOV3+ (carpooling) or express bus services will generate a decrease in VMT. More efficient travel times by commercial trucks and personal vehicles due to the advent of managed lanes will generate a reduction in VHT. Accordingly, emissions reduction as a result of the build scenario has been estimated using both VMT and VHT.

Emission factors for automobiles and buses utilize the EPA guidance which assumes that emissions will decrease on a per VMT basis over time due to better fuel efficiency and engineering design. An overview of the assumed emission factors for automobiles for this analysis is shown in Table 11 and for buses in Table 12.

**Table 11: Emission Factors (g/VMT) for Automobiles**

	CO	NOX	PM2.5	PM10	VOC	CO2*
2015	16.77	0.91	0.01	0.16	0.6	532
2025	11.46	0.28	0.01	0.1	0.27	434
2035	10.26	0.2	0.01	0.05	0.21	397

\*CO2 in metric tons

Source: Department of Transportation (2013)

**Table 12: Emission Factors (g/VMT) for Buses**

	CO	NOX	PM2.5	PM10**	VOC	CO2*
2015	5.83	8.67	0.48	0.297	0.73	2655
2025	3.26	2.08	0.09	0.297	0.24	2283
2035	2.89	1.14	0.03	0.297	0.16	2177

\*CO2 in metric tons

\*\* Assumes no change

Source: Department of Transportation (2013)

Commercial truck emissions have been estimated not on a VMT basis, but rather on forecast reductions in VHT, which produces more conservative estimations given it is based on emissions rates while idling. An even split between Classes 8a and 8b heavy-duty diesel trucks has been assumed for this analysis. An overview of emissions rates for commercial trucks is shown in Table 13.

**Table 13: Emission Factors (g/VHT) for Heavy Duty Diesel Vehicles by Class**

Pollutant	Truck Class 8a (g/hour of operation)	Truck Class 8b (g/hour of operation)	Weighted Average Emissions (g/hour of operation)

<sup>10</sup> Environmental Protection Agency. *Average In-Use Emissions from Heavy Duty Trucks*. 2008. Accessed from <https://www3.epa.gov/otaq/consumer/420f08025.pdf>

<sup>11</sup> United States Department of Transportation. *New and Small Starts Evaluation and Rating Process: Final Policy Guidance*. 2013.

VOC	3.518	4.218	3.868
THC	3.565	4.27	3.9175
CO	26.548	34.473	30.5105
Nox	35.758	42.345	39.0515
PM2.5	1.07	1.114	1.092
PM10	1.163	1.211	1.187

Source: Environmental Protection Agency (2008)

### 2.1.6.2 Emissions Valuation Approach

Values for each emission type, with the exception of CO<sub>2</sub>, were sourced from the National Highway Traffic and Safety Administration's (NHTSA) CAFE standards for MY2017-MY2025<sup>12</sup> and escalated to \$2016<sup>13</sup>. An overview of the economic values used for each emission type is shown in Table 14.

**Table 14: Economic Values Used for Benefits Non-CO<sub>2</sub> Emissions Reduced**

Value of Emissions Reduced	2016\$	Unit
Carbon Monoxide	\$0	\$/short ton
Volatile Organic Compounds	\$1,873	\$/short ton
Nitrogen Oxides	\$7,381	\$/short ton
Particulate Matter	\$337,668	\$/short ton

Source: NHTSA (2012)

Valuation of the cost of CO<sub>2</sub> emissions follow DOT guidelines which states that monetization within a benefit costs analysis should follow the OMB guidance on the social cost of carbon which recommends the use of a 3 percent discount rate<sup>14</sup>. Per ton costs of carbon emissions were converted to \$2016 using the OMB's GDP and Deflator tables. Table 15 shows the assumed social cost of carbon in five year increments across the assessment period.

**Table 15: Economic Values Used for Benefits of Carbon Dioxide Emissions Reduced**

	2020	2025	2030	2035	2040
Social Cost of Carbon	\$ 47.00	\$ 52.00	\$ 56.00	\$ 62.00	\$ 67.00
Adjusted	\$ 47.74	\$ 52.82	\$ 56.89	\$ 62.98	\$ 68.06

Source: OMB (2013)

## 2.1.7 Assumptions – Freight

### 2.1.7.1 Freight Value

The value of freight, on a per ton and per truck basis, is required for estimating inventory savings resulting from reduced travel time by commercial truck drivers. Freight values were determined using data from the

<sup>12</sup> As recommended in the 2016 TIGER BCA Guidance

<sup>13</sup> National Highway Traffic and Safety Administration. *Corporate Average Fuel Economy for MY2017-2025 Passenger Cars and Light Trucks*. 2012 (page 922). Accessed from [http://www.nhtsa.gov/staticfiles/rulemaking/pdf/cape/FRIA\\_2017-2025.pdf](http://www.nhtsa.gov/staticfiles/rulemaking/pdf/cape/FRIA_2017-2025.pdf)

<sup>14</sup> White House Office of Management and Budget. *Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866: Annual SCC Values: 2010-2050*. 2013. Accessed from <http://www.whitehouse.gov/sites/default/files/omb/assets/inforeg/technical-update-social-cost-of-carbon-for-regulator-impact-analysis.pdf>



Federal Highway Administration’s Freight Analysis Framework (FAF) to identify the type and volume of freight whose movement occurs within the assessment corridor. The following flows of freight were identified which utilize the I-25:

- Domestic Northbound and Southbound Flows (Origin or Destination inside Colorado);
- Domestic Northbound and Southbound Passing Flows(both Origin or Destination outside Colorado);
- Export Northbound Flows (to Canada via Montana);
- Import Southbound Flows (from Canada via Montana);
- Export Southbound Flows (to Mexico via Texas); and
- Import Northbound Flows (from Mexico via Texas).

For each of these flows, origin-destination (OD) pairs were identified and the total tonnage and value of the freight extracted from FAF data. This information was utilized to determine an average value per ton of freight for each of the aforementioned flows which utilize the assessment corridor.

The determination of the average tons of freight carried per truck began with the identification of the maximum weight allowed for road freight on the I-25: 80,000 pounds (40 tons). This analysis assumes that the commercial truck, chassis and container weigh 16 tons and conservatively assume that trucks will on average carry only half their cargo capacity by weight to account for empty trips. The remaining 24,000 pounds, or 12 tons, is assumed to be the average weight of freight for every commercial truck utilizing the assessment corridor.

An overview of this analysis’ assumptions on the average value per ton of freight, and per truck, is shown in Table 16.

**Table 16: Value of Truck Freight**

Value per Ton (\$2016)	1,916
Value per Truck (\$2016)	22,987

Source: FHWA (2016), AECOM

### **2.1.7.2 Freight Inventory**

The inventory cost associated with the annual truckloads and annual hours of delay is based on the commercial discount – the opportunity cost associated with holding assets in inventory rather than using them for another purpose. An avoidance of delays with the delivery of freight contributes to a savings in freight inventory costs. This analysis uses a commercial discount rate of 4.0%. Assuming 8,760 hours in a year (365 days \* 24 hours), this yields an hourly discount rate of 0.00046%. Multiplying this hourly discount rate by value of freight shipped and by the hours of delay avoided yields an annual value of inventory savings.

## **2.1.8 Assumptions – Other Categories**

### **2.1.8.1 Tolling Revenues**

Tolling revenues for this analysis were provided by Atkins, as derived from CMD–Smith’s 2016 update to their 2014 T&R Study. These represent the total tolling revenue from all north- and southbound tolling points within the corridor. High occupancy vehicles with three or more passengers (HOV3+), buses, van pools, and motorcycles are not assessed a toll for using the managed lanes in the corridor.

Tolling revenue for the corridor from the commencement of operation is 2021 until the conclusion of the assessment period in 2040 is estimated at \$117.4 million undiscounted dollars.

Consistent with DOT guidance, revenue in this analysis is treated neither as a benefit nor as an offset to costs, but rather as a transfer.

### **2.1.8.2 Residual Value**

The major categories of infrastructure components which comprise the I-25 Project have different assumed asset lives. For instance, a bridge which has been reconstructed will have an assumed life of 75 years while a rehabilitated asphalt pavement general purpose lane will have an assumed useful life of 10 years and will need to be replaced or rehabilitated in 2031. Those assets with useful lives longer than the 20 years following commencement of operations will thus have a residual value which can be discounted back to a net present value and included in the project benefits. Table 17 below provides an overview of the useful lives of asset categories within the I-25 Project.

**Table 17: Assumed Useful Life of Assets – Assessment Corridor**

<b>Asset Type</b>	<b>Construction Type</b>	<b>Assumed Useful Life</b>	<b>Residual Value Applicable</b>
<b>General Purpose and Managed Lanes</b>	New - Asphalt	20	✓
	New - Concrete	30	✓
	Concrete Pavement Reconstruction	30	✓
	Asphalt Pavement Rehabilitation	10	
<b>Bridges</b>	Widen	25	✓
	Reconstruction	75	✓
<b>Bus Infrastructure</b>	Bus Slip New Concrete	30	✓
	Park and Ride Facility	20	✓
<b>Bike Trail</b>	Bike Trail	20	✓

Source: Atkins, AECOM

## SECTION 3 OUTCOMES

### 3.1 ECONOMIC OUTCOMES

#### 3.1.1 Travel Time Savings

Travel time savings estimations were derived from Muller’s 2014 report. Travel times were estimated for both north- and southbound traffic for the entire length of the assessment corridor. Travel time savings for 2020 and 2030 were interpolated from the 2015 and 2025 estimates; 2040 travel time savings were extrapolated from 2035 data. Table 18 provides an overview of the travel times and the time savings across the assessment period by direction of travel. The difference in forecast travel time between the two scenarios form the basis from which all travel time and operating savings are determined.

**Table 18: Travel Times and Savings During Peak and Shoulder Periods (2020-2040)**

		2020		2025		2030		2035		2040	
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
Scenario	Lane Type	Travel Time for Corridor (Minutes)									
		Baseline	GP Lane	18.7	16.3	20.4	17.7	22.2	17.2	22.7	17.6
Build	GP Lane	17.0	15.8	18.6	17.2	17.4	16.4	17.8	16.8	21.6	17.0
	Managed Lane	13.9	13.7	15.2	14.9	14.1	13.9	14.5	14.2	15.2	14.1
Travel Time Savings	GP Lane	1.6	0.5	1.8	0.5	4.8	0.8	4.9	0.8	1.7	1.9
	Managed Lane	4.8	2.6	5.2	2.8	8.0	3.3	8.2	3.4	8.1	4.8

Source: Muller (2014), AECOM

#### 3.1.1.1 Travel Time Savings – Personal Vehicles and Passengers

Travel time savings for personal were calculated by applying total traffic volumes (less commercial trucks) to the reduction in travel time for both general purpose and managed lanes for during peak and shoulder periods in the build scenario. Time savings per vehicle were then applied to the benchmarked average vehicle occupancy assumption to determine the total travel time reduction. This total travel time reduction was then used to determine the travel time savings, emissions reductions and vehicle operating savings. An overview of the personal vehicle and passenger travel time reduction resulting from the implementation of the I-25 Project is shown in Table 19.

**Table 19: Travel Times and Savings – Personal Vehicles (2021-2040)**

	2021	2025	2030	2035	2040	Total
Annual Reduction in Travel Time - General Purpose Lanes	74,145	99,497	143,449	189,717	222,581	2,967,232
Annual Reduction in Travel Time - Managed Lanes	334,613	473,957	485,035	444,722	393,561	8,890,746
Annual Reduction in Travel Time Including Passengers - Managed Lanes	123,823	166,160	239,560	316,828	371,710	4,955,277
Annual Reduction in Travel Time Including Passengers - General Purpose Lanes	558,804	791,508	810,008	742,685	657,247	14,847,546

Source: Muller, AECOM

### 3.1.1.2 Travel Time Savings – Commercial Trucks

Travel time reduction of commercial trucks were calculated by applying the assumed percentage of trucks in the total traffic volumes (10.725%) to the reduction in travel times for general purpose lanes during the peak and shoulder periods in the build scenario. These travel time reductions were then used to determine freight inventory savings, freight operating savings and freight emissions savings. Reduced travel times equate to more efficient movement of road freight as indicated by a reduction in commercial truck operating hours. Over the assessment period, the build scenario will generate a reduction of more than 1 million operating hours for commercial trucks. An overview of the total commercial truck travel time reductions resulting from the implementation of the I-25 Project is shown in Table 20.

**Table 20: Travel Times Savings – Commercial Trucks (2021-2040)**

	2021	2025	2030	2035	2040	Total
Commercial Truck Operating Hours	42,188	58,916	55,603	51,141	45,452	1,041,597

Source: Muller, AECOM

### 3.1.1.3 Travel Time Savings – Bustang Express Bus

The reduction in the average travel time per trip for the Bustang express bus comprises the travel time reduction that is achieved by using managed lanes. These total time reductions were then applied to the number of bus services per annum to determine passenger travel time savings, emissions savings, operating savings, and safety savings. The level of these savings differ representative of where in the assessment corridor the passengers board and alight the bus.

The advent of the Park and Ride facility, bus slips and Kendall Parkway Underpass near the US34/I-25 interchange will bring additional time savings benefit to bus commuters outside of the travel time savings associated with the introduction of managed lanes. Currently, Bustang service must exit the I-25 and travel along US34 to access the existing temporary Loveland-Greeley Park and Ride (also known as the Centerra Park and Ride). It has been estimated by CDOT that the advent of the bus slips along the I-25 corridor and the adjacent Park and Ride will deliver 15 minutes of time savings each way. This analysis applies that additional time savings only to those passengers assumed to board/alight Bustang services north of the US34/I-25 interchange.



Travel time savings for buses were applied only to those Bustang services operating in the AM and PM peak and shoulder periods for which travel time savings were captured. Of the 14 daily services which will be operating at the time of the commencement of managed lanes, 10 of them fall within the AM and PM peak and shoulder periods.

An overview of the travel time reduction for Bustang expresses bus is shown in Table 21.

**Table 21: Travel Times Savings – Bustang Express Bus (2021-2040)**

	2021	2025	2030	2035	2040	Total
Total Operating Hours Avoided	33,869	41,456	46,156	50,906	56,114	925,827

Source: CDOT, Muller, AECOM

To avoid double counting in the evaluation, the travel time savings of those passengers mode shifting from personal vehicle to transit under the build scenario were not included added to the overall travel time savings as these savings are already captures in the overall mode shift savings. The travel time saving for Bustang passengers identified in Table 22 represents only the savings of current transit passengers and includes the additional 15 minutes time savings for those boarding/alighting Bustang services north of the US34/I-25 interchange. In this sense, the estimation of travel time savings by Bustang Passengers should be considered conservative.

### 3.2 SAFETY OUTCOMES

Safety outcomes comprise reduction in the incidence of accidents, injuries and fatalities within the assessment corridor associated with the implementation of the I-25 Project. The baseline and build scenarios both forecast increased traffic volumes over time; however, the build scenario is forecast to allow for more efficient travel through the corridor and to see substantial mode shift from single passenger vehicles to either carpooling in HOV+ or to public transit. Together, these impacts of the build scenario generate VMT avoidance which, as discussed in Section 2.1.5, is the primary driver in the generation of safety benefits.

Table 23 shows the annual and total reduction of accidents, injuries and fatalities associated with VMT avoidance in the build scenario, as well as the annual accidents avoided by MAIS type.

**Table 23: Reduction in Accidents, Injuries and Fatalities (2021-2040)**

	2021	2025	2030	2035	2040	Total
Reduced Fatalities	0.10	0.12	0.14	0.18	0.18	2.87
Reduced Injuries	7.0	8.2	9.7	12.5	12.5	200.5
Reduced Crashes	17.5	20.6	24.4	31.3	31.4	503.2
<b>Annual Accidents Avoided by MAIS type</b>						
	2021	2025	2030	2035	2040	Total
Fatalities	0.1	0.1	0.1	0.2	0.2	2.9
MAIS 5	0.1	0.1	0.1	0.1	0.1	2.2
MAIS 4	0.0	0.0	0.0	0.1	0.1	0.9
MAIS 3	0.3	0.3	0.4	0.5	0.5	8.1
MAIS 2	0.8	0.9	1.1	1.4	1.4	22.7
MAIS 1	5.8	6.8	8.1	10.4	10.4	166.7
Property Damage Only	17.5	20.6	24.4	31.3	31.4	503.2

### 3.3 ENVIRONMENTAL OUTCOMES

#### 3.3.1 Emissions Reduction

The reduction in emissions between the baseline and build scenarios was estimated for personal vehicles, commercial trucks and Bustang express bus. Reduction in emissions was calculated through the evaluation of the decrease in vehicle hours across all vehicle types in the build scenario. A summary of the emissions reduction associated with a reduction in vehicle operating hours is shown in Table 24.

**Table 24: Emissions Avoided Due to Reduction in Vehicle Operating Hours (2021-2040)**

	2021	2025	2030	2035	2040	Total
CO (short tons)	29.96	46.77	44.23	44.31	42.03	853.05
NOX (short tons)	3.71	5.44	4.97	4.79	4.41	95.59
PM2.5 (short tons)	0.06	0.09	0.09	0.08	0.08	1.69
PM10 (short tons)	0.10	0.19	0.15	0.15	0.11	2.89
SO2 (short tons)	0.12	0.36	0.16	0.16	0.13	3.84
VOC (short tons)	99.92	295.54	241.51	241.51	221.00	4,666.92
CO2 (metric tons)	1,290.21	1,780.04	1,800.93	1,791.41	1,707.18	34,319.27

Source: AECOM, DOT

The travel demand modelling shows substantial mode shift from single passenger vehicle to either carpooling (HOV3+) , to Bustang express bus and to bicycle resulting in an avoidance of more than 260 million vehicle miles travelled as compared to the baseline scenario across the duration of the assessment period. A summary of emissions avoided as per a reduction in VMT due to this mode shift is shown in Table 25.

**Table 25: Emissions Avoided Due to Vehicle Miles Travelled Avoided (2021-2040)**

	2021	2025	2030	2035	2040	Total
CO (short tons)	167.5	134.5	159.6	182.9	183.7	3,385.4
NOX (short tons)	9.1	3.3	3.9	3.6	3.6	98.6
PM2.5 (short tons)	0.1	0.1	0.1	0.2	0.2	2.9
PM10 (short tons)	1.6	1.2	1.4	0.9	0.9	25.9
VOC (short tons)	6.0	3.2	3.8	3.7	3.8	85.1
CO2 (metric tons)	4,821.4	4,621.6	5,484.2	6,421.9	6,449.3	113,145.8

Source: AECOM, DOT

## SECTION 4 COSTS ANALYSIS

The costs assessed in this analysis comprise capital costs and those associated with the operation and maintenance of the general purpose and managed lanes, bridges and other structures within the assessment corridor. Capital costs are those associated with the construction of the widening of I-25 to accommodate managed lanes (including the widening and replacement of four bridges within the assessment corridor, as well as other general civil works) which will be incurred prior to the widened corridor's operation. The capital costs also include the construction of an approximately one mile segment of bike trail which crosses beneath the Cache Le Poudre River bridges and which completes the trail network connecting Fort Collins with Windsor and Greeley. This total initial capital outlay is estimated at approximately \$235.7 million in 2016 dollars.

Operation and maintenance costs in the analysis represent those incurred on an annual basis for the inspection, upkeep and scheduled repair of general purpose and managed lanes as well as structures within the assessment corridor.

Additional costs include asset renewal – specifically the replacement of a section of general purpose lane in the year 2031 at the conclusion of this section's useful life.

### 4.1 INITIAL CAPITAL COSTS FOR I-25 PROJECT

Construction associated with the I-25 Project comprises several components which can be grouped into five categories: general purpose lanes, managed lanes, structures, bus related infrastructure and bike trail. Each of these categories and their various components are described below. Overviews of the estimated cost of each component are shown in Table 26 through Table 29 in which the capital cost of component is broken down into: construction capital, right of way and utilities, and professional costs.

#### 4.1.1 General Purpose Lanes

Two different approaches will be used for the construction of the general purpose lanes in the I-25 Project. 29.4 of the 56 miles of general purpose lanes will be subjected to asphalt pavement rehabilitation, while the remaining 26.6 miles will undergo concrete pavement reconstruction. Capital costs associated with construction works for the general purpose lanes are estimated to total \$83.8 million. The asphalt pavement section of the general purpose lanes will require an additional capital outlay in 2031 at the end of its useful life.

**Table 26: I-25 Project Capital Costs: General Lanes**

Constituent Cost Component	General Purpose Lanes	
	GP Lanes (Existing – Concrete Pave. Reconstruction)	GP Lanes (Existing – Asphalt Pave. Rehab)
Construction Capital	\$ 50,521,900	\$ 9,824,000
R/W (and Utilities)	\$ 4,748,400	\$ -
Professional (Design, PM, CM)	\$ 15,702,200	\$ 3,053,300
<b>TOTAL</b>	<b>\$ 70,972,500</b>	<b>\$ 12,877,300</b>

Source: AECOM, Atkins

## 4.1.2 Managed Lanes

The I-25 Project will see the introduction of managed lanes running the entirety of the 14 mile corridor. As with the general purpose lanes, two different approaches will be used in their construction. 14.7 miles of the managed lanes will be constructed in asphalt while 13.3 will be constructed in concrete. Capital costs associated with construction works for the managed lanes are estimated to total \$91.6 million.

**Table 27: I-25 Project Capital Costs: Managed Lanes**

Constituent Cost Component	Managed Lanes	
	Express Lanes (New - Asphalt)	Express Lanes (New - Concrete)
Construction Capital	\$ 36,888,600	\$ 30,837,100
R/W (and Utilities)	\$ 416,500	\$ 2,374,200
Professional (Design, PM, CM)	\$ 11,465,000	\$ 9,584,200
<b>TOTAL</b>	<b>\$ 48,770,100</b>	<b>\$ 42,795,500</b>

Source: AECOM, Atkins

## 4.1.3 Bridges

Four bridges are proposed for widening or replacement within the assessment corridor. The construction works proposed for bridges within the assessment corridor comprise:

- Widening of the separated bridges over the Big Thompson River to accommodate managed lanes in either direction;
- Reconstruction of the separated bridges known as the Union Pacific Rail Road (UPRR) Bridges, including additional works to build the Kendall Parkway Underpass beneath the UPRR's southern approach;
- Reconstruction of the separated Cache Le Poudre River bridges, including the raising of their elevation by four feet for resiliency purposes; and
- The widening of the separated Great Western Rail Road (GWRR) to accommodate managed lanes in either direction.

Capital costs associated with construction works for the widening or reconstruction of structures within the assessment corridor, including the Kendall Parkway Underpass, are estimated at approximately \$49.7 million.

**Table 28: I-25 Project Capital Costs: Bridges and Structures**

Constituent Cost Component	Structures				
	Big Thompson River Bridges (Widen)	UPRR Bridges (Full Reconstruction)	Kendall Parkway (Additional to UPRR)	Poudre River Bridges (Full Reconstruction)	GWRR Bridges (Widen)
Construction Capital	\$ 2,599,000	\$ 7,370,400	\$ 4,806,800	\$ 15,887,400	\$ 6,095,200
R/W (and Utilities)	\$ 40,400	\$ 947,400	\$ -	\$ 435,200	\$ 97,300
Professional (Design, PM, CM)	\$ 807,800	\$ 2,290,700	\$ 1,494,000	\$ 4,937,800	\$ 1,894,400
<b>TOTAL</b>	<b>\$ 3,447,200</b>	<b>\$ 10,608,500</b>	<b>\$ 6,300,800</b>	<b>\$ 21,260,400</b>	<b>\$ 8,086,900</b>



#### 4.1.3.1 Bus Related Infrastructure

The bus slip ramps are proposed to be built adjacent to the Kendall Parkway underpass near the US34/I-25 intersection to allow for more efficient pick up and drop off capabilities for the Bustang express bus. Capital costs associated with their construction are estimated to be \$4.2 million. The new Park and Ride facility is proposed for location adjacent to the western side of the I-25 immediately south of the Kendall Parkway Underpass. Its capital costs is estimated to be \$5.0 million.

**Table 29: I-25 Project Capital Costs: Bus Related Infrastructure**

Constituent Cost Component	Bus Related Infrastructure	
	Bus Slip Ramps (New - Concrete)	Park and Ride
Construction Capital	\$ 2,376,700	\$ 2,741,100
R/W (and Utilities)	\$ 1,132,300	\$ 1,477,500
Professional (Design, PM, CM)	\$ 738,700	\$ 805,300
<b>TOTAL</b>	<b>\$ 4,247,700</b>	<b>\$ 5,023,900</b>

Source: AECOM, Atkins

#### 4.1.4 Schedule of Construction Expenditures

Construction is scheduled to commence at the beginning of 2018 and to complete at the end of 2020 with the managed lanes beginning operation at the start of 2021. Capital costs are assumed to be expended at a constant rate of approximately \$19.1 million per quarter from the project's onset through to its conclusion. An additional \$12.9 million (present value) will be expended in 2031 when those sections of general purpose lane with rehabilitated asphalt pavement will need to be replaced.

### 4.2 ANNUAL OPERATING AND MAINTENANCE COSTS

Operation and maintenance costs are applied to the highway corridor, comprising general purpose and managed lanes, on a per lane mile basis. As discussed in Section 2.1.4.1, the annual O&M cost for the highway corridor is \$7,300/lane mile for the first ten year of operation, and \$14,200/lane mile thereafter to the end of their useful life.

Baseline O&M costs for bridges are largely comprised of scheduled maintenance and are based on actual annual costs incurred. Other maintenance costs are associated with unscheduled maintenance associated with inspections and repairs following flood events. Current O&M costs for bridges within the assessment corridor are not available. In the absence of maintenance schedules for both the bridges proposed for widening and rehabilitation and those proposed for replacement, this analysis assumes that operations and maintenance costs of these structures will be equal to 0.5% of the capital cost per annum. To allow for equal consideration of O&M costs for the baseline scenario, this analysis assumes that operations and maintenance costs of these structures will be equal to an annual 0.5% of the capital cost associated with the widening and replacement of these structures in the build scenario. Under this rationale, the only material difference in O&M costs for bridges between the baseline and build scenario is the additional of the Kendall Parkway Underpass and its associated O&M costs.

For the Park and Ride facility near the US34/I-25 interchange, a conservative annual O&M cost equal to 3% of its non-right of way capital costs has been assumed for operations, snow clearance, striping and resurfacing.

The annual cost of O&M of all components of the assessment is summarized in Table 30. Additional costs to replace components of the general purpose lanes at the end of their useful lives are indicated for 2031.

**Table 30: Annual Operations and Maintenance Costs – Assessment Corridor (2021-2040)**

	2021	2025	2030	2031*	2035	2040	Total
Annual Operations and Maintenance Cost (\$M)	1.0	1.0	1.0	14.3	1.4	1.4	36.8
Annual O&M Cost discounted at 7% (\$2016)	0.7	0.5	0.4	5.2	0.4	0.3	13.8
Annual O&M Cost discounted at 3% (\$2016)	0.9	0.8	0.7	9.2	0.8	0.7	23.7

\*Indicates year in which rehabilitated asphalt pavement general purpose lanes have reached the end of their useful life and need to be replaced.  
Source: Colorado Department of Transportation, Atkins, AECOM

### 4.3 DISCOUNTED CAPITAL AND OPERATIONS AND MAINTENANCE COSTS

The total costs associated with the construction, operations and maintenance of the I-25 Project have are shown in \$2016 in Table 31 using both a 7% and 3% discount rate.

**Table 31: I-25 Project Capital and Operations and Maintenance Costs - Discounted**

	Discount Rate	
	7% (\$2016M)	3% (\$2016M)
I-25 Project Capital Costs	\$192.7	\$215.7
I-25 Project O&M Costs	\$13.8	\$23.7
<b>Total Costs</b>	<b>\$206.5</b>	<b>\$239.4</b>

Source: Atkins, AECOM

#### 4.3.1 Residual Value

Those components with a useful life beyond 20 years will have a residual value at the end of the assessment period. Specifically, highway components of the I-25 Project have a capital cost of \$175.4 million (including \$3.8 million attributable to right of way) and a residual value of \$10.3 million at a 7% discount rate and \$22 million at a 3% discount rate, both excluding right of way. Bridges and structures have a capital cost of \$49.7 million (including \$0.8 million attributable to right of way) and a residual value of \$7.3 million at a 7% discount rate and \$15.6 million at a 3% discount rate, both excluding right of way. Bus related infrastructure has a capital cost of \$9.3 million (including \$1.3 million attributable to right of way) and a residual value of \$0.4 million at a 7% discount rate and \$0.9 million at a 3% discount rate, both excluding right of way.

The total residual value of all elements of the I-25 Widening project are \$15.1 million at a 7% discount rate and \$37.7 million at a 3% discount rate, both excluding right of way.

An overview of the residual value of component types of the I-25 Project at the conclusion of the assessment period is shown in Table 32.

**Table 32: Residual Life of I-25 Project Components – Assessment Corridor**

	Capital Cost	Useful Life	Useful Life Remaining	Residual Value	Discounted Residual Value	
					7% (\$2016)	3% (\$2016)
<b>Highway</b>	\$2016M	Years	%	\$2016M		
Express Lanes (New – Asphalt)	<b>48.8</b>	20	5%	<b>2.2</b>	0.6	1.2
Express Lanes (New – Concrete)	<b>42.8</b>	30	37%	<b>14.1</b>	3.6	7.8
GP Lanes (Existing – Concrete Pave. Reconstruction)	<b>71.0</b>	30	37%	<b>23.4</b>	6.1	13.0
GP Lanes (Existing - Asphalt Pave. Rehab)	<b>12.9</b>	10	0%	-	0.0	0.0
<b>Bus Related Infrastructure</b>						
Bus Slip Ramps (New - Concrete)	<b>4.2</b>	30	37%	<b>1.4</b>	0.4	0.8
Park and Ride Facility	<b>5.0</b>	20	5%	<b>0.2</b>	.06	.1
<b>Structures</b>						
Big Thompson River Bridges (Widen)	<b>3.4</b>	25	24%	<b>0.7</b>	0.2	0.4
UPRR Bridges (Full Reconstruction)	<b>10.6</b>	75	75%	<b>7.1</b>	1.8	3.9
Kendall Parkway (Additional to UPRR)	<b>6.3</b>	75	75%	<b>4.2</b>	1.1	2.3
Poudre River Bridges (Full Reconstruction)	<b>21.3</b>	75	75%	<b>14.3</b>	3.7	7.9
GWRR Bridges (Widen)	<b>8.1</b>	25	24%	<b>1.7</b>	0.5	1.0
<b>Bike Trail</b>						
Bike trail	<b>1.3</b>	20	5%	<b>.06</b>	.01	.03
<b>Total Cost</b>	<b>235.7</b>		<b>Total Residual Value*</b>	<b>\$70.8</b>	<b>\$18.3</b>	<b>\$39.2</b>

\*Excludes Right of Way  
Source: Atkins, AECOM

## SECTION 5 BENEFITS COST ANALYSIS RESULTS

Over the 20 year assessment period, the I-25 Project generates \$254.3 million in benefits at a 7% discount rate, and \$438.7 million in benefits at a discounted rate of 3%.

At a 7% discount rate, the I-25 Project has a **BCR of 1.23:1**; at a 3% discount rate, the Project has a BCR of 1.83:1.

A more granular overview of the project benefit generated under both discount rate assumptions is shown in Table 33, as broken into benefits generated by managed and general lanes, by transit, by freight and by mode shift to bicycle.

**Table 33: I-25 Project Benefits by Mode Type - Discounted**

<b>Managed and General Purpose Lanes</b>		
	7% Discount (\$2016)	3% Discount (\$2016)
Travel Time Savings	\$ 124.9	\$ 211.6
Idling Emissions Reductions	\$ 0.2	\$ 0.4
Idling CO2 Savings	\$ 1.1	\$ 1.1
Mode Shift Emissions Savings	\$ 4.3	\$ 6.9
Mode Shift CO2 Savings	\$ 4.1	\$ 4.1
Mode Shift Vehicle Operating Savings	\$ 28.0	\$ 47.7
Mode Shift Safety Savings	\$ 28.7	\$ 49.6
Maintenance Savings	\$ 0.5	\$ 0.4
Residual Value	\$ 15.1	\$ 37.7
<b>Transit Benefits</b>		
	7% Discount (\$2016)	3% Discount (\$2016)
Bus Travel Time Savings	\$ 5.5	\$ 9.4
Bus Operating Savings	\$ 0.9	\$ 1.5
<b>Freight Benefits</b>		
	7% Discount (\$2016)	3% Discount (\$2016)
Inventory Savings	\$ 0.0	\$ 0.1
Freight Operating Savings	\$ 37.2	\$ 61.3
Freight Idling Emissions Savings	\$ 0.5	\$ 0.9
Freight Idling CO2 Savings	\$ 0.2	\$ 0.2
<b>Bike Path Benefits</b>		
	7% Discount (\$2016)	3% Discount (\$2016)
Bike Mode Shift Emissions Savings	\$ 0.2	\$ 0.3
Bike Mode Shift CO2 Savings	\$ 0.2	\$ 0.2
Bike Mode Shift Vehicle Operating Savings	\$ 1.2	\$ 2.1
Bike Mode Shift Safety Savings	\$ 1.3	\$ 2.2
<b>Total Benefits</b>	<b>\$ 254.2</b>	<b>\$ 437.7</b>

Source: AECOM



The largest components of the benefits generated by the I-25 Project are concentrated in travel time savings and in freight operating savings. Both of these benefits are driven by the decrease in VHT reflective of greater efficiency in travel for all vehicle types through the assessment corridor in the build scenario. The third largest contributors to the benefits are those related to safety and specifically the reduction in accidents associated with VMT avoided due to mode shift to carpooling and to transit. This VMT avoidance is also the major driver for vehicle operations and maintenance savings, the fourth largest contributor to the benefits generated by the Project.

## 5.1 BENEFITS BY LONG TERM OUTCOMES

### 5.1.1 Economic Competitiveness

Economic Competitiveness Benefits Summary		
	7% Discount (\$2016)	3% Discount (\$2016)
Travel Time Savings	\$ 124.9	\$ 211.6
Mode Shift Vehicle Operating Savings	\$ 29.2	\$ 49.8
Bus Travel Time Savings	\$ 5.5	\$ 9.4
Bus Operating Savings	\$ 0.9	\$ 1.5
Inventory Savings	\$ 0.0	\$ 0.1
Freight Operating Savings	\$ 37.2	\$ 61.3
Bike Mode Shift Vehicle Operating Savings	\$ 1.2	\$ 2.1

#### 5.1.1.1 Personal Vehicle and Passenger Travel Time Savings

Travel time savings were calculated using the reduction in VHT between the build and baseline scenario and applying this quantum to the Value of Time assumptions identified in Section 2.1.2.5. Total travel time savings for personal vehicle drivers and their passengers total \$124.9 million at a 7% discount and \$211.6 million at a 3% discount. An overview of the travel time savings for personal vehicles and passengers is shown in Table 34.

**Table 34: Travel Time Savings: Personal Vehicle and Passengers (2021-2040)**

	2021	2025	2030	2035	2040	Total
Travel Time Savings (\$M)	10.0	14.8	17.2	18.4	19.0	<b>328.6</b>
Travel time Savings @ 7 percent (\$2016M)	7.2	8.0	6.7	5.1	3.7	<b>124.9</b>
Travel time Savings @ 3 percent (\$2016M)	8.7	11.3	11.4	10.5	9.3	<b>211.6</b>

Source: Muller, AECOM

#### 5.1.1.2 Travel Time Savings – Bustang Passengers

Travel time savings for passengers of Bustang Express Buses were calculated using the reduction in VHT between the build and baseline scenario and applying this quantum to the Value of Time assumptions identified in Section 2.1.2.5. Total travel time savings for passengers using the Bustang Express Bus total \$5.5 million at a 7% discount and \$9.4 million at a 3% discount. An overview of the travel time savings for personal vehicles and passengers is shown in Table 35.

**Table 35: Travel Time Savings: Bustang Passengers (2021-2040)**

	<b>2021</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2040</b>	<b>Total</b>
Travel time Savings (\$M)	0.5	0.6	0.7	0.8	1.0	<b>14.8</b>
Travel time Savings @ 7 percent (\$2016M)	0.3	0.3	0.3	0.2	0.2	<b>5.5</b>
Travel time Savings @ 3 percent (\$2016M)	0.4	0.5	0.5	0.5	0.5	<b>9.4</b>

Source: CDOT Muller, AECOM

### ***5.1.1.3 Travel Time Savings – Commercial Truck Drivers***

The implementation of the I-25 Project will allow for the more efficient movement of freight due to lower levels of congestion and faster travel times through the assessment corridor. Travel time savings for commercial truck drivers has been captured in the overall freight operating savings which can be found in Section 5.1.2.2.

## **5.1.2 Reduction in Vehicle Operating Costs**

### ***5.1.2.1 Personal Vehicle Operating Savings***

Personal vehicle operation savings were calculated on VMT avoided through the implementation of the I-25 Project as compared to the baseline scenario and applied to the benchmarked average operating costs per mile. The resulting benefit is \$29.2M at a discount rate of 7% and \$49.8 at a discount rate of 3%. An overview of VMT avoided and the discounted operating savings is shown in Table 36.

**Table 36: Travel Times and Savings (2021-2040)**

	<b>2021</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2040</b>	<b>Total</b>
Annual Car Trips Avoided (Million)	1.2	1.5	1.7	22.3	2.2	<b>35.6</b>
Annual VMT Avoided (Million)	9.1	10.6	12.6	161.6	16.2	<b>260.0</b>
Operating Savings (\$M)	2.7	3.2	3.8	48.4	4.9	<b>77.9</b>
Operating savings 7% Discount (\$2016M)	1.9	1.7	1.5	13.4	1.0	<b>29.2</b>
Operating savings 3% Discount (\$2016M)	2.3	2.4	2.5	27.6	2.4	<b>49.8</b>

Source: Muller, AECOM

### ***5.1.2.2 Freight Operating Savings***

Freight operating savings were calculated using the annual operating hours avoided through the implementation of the I-25 Project as compared to the baseline scenario which were applied to commercial truck operating costs per hour. Freight operating benefits are \$33.6 million at a discounted rate of 7% and \$55.2 million at a discount rate of 3%. An overview of the reduction in commercial truck operating hours and associated operating savings is shown in Table 37.

**Table 37: Commercial Truck Operating Savings (2021-2040)**

	<b>2021</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2040</b>	<b>Total</b>
Commercial Truck Operating Hours	42,188	58,916	55,603	51,141	45,452	1,041,597
Operating Savings (\$M)	3.2	4.6	4.5	4.2	3.8	<b>83.6</b>
Operating savings 7% Discount (\$2016M)	2.3	2.5	1.7	1.2	0.8	<b>33.6</b>
Operating savings 3% Discount (\$2016M)	2.8	3.5	2.9	2.4	1.9	<b>55.2</b>

Source: Muller, AECOM

**5.1.2.3 Freight Inventory Savings**

Freight inventory savings were calculated using the annual operating hours avoided through the implementation of the I-25 Project as compared to the baseline scenario which were applied to the per hour value of freight each truck is hauling and then multiplied by the hourly commercial discount rate, as derived from 4% per annum.

As shown in Table 38, the benefits from freight inventory savings total \$0.04 million at a 7% discount rate and \$0.07 million at a discount rate of 3%.

**Table 38: Freight Inventory Savings (2021-2040)**

	<b>2021</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2040</b>	<b>Total</b>
Inventory Savings (\$M)	0.004	0.006	0.006	0.005	0.005	<b>0.11</b>
Inventory savings 7% Discount (\$2016M)	0.003	0.003	0.002	0.001	0.001	<b>0.04</b>
Inventory savings 3% Discount (\$2016M)	0.004	0.005	0.004	0.003	0.002	<b>0.07</b>

Source: Muller, AECOM

**5.1.2.4 Bus Operating Savings**

Bus operating savings were calculated using the annual operating hours avoided through the implementation of the I-25 Project as compared to the baseline scenario. This quantum of operating hours is then applied to the CDOT's hourly operating cost per bus. The benefit of bus operating savings is valued at \$0.9 million at a discount rate of 7% and \$1.5 million at a discount of 3%

An overview of the reduction of Bustang operating hours and associated operating savings is shown in Table 39.

**Table 39: Bustang Express Bus Operating Savings (2021-2040)**

	<b>2021</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2040</b>	<b>Total</b>
Total Operating Hours Avoided	665	692	715	731	746	14,252
Operating Savings (\$M)	0.1	0.1	0.1	0.1	0.1	2.3
Operating savings 7% Discount (\$2016M)	0.1	0.1	0.0	0.0	0.0	0.9
Operating savings 3% Discount (\$2016M)	0.1	0.1	0.1	0.1	0.1	1.5

Source: AECOM, CDOT

### 5.1.3 Safety

<b>Safety Benefits Summary</b>		
	7% Discount (\$2016)	3% Discount (\$2016)
Mode Shift Safety Savings	\$ 30.0	\$ 51.8
Bike Mode Shift Safety Savings	\$ 1.3	\$ 2.2

Savings from accidents and fatalities avoided were calculated using the VMT avoidance generated by mode shift from single passenger vehicles to carpooling in HOV3+ , to transit, or to bicycle which was then applied to the DOT's benchmarked guidance on occurrence of accidents per VMT. The estimated number of accidents and fatalities were then broken down into NHTSA's MAIS categories, which were then monetized using the DOT's recommended monetary value as a fraction of VSL. Table 40 shows the annual savings generate under each MAIS category. The net present value of the safety benefit generated by the build scenario is \$28.7M at a 7% discount rate, and \$49.6M at a 3% discount rate.

**Table 40: Savings from Accidents and Fatalities Avoided (2021-2040)**

	2021	2025	2030	2035	2040	Total
Cost Savings from Fatalities Avoided (\$2016M)	1.0	1.2	1.5	2.1	2.2	<b>32.2</b>
Cost Savings from MAIS 5 Accidents Avoided (\$2016M)	0.4	0.5	0.7	0.9	1.0	<b>14.5</b>
Cost Savings from MAIS 4 Accidents Avoided (\$2016M)	0.1	0.1	0.1	0.2	0.2	<b>2.8</b>
Cost Savings from MAIS 3 Accidents Avoided (\$2016M)	0.3	0.4	0.5	0.6	0.7	<b>9.5</b>
Cost Savings from MAIS 2 Accidents Avoided (\$2016M)	0.4	0.5	0.6	0.8	0.8	<b>12.0</b>
Cost Savings from Property Damage Only Accidents Avoided (\$2016M)	0.2	0.2	0.3	0.4	0.4	<b>5.6</b>
Cost Savings from MAIS 1 Accidents Avoided (\$2016M)	0.1	0.1	0.1	0.1	0.1	<b>1.9</b>
<b>Total</b>	2.4	3.0	3.7	5.1	5.4	<b>78.5</b>
Accidents and Fatalities Avoided Savings 7% Discount (\$2016M)	1.7	1.6	1.4	1.4	1.1	<b>28.7</b>
Accidents and Fatalities Avoided Savings 3% Discount (\$2016M)	2.1	2.3	2.5	2.9	2.7	<b>49.6</b>

Source: Muller, AECOM, DOT

### 5.1.4 Environmental Sustainability

<b>Environmental Sustainability Benefits Summary</b>		
	7% Discount (\$2016)	3% Discount (\$2016)
Idling Emissions Reductions	\$ 0.2	\$ 0.4
Idling CO2 Savings	\$ 1.1	\$ 1.1
Mode Shift Emissions Savings	\$ 4.3	\$ 6.9
Mode Shift CO2 Savings	\$ 4.1	\$ 4.1



Freight Idling Emissions Savings	\$ 0.5	\$ 0.9
Freight Idling CO2 Savings	\$ 0.2	\$ 0.2
Bike Mode Shift Emissions Savings	\$ 0.2	\$ 0.3
Bike Mode Shift CO2 Savings	\$ 0.2	\$ 0.2

Emissions reduction generated by the implementation of the I-25 Project were quantified through evaluation of reduced operating hours and of vehicle miles travelled avoidance. With the exception of CO<sub>2</sub> emissions, these were then monetized against the National Highway Traffic and Safety Administration's (NHTSA) CAFÉ standards for MY2017-MY2025 and escalated to \$2016. CO<sub>2</sub> emissions were monetized following DOT guidelines which state that monetization within a benefit-costs analysis should follow the OMB guidance on the social cost of carbon which recommends the use of a 3% discount rate.

#### ***5.1.4.1 Emissions Savings from Reduced Operating Hours***

The reduction in emissions for personal vehicles, commercial trucks and Bustang express bus was calculated through the evaluation of the decrease in vehicle hours across all vehicle types in the build scenario when compared to the baseline scenario. This reduction in emissions from decreased VHT across all vehicle types resulted in a benefit of \$2.1 million at a 7% discount rate and \$2.6 million at a 3% discount rate. A summary of the valuation of the emissions reduction generated by a decrease in operating hours across all vehicle types is shown in Table 41.

**Table 41: Valuation of Emissions Benefit from Reduced VHT (2021-2040)**

	2021	2025	2030	2035	2040	Total
	\$M					
CO	-	-	-	-	-	-
NOX	0.03	0.04	0.04	0.04	0.03	0.7
PM2.5	0.02	0.03	0.03	0.03	0.03	0.6
PM10	0.02	0.03	0.03	0.03	0.03	0.6
VOC	0.00	0.00	0.00	0.00	0.00	0.1
CO2	0.06	0.09	0.10	0.11	0.12	2.0
Total Emissions Savings from VHT Reduction	0.1	0.2	0.2	0.2	0.2	4.0
Total Emissions Savings at 7% discount (\$2016)	0.1	0.1	0.1	0.1	0.1	2.1
Total Emissions Savings at 3% discount (\$2016)	0.1	0.2	0.1	0.1	0.1	2.6

Source: Muller, AECOM

#### ***5.1.4.2 Emissions Savings from VMT Avoided***

The reduction in emissions associated with the avoidance of nearly 250 million vehicle miles travelled as a result of mode shift from single passenger vehicle to either carpooling (HOV3+), to transit (Bustang express bus), or to bicycle resulted in a emissions avoidance benefit of \$8.8 million at a 7% discount rate and \$11.4 million at a 3% discount rate. A summary of the valuation of the emissions avoided as per a reduction in VMT due to mode shift is shown in Table 42.

**Table 42: Valuation of Emissions Benefit from VMT Avoidance (2021-2040)**

	2021	2025	2030	2035	2040	Total
	<b>\$M</b>					
CO	-	-	-	-	-	-
NOX	0.07	0.02	0.03	0.03	0.03	0.73
PM2.5	0.03	0.04	0.05	0.06	0.06	0.97
PM10	0.54	0.40	0.47	0.30	0.30	8.74
VOC	0.01	0.01	0.01	0.01	0.01	0.16
CO2	0.23	0.24	0.31	0.40	0.45	6.67
Total Emissions Savings from VHT Reduction	0.88	0.71	0.87	0.80	0.84	17.27
Total Emissions Savings at 7% discount (\$2016)	0.66	0.44	0.42	0.34	0.30	8.79
Total Emissions Savings at 3% discount (\$2016)	0.76	0.54	0.57	0.46	0.41	11.44

Source: Atkins, AECOM

### 5.1.5 State of Good Repair

<b>State of Good Repair Benefits Summary</b>		
	7% Discount (\$2016)	3% Discount (\$2016)
Maintenance Savings	\$ 15.6	\$ 38.0
Residual Value	\$ 15.1	\$ 37.7

State of good repair benefit comprise benefits associated with residual value and maintenance savings associated with mode shift to carpooling, transit or bicycle. Together, these benefits are valued at \$15.6 million at a 7% discount rate and \$38.0 million at a 3% discount rate. A summary of the valuation of the state of good repair benefits due to residual value and mode shift is shown in Table 43.

**Table 43: Valuation State of Good Repair Benefits (2021-2040)**

	2021	2025	2030	2035	2040	Total
	<b>\$M</b>					
Maintenance Savings	0.2	0.2	0.2	(0.2)	(0.2)	(0.0)
Residual Value					<b>76.6</b>	<b>76.6</b>
Total State of Good Repair Savings	0.2	0.2	0.2	(0.2)	76.4	<b>76.6</b>
Total State of Good Repair Savings at 7% discount (\$2016)	0.1	0.1	0.1	(0.1)	15.1	15.6
Total State of Good Repair Savings at 3% discount (\$2016)	0.2	0.1	0.1	(0.1)	37.6	38.0

Source: AECOM

E. 2040 RTP Amendment: Greeley-Evans Transportation Center

## 2040 RTP Amendment Request Form 2016



*Due to NFRMPO Staff no later than 5:00 p.m. Friday, September 16, 2016*

Requesting Agency Information		
Project Sponsor Agency: City of Greeley / GET	Agency Contact: Will Jones	Telephone: 970-350-9751
Mailing Address: 1200 A Street	Email Address: will.jones@greeleygov.com	
City: Greeley	State: CO	ZIP Code: 80631
Additional Financial Sponsors (if applicable): Colorado Department of Transportation		
Project Description		
Project Name: Greeley-Evans Transportation Center	Jurisdiction(s): City of Greeley	
Project Location (attach map of project location as well): Greeley Evans Transit Office (map provided)	Project Type (Mobility, Safety, Bridge, etc.): Mobility	
Project Limits (to and from): A Street South to RR Tracks and from GET office to 11th Avenue	Project Length (miles): N/A	
Is this part of an ongoing project? If so, please describe. N/A		
<b>Project Description:</b>  The project will construct a regional transportation hub that will include the following amenities: <ul style="list-style-type: none"> <li>• Concrete bus pull-in's to facilitate current and future routes. Several lanes sized to accommodate larger over the road coaches.</li> <li>• Shelters at respective pull-ins</li> <li>• Building to include climate controlled indoor lobby to accommodate 30-40 seated customers, future customer service representative area, customer and separate driver restrooms and a small storage area.</li> <li>• Electronic sign-age notating passenger information and departures</li> <li>• Security camera system for both the park-n-ride lot and the transfer center and associated fiber connections</li> <li>• Bike racks to facilitate inter-modal transportation from Poudre Trail as this regional trail very close to the proposed facility</li> <li>• Way-Finding signs for the park-n-ride</li> <li>• Lighting</li> </ul> This project will be extremely beneficial to the system and the region as it will not only facilitate current transit operations but also future expansion to include but not limited to regional routes.		
Project Phase(s), if applicable (Construction, Design, ROW, etc.): N/A	Fiscal Year(s) of Construction: 2017	
Reason for Amendment request: There were previously not enough funds for construction; however, there are now enough funds (FASTER & local) to complete the project.		



## 2040 RTP Goals, Objectives, Performance Measures, and Targets

Indicate which MPO Performance Measure(s) the project supports. If the project does not support one of the Goals listed below, please type "N/A" in both the Performance Measure(s) and Project Impact columns.

MPO Goal	<u>Performance Measure(s)</u>	Project Impact
<b>Goal 1:</b> Foster a transportation system that supports economic development and improves residents' quality of life	Air Quality	By improving non-motorized facilities it helps to entice new riders to utilize transit and hence potentially decrease the amount of people driving. Furthermore, this facility will facilitate future regional routes which will continue to help entice single occupant vehicles.
<b>Goal 2:</b> Provide a transportation system that moves people and goods safely, efficiently, and reliably	Regionally significant congested corridors	This new facility will not immediately impact the performance measures associated with this goal but overall it will help facilitate the goal and long term facilitate regional routes that will help to reduce congestion on regionally significant corridors.
<b>Goal 3:</b> Provide a multi-modal system that improves accessibility and transportation system continuity	Non-motorized facilities per capita	As this is the construction of a new non-motorized facility it will have a direct impact on both the goal and performance measure.
<b>Goal 4:</b> Optimize operations of transportation facilities	Fixed Route ridership per capita within service area	The construction of this facility help to facilitate future regional routes which intern will increase ridership. This combined with the fact that the facility is much nicer than our current transfer center will only further entice people to utilize our transit system.

**How does the project support the MPO Goal(s)? (Please attach all relevant data)**

This project helps facilitates the above mentioned goals as well as the Regional Transit Element (RTE) of the Regional Transportation Plan (RTP). More specifically it will help to facilitate a regional route between Greeley, Windsor and Fort Collins.

### Project Funding

Type (Federal, State, Local, Local Over Match, Other)	Source	Amount	Fiscal Year to be Programmed
State	CDOT FASTER	\$ 2,815,000.00	FY17
Local	General Fund	\$ 743,000.00	FY17

<b>Total Project Cost</b>	<b>\$ 3,558,000.00 -</b>
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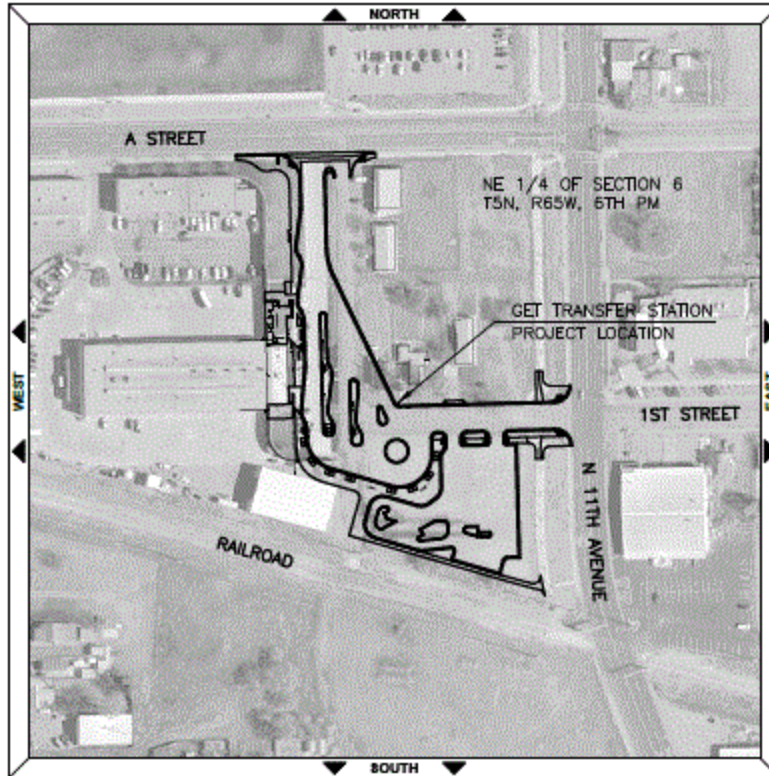
Supporting documentation attached or linked (optional):  
i.e. *Studies, Master Plans, Comprehensive Plans*

**Submit completed form to Becky Karasko at [bkarasko@nfrmpo.org](mailto:bkarasko@nfrmpo.org) no later than 5:00 p.m. on Friday, September 16, 2016.**

GREELEY-EVANS TRANSIT TRANSFER STATION  
FINAL DESIGN  
WELD COUNTY, COLORADO

SCALE OF ORIGINAL DRAWINGS

ON PLAN 1" = 30'



VICINITY MAP

F. Amended List of NFRMPO Regional Travel Demand Model Projects

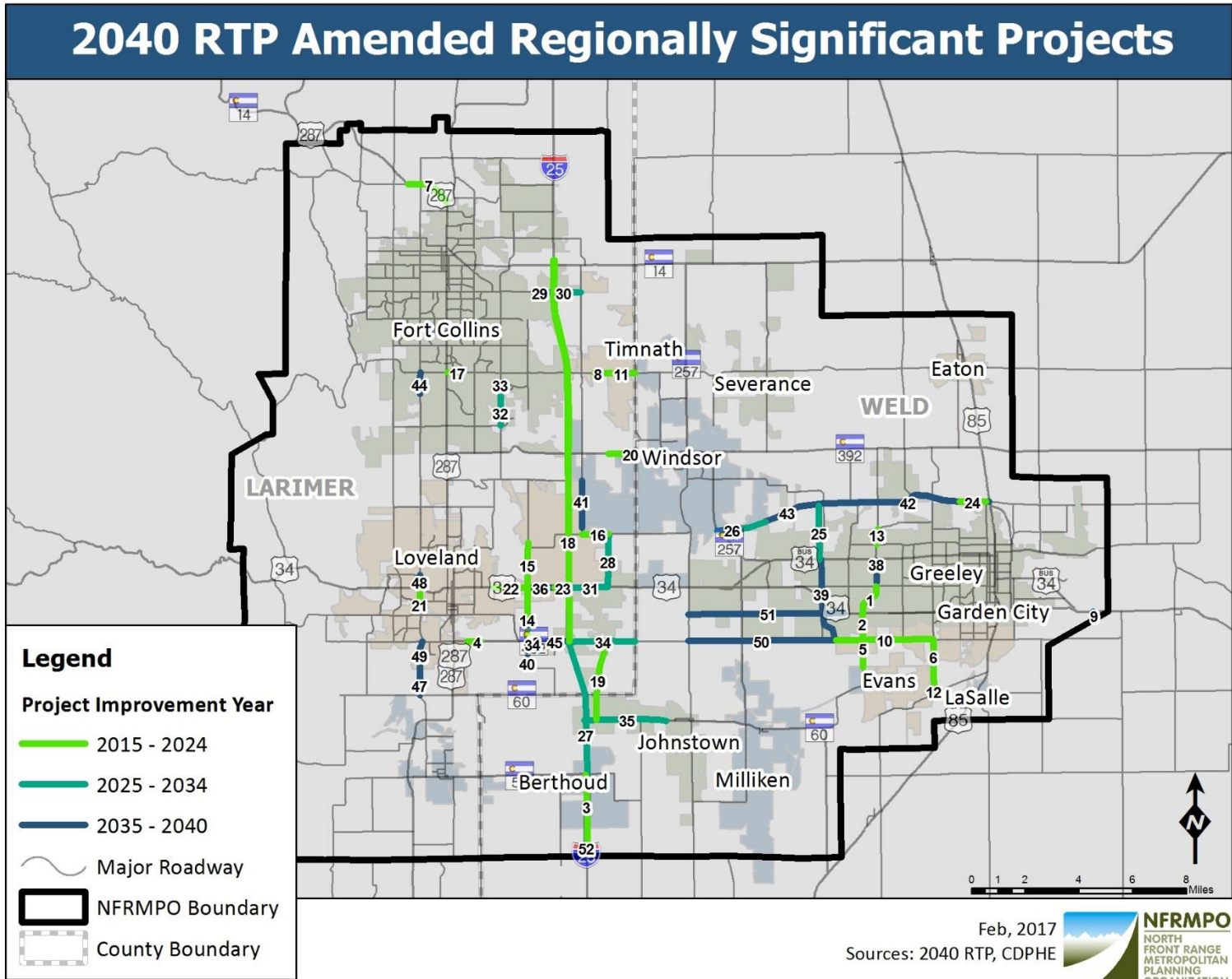


Table C-1 List of NFRMPO Regional Travel Demand Model Projects

Map #	Street Name	From	To	Description of Improvement		Year of Improvement	Cost (thousands)	Funding Source
				Before	After			
<b>2015-2024 Network</b>								
1	59 <sup>th</sup> Avenue	20 <sup>th</sup> Street	US 34 Bypass	2	2 (Center turn lane)	2015	\$1,500	Greeley – Capital Improvement Program
2	65 <sup>th</sup> Avenue	US 34 Bypass	Weld CR 54	2	4	2015	\$3,000	Greeley – Road Development Funds
3	I-25 Southbound	Approximately Mile Marker 247	Approximately Mile Marker 249	2	3	2015	\$9,700	NFRMPO – STP-Metro Funds
4	SH 402	St. Louis Avenue	Boise Avenue	2	4	2015	\$6,000	Loveland – Transportation Capital Improvement Plan Funds; CDOT
5	65 <sup>th</sup> Avenue	37 <sup>th</sup> Street	49 <sup>th</sup> Street	2	4	2016	\$1,000	Evans – Capital Projects Street Fund Future Development
6	35 <sup>th</sup> Avenue	37 <sup>th</sup> Street	49 <sup>th</sup> Street	2	4	2016	\$1,000	Evans – Capital Projects Street Fund Future Development
7	US 287	Shields Street	LaPorte Bypass	2	4	2016	\$22,000	CDOT – FASTER Safety/RAMP
8	Harmony Road	RR tracks	Three Bell Parkway (Larimer CR 3)	2	4	2017	\$3,325	Timnath – General Fund/Adjacent Development
9	Weld County Parkway (Weld CR 49)	US 34	I-76	0-4	4 (Center turn lane)	2017	\$12,500	Weld County – General Fund
10	37 <sup>th</sup> Street	35 <sup>th</sup> Avenue	Two Rivers Parkway	2	4	2018	\$1,500	Evans – Capital Projects Street Fund Future Development



Table C-1 List of NFRMPO Regional Travel Demand Model Projects

Map #	Street Name	From	To	Description of Improvement		Year of Improvement	Cost (thousands)	Funding Source
				Before	After			
<b>2015-2024 Network (cont.)</b>								
11	Harmony Road	Three Bell Parkway (Larimer CR 3)	Lathem Parkway (Larimer CR 1)	2	4	2019	\$3,500	Timnath – General Fund/Adjacent Development
12	35 <sup>th</sup> Avenue	49 <sup>th</sup> Street	Weld CR 35 & Weld CR 394	0	4	2020	\$1,500	Evans – Capital Projects Street Fund Future Development
13	59 <sup>th</sup> Avenue	4 <sup>th</sup> Street	C Street	2	4	2020	\$2,400	Greeley – Road Development Funds
14	Boyd Lake Avenue	Larimer CR 20C	US 34	2	4	2020	\$1,988	Loveland – Transportation Capital Improvement Plan Funds
15	Boyd Lake Avenue	US 34	Canal	2	4	2020	\$2,732	Loveland – Centerra Metro District
16	Crossroads Boulevard	Centerra Parkway	Larimer CR 3	2	4	2020	\$2,365	Loveland – Transportation Capital Improvement Plan Funds
17	Harmony Road	College Avenue	Boardwalk Drive	4	6	2020	\$9,349	Fort Collins – Street Oversizing Fund, Developer Contribution, Sales Tax
18	I-25	SH 402	SH 14	4	6	2020	\$250,000	CDOT – Regional Priority Program, FASTER, Surface Treatment, TC Contingency, HPTE, Strategic Transit, RoadX, Strategic Funds; Federal – FAST Freight State Allocation, TIGER; Local Funds; Private Funds; Flexible Funds – RTP, Other STBG, CMAQ; Tolling Revenue
19	Larimer CR 3	Weld CR 50	Larimer CR 18	0	2	2020	\$7,605	Johnstown - Johnstown/Adjacent Developers

Table C-1 List of NFRMPO Regional Travel Demand Model Projects

Map #	Street Name	From	To	Description of Improvement		Year of Improvement	Cost (thousands)	Funding Source
				Before	After			
<b>2015-2024 Network (cont.)</b>								
20	SH 392	17 <sup>th</sup> Street	Larimer CR 3	2	4	2020	\$1,500	Windsor - Road Impact Fee and Adjacent Development
21	Taft Avenue	Arkins Branch	US 34	4	4 (Center turn lane and bike lanes)	2020	\$10,509	Loveland – Transportation Capital Improvement Plan Funds
22	US 34	Denver Avenue	Boyd Lake Avenue	4	6	2020	\$6,506	Loveland – Transportation Capital Improvement Plan Funds; CDOT; STBG
23	US 34	Rocky Mountain Avenue	I-25	4	6	2020	\$2,066	Loveland - Centerra Metro District
24	O Street	11 <sup>th</sup> Avenue	Weld CR-37	2	4	2021	\$7,222	STBG; Greeley – Road Development Fund; Weld County – General Fund; Adjacent Developers
<b>2025-2034 Network</b>								
25	83 <sup>rd</sup> Avenue	US 34 Business (10 <sup>th</sup> Street)	US 34 Bypass	2	4	2025	\$5,900	Greeley – Road Development Funds
26	Crossroads Boulevard	Great Western Drive	SH 257	0	2 (Center turn lane)	2025	\$5,000	Windsor - Road Impact Fee and Adjacent Development
27	I-25	SH 56	SH 402	4	6	2025	\$84,000	CDOT – Regional Priority Program, FASTER, Surface Treatment, TC Contingency, Strategic Transit, Strategic Funds; Federal – FAST Freight State Allocation; Local Funds; Flexible Funds – RTP, Other STBG, CMAQ; Tolling Revenue

Table C-1 List of NFRMPO Regional Travel Demand Model Projects

Map #	Street Name	From	To	Description of Improvement		Year of Improvement	Cost (thousands)	Funding Source
				Before	After			
<b>2025-2034 Network (Cont.)</b>								
28	Larimer CR 3	US 34	Crossroads Boulevard	0	2	2025	\$8,073	Loveland – Transportation Capital Improvement Plan Funds
29	Prospect Road	Summit View Drive	I-25	2	4	2025	\$7,500	Fort Collins - Street Oversizing Fund, Developer Contribution, Sales Tax
30	Prospect Road	I-25	Growth Management Area Boundary	2	4	2025	\$3,000	Fort Collins - Street Oversizing Fund, Developer Contribution, Sales Tax
31	US 34	Centerra Parkway	Kendall Parkway (Larimer CR 3E)	4	6	2025	\$5,568	Loveland – Centerra Metro District
32	Timberline Road	Trilby Road	Kechter Drive	2	4	2025	\$15,000	Fort Collins - Street Oversizing Fund
33	Timberline Road	Kechter Drive	Stetson Creek Drive	2	4	2025	\$7,755	Fort Collins – Street Oversizing Fund, NFRMPO – STBG
34	Larimer CR 18	I-25 Frontage Road	Weld CR 13	2	4	2030	\$13,890	Johnstown; Adjacent Developers
35	SH 60	I-25	Weld CR 15	2	4	2030	\$17,363	Johnstown; CDOT
36	US 34	Boyd Lake Ave.	Rocky Mountain Ave.	2	2	2030	\$4,291	Loveland – General Fund - CDOT
37	US 34	I-25	Centerra Parkway	4	6	2030	\$2,543	Loveland – Transportation Capital Improvement Plan Funds; CDOT

Table C-1 List of NFRMPO Regional Travel Demand Model Projects

Map #	Street Name	From	To	Description of Improvement		Year of Improvement	Cost (thousands)	Funding Source
				Before	After			
<b>2035-2040 Network</b>								
38	59 <sup>th</sup> Avenue	US 34 Bypass	20 <sup>th</sup> Street	2	4	2035	\$3,500	Greeley – Road Development Funds
39	83 <sup>rd</sup> Avenue	Weld CR 54	Weld CR 64	2	2 (Center turn lane)	2035	\$7,000	Greeley - Road Development Funds
40	Boyd Lake Avenue	SH 402	Larimer CR 20E	2	4	2035	\$6,300	Loveland – Transportation Capital Improvement Plan Funds
41	N. Fairground Avenue (Larimer CR 5)	Rodeo Road	71 <sup>st</sup> Street (Larimer CR 30)	2	4	2035	\$3,000	Loveland – Transportation Capital Improvement Plan Funds
42	O Street	SH 85	83 <sup>rd</sup> Avenue	2	2 (Center turn lane)	2035	\$4,700	Greeley – Road Development Funds
43	O Street	83rd Avenue	Weld CR 23	0	2 (Center turn lane)	2035	\$7,400	Greeley – Road Development Funds
44	Shields Street	Fossil Creek Drive	Harmony Road	2	4	2035	\$6,500	Fort Collins – Street Oversizing Fund
45	SH 402	Larimer CR 9	I-25	2	4	2035	\$33,378	Loveland – Transportation Capital Improvement Plan Funds; CDOT
46	SH 402	US 287	St. Louis Avenue	2	4	2035	\$3,000	Loveland – Transportation Capital Improvement Plan Funds; CDOT
47	Taft Avenue/ Larimer CR 17	SH 60/Larimer CR 14	28 <sup>th</sup> Street Southwest/ Larimer CR 16	2	4	2035	\$6,123	Loveland – Transportation Capital Improvement Plan Funds



Table C-1 List of NFRMPO Regional Travel Demand Model Projects

Map #	Street Name	From	To	Description of Improvement		Year of Improvement	Cost (thousands)	Funding Source
				Before	After			
<b>2035-2040 Network (Cont.)</b>								
48	Taft Avenue	US 34	22 <sup>nd</sup> Street	4	4 (Center turn lane and bike lanes)	2035	\$6,123	Loveland – Transportation Capital Improvement Plan Funds
49	Taft Avenue	28 <sup>th</sup> Street Southwest	14 <sup>th</sup> Street Southwest	4	4 (Center turn lane and bike lanes)	2035	\$3,920	Loveland – Transportation Capital Improvement Plan Funds
50	Weld CR 54	35 <sup>th</sup> Avenue	Weld CR 17	2	2 (Center turn lane)	2035	\$6,800	Greeley – Road Development Funds
51	Weld CR 56	US 34 Bypass	Weld CR 17	0	2	2035	\$21,000	Greeley – Road Development Funds
52	I-25	Weld CR 38	SH 56	4	6	2040	\$85,000	CDOT Strategic Projects, Strategic Transit, Local Funds, Flexible Funds – RTP, Other STP Metro, CMAQ, FASTER Safety